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THE BIOLOGICAL BASIS OF MENSTRUATION.<sup>1</sup>

BY

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At the present time there is universal ignorance as regards the causation of menstruation, its meaning as a sexual character, and the method by which it has become established among the higher mammals.

The following views have been advanced to explain the meaning of the process :

1. *Relation to Ovulation.*—For a long time it has been believed that ovulation and menstruation are so closely related that they occur at or about the same time, the former being the cause of the latter.

Of those who hold this view, some think that the blood-discharge results from a general pelvic congestion, supposed to be present during the ripening and escape of the ovum. Thus, Mathews Duncan often compared the menstrual flow to the red flag outside the door of an auction-room, which indicates that something is taking place inside.

Others regard menstruation as a process induced by ovulation, necessary to the preparation and development of the ovum, in case it should be fertilized.

A careful examination of the evidence on which these statements are founded reveals their untrustworthiness. It is, indeed, a wonder that they have so long been believed.

The following facts relating to maturation and escape of the ovum are now definitely ascertained. These processes are usually in operation some time prior to the development of the phenomena of puberty; before menstruation appears; sometimes they occur in childhood and

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<sup>1</sup> Read before the Montreal Médico-Chirurgical Society, Jany. 12th, 1897, and before the New York Academy of Medicine.

in fetal life. There is no proof at all that pelvic congestion takes place, either coincident with or secondary to these processes, at any time in a woman's life.

Ovulation may also occur without menstruation in the dodging-period of puberty and of the menopause; for several years after the menopause as Hegar has pointed out; during lactation; in certain diseased conditions, *e.g.*, anaemia, phthisis, lead-poisoning. Pregnancy may take place at any of these times. DeSincéy describes an interesting case which he examined, of a woman, 38 years of age, who had never menstruated. In the ovaries there was the normal condition of Graafian follicles, and *corpora lutea* indicating that ovulation had taken place. The body of the uterus was undeveloped.

Then, in abdominal and *post-mortem* sections made at all times between menstrual periods, Graafian follicles may be found on the point of rupture or recently ruptured; and in examinations made during menstruation, no sign of ovulation may be visible.

In this connection it is interesting to note that Heape examined the pelvis of forty-two monkeys (*Semnopithecus entellus*) during their menstrual periods and found evidences of ovulation being in progress in only two cases.)

It is a common observation that extensive disease of both ovaries, *e.g.*, cystoma, suppuration, malignant growth, may not affect the menstrual function to any appreciable extent in many cases.

These various facts are sufficient, it seems to me, to overthrow the view that menstruation is a necessary accompaniment or sequel of ovulation.

Yet it can scarcely be denied that there is some relationship between the processes.

Removal of the ovaries is followed by cessation of menstruation though in a certain number of cases this does not happen. As an interesting instance of this, may be mentioned Lawson Tait's patient from whom both ovaries and tubes along with a part of the uterus were removed, menstruation still continuing.

These exceptions have been carefully considered by several authorities, lately by Bland Sutton. He states that the reported cases have been mostly those in which chronic inflammation in and around the appendages has been present, or those in which operation has been performed for myoma uteri. His explanation of the persistent menstruation is that either small bits of the ovary have been left behind or that in the cases of myoma a submucous tumour may exist leading to hemorrhages. Many cases have undoubtedly been recorded in

which after removal of the ovaries for fibroid, menstruation has continued.

The long held view of supernumerary ovaries is discarded by Bland Sutton. He thinks that these so-called structures are merely small bits separated from the main mass of the ovary by deep fissures.

In several of these cases of unchecked menstruation, second operations have been performed by which small bits of ovary left from the first operation have been removed, being followed by a complete cessation.

2. *Relation to the Fallopian Tubes.*—According to Lawson Tait, removal of the tubes, the ovaries being left *in situ*, is followed in 95% of cases by cessation of menstruation. This remarkable statement has been little noticed. If it can be established by extended observations, it proves that there is some close relationship between the tubes and the menstrual process.

3. *Relation to a Special Nervous Mechanism.*—Johnstone has advanced the view, supported by Lawson Tait and others, that the menstrual act is a special function related to a distinct nervous mechanism. They think that possibly a special nerve trunk running in the upper part of the broad ligament may convey the regulating currents. Johnstone suggests that *when the ovaries or tubes are removed, menstruation is checked because this nerve is ligatured or divided*. In the cases in which removal of the appendages is not followed by cessation of the flow, he thinks that the nerve may have escaped division or ligature, owing possibly to its being placed low in the broad ligament.

While undoubtedly believing in this special nervous mechanism of menstruation it seems to me that possibly the nerve tract is not so limited as Johnstone suggests. The plexiform nature of the nerves about the uterus is so complex that it is presumable that the impulses affecting the mucosa of the uterine body travel by many routes in the broad ligaments.

4. *Relation of Menstruation to Conception.*—By some it is believed that menstruation is a process for preparing the uterine mucosa for the engrafting of the fertilized ovum, that it is in fact, an essential feature. This idea was promulgated when it was thought that the ovum required a connective tissue free from covering epithelium to become engrafted on. I have repeatedly urged its improbability on the following grounds:

a. In all mammals below homo, so far as is known, the ovum grows in relation to the epithelium-covered uterine mucosa and does not require a connective-tissue surface. The uterine epithelium is

undoubtedly non-essential, but it is destroyed by degenerative processes and by the trophoblastic action of the outermost layer of the fetal epiblast. As far as our observations go in human development the same processes occur there.

*b.* Pregnancy may occur in a girl before the onset of menstruation, at a time therefore, when the mucosa cannot be denuded by that process.

*c.* It may occur during the lactation period, long after the uterine mucosa has been restored, and at a period in which menstruation is in abeyance.

*d.* It may take place in one of the periods of amenorrhœa during the progress of the menopause.

*e.* It may occur in periods of amenorrhœa due to diseases *e.g.*, anæmia, phthisis.

*f.* Clinical experience of cases of pregnancy following a single coitus proves that development of the ovum may begin at any time, not necessarily immediately after menstruation. (It must be stated that this evidence is of doubtful significance, owing to the uncertainty in our knowledge as to the time it takes the ovum to pass from the ovary down through the genital tract and as to how long the spermatozoa may live in the tract.)

*g.* Pregnancy may occur in the rudimentary horn of a malformed uterus, menstruation never having taken place in that horn.

(Whereas, as P. Müeller points out, there is no record of pregnancy having ever occurred in the horn of a bicornuate uterus which is atresic in its lower part; menstruation goes on in it, as we know, the blood accumulating above the atresia).

*h.* It may occur years after menstruation has ceased at the supposed menopause. An interesting example is Renaudin's case in which a woman of sixty-two was delivered though she had not menstruated for over ten years.

*i.* In male pseudo-hermaphrodites, possessing testes but no ovaries, the vagina, uterus and tubes may be present and menstruation may go on regularly or irregularly.

Another view is to the effect that, along with the maturation of the ovum, the endometrium swells as the first stage in the formation of a decidua which will receive the ovum if it be fertilized. If fertilization does not occur, breaking down of the superficial portion, the so-called "menstrual decidua" occurs, and the menstrual discharge takes place; in this way menstruation may be regarded as the expression of the failure of a process meant to be initial to pregnancy. For, if fertilization occurs, it is thought that the swollen mucosa advances to form the decidua of pregnancy.

This view, it is evident, is based upon a fallacious assumption, and my objection to the last mentioned theory may be quoted to refute it.

There is no proof whatever that changes in the mucosa accompany maturation of the ovum, and the best evidence we possess regarding the alteration in the uterine mucosa during menstruation, viz., the observations of Johnstone, Bland Sutton, Heape, Minot and Mendi goes to show that practically only blood and small portions of the lining epithelium escape. There is normally no exfoliation of a layer worthy the name "menstrual decidua."

I think this term is a bad one; it is to be clearly understood that no change occurs in the connective tissue elements of the mucosa during menstruation, viz., enlargement of cells. This change only occurs in connection with the influence of a fertilized ovum.

Löwenthal has advanced still another explanation. He believes that menstrual bleeding is neither a physiological function nor an accompaniment of one, but that it is due to innumerable repetitions of an unnatural state of things, viz., the non-fertilization and death of the ovum. He says that the swelling of the uterine mucosa is the result of the embedding in it of the last ovum discharged from the ovary. If this ovum be fertilized the swelling mucosa goes on to form the decidua of pregnancy; if no fertilization takes place, the ovum dies, and as a result of this death a breaking down occurs in the mucosa. He, therefore, regards the menstrual flow as having all the characteristics and effects of other bodily hæmorrhages.

Löwenthal's view is a piece of speculation without any factual basis. No one knows anything about the unfortunate ova which do not fulfil their highest destiny. It is a sympathetic imagination which makes them cling in their downward course to the walls of a repellant uterus, forcing changes upon that organ, in the fond hope that a wandering spermatozoa may cleave to it in consummative union.

Fanciful also the picture of death following bitter disappointment, the coincident decay of the dead ovum's resting place and the final bearing away in a blood-red funeral stream of the fragments of a once active individuality.

Johnstone believes that the simplest definition of menstruation is a periodic wasting away of the corpuscles that are too old to undergo the changes which must occur in connection with the attachment and development of the fertilized ovum. He does not regard the endometrium above the internal os as mucous membrane, but as belonging to adenoid tissue.

Menstruation is for it what the lymph stream is to the lymph-gland or the blood stream to the spleen. The development of the

corpuseular elements, he thinks, takes place in the endometrium, as in the blood-glands, spleen, thyroid, etc.

The existence of menstruation in the human female and its absence in the mammalian orders below the Primates, he explains by postural differences, and by difference in the structure of the endometrium. From his studies he is of the opinion "that nature has supplied the endometrium with an abundant lymph stream, which in the unimpregnated state washes away the ripe material to the general circulation exactly as it does any other lymph corpuscle. But in woman, where, on account of its erect position, the uterus has to depend on the tenacity of its own fibres for the preservation of its shape, no such thing as loose tissue of a lymphatic network can be depended upon. So, to preserve the integrity of the uterine wall, the emulgent stream is poured into the cavity of the body, and got rid of through the vagina."

5. *Relation to Body Metabolism.*—Geddes and Thomson in their "Evolution of Sex" have advanced the theory that the menstrual process is related to the balancing of anabolism and katabolism in the female organism.

After puberty a surplus is produced in the system because the anabolic preponderates over the katabolic. When pregnancy occurs this excess is spent in the nutrition of the ovum during its parasitic intra-uterine life and during lactation. When these methods of using the anabolic surplus are wanting, menstrual losses occur in order that it may be got rid of.

*Biological Considerations.*—Scarcely any attention has been given to the consideration of menstruation in its biological aspects.

The speculation of the distinguished biologists, Geddes and Thomson, is one of the most suggestive which has yet been advanced, and it is worthy of an elaborate study.

The careful investigations of many forms of plant and animal life by zoologists and botanists, have enabled the biologist to establish a distinction between "maleness" and "femaleness" not only in terms of morphological characters but of psychological and physiological reactions. It is only recently, however, that sex differences have been investigated on these more subtle and difficult bases of inquiry. Too long have reproduction and sex been considered by themselves as if they were something to be disassociated from the general physiology of the organism.

The most important sex-distinction which has been established is that which has to do with the general metabolism, or protoplasmic chemistry of the body. Every living cell and every organism is continually representing two forms of metabolism: one, the anabolic, by

which nutrition is taken in, waste repaired, energy stored, structure improved or altered; the other, the katabolic, by which potential is changed into kinetic energy and movement or activity manifested, structural alterations induced and waste created.

Throughout the animal kingdom the distinctive and predominant characteristics of the male sex is katabolism and of the females, anabolism.

Generally speaking, the males show activity, continual expenditure of energy, disruptive metabolism; the females, passivity, quiescence, constructive metabolism.

The same distinction is also found in the plant world. The lines of inquiry on which this generalization has been made are the following:

1. A study of sexual characteristics in the fully developed state and in the history of the individual.
2. An investigation into the condition of the lowest forms of animal and plant life, where sex has its beginning.
3. Observation of normal and pathological changes in the reproductive apparatus.
4. Experimental inquiry into the nature of the factors which determine sex.

Details regarding these lines of research are beyond the limits of this paper, yet some reference must be made to them.

As regards the differences found in the adult forms in the invertebrata and among fishes, it may be stated that in general the body temperature is lower in the female. (This is so in many plants). Their longevity is greater. They are in general larger and more sluggish in habits. The males expend energy more freely, thus preventing storage-accumulation and increase in size. Among birds and mammals, while the general metabolic differences exist the males are usually larger than the females owing to special factors which have come into operation and which do not exist in the lower orders of life. Darwin and Geddes have explained these. They show that the differences in size in the higher forms are mainly in bones and muscles. This is explained partly by the extra stress and strain thrown on the males while the females are in a state of pregnancy and caring for the young; partly by the strengthening effect of fights between the males, the strongest tending by natural selection to perpetuate their kind; partly by the effects on the female constitution of the excessive reproductive demands found among the higher animals.

The distinction between the sexes is universally marked in the spermatozoon and ovum, the former being small, active, energising



katabolic; the latter large, passive, highly nourished, anabolic. While the metabolic differences between male and female have been mainly studied in plants and the lower animals, some work has also been done in the human subject, though here the difficulties are greater owing to the greater complexity of the organism.

*Blood*.—The red corpuscles are more numerous in the male, and the percentage of hæmoglobin greater than in women. The specific gravity is the same until puberty. Afterwards it is higher in men than in women during the sexual life. In old age it is usually higher in women.

It is thus evident that the menstrual life is associated with a fall in the specific gravity of the blood.

*Pulse rate*.—The pulse rate is slower in men than women. This holds good for nearly all animals.

*Respiration*.—Men produce more carbonic acid than women as estimated by the breath. After puberty the amount is nearly double that produced by women. It increases in the latter during pregnancy and after the stoppage of menstruation.

*Excretion*.—The urine of women is usually lighter in colour than that of men, and its specific gravity lower. The amount of urinary solids is both absolutely and relatively less than in the case of men, especially during the reproductive era of her life.

It is highly probable that those features which we call secondary sexual characters, *e.g.*, richer pigmentation, excess of hairs and feathers, activity of scent glands, etc. which are found in the males are but the multifarious expressions of the katabolic predominance in the male organism. And it is important to note that in the great run of cases these characters are fully developed as maturity is established. In early life there is practically no physiological distinction between the sexes. The establishment of the reproductive functions is associated with the development of sexual features, which, as Darwin has pointed out, modify the males to a much greater extent than the females, throughout almost the entire animal kingdom. "Generally," he states, "the female retains a closer resemblance to the young of her own species than to other adult members of the same group."

Experimental evidence regarding the influence of various conditions in the production of sex, points also strongly towards the conclusion that "in the determination of sex, influences inducing katabolism tend to result in the production of males, as those favouring anabolism similarly increase the probability of females (Geddes and Thomson). Poor or abnormal food, deficient light, moisture, exercise, excessive lactation and other conditions tending to diminish the repair-supply

or to cause a surplus of waste—the katabolic habit, tend, in experiments made on lower animals, to the production of males. Such tests strengthen the view that the male is the index of a preponderating katabolism, and the female of an equally marked anabolism.

Now, throughout the greater part of the animal kingdom, this anabolic predominance in the female affords the means of counteracting the katabolic influence of the part she has to play in reproduction.

During the sexual life of females among most of the Primates, the anabolic habit does not find sufficient employment in supplying this destructive influence. An overplus exhibits itself in the production of milk during the early period of the child's life, and, after lactation, in a discharge of blood from the uterus.

Cases of menstruation during lactation might by this theory be easily explained. The production of milk does not use up the anabolic surplus, which, therefore, becomes disposed of through the sexual menstrual outlet.

In all mammalians below the primates the balance is regulated without the occurrence of any loss through menstruation; reproduction, lactation, the care of the offspring and their moving habits apparently making such demands upon the maternal anabolism that no surplus corresponding to the menstrual blood of the human female is produced by the system.

(In the vegetable kingdom, also, it is interesting to note, "the distinctly anabolic overflow of nectar ceases at fertilization, and the surplus of continual preponderant anabolism is drafted into the growing seed or fruit."—Geddes and Thomson.)

One of the most striking characteristics of menstruation, as observed in the human female, is its variability in type, and in the quantity and duration of the discharge.

One need not specify these in detail. I wish in particular to direct attention to the great range of variation in the time of its appearance in relation to the development of those other phenomena which we call the "sexual characteristics."

In the majority of cases these features *e. g.*, activity in ovulation, menstruation, hair-development, growth of breasts, etc., become established at a definite period, known as puberty, which, as we know, varies according to climate, race, environment and other conditions.

But of far greater importance are the variations which prove that there may be no concurrent incidence in the determination of the phenomena in the individual. They are as follows:

1. Menstruation may begin very early in life, even within the first year, without the development of any of the other outward signs of

puberty. These become marked, at varying periods in different cases, and in different orders. Generally, they appear together after a number of years, but sometimes the breast changes precede the others, sometimes the growth of hair, sometimes the changes in bodily contour.

2. In other cases, the development of menstruation at a very early period may be associated with one or more of the other secondary sexual characteristics. Thus the breasts may be well-marked, or the external genitals well-developed, or the voice altered. The other features appear in later years.

3. In other cases some of the secondary sexual characteristics other than menstruation may be developed in very early life, this function becoming established sooner or later afterwards. Thus the breasts may become well-marked, menstruation following after months or years. In a case recorded by Bouchut, in which the breasts were well-formed at birth, menstruation began at the age of 22 months, and the rest of the sexual features became marked in the succeeding 2 years, so that at the age of 4 years the child had all the characters of a fully developed girl.

Sometimes the breasts and external genitals may develop early together. Sometimes the latter alone may be very early marked, being followed sooner or later afterwards by menstruation and the other phenomena.

Sometimes the breasts develop early along with axillary and pubic hairs, being followed after months or years by menstruation.

Sometimes the body-contour may resemble the adult form, the hair and external genitals being well developed, at a very early period; the appearance of menstruation and the growth of the breasts being delayed for months or years.

4. As regards the condition of the internal genitals, only a few opportunities have presented themselves of observing them in the above-cited cases, so that it is impossible to know in how many ovulation was in progress or the uterus well-developed. It is, however, clearly established that in some of these precocious cases ovulation is in progress and the uterus with adult features. There can be no doubt, therefore, that puberty may be completely developed in the first years of life as regards the physical changes. As is to be expected the psychical alterations are wanting.

5. Finally, the cases must be alluded to, in which during infancy and child life, ovulation has been noted, though none of the other signs of puberty have been present. It has been found in progress even before birth. In the great majority of cases of normal develop-

ment of puberty, it may be in progress several months before the other phenomena appear.

In the adult state marked variations are found as regards the degree to which the sexual characters are developed.

These need scarcely be specified, so commonly are they observed by physicians.

They affect the breasts; the pubic and axillary hairs; the formation of the external genitals; the type, quantity and duration of the menstrual discharge; the psychical development. These differences exist between different races and between the various members of the same race.

From the consideration of the many facts to which I have referred we are forced, it seems to me, to regard the menstrual function as a highly specialised means, gradually produced, in the evolution of the highest mammals by which the two great factors in tissue metabolism—the anabolic and katabolic, are properly balanced.

Normally it becomes established along with the various phenomena which characterise the development of sexual activity—at puberty, because it is then that the metabolic habit peculiar to females, viz., predominance of anabolism manifests itself.

The rythmical character of the menstrual function has probably been gradually determined by the forces of evolution, and the marked range of variations which it presents in the human female (unassociated with pathological conditions) points very strongly to an early period of instability in the process, preceding its present fairly fixed habit. It is, indeed, impossible for us to think of a rational explanation for the peculiarities which are found except on the ground of biological variations—atavistic reminiscences.

The menstrual function, then, being closely correlated with the well recognized sexual characters is, like them, undoubtedly closely related to a nervous regulating mechanism, the nature of which is unknown as yet. There may be a special cord centre governed by still higher cortical centres, but there is also a subtle and intimate connection between the sexual functions and the general nervous mechanism of the body.

As Johnstone ably states in regard to the uterus, "its association with ovarian activity is that of two separate departments of an army, each of whose work must be thoroughly accomplished before the one common object can be attained. They are both controlled by branches from the sympathetic system, and instead of their actions being determined by each other, their orders come from that higher power which controls all functional activity."

It is this correlation which has been wrongly interpreted, especially in the case of the tubal and ovarian functions, with neither of which is the process *directly* connected. That it is indirectly related to them and capable of being influenced by them cannot be denied, and that of the whole sexual apparatus the ovaries are the "predominant partner" is not to be wondered at. We have proofs enough as regards their influence on body-metabolism, *e. g.* in osteomalacia, marked improvement immediately follows removal of the ovaries. Whether this be due, as Curatulo believes, to the secretion by these organs of a chemical substance capable of facilitating the oxidation of the phosphoric organic substances supplying material for the bone salts, or, whether it acts merely by altering an ill-proportioned relationship between anabolic and katabolic functions, thus secondarily affecting the diseased process, is only a matter of speculation.

After the removal of the ovaries in gynæcological practice, certain effects are noted, which must be associated with altered neuro-trophic functions. Thus "heats" or "flushes," vaso-motor storms are very often troublesome features. The uterus tends to shrink, the gland-tissue of the breast tends to atrophy, while fat is often increased in the body. There is, however, very great variation as regards the effect of removal on the sexual characters. These are so marked as to demand a careful investigation for the purpose of determining them accurately and of establishing a comparison between the bodily changes following the operation and those taking place in connection with the normal climacteric. At present many exaggerated ideas are current.

While, in the majority of cases, removal of the ovaries is followed by an altered body-metabolism owing to the absence of the most important sexual organ, marked by disappearance of the anabolic overflow of menstruation, it is not surprising that variations should occur in the alterations produced, so that instances might occur in which the menstrual function does not cease. It is certainly not an uncommon experience to find discharges of blood from the uterus after the operation, apparently, an indication that the changes in body-metabolism are being brought about but gradually in these cases.

As regards the relation of the tubes to menstruation, if Lawson Tait's observations be accurate, *viz*: that after their removal menstruation ceases in the great majority of cases, the ovaries being left behind, the explanation may be, either that such a marked alteration in the genital tract may reflexly alter all the sexual functions along with body-metabolism, or that it may bring about the result through an indirect influence (such as inhibition of function) on the ovaries.

Bland Sutton's statements as regards the effects of removal of the tubes are directly opposed to those of Lawson Tait. His words are, "the Fallopian tubes exercise no influence on menstruation, and in order to produce artificial amenorrhœa both ovaries must be completely removed." I do not consider that Bland Sutton is justified in making these statements from the facts given by him. He quotes a few cases in which ligature of the tubes was performed without causing a cessation of menstruation. Tait, however, speaks of *removal of the tubes*, a much more serious disturbance.

Though there can be little doubt that menstruation has been established in the higher mammals by a gradual process of evolution, we have been entirely in the dark as to the steps of this process. Seeing that it is limited to the anthropidæ and simiadæ, the earliest appearance must have taken place among some common ancestors of both.

The peculiarity probably first began as a variation, which proved to be advantageous and by natural selection became a fixed character, being transmitted from generation to generation. Had it been of no advantage it would have been eliminated.

The only suggestion which has yet been advanced as to the possible advantage of this variation is that of W. E. Fothergill, who believes that it consisted in a greater tendency to conception owing to the rawing of the uterine mucosa.

This suggestion cannot be entertained in the light of present knowledge. We know that rawing of the surface is not necessary to the attachment and nidation of the fertilised ovum and that in the great mass of the mammals it does not occur.

The introduction of menstruation in the evolution of the mammals has not been associated with greater but with diminished fertility, for there can be no doubt that the non-menstruating mammals are on the whole by far the most prolific.

Indeed, natural selection, has acted in the highest ranks of the animal world not in the direction of establishing a numerical superiority, but one based on the specialisation of individual characteristics in a selected number.

The advantage of the variation in our distant progenitors must therefore be sought for in relation to factors tending to diminish the number of offspring and to improve the quality of the individual.

As to the origin of the variation, the only reasonable speculation seems to be that it is associated with the development of the single uterus, with the diminution in the number of offspring, with the determination of the semi-erect or erect posture, characteristics found throughout the Primates, at least in the simiadæ and anthropidæ:

(The division of the Primates, known as the lemuridæ, stands by itself. These forms are believed not to be in the direct line of the other divisions but a separate offshoot from some early common mammalian stock. They have a double uterus and, so far as we know, do not menstruate.)

Of prime importance I believe, among these factors is the change from the bicornuate to the single condition of uterus. In the great mass of mammals with the former variety, the excess of anabolism is used up in the large demands of breeding and nursing. When the single uterus appeared as a variation marked by a diminished area for the attachment of ova, the unused anabolism found an outlet in the escape of blood.

It is possible that this took place at first from different parts of the body thus helping to explain the occasional occurrence in females of "vicarious menstruation."

If this were the case, natural selection must have acted in eliminating all except those in whom the blood escaped from the uterus.

But it is also likely that the tendency to sit on the ischial tuberosities and to move about more or less in the semi-erect position may have somewhat determined the occurrence of the congestion chiefly in the pelvis, relief being found by a discharge from the delicate mucosa.

The blending of two blood-supplies in a single uterus, which had previously been distributed to two cornua, must have had an influence in inducing a special tendency to uterine congestion.

Probably also another factor helped to determine the localisation of the congestion to the pelvis, viz: the habit already fixed among many of the lower mammals of the periodic pelvic congestion of the rutting period.

In the beginning it is likely that the menstrual discharge took place at irregular intervals (thus explaining the occasional irregular types which are now found among females.)

Natural selection would here come into play in determining regularity of type.

Females who were irregular in regard to the discharge would be objects of inconvenience to the males who would very soon learn to seek out and prefer those whose unseemliness manifested itself only at expected and definite periods, and so gradually regularity would come to be the predominant feature in succeeding generations of offspring.

It is a striking fact that among all races there is a careful avoidance of menstruating females by the males. This is particularly marked in most primitive peoples. Very possibly it had its origin in

a feeling of disgust on the part of the males, and it is not difficult to understand how among the earliest human beings, there might gradually develop the belief that women were possessed of some unclean or evil spirit which had to escape periodically.

It is thus easy to explain the universal though varied customs and practices prevalent in many races, by which the woman is forced at her periods to avoid association with others, to abstain from coitus with men and to withdraw even from observation in order that her evil influence might not spread.

Next, it is of great interest to inquire into the possible gains that might result from the fixing of the menstrual process in females.

It is a remarkable fact that in the highest mammals, viz: the simiadæ and anthropidæ, is found the highest development of the altruistic principle as exhibited between parents and offspring. As Westermarck points out, among the invertebrata the male is interested only in the act of fertilisation, while the female shows no further concern or responsibility after she has laid her eggs. In the lower vertebrata parental care is almost unknown, though there are a few exceptions, *e. g.*, chiefly in the chelonia; the males caring for the young in some cases, the females in others, while in a few instances there is joint parental attention.

In the birds, however, it is the rule that the parents live in most intimate relationship, both during and after the breeding season, the female hatching and rearing, the male acting as protector and provider of food.

Among the great mass of mammals, below the primates this is not the case; the mothers alone showing great concern for the young offspring while generally the males are only interested in the females at the rutting time.

Exceptions are, however, found *e. g.*, among whales, seals, certain deer, moles, squirrels and a few other forms; the parents remain together after the birth of the young, the male acting as protector.

Among the Primates the rule is that the males and females unite in a more or less enduring partnership, both having great concern for the care of the offspring, the males possessing one or more wives. There is an abundance of facts to establish this statement and from them Westermarck has established his induction in a masterly work, that our human marriage is an inheritance from an ape-like ancestor, controverting the long held belief of Sir John Lubbock and others that our progenitors formed one vast free-love community where promiscuity of sexual intercourse prevailed.

This habit is therefore another interesting possession of mammals



with a single uterus. It marks a great advance in the character of the individual above the types found in the lower orders of animal life.

Very evidently it was fostered by means of natural selection, being most essential where the female gave birth to a small number of young who passed a long time in a state of helpless infancy and tutelage. Such a species, undoubtedly, stands a better chance of surviving when the parents unite their energies in the task of protecting and nurturing the offspring.

Indeed, it would appear that the great determining factor of conjugal relationship is care for the young. Among several primitive races (and in some of the highest) marriage is never supposed to be established until offspring appear.

Wherever in the animal kingdom we find that the parents have no concern with their offspring, the females give birth to a very large number of offspring—the prodigality of births allowing of the safeguarding of the preservation of the species. Thus the cod lays each year about a million eggs, to which she gives no after-care, and, probably, the greater number become destroyed. On the other hand the turtle-dove lays only two eggs, but owing to the care which the parents give to the young they generally grow to maturity.

Another important point to notice regarding intercourse between the sexes, is that while among the majority of mammals there are special times of pairing, conditioned by various necessities, different in different species, among the quadrumana the rule is probable that fruitful intercourse may take place at any time, though undoubtedly exceptions occur owing to conditions of food, environment, etc. In the evolution, therefore, of the higher mammals possessing one uterus, there has been a departure from the condition of periodic excesses of sexual rioting to one in which there is especially in the female, a more diffuse and consequently less intense manifestation of the sex instinct.

The menstrual function occurring regularly in animals so placed, must have served beneficially in giving the mothers continually recurring periods of ensured rest (for so far as we know coitus is universally desisted from during menstruation) and in teaching the males continual lessons in self-restraint.

*Relation of Menstruation to Rut.*—There is a wide-spread belief that these phenomena are identical. Thus a very recent writer (Letourneau) states that “menstruation is essentially identical with the intimate phenomena of rut in the females of mammals and corresponds to an ovarian congestion, or to the swelling and bursting of one or more Graafian follicles. A few writers have in recent years

disputed this view, among whom may be chiefly mentioned Lawson Tait.

There are many who believe that the rut or oestrus, or pairing time, is conditioned by ovulation—that ova are only shed at these intervals causing the phenomena. There is no basis of facts for this statement. The examination of many rutting animals proves that ovulation goes on at all times. The origin and significance of rut are uncertain, but it seems probable that the habit has been developed by natural selection for the purpose of limiting the chance of fertilisation to certain seasons mainly with reference to dietetic and climatic requirements for the offspring.

Among the mammalians this period is found at all times of the year. Thus, the bat pairs in January and February; the wild-cat and fox in February; the weasel in March; the musk ox in August; the badger in October; the orongo-antelope in November and December.

When the different cases are enquired into it will be found that the time of pairing is related to the duration of pregnancy, it being necessary that the young should be born at a time when they stand the best chance of living.

Thus the majority of mammals produce offspring early in the year; in the tropics at the beginning of the rainy season—the time of birth evidently being related to abundance of food, water, warmth of climate, conditions most favourable to existence. In polar and temperate regions the animals pair at a later period than in warm countries. These differences are seen when the same species are placed under different climatic conditions.

When no definite pairing system exists, as among elephants, whales, many rodents, the explanation is very evident. The conditions of their environment and of their food supply are such as not to necessitate the birth of offspring at special times.

Among the primates it is doubtful if there is a rutting season among many species. It is stated by some observers that it exists in the orang-outang and gorilla. In general it is to be expected that in the simiadæ and anthropidæ, whose food supply is of a much more diverse nature than in the lower mammalians, consisting of animal and vegetable matter in different forms, there is no necessity for the birth of offspring at special times. Moreover, it must be remembered that the anxious time as regards the newly born does not last only for a few months after birth in the simiadæ, but for years, the period of infancy being long just as in the case of *homo*. It is therefore likely that as far as food requirements are concerned one season is as propitious as another for birth.

Another important factor must be borne in mind, viz: that where there is a strong development of parental affection and conjoint parental care for the young, an important additional reason exists for diminishing the necessity of special pairing seasons. This is all the more marked in the anthropidæ where, owing to a higher intelligence, individuals learn to combat the injurious influences of their environment and to make it possible for the offspring to have as good a chance of surviving at one time of the year as at another.

If then, there be found exceptional cases of special pairing season among the higher primates, it must be because natural selection has conserved the habit in relation to the special conditions in which those species are placed.

Among the reptilians and birds, the rule is that pairing occurs in the spring, and it is probable, that, as Westernarck points out, the world-wide association of the springtime with the awakening of sexual affinities has been based upon the observations made mainly on birds.

The modifications in the pairing season which can be induced by artificial means, *e. g.*, domestication, are a strong evidence in favour of the influence of external influences on reproduction among the higher vertebrata. Indeed, it is evident that just as rut becomes adapted to the requirements of separate species, so it may become altered in relation to the needs of individuals under varying conditions.

Another interesting fact must be mentioned viz: that while the rutting-period is practically the only time when the females will copulate with the males, the menstrual period is the time above all other periods when they will not engage in this act. This is universal among mankind and is true for the simiadae as far as our observations go.

Moreover, the changes in connection with rut result among other things in softening and dilating the outer genitals for the reception of the penis, they being at other times in many animals too much constricted for this. It is well-known that a bitch will not generally allow the dog near her until the rut has been in progress for a time, *i. e.*, until the vulva and vagina are sufficiently dilated.

So far as our facts go, it seems likely that rut in the higher vertebrates is merely the expression of the force of sexual affinity necessary to ensure fertilisation of the ovum, which is found throughout the whole animal kingdom, diffusely spread in the lower forms, highly specialised and limited in the upper forms owing to the influences of environment and natural selection, and affecting both males and females alike. This participation of the males is important to bear in mind. It is found everywhere. Thus many fishes when the love period arrives put on brilliant colours, become vigorous and play about

among the females in the most lively fashion—evidently in a state of sexual excitement. In some, *e. g.*, the stickleback and salmon great pugnacity is manifest. The male salmon develops a special crook in connection with the lower jaw at this time, while the teeth enlarge, markedly. Among many amphibians also many changes affect the males, sexual desire becoming very marked. Among the reptilia similar changes occur, the male tortoise for example being fierce and noisy. In snakes the scent-glands become active during the pairing-season.

Among the birds the changes in the love-season are very marked. The male is altered in various ways and takes to dancing, coquetting and to vocal and instrumental music. His scent-glands grow active; his ornaments become more marked, and he develops strong fighting tendencies.

Among mammals the intensification of sexual desire in the males, accompanied with a feeling of jealousy and a keenness to fight, is universal. In all orders the voice is used in the rutting-time more than in any other season. Indeed, the porcupine and giraffe are said to be mute at all other periods. In stags the larynx and thyroid enlarge when rut comes on. The nose of the male sea-serpent becomes greatly elongated. In the bladder-nose seal the hood covering the head becomes markedly inflated. Scent-glands emit strong odours. In some cases the colour of the skin changes. *Among the great majority of females no such marked changes occur.* They play their normal role of passivity, the changes brought about by the wave of sexual excitement being mainly psychical.

In many mammalians the only physical changes recognizable at the oestrus are congestion of the soft parts in the pelvis, dilatation of the vulva and the vagina, and the free discharge of mucus which is often blood-stained. These differences between males and females in regard to the rutting period are in keeping with the organic distinction to which I have so often referred in this paper.

The manifold changes in the males are the outcome of their predominant katabolism.

The females need to conserve their energies, *i. e.*, their anabolic surplus, for the strain of pregnancy; consequently there is no waste in outward exuberant manifestations, except in very slight measure in the cases to which I have just alluded.

Finally, it may be stated that the relation of rut to menstruation in mammalian evolution is simply this—that when, owing to the various reasons which I have elaborated in an earlier part of this paper, menstruation appeared as a new variation, one of the factors in determining the escape of the anabolic overplus by way of the genital tract was the habit already fixed, in many of the mammalians with a bicornuate uterus of the periodic yearly pelvic congestion of the rutting time.

ON  
HÆMORRHAGIC CYSTS OF THE THYROID  
WITH NOTES OF THREE CASES.\*

BY

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In a recent number of the *Journal of Experimental Medicine*,<sup>1</sup> there appeared a very interesting and instructive paper by Dr. W. I. Bradley, embodying the result of a research upon the nature of certain cysts of the thyroid gland, the origin of which, he concluded, was hæmorrhagic.

During the past nine months we have had the opportunity of examining two cases of the same nature in the pathological department of the Royal Victoria Hospital,—one of these removed by Dr. Bell and one by Dr. Garrow. And as these specimens not only confirm the conclusions of Dr. Bradley, but also seem to elucidate some points left by him *sub judice*, I have ventured, under Dr. Adami's suggestion, to bring them before this Society.

Before reviewing Dr. Bradley's conclusions and remarking on the present specimens, it may not be out of place to mention a few points of interest in the history of the subject. I owe the information to Wölfler's work on operations upon the thyroid.<sup>2</sup>

Cysts have been extirpated since the time of Celsus,<sup>3</sup> who recommended cutting down on them, and then either destroying them with caustics, or doing a blunt dissection of the intact cyst. His method of extirpation was followed by Galen,<sup>4</sup> who drew attention to possible wounding of the great vessels and the recurrent nerve: by Aiteus,<sup>5</sup> the Arab Albucasis and others of the dark and middle ages.

From the 13th to the 18th century, the operative treatment of these cysts seems to have been fairly common. Rulandus<sup>6</sup> in the 13th century recommends the use of the seton and the hot iron, and draws attention to the necessity of extirpation of the whole capsule on account of the danger of recurrence. Laufrancus a little later advises simple incision and cleaning out of the cyst. The father of Scultetus opened a thyroid cyst and emptied the fluid contents—with successful result.

In the 18th century, Johann Astruc recommended puncture with the trocar for these cysts, and the seton when the contents are thick.

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\* Read before the Montreal Medico-Chirurgical Society, January 29th, 1897.

During this century, three main methods of operating upon thyroid cysts have been brought forward and advocated in turn by various surgeons. Mannoir, in 1799, and Velpeau, in 1843, advised puncture with injection of caustic agents. Then Beck in 1826 held out for simple incision of the cysts. Finally Scutin<sup>7</sup> in 1833 revived extirpation, which had apparently fallen into disuse. But on account of the greater danger of sepsis, extirpation, until the age of antisepsis arrived, had to give way in the majority of instances to the former two methods.

It was perhaps from this cause that, until lately, little if anything, was written upon the histology of thyroid cysts. They were not taken out and could therefore not be examined.

As Dr. Shepherd remarks in his article on the Surgical Treatment of Bronchocele<sup>8</sup> the "Enucleation" method was 'adopted first by Juillard, Rottman, and others, but to Prof. Socin<sup>11</sup> belonged the credit of first systematising the operation and bringing it prominently before the profession.' And it might be said, in parenthesis, that, on this side of the water, it was mainly Dr. Shepherd's article which drew attention to the value of enucleation as the operation of choice in these cases. Socin's work was only a little over 10 years ago. For some few years previous, I should add Wölfler had had numerous opportunities of examining thyroids, furnished him by Billroth's method of total extirpation. It is this method of enucleation which permits fuller histological study of these cystic cases.

However, cysts of hæmorrhagic origin seem in particular to have received very little attention, until Wölfler's work appeared in 1883. Rokitansky,<sup>9</sup> in the forties, showed that thyroid hæmorrhages occurred for the greater part only in neoplastic thyroid tissue. Wölfler, after describing cyst-adenomata of the thyroid, and agreeing with Rokitansky that it is only in such tissue that hæmorrhages usually occur, goes on to say: "Such hæmorrhagic tumours, (he is referring to those produced by extensive hæmorrhage) it is, which, in the course of time, turn into thyroid cysts, the wall of which is formed by the cortex of the original adenomatous area, this cortex undergoing partial fibrous degeneration.

It is, however, with Wölfler's<sup>10</sup> explanation of the origin of these hæmorrhagic cysts that Bradley disagrees.

In order to understand early the conclusions at which the latter arrived, it will be necessary to describe in some detail the histological structures of these cysts, as shown in his eight cases, and in the two cases which form the *raison d'être* of this paper.

The points on which is based the pathological diagnosis lie both in

the cyst-wall and the cyst contents. To quote Bradley: "The contents differ markedly from those of the ordinary vesicles of the thyroid gland. They are fluid, and in general present evidences of containing blood or derivatives from the blood; they vary from a straw-coloured fluid, through greenish brown, to a dark brown grumous fluid; or again, actual blood clots may be present. . . . They often contain leucocytes and cholesterol crystals.

With regard to the nature of the cyst-wall, this is of a somewhat peculiar character. Although very definitely fibrous in composition, it is not sharply defined. The layers composing it are not truly concentric; here and there between them occur masses of small cells, which, by comparison with the tissues immediately outside the cyst-wall, are seen to be clearly the atrophied remains of gland tissue. These features explain why it is that in enucleation the cysts are found not to be sharply defined from their surroundings and permit successive irregular layers to be partially peeled off. The wall, in fact, passes gradually into the bands of interstitial tissue running between the surrounding collections of vesicles and evidently represents not so much a new formation of fibrous tissue around the cyst as a compression of the surrounding thyroid tissue. In the wall can be seen often here and there small areas of hæmorrhage, or pigmentation from old hæmorrhage. In the older cysts, judging from the thickness of the wall, it would appear that there had been a certain amount of new fibrous tissue formation.

Upon its inner aspect also the wall differs widely from that of an ordinary retention cyst; it is not lined either with well-developed epithelium, or with the remains of such tissue; while between the contained fluid and the fibrous envelope is to be found irregularly distributed a greater or less amount of intact gland tissue."

Then Bradley goes on to point out that the above mentioned characteristics clearly differentiate these cysts from the colloid retention cysts (called by Ziegler *Follicular* or *Dilatation* cysts) of *Struma Colloides seu Gelatinosa*. These never attain to any great size, their wall is covered with a continuous layer of epithelium, more or less flattened in different cases according to the amount of pressure exerted by the contents; the wall outside the epithelial lining is thin and indefinite.

From the observation of all these particulars in his eight cases, he concludes that these cysts are due to "an accumulation in a lobule of the thyroid . . . associated with some destruction of gland tissue;" that this destruction of gland tissue, in view of traces of pigmentation in the wall and in view of the nature of the contents,

is due to intravesicular and interstitial hæmorrhage; which hæmorrhage is probably extensive, inasmuch as a small hæmorrhage would naturally result in a scar, while an extensive one would develop, as in the brain, into a hæmorrhagic cyst with fluid contents. He is led therefore to regard these large solitary cysts of the thyroid gland as being hæmorrhagic in origin.

Of course, Wölfler, with his extended opportunities of observing thyroids from Prof. Billroth's clinic, had not failed to comment on these cysts of the thyroid in which traces of hæmorrhage could be found. And Dr. Bradley gives him credit for this. We are confronted with a condition implying "destruction of thyroid tissue and accumulation of fluid in a space bordered by destroyed or partially destroyed vesicles." What is the cause at work leading to such destruction?

"According to Wölfler (I quote Dr. Bradley's words) the main cause is an over secretion of colloid in the vesicles, with consequent rupture of these, infiltration of the interstitial substance with colloid material, atrophy of the infiltrated tissue, and subsequent continued excretion of colloid from such of the epithelial cells of the ruptured vesicles as remain undestroyed."

One further detail which Wölfler mentions, omitted but implied by Bradley, is that with this rupture of the vesicles there occurs also usually slight hæmorrhage. In short Wölfler's share in describing thyroid cysts, and the advance made by Bradley might be summed up, it seems to me, somewhat as follows:—

The former, in his chapters on "Hæmorrhages in Goitre" and "Bursting of Vesicles. Goitrous Cysts" liber cit. pp. 178-183 et 191-194, enumerates three ways in which cysts may develop.

1. As above stated, viz., by "by bursting of vesicles" with "simultaneous hæmorrhages, usually very slight" from the thin-walled new-formed vessels in the inter-acinous tissue; "resulting in the formation of a cyst filled with colloid fluid more or less tinged with blood," (p. 193.) Such bursting of vesicles is only produced where colloid secretion is rapid and profuse.

2. Cysts may be formed by "confluence of vesicles" by a process analogous to that seen in the emphysematous lung. Here colloid secretion is gradual and slow. These, of course, are not hæmorrhagic.

3. By extensive hæmorrhage, inducing compression necrosis, and subsequent brown or yellow, soft, mushy masses (Erweichungsmassen), which finally become cysts filled with fluid contents.

All this, however, he sets down in the most unmethodical and obscure way—here a statement, there a statement; here an observa-



tion, there an observation; here a fact, there a fact. So that one would search his work in vain for a paragraph or succession of paragraphs defining accurately as a class by itself these cysts of the thyroid due to hæmorrhages.

So much, nevertheless, he did write; so that he, as well as Dr. Bradley, described these cysts. Only the latter confines himself to cysts due to an extensive hæmorrhage (the contents having passed, as in the brain, through the stage of *erweichungsmassen* to that of more or less clear fluid), and does not recognise "bursting of the vesicles" as ever a possible cause; while Wölfler describes two kinds of hæmorrhagic cysts;—the one mainly colloid and very slightly hæmorrhagic, the other purely hæmorrhagic.

"Rupture of the follicles of a secreting organ (argues Bradley) as a result of overactivity is most rare. . . ." Secondly, the contents are not thick and colloid, but indicative of hæmorrhage. And in the third place hæmorrhages in the thyroid are of very frequent occurrence, while histological evidence of bursting of vesicles is wanting.

Hæmorrhage, then, is the immediate cause. What is the remote cause, the cause of the hæmorrhage? Of this Wölfler says nothing beyond noting the fact that the vessel walls in the adenomatous thyroid are extremely thin. Bradley goes much further. In his belief the causes are:

1. Increased size and increased vascularity of the adenomatous thyroid.
2. Its exposed position.
3. Vascular changes due to sexual disturbances, all three rendering the organ peculiarly liable to the fourth and immediate cause, traumatic rupture.

There were two points, however, which he professed himself unable to decide; the one, as to whether these cysts occur in and replace nodular adenomata of the gland tissue; the other, as to the true reason for that progressive enlargement in the early stages which is mentioned so frequently in the clinical reports.

It is upon these two questions that, as I believe, my specimens throw some light. They are taken from three cases—two operated on by Dr. Bell, and one by Dr. Garrow. The last is the one which demonstrates best the points in question, and I shall describe it in more detail than the others. An abstract of the clinical report (which I owe to Dr. Carron) is as follows:

"Mabel C., æt 16, admitted October 19, 1896. As long as patient can remember there has been some enlargement of the neck, but it was not until last spring that she noticed it was slightly larger, and

had become firmer than before. She says there has always been some enlargement of the tumour during the summer period, but the variations have always been slight. It has never caused any pain or inconvenience. Has been treated periodically since childhood with varying success; but always returned to original size in spite of all remedies applied.

Past history—Has had scarlet fever and inflammation of the lungs. Otherwise, always been healthy.

Family history—One brother and one sister of a family of eleven had tumours in the thyroid region. No tuberculosis nor cancer.

The tumour, as described by Dr. Carron, was as follows: The left lobe of thyroid gland is enlarged and prominent, filling out the depressions between sternum and clavicle. It is elastic on pressure, and feels quite tense and resisting. The whole mass is about the size of a hen's egg, but is flat and oval. The right lobe is also slightly enlarged, but this is quite distinct from the left side, and is not large enough to be very noticeable. Just above the extremity of left enlargement is a small mass about the size of a marble, which is separate from the large mass. There is no pain nor tenderness over the tumour, and the skin over it is quite normal. No murmur heard over it.

Operation, Oct. 21st—Incision made over large cyst in the left lobe; and after puncture and emptying of contents it was easily dissected out. The contents were grumous and of a greenish brown colour. Besides this large cyst there were found numerous small nodules in its neighbourhood, scattered through the thyroid tissue. These varied in size from that of a pea up to that of a small plum. Some were solid but of a soft consistency, and rather white in colour, and possessed very thin capsules, so that several were accidentally incised during the process of enucleation. Others were definitely cystic to the naked eye, with contents varying from a dark bluish or brownish fluid up to semi-solid masses of broken-down dark-coloured tissue. Perhaps a dozen or more of these small nodules and cysts were shelled out with ease, and, if I remember rightly, appearances at the operation indicated that there were many more similar nodules and cysts of a size too small to enucleate left in the gland.

When I came to examine these operation specimens in the pathological department, I was struck by the presence of a small nodule clinging to the outer wall of the main cyst; and in preparing the specimens for microscopical examination I took care to obtain sections through this portion, that is, through both cyst-wall and adherent nodule. The latter presented on section even macroscopically a cystic condition, with contents consisting of dark coloured fluid, in very small

quantity, and friable tissue. It is this specimen which, in particular, seemed to throw light on the points mentioned above. The histological examination revealed the following :

Section through the wall of the large cyst shows a dense, old-looking fibrous stroma with few proper connective tissue cells. It contains a few granules of blood pigment here and there, and rows of roundish and cuboid cells, evidently the remains of compressed and atrophied gland tissue. It is noticeable that these atrophied gland remains seem to be arranged as it were in layers, with dense fibrous tissue between and also that they seem on the whole to be more numerous and better preserved the nearer we get to the inner surface of the cyst.

Passing through the cyst-wall from inside to outside, and approaching the cystic nodule adherent to its external surface, we find the atrophied gland elements becoming more numerous, and the pigment granules, which were almost absent in the central layers of fibrous tissue, reappearing. The nodule we find to be composed of a small amount of adenomatous tissue, traversed by three or four bands of fibrous tissue in various directions. The vesicles are in the main large, and are partly filled with effused blood which is evidently no longer recent. Blood is also seen in the interstitial tissue. Clumps of pigment and large cells containing pigment granules can be seen in the fibrous tissue bands, especially along the edges ; also small collections of thyroid cells, possibly embryonic, more probably in the beginning stages of atrophy from compression ; all signs indicating hæmorrhage, not very old and yet no longer recent.

In the second case, that of a girl of 22, (whose clinical history yields no further feature of interest, except that growth of tumour was steady and not more rapid lately), the specimen as received by me consisted of a cyst about the size of a hen's egg attached firmly to a solid, congested, friable mass of about the same size, both being surrounded by one continuous capsule. The cyst, however, was separated from the solid body by its own capsule. There were several small calcareous masses in the wall of the cyst.

A section through the junction of the cyst and solid tumour shows the solid portion to be composed of ordinary adenomatous overgrowth without much increase in the colloid material. The cyst wall is composed of fairly dense fibrous tissue in which can be found scarcely any evidence of hæmorrhage. But, as one gets to the inner surface of the cyst wall, one comes on a very curious appearance, namely, four or five fairly distinct layers of alternate gland tissue (either embryonic or atrophied) and fibrous tissue showing traces of hæmorrhage. And quite on the inner side of the cyst wall the gland tissue

layers alternate, not with fibrous tissue, but with hæmorrhagic layers, the latter, however, not very recent.

In the third case, the specimens obtained showed only a condition of ordinary parenchymatous overgrowth, in which could be seen dotted all over the specimen clumps of pigment granules and large round cells filled with pigment granules, evidencing multiple minute hæmorrhages in the new formed adenomatous tissue.

All these histological appearances, it seems to me, not only lend support to Bradley's conclusions, but also decide to a certain extent the two points which he left *sub judice*.

First, do these hæmorrhagic cysts originate in previous nodular adenomata? Dr. Garrow's case would seem to show that they do, or may so originate; for here in addition to a large hæmorrhagic cyst we have a small well-defined nodular adenoma or parenchymatous hypertrophy of gland tissue, which is the seat of what I cannot but conclude to be an early stage of the process. In other words the organ which is the seat of a hæmorrhagic cyst shows also a nodular adenoma presenting both interstitial and intracystic hæmorrhage.

Secondly, what is the nature of the progressive enlargement of these cysts? We would, *a priori*, expect that a hæmorrhagic cyst should increase irregularly—by fits and starts; *i. e.*, that the enlargement should be due to successive hæmorrhages. Undoubtedly, judging from the history of several cases, such sudden considerable hæmorrhages do occur; but it is equally evident from other histories, or from the same history at different periods, that the enlargement is very frequently progressive. The condition of the accessory nodule in this case seems to aid us in understanding the process; for small as the nodule is, the evidences of hæmorrhage in it show that there has been, not one single large rupture of a vessel, but successive slight hæmorrhages, so small, some of them, that one might almost speak of it as an occasional oozing of blood. Nor is this progressive enlargement of a hæmorrhagic cyst unknown in other parts of the body. Othæmatomata are essentially hæmorrhagic cysts and they also have been noticed to undergo gradual enlargement.

The second case, with its layers of adonomatous tissue, hæmorrhage, and fibrous tissue, shows, I think, with some degree of probability, the occurrence of repeated slight hæmorrhages in the interior of hæmorrhagic cysts which have already attained some size, probably from the remains of thyroid tissue left jutting into the cyst after previous hæmorrhages.

It is, then, in regard to the cause of hæmorrhages in the thyroid, and also in differentiating these cysts more clearly than has hitherto

been done, making a distinct class of them, and giving a definite histological basis for the clinical facts, that Dr. Bradley's paper represents a considerable advance in our knowledge of the subject.

And, I think, that what has been said not only establishes his conclusions, but also lends strong support to the belief that one of the commonest forms of enlargement of the thyroid is due to a condition of localized adenomata of the gland tissue becoming the seat of repeated small, as well as of single extensive hæmorrhages.

In conclusion, I beg to express my thanks to Dr. Bell and Dr. Garrow for the material and the case reports upon which this paper is based and to Dr. Adami for advice throughout its course.

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## A LARGE MOUTH CONCRETION.<sup>1</sup>

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JAMES BELL, M.D.,

Surgeon to the Royal Victoria Hospital.

Mrs. G., æt. 32, consulted me in September, 1896, for a large growth of long standing, which had filled up the right buccal cavity and had caused ulceration through the upper lip and great deformity of the face. The history was as follows: At the age of 12 years she had suffered from "fever," which had lasted a considerable time and had been followed by a slow convalescence, during which, she stated, that the teeth in the right side of the lower jaw had become loose and dropped out one by one, but without any pain or ulceration of the gums. The teeth had all dropped out in about six months, and then she began to notice a "shell-like" mass on the gums from which the teeth had fallen, apparently in the area occupied by the molar teeth. For ten years this growth was gradual and gave her practically no trouble. Then deformity of the face began to be noticeable and increased steadily. It was, however, only within the last year that marked increase in the size of the mass had been observed and troublesome symptoms had developed. On examination, the growth was found to fill the whole right cheek and to have produced great flattening of the right side of the face and the right nostril. It had ulcerated through the upper lip at one point, and the whole lip was greatly swollen. The point which presented at the angle of the mouth was evidently calcareous, but I mistook this for a simple coating of calcareous matter. The fetor was horrible and the mouth was so sensitive that no manipulation was possible. I looked upon it as a growth from the upper alveolar border, probably originally of the nature of epulis, but having recently (coincidentally with the history of rapid increase in growth and symptoms), become malignant, and advised removal of the upper jaw. She went home, but returned and was admitted to the hospital on October 12th and prepared for operation on the 19th. When she was fully anæsthetized, I was able, for the first time, to make an examination of the mouth. I then found, to my surprise, that the mass consisted simply of a large concretion the size of a large hen's egg, lying free in the mouth, having formed a cavity for itself by displacement of the soft parts and

<sup>1</sup> Shown at the meeting of the Montreal Medico-Chirurgical Society, October 16th 1896.

absorption of the alveolar border of the lower jaw. It was so large that I removed it with considerable difficulty. A couple of teeth were embedded in its lower border, and it was clearly an enormous growth of "tartar" from the teeth. The ulceration of the mouth and lip healed rapidly, and the patient was discharged in a week quite well, except for the deformity which had occurred during the growth of the mass. The mass, which was oval in shape, measured  $13\frac{1}{2}$  cm. in its greatest circumference and 11 cm. in its smallest circumference.





## RENAL AND VESICAL CALCULI<sup>1</sup>

BY

JAMES BELL, M.D.,

Surgeon to the Royal Victoria Hospital.

(1) A large branched calculus removed from the right kidney. The patient, 42 years of age, a strong, active and healthy man and a free liver, was attacked with fever and general malaise on the 28th of July, 1896, while on a fishing excursion. About the 11th of August he began to have severe chills and was seen by a physician, who found a large amount of pus in the urine and a tender mass in the right lumbar region. He was seen in consultation by Dr. Bell on the 24th of August, who confirmed the diagnosis of right pyonephrosis, probably calculous, and advised operation. The patient did not consent until the 8th of September, when he was admitted to the Royal Victoria Hospital. He was then in a condition of general septicæmia, with fluid in both pleural cavities, an exhausting diarrhoea, daily chills, followed by profuse perspiration and tremendous rises of temperature. His condition was so bad that nothing was done until the 18th of September, when the kidney was exposed in the loin in the ordinary way. It was very firmly adhered posteriorly, and, when isolated, was very large and œdematous. The pelvis was distended and contained a quantity of pus, which was evacuated, as well as a large abscess, which was situated above and in front of the kidney. The most careful exploration failed to discover any stone. The organ was palpated between the fingers from end to end, needles were introduced into its substance at several points and a short beaked stone searcher was introduced into the pelvis and directed up towards the calyces, with the fingers of the other hand upon the convexity of the kidney. The conclusion was therefore arrived at that the suppuration could not be due to a calculus. The wound was left open and a drainage tube was carried up into the perirenal abscess cavity. The patient's condition improved very markedly, but the urine still contained pus; there was always some fever and there was a free discharge of pus from the wound. On the 27th of November the wound was reopened for exploratory purposes and with the intention of removing the kidney if necessary, when the calculus now exhibited was found imbedded in the substance of the kidney at its lower

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<sup>1</sup> Exhibited at the meeting of the Montreal Medico-Chirurgical Society, January 15, 1897.

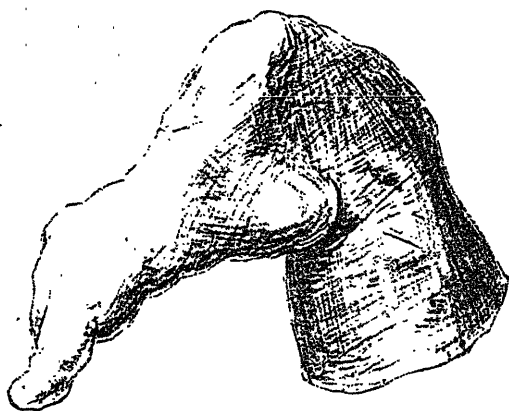
extremity, the point of the stone being directed down towards the pelvis of the kidney.

From this time pus disappeared from the urine, except in microscopic quantities, and the patient's condition improved very much. The dullness in the lower part of the right chest persisted, however, and on the 22nd of December pus was discovered by an aspirating needle. On the following day the anterior two inches of the eleventh rib were excised and a large subphrenic abscess drained. The progress of the patient since that date has been uninterrupted. The original loin wound is now quite closed.

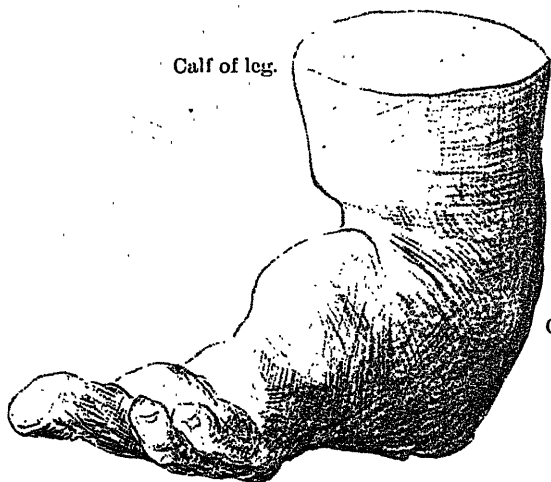
(2) Two medium sized phosphatic calculi, with the following history: The patient, S. M., æt. 76, was admitted to the Royal Victoria Hospital in April, 1896, in a toxæmic condition, with greatly enlarged prostate making catheterisation extremely difficult, double (acute), orchitis and cystitis. One of the stones exhibited was removed then by suprapubic route, and after a long illness the patient recovered and was discharged. In December he was readmitted on account of the suprapubic fistula, through which all the urine had been evacuated since the previous operation. His general health was excellent. On the 19th of December the prostate was removed by the combined suprapubic and perineal method and the second stone removed. The interest in these specimens lies in the fact that we have a definite observation upon the rate at which a phosphatic stone may develop in a bladder in which the urine is in a condition of alkaline fermentation,—the second stone, weighing 92·5 gr., having developed between the 11th of April and the 19th of December,—a few days over eight months.

(3) A large stone, phosphatic externally, removed by lateral lithotomy from a patient 26 years of age. There was a history of cystitis extending over a period of about five years with chills and fever following every attempt at instrumentation.

(4) Seven flattened, smooth, hard and light stones removed by suprapubic route. The patient 58 years of age had suffered from indifferent symptoms for about four years but only during the past year and a half had the symptoms become sufficiently troublesome to cause him to seek advice.



Calf of leg.



Crest of tibia.



# AN EXTREME DEGREE OF TALIPES EQUINUS.<sup>1</sup>

BY

JAMES BELL, M.D.,

Surgeon to the Royal Victoria Hospital.

N. L., æt 31, French Canadian was admitted to the Royal Victoria Hospital in September, 1896, for cellulitis of the hand following a wound of the thumb received in opening a bottle some days previously. The interesting condition was the extreme degree of talipes equinus of the right foot which was bent back to such an extent that he walked on the instep and the lower part of the crest of the tibia corresponded to the os calcis, the toes being directed backwards and the foot at a right angle to the leg. He states that the condition was congenital but that in childhood the toes were in a straight line with the leg. The hyper-extension of the foot continued to increase gradually and when he was 13 years of age he was able to walk as at present on the dorsum of the foot. The foot is somewhat smaller than its fellow, there is absence of the fourth and fifth toes, and this leg is five inches shorter than the other. In walking he wears a metal frame on the boot which equalizes the length of the legs.

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<sup>1</sup> Exhibited at the meeting of the Montreal Medico-Chirurgical Society, October 16th, 1896.

## Ephemerides, 1896.

By WILLIAM OSLER, M.D.

### XVI.—CHILLS AND FEVER IN POST-PARTUM ANÆMIA.

I saw, Nov. 11th, 1893, a Mrs. W., aged about 24, who had been confined about seven weeks previously with her first child. The labour was long and tedious, but there was not more than the average loss of blood. She had been a healthy, somewhat stout woman. Following delivery she became gradually anæmic, but with that exception there seemed to be no special cause for uneasiness. About two weeks before I saw her she began to have chills and high fever, followed by heavy sweats. The attacks recurred every four or five days and were naturally a source of great distress and anxiety to the patient's friends and to her physician. A local infection was suspected, but on repeated examinations nothing could be determined.

When I saw her she had a pronounced anæmia, with both corpuscles and hæmoglobin at about fifty per cent.; no leucocytosis; no plasmodia. In spite of the anæmia her general condition was good, and I gave a favourable prognosis, and noted the case as one of post-partum anæmia. I learned subsequently from her physician that the chills recurred for several weeks, but that ultimately, under the use of iron and arsenic, she steadily improved and got quite well.

On June, 26th, 1896, Mrs. C., aged 35, from North Carolina, consulted me for anæmia, chills and fever. She had been delivered just two months before of her first child. The labour was difficult and she had lost much blood. For two weeks she did well; then she began to have fever for a part of each day. Usually towards evening she would have a chilly feeling, and sometimes an actual rigor, which would be followed by high temperature, and then a profuse sweat. She had got very pale, though she feels pretty well, has been up and about, and has been able to nurse the baby. For the past two weeks her temperature has scarcely ever been below 102°, and she has had as she expresses it, terrible night sweats.

The patient looked pale and a little thin; the temperature was 102.2°; pulse above 100, full in volume. Though she had had no cough, from her general appearance and her history I fully expected to find that she had either some local pelvic trouble, or had pulmonary tuberculosis. She had no uterine discharge and she was perfectly well in the pelvic regions. There were anæmic murmurs. The spleen was a

little enlarged ; the hæmoglobin was under 60 per cent ; there was no leucocytosis. The most careful examination of the lungs could detect nothing abnormal.

I was rather doubtful about this case, and did not feel at all certain that the diagnosis of post-partum anæmia would be borne out by subsequent events. The absence of leucocytosis seemed a hopeful feature. The recurring chills and high fever giving place to a continuous fever also seemed to me to be rather against a septic process. I urged her to go to the sea-coast, and to rest so long as she had any fever, to be in the open air, and to take plenty of good food.

I heard from her to-day, Feb. 9th, 1897, and she states that the fever and sweats gradually lessened, though the latter were very stubborn. "With the return of cool weather I rapidly regained my strength, and now I feel perfectly well again."

These two cases stand out in my experience as showing rather unusual features for post-partum anæmia. The condition in both had been regarded, naturally enough, as septic, though there were no local troubles apparent. Fever is common enough in all forms of severe anæmia, but recurring chills, fortunately less frequent, are very liable to lead the practitioner into error.

#### XVII.—LINEÆ ALBICANTES.

One is not often consulted about the atrophic lines on the skin, but two patients came this year worried about their presence.

A young girl, aged 17, stout and comely, was brought by her father from a neighbouring city, much distressed at the appearance of certain spots upon the knees and thighs and arms, particularly on the latter, as she was approaching the 'low-neck and short-sleeved' phase of existence. She had had scarlet fever badly about four years ago, and these marks had been noticed for the first time during convalescence. They had increased within the past two years, and were a source of much annoyance. They were chiefly about the knees and outer surface of the thighs, where they formed bluish bands, unusually distinct, 1 or 2 cm. in length, and 5 to 1 cm. in width, narrowing, as is usual, at the ends. There were three or four about the extensor surface of each elbow ; two of these were large and attracted attention at once. She insisted that changes took place in them when she was 'out of sorts' ; they get red and feel itchy, and in cold weather they had a bluish tint.

The other case was a young married man, in the stout stage, a well-nourished Hebrew, who had been badly scared by the appearance of ugly looking scars on the skin of the lower abdomen. On either side

in the iliac regions the skin presented three or four pinkish-blue lines of atrophy. They felt like fissures in the skin, and the cuticle could be picked up readily. They had appeared since his marriage three months ago, and had been a source of much uneasiness to himself and to his wife. A few weeks ago I saw a remarkable instance of the development of the disease following a very rapid increase in weight during three months from 145 to nearly 190 pounds. They were similar in position to those in the case just mentioned, forming curvilinear bands, extending on either side from near the costal border to the iliac fossæ. The longest one of these was ten inches, and nearly three-fourths of an inch in breadth at its widest part. They were reddish blue in colour, and over them in certain lights, the whitish smooth cuticle glimmered.

There appear to be three different groups of these curious lineæ: (1) Those due to distention, as from pregnancy, lineæ gravidarum, and which develop in dropsy and in consequence of rapid increase in subcutaneous fat.

(2) Post-febrile atrophy, met with particularly after typhoid fever and also after scarlet fever, as in the case just mentioned. I have seen a number of instances after typhoid fever; the lineæ are usually about the outer aspect of the thighs, and upon the shoulders. I saw an extraordinary instance in 1895, at the seaside. One Sunday a number of us were bathing off the rocks, and my attention was directed particularly to a back the lower part of which was scored in deep transverse lines, one above the other, white and scar-like, but separated by narrow lines of healthy looking skin. The possessor of them told me that they had developed four or five years ago after a protracted attack of typhoid fever in Chicago.

(3) Idiopathic, seen in both men and women, about the knees, outer aspects of the thighs, abdomen, elbows and over the shoulders. This variety, quite as common in men as in women, has rarely the extent of the mechanical form

In none is the condition of any moment, and except the young lady above mentioned, I know of no instance in which the lineæ were a cause of disfigurement.



# RETROSPECT OF CURRENT LITERATURE.

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## Medicine.

UNDER THE CHARGE OF JAMES STEWART.

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### Cirrhosis of the Liver.

SIR DYCE DUCKWORTH, M.D., F.R.C.P. "Clinical Observations on Cirrhosis of the Liver."—*The Practitioner*, March, 1897.

After reviewing the classical symptoms of cirrhosis of the liver and briefly enumerating the minor indications of the same, Sir Dyce Duckworth emphasises the point that this disease is a *local one*. His conception of cirrhosis of the liver is that of by no means "a malady of widespread nature arising from alcoholic excesses, affecting almost every texture of the body, though presenting its greatest effects in the profound alteration undergone by the liver.

As causative agents of this disease it appears that alcohol is the only one considered, apart from syphilis, and the explanation of the infrequency of examples of the disease in view of the amount of alcohol consumed is found in the degree of vulnerability of tissue. Thus, in one instance alcohol finds the liver cells "specially vulnerable," and cirrhosis results, while with invulnerability of this tissue, alcohol works the excess along other lines. "Different tissues may react variously at different periods of life."

The common affirmation of a stage of early enlargement in atrophic cirrhosis, Sir Dyce regards as not absolutely proven, though such a condition seems not unlikely. One may find cases of cirrhotic enlargement attended with symptoms of cirrhosis where the rate of condensation of new formed tissue is slow.

Venous stigmata are to be regarded as of evil augury in all cases.

The two classes of hepatic cirrhosis recognized in England are (a) the atrophic and (b) the hypertrophic. Regarding the first variety as "the gin drinker's liver," Sir Dyce believes the second variety in some instances at least to be due to the alcoholic habit.

The "hobnail" roughness is not recognizable during life. The kidneys are remarkably free from disease in many cases of pure hepatic cirrhosis.

The varieties of hepatic cirrhosis the author provisionally classifies:

(a) The common or atrophic form due to alcoholic excess, with ascites, etc.

(b) Hypertrophic forms due to alcohol, with or without ascites, etc.

(c) Hypertrophic cirrhosis of biliary duct origin, with no ascites, but much jaundice.

In the discussion of the treatment, stress is laid upon habits of drinking and eating. Excess of fluids is to be avoided, alcohol forsworn, and the food taken to be as unstimulating as possible; alkalies and saline aperients for the catarrhal state of the alimentary tract, the bowels being moved with advantage twice daily. Ammonium chloride in full doses is in good repute, while delay in tapping the belly when pressure symptoms are present is unwarrantable.

In the later stages, however, the withholding of alcohol is a cause of much suffering and as such cases are almost without hope the indication is to relieve the suffering, since the disease cannot be cured. Hence under such circumstances, a moderate amount of alcohol in some form is admissible. Tapping in the later stages does not promise so much as when begun early and is indicated only when serious effects due to pressure threaten. Such an operation is not infrequently followed by symptoms of cerebral oppression.

Touching prophylaxis, Sir Dyce speaks strongly against the "innocent" habit of "nightly potations" of spirits and water which in many instances is followed by cirrhosis.

### Heart Disease.

GRAHAM STEELL. "Heart Disease—A retrospect over twenty-five years."—*The Medical Chronicle*, Manchester, February 1897.

In his presidential address before the Manchester Medical Society in February, Dr. Graham Steell reviews his experience of twenty-five years of practice and observation on cardiac cases, and presents certain heart phenomena in a light almost altogether new. At least some of the views are partly, if not altogether, reactionary.

The "curable mitral regurgitation," of Dr. Balfour, his former chief and teacher, is better designated by "curable muscle-failure" of the heart.

Such a cardiac condition wrought the disturbance of the circulation through a *systole*. For this term Dr. Steell has substituted that of "systole catalectic," a contraction, stopping short of completion.

“Systole catalectic” may result from increase of the blood pressure or from disease of the heart muscle. Imperfect systole is followed by increased expansion, and this may eventually lead to *mitral regurgitation*. The conditions, under which such a valvular lesion occurs are reviewed on the following heads :

1. The old-fashioned rheumatic cases.

In this section the writer strongly urges against an erroneous diagnosis in many cases of rheumatic cardiac involvement, the error being that the endocardium is regarded as the primary and chief seat of the lesion, whereas the myocardium is the structure or tissue at fault, though this is not in a state of myocarditis nor that of its results.

The relation between adherent pericardium and cardiac dilatation as one of cause and effect is an open question.

The importance which once attached to mitral regurgitation as a result of rheumatic endocarditis has greatly diminished. Rheumatic lesions are usually those of stenosis, while septic or ulcerative endocarditis is the common and great cause for mitral insufficiency, and Dr. Steell would find in splenic enlargement in heart disease a sign of support to this view of septic endocarditis.

2. Cases formerly considered as those of mitral incompetence, pure and simple are now considered as those of mitral stenosis—the great rheumatic endocardial lesion.

He would exalt the importance of mitral stenosis and of muscular failure of the heart, as the two chief factors in producing circulatory changes—mitral regurgitation in all probability, being but an accident in the course of these morbid states already mentioned.

The writer further pointed out the notorious variability of the physical signs of mitral stenosis as well as their frequent absence.

The systolic murmur heard so often in the pulmonary area, the “region of romance” of Balfour, was mentioned but to remark that “it is of great frequency in all kinds of heart disease.”

The pulsation in the second left intercostal space, seen so often in mitral stenosis as well as in muscular failure of anæmia, Dr. Steell regards as due to the infundibulum of the right ventricle rather than to the pulsating auricle as taught by Naunyn and Balfour. It is urged that the appendix of the auricle, the part anterior, becomes filled with decolourised clot and could not pulsate.

3. This group embraces those cases in which mitral regurgitation is due to simple muscular failure. These are some of the cases of imperfect systole. No auscultatory evidence of this condition may be available. This group is a very large one. Anæmics present many examples of this class and some of the so-called “hæmic” murmurs

may be attributable to such a condition of the mitral orifice. The cardiac failure of advanced chronic Bright's disease also comes into this category, while the alcoholic heart failure is doubtless a purely muscular one as well.

The views on aortic disease are substantially the same for many years.

The irregular varieties of angina in some of which the pain is referred to the epigastrium need special attention in making a diagnosis. Pericarditis is considered under four conditions. (*a*). There may be well marked friction without any symptoms or sequelæ of the disease: (*b*). There may be no friction; (*c*). Dulness and bronchial breathing frequently occur at the base of the left lung, posteriorly, in cases of a large amount of pericardial effusion; (*d*). Friction at the base of the heart in the pulmonary area and the generally "double cracking sound" heard in the same area, attributable to the heart movements against an emphysematous bulla at the edge of the lung, may be mistaken for each other. In the refinements of cardiac percussion Dr. Steell has no faith.

The number of cardinal symptoms of heart failure—dyspnoea, enlargement and tenderness of the liver, and dropsy, is increased by the addition of a fourth, viz., visible pulsation in the neck, either venous pulse or exaggerated arterial pulse. In therapeutics no drug has superseded digitalis and the "heresy" that it should not be used in aortic incompetence is passing away. Strophanthus and the nitrite salts have been introduced during this period and each has its place.

The dyspnoea of cardiac origin is best relieved by morphia and atropine, but caution is enjoined.

Paroxysms of angina pectoris are best treated with morphia and atropia subcutaneously and alcohol in hot water.

Each heart case is a case by itself for special consideration and treatment

*W. F. Hamilton.*

## Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

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### **Dermatitis as a Sequel to Exposure to X Rays.**

DRURY. "Dermatitis caused by Roentgen X Rays."—*British Medical Journal*, November 7th, 1896.

CROCKER. "A Case of Dermatitis from Roentgen Rays."—*British Medical Journal*, January 2nd, 1897.

REID. "A Case of Dermatitis as a Sequel to Exposure to X Rays."—*The Scottish Medical and Surgical Journal*, February, 1897.

As so often occurs, advances in scientific methods are found to have drawbacks.

A vesicular dermatitis has occasionally followed exposure to the X rays. In addition to the three cases referred to above, one case has been reported in *Nature*, one in the *New York Medical Record*, for April 25th, 1896, and in the epitome of the *British Medical Journal*, August 15th, 1896, a case of dermatitis and alopecia is abstracted from *Deut. Med. Woch.*, July 23rd, 1896.

Dr. Drury's patient was a gentleman, aged about 35, having symptoms of renal calculus. He was exposed to X rays to determine if possible, the presence or absence of a stone. The first exposure occupied one hour. At first five cells were used and later five more cells were added. The plate not proving satisfactory he was again exposed six days later, this time for an hour and a-half, ten cells being used. Nausea was felt after each exposure. The next evening after the second exposure he noticed the abdomen slightly red as if sunburned: a patch about  $1\frac{1}{2}$  inch square, just below the umbilicus being redder than the rest. This spot was exactly opposite the platinum plate in the tube. There was no itching nor pain. The third day the redness was more intense; on the fourth, some very small vesicles appeared; these very slowly increased in size during the next few days. The vesicles increased to large "bleds" and became ruptured; there was however no pain or itching.

By the eighteenth day after the second exposure great discomfort was felt, due to the abundant discharge pouring from the affected area. The patch had by this time increased in size and measured  $7\frac{1}{2}$  inches

across by 8¼ inches long. When the sore was cleaned it had a smooth, glazed, pink surface, quite level with the surrounding skin and very sharply defined. It was painless and almost insensitive. There were no granulations, as apparently only the cuticular layer was lost, having a surface exactly like that seen when the cuticle is rubbed off a dissecting room subject, except that it was a bright pink colour.

It proved to be most difficult to heal. In fact was not healed at the time the report was made.

Crocker's patient was a lad aged 16, apprentice to a surgical instrument maker, who had been exposed to the X rays for an hour. A Crookes' tube had been placed about 5 inches from the epigastrium. The following day the skin felt irritable and was of a deep red colour in the area subjected to the rays of the tube. This irritability increased and six days after the experiment the skin felt stiff when he bent the body. Three days later vesicles began to form and during the two following days increased in size and numbers. Notwithstanding the application of a lactate of lead lotion, the vesicles ruptured and the epidermis of the vesicular portion separated, leaving a raw surface.

The downy hairs with which the abdomen was rather thickly covered were still present on the site of the affected area. The persistence of the hairs on the inflamed portion of the skin is interesting in connection with the depilatory action of the X rays recorded by Professor Daniel, of Vanderbilt University, and quoted in the *New York Medical Record* for April 25th, 1896. In this instance the experiment was made on a co-worker, Dr. Dudley. The tube was only half an inch distant from the hair and the exposure was for one hour. Twenty-one days later a bald spot, 2 inches in diameter was found corresponding with the size of the X ray field close to the tube. In this case there seems to have been no inflammatory or other visible lesion or sensory symptom preceding the falling out of the hair.

Dr. King, of Toronto, reports in the November number of the *Canadian Practitioner*, a very interesting case. The victim was a demonstrator of the Roentgen rays before public audiences, and was exposed to their influence sometimes at first for only two hours a day, without evil effects, but when it was increased to six or ten hours, his right hand which was most exposed, began to blister, and the nails to separate from their attachment at their proximal end. The application of picric acid not only gave relief to the burning sensation, but appeared to have some protecting influence. After resting, the hand soon recovered, and he resumed his work, his left hand being this time exposed; similar phenomena ensued and in addition, the left

side of the face became swollen and red, and the hair of the head in front of the ear, fell off, together with the greater portion of his eyebrow and the left side of his moustache, and left whisker, which was almost bare, leaving the skin very soft and smooth. He also thought that his sight was somewhat impaired. It has been suggested that workers with these rays might wear red cloth gloves, or coat their hands and face with red paint which could be easily washed off.

Professor Reid suffered in his own person from exposure to the X rays.

The exposures to which he was subjected were as follows: Abdomen, November 2nd, 1896, twenty minutes, followed by forty minutes; chest, November 3rd, fifty minutes, followed on November 5th, by ninety minutes. The coil was of ten inch spark, fed by ten amperes, and the Crookes' tube ("focus" pattern) was some three inches from his waistcoat as he lay supine upon the table. On the evening of each exposure marked erythema of the skin of belly and chest were noticed immediately beneath the position of the vacuum tube, and in addition slight redness of the skin of the back over an area corresponding to the exit of the rays from the body. He at once commenced to rub in lanoline, consuming four tubes of this unguent in the next twelve days.

Vesicles soon appeared and gradually collapsed, so that by the fourteenth or fifteenth the cuticle was loose. On the back, vesicles also were formed, but soon subsided. By seventeen days the cuticle began to peel off, leaving a surface exactly like that seen when the cuticle is rubbed off a dissecting room subject except that it was a bright red colour.

The surface left was "raw" and "weeping" but not very painful. It was kept well dusted with powdered talc and protected from the friction of the clothes by a pad of wadding.

The discharge next became sero-purulent, and since he had then lost some thirty square inches of cuticle, and must have been daily losing considerable amounts of albumen in the discharge, it was with difficulty that he attended to his laboratory duties.

By twenty-seven days the surface was dry and in thirty-three quite healed.

At the time of writing (Jan. 11th, 1897), there is no vestige of hair left upon the chest, and he had not been troubled with shaving his chin for six weeks, the hair having come out by the bulbs to the touch of the razor twenty-two days after the chest exposure, after a slight erythema of the skin, not followed by loss of cuticle.

The waistcoat within which he suffered was lined with scarlet flannel.

Fortunately there seems to be little or no danger in exposing patients to one short exposure.

*Geo E Armstrong,*

## Gynaecology.

### Curiosities in Abdominal and Pelvic Tumours.

CROOM, J. Halliday. "Curious Relations of Abdominal and Pelvic Tumours."—*Edinb. Medical Journal*, Jan. 1897.

HANDFIELD-JONES. "Rapid increase in size of Ovarian Tumours and Pyosalpinx."—*Practitioner*, December, 1896.

At a meeting of the Edinb. Obstetrical Society the following series of cases, showing how impossible it is always to make an accurate diagnosis in cases of disease of the pelvic organs, was related by Dr. Croom. :

Case I.—Here, the patient had a cystic abdominal tumour situated above the umbilicus in the middle line. It gave her no trouble except urinary discomfort for some months before she was seen by the doctor and was only discovered during an attack of abdominal pain which followed severe exercise. The tumour being fixed and spherical, the diagnosis was doubtful. At the operation, it proved to be a cystic tumour of one of the ovaries, which was adherent to the anterior abdominal wall and had a pedicle measuring 10 inches in length which was not twisted.

Case II.—On making a pelvic examination of this patient, a tense cystic tumour pushing the uterus upwards and forwards was found. On account of its apparent fixity, it was diagnosed as a sessile ovarian tumour. On opening the abdomen for its removal, it was found to be quite free, having neither adhesion nor pedicle, and was removed without the use of a single ligature or the separation of a single adhesion. The surface was quite smooth except at one point where there was a slight roughening.

Case III.—This patient was admitted to hospital suffering from peritonitis, with a small dull area between the pubes and umbilicus, and a diagnosis of cystic tumour with a twisted pedicle was made. At the operation, an ovarian cystic tumour was found. This was adherent to the anterior abdominal wall, and the pedicle was not only twisted and very small, but it had given way close to the tumour. This must have occurred at a distant date as the pedicle was dry and there was no trace of hæmorrhage.

Case IV.—The diagnosis in this case, was of a parovarian tumour, and at the operation a pale fluid was drawn off. One small adhesion



to the anterior abdominal wall was tied off, after which the tumour was lifted out of the abdominal cavity, there being absolutely no pedicle or any other adhesion than that stated above. Both ovaries were intact, but the nature of the growth was not made out owing to the tumour being destroyed immediately after the operation, there being some misunderstanding concerning it.

Case V.—This patient gave a history of premenstrual pain, menorrhagia and sterility. On making a vaginal examination, a firm hard tumour the size of a billiard ball, was felt in the pouch of Douglas. Abdominal section was performed, when the mass was found to be perfectly free without adhesions and was readily picked up out of the utero-sacral fossa. The patient subsequently became pregnant. The tumour was found to consist of a Fallopian tube, the walls of which were very thin and contained blood-clot.

In connection with the above, it is interesting to note the extreme rapidity with which enlargements of the internal sexual organs of the female may increase in size, as shown by four cases, cited by Dr. Handfield-Jones in a clinical lecture delivered before the students of St. Mary's Hospital, London.

Case I.—This patient when first seen had a small cyst of the ovary contained entirely within the pelvis. In ten days time, it had extended almost up to the umbilicus, and was removed.

Case II.—On examining this patient, a solid tumour, the size of a small cocoanut, was found on the left side, and diagnosed as the left ovary. The right ovary was the size of a walnut and irregular in contour. She was seen on and off for twelve months without any increase in size of the tumour. The patient then left town, but had an attack of intense abdominal pain, which was followed by rapid increase in the size of the abdomen. Six weeks after this attack, she returned to town and the whole abdomen was found to be occupied by a large multi-locular ovarian cyst, which the patient stated had not grown any larger for the last three weeks, *i.e.*, it had attained its full size in three weeks from the attack of pain. The tumour of the left ovary could not be felt. On operating, the cyst was found to have originated in the right ovary, while the tumour of the other side had been pushed up underneath the ribs.

Case III.—The third patient was seen on December 9th, 1895, having been delivered of a full-time child three days previously by an experienced medical man, who did not discover anything abnormal in the pelvis, the labour being simple and uncomplicated. On the following day, the patient complained of her abdomen feeling distended, and on the next day a cystic tumour was observed which extended

to above the umbilicus. During the previous August, the patient had had pain in the right iliac region, but this pain was not constant, being more at night and passing off during the day. She suffered from œdema of the legs during the last half of her pregnancy, but she stated that her abdomen was no larger than during previous pregnancies. During the one day that she was in the hospital, the tumour increased about  $\frac{1}{3}$  in size, extending up to the xyphoid cartilage and causing greatly distressed respiration.

At the operation, a multi-ocular cyst of the right ovary was removed. The contained fluid was reddish and blood-stained, and the walls of the growth contained effused blood.

Case IV.—When the patient was first examined, the left ovary and tube were slightly thickened, and the right ovary was somewhat enlarged, but its tube was unaffected. Under an anæsthetic for curettage of the uterus, three weeks later, the ovary and tubes formed a mass the size of a walnut, while on the left side was a structure as large as a tangerine orange. At the end of a fortnight more, abdominal section was performed, when the right tube was found to be greatly distended with sero-pus and the walls to be very thin. There were no adhesions, so that it was easily removed. The left tube was similarly, but not so greatly, distended. Both ovaries were the seat of chronic inflammation and enlarged. Within five weeks these tubes had become so enlarged that the right one contained between five and six ounces and the left gave about four ounces of sero-pus.

#### **Novel Method of Performing Ovariectomy.**

SEVITSKY. *Annales de Gynécologie et Obstétrique*, 1896.

Sevitsky reports a case in which he removed an ovarian cyst per rectum during labour, but it is needless to say that the operation was not one of selection. The case was one of forceps delivery and, while drawing down the head, the tumour ruptured and discharged its contents per rectum. After delivery the cyst was drawn out through the rent in the rectal wall, was tied off and removed, the opening in the bowel being sutured. During the third stage, there was flooding, and the patient died of pelvic peritonitis on the second day.

#### **Endometritis.**

DÖDERLEIN. *Centralblatt für Gynäkologie*, Nov. 7th, 1896.

This writer considers that no such thing as inflammation only of the uterine mucosa exists, but that the uterus itself is also always involved.

He classifies this metro-endometritis as either infectious or non-infectious. In the infectious group, one finds septic and saprophytic, gonorrhœal, tubercular, syphilitic or diphtheritic endometritis. The second group originates in the tubes or ovaries, tumours (cancer or fibroid) nervous irritation, circulatory disturbances, anomalies of the development of the ovum or puerperal subinvolution. Microscopic anatomical characters show nothing definite as regards cause. He considers however, that interstitial endometritis is caused only by infection, while glandular and hyperplastic arise through inflammation of other parts of the uterus.

### **Incontinence of Urine an Early Symptom of Uterine Prolapsus.**

BOURSIER. *Arch. Clin. de Bordeaux*, 511-520, 1896.

In a paper upon uterine prolapse, published in the above journal, Boursier states that one of the earliest symptoms of prolapsus uteri is urinary incontinence, which may be either false or true and with or without pain. It is worse when the patient is in an upright position, straining or fatigued, and disappears on the patient reclining.

It is due to some lesion of the urethra, so that some operation for its correction is indicated.

### **Gland Extracts in Gynæcology.**

BELL, ROBT. *Internat. Med. Mag.*, July, 1897.

In a paper read before the British Gynæcological Society, Dr. Bell, upholds the use of these substances in the treatment of disease of the uterus and ovaries.

He considered that the healthy condition of the skin, mucous membrane, etc., is due to some action of the *thyroid gland*, as evidenced by the beneficial action of thyroid extract in psoriasis, where the changes in the epithelium are controlled by its administration. He infers from the above, that the absence of some obscure catabolic action of the gland enables the epithelium of the cervix to proliferate and so form carcinoma. Diseased conditions of the thyroid are almost invariably accompanied by metrorrhagia, thus showing that the function of the gland exerts, in some way, an influence upon the mucous membrane of the whole uterus.

The influence of the *parotid gland* is exerted upon the ovaries, but it is uncertain whether or not disease of that gland causes or favours disease of the ovaries. However, where these latter are affected, Dr. Bell maintains that they can be restored to their normal condition by the internal administration of the parotids of young calves, pigs or sheep.

He also claims that it is beyond dispute that fibroid tumours, chronic inflammation, or a flaccid condition of the uterus, can be relieved by giving mammary gland, either as an elixir or extract.

In support of these contentions he relates three cancers of uterus cured by thyroid; two fibroids of uterus relieved by mammary gland elixir; one hyperplasia of uterus cured by mammary gland palatinoids; one fibroid of ovary relieved by parotid palatinoids; four enlarged ovaries cured by parotid palatinoids plus ichthyol tampons.

*F. A. L. Lockhart.*

# Pharmacology and Therapeutics.

UNDER THE CHARGE OF A. D. BLACKADER.

## Treatment of Angina Pectoris.

OSLER, WILLIAM. "Lectures on Angina Pectoris and Allied States—Treatment of Angina."—*New York Medical Journal*, December, 1896.

We have read with a great deal of pleasure this series of lectures. Speaking of the treatment of this often terrible affection, the writer emphasizes the necessity for the practitioner, when called on to treat a case, to make himself acquainted with its individual character. Successful treatment often depends upon correct diagnosis. To a man whose mind is haunted with the dread of sudden death, the assurance that the condition is functional and curable comes as a reprieve, and may be the one thing necessary to effect a cure.

At the onset the existence of any constitutional disease, such as syphilis, gout, or diabetes, and the presence or absence of valvular lesions, should be determined. While emphasizing the importance of avoiding mental worry, and of taking exercise within strict limits, Dr. Osler thinks that in a majority of cases it is unnecessary for the patient to give up business altogether. Literature abounds with examples of men who, like John Hunter, have accomplished the best work of their lives after the onset of angina. Diet is in many cases the most important point in the treatment. The subjects of angina are often men with large appetites, accustomed to eat freely of rich and strong foods. The amount taken by many people above forty years of age is far too great and the meals should be limited both in quantity and quality. All foods favouring fermentation and therefore flatulence, should be especially avoided. In this matter of diet, the patient himself ought to be consulted. Smollett makes one of his characters, Matt. Bramble, say in *Humphry Clinker*, "For my own part, I have had an hospital these fourteen years within myself, and studied my own case with the most painful attention; consequently may be supposed to know something of the matter." We are too apt to forget this. An intelligent patient should be able to tell you just what articles of food give rise to flatulence. The obese, flabby subjects of angina, and those with weak heart and arterio-sclerosis are, in the writer's experience, most prone to suffer from this important.

factor in the causation of the attacks. A few doses of blue mass or an occasional saline purge may prove a corrective, and keep this troublesome condition in check. Sometimes stimulants are of service, and in other cases the various intestinal disinfectants may be used.

Of constitutional conditions underlying angina pectoris, syphilis and gout are the most important, and call for vigorous measures.

The fact is emphasized that in a large proportion of cases, remedies which influence arterial function and arterial nutrition are indicated. The use of the iodides of potassium and sodium in this disorder has been warmly advocated by Huchard, who states that of eighty patients with organic angina treated thoroughly by these drugs, twenty-two recovered, forty-three were greatly benefited, and fifteen died. The iodides appear to exert a beneficial effect in checking or modifying the progress of arterio-sclerosis, and in lowering the blood pressure. They may influence also arterial pain. In the treatment of aneurysm of the aorta by means of potassium iodide, the relief of pain is one of the most striking effects.

Dr. Osler says that while his experience has scarcely been so favourable as Huchard's, he can testify to the great relief which has followed its use in angina in many cases. In a few cases an apparent cure has resulted. The drug should be given in doses of ten or fifteen grains three times a day. Should it disagree, the sodium salt may be substituted. Larger doses are not often necessary. If intolerance develops, the administration should be stopped for a week, and only begin in smaller doses. The success in the treatment will depend upon the perseverance with which it is taken. Huchard says that the drug should be taken for a period of two to four years in daily doses of one to three grammes until all symptoms of angina have disappeared; a permanent and definite recovery is not obtainable until after many years of treatment. Reasonable caution, however, must be employed, and iodides should not be given in those cases where we have to deal with advanced arterial degeneration, a dilated heart, and signs of interstitial nephritis. Those who stand the treatment best are the robust middle aged men, in whom angina is the only symptom.

The nitrites are also of much value in hypertension and angina. The nitrite of amyl may be employed in the paroxysm; but nitroglycerin should be given regularly in all cases where the tension is persistently high. Care must be taken to ensure that the drug is freshly prepared. The tablets containing one one-hundredth of a grain are, as a rule, reliable. At the beginning of a course one may be given three times a day, but the dose may be increased gradually until the patient takes four or five three times a day. Dr. Osler thinks that

failure is sometimes due to not giving the drug in large enough doses. Considering the very evanescent action of the drug, our own feeling would be to increase the frequency rather than the size of the dose. Dr. Osler says of it, "I have never seen it do any harm. The extreme flushing and the throbbing headache give reliable indications when the limit has been reached. I have given as much as thirty minims of the one per cent. solution, three times a day, to a case of chronic arterio-sclerosis, without any disturbance." The nitrate of sodium, recommended by Hay, may also be employed in doses of five to ten grains three times a day.

Among other remedies arsenic is sometimes of much value. Balfour advises it particularly in the weak heart of elderly people, when associated with pain of any kind. In cases of feeble heart with anæmia, iron and strychnine are of value, and may sometimes be associated with the arsenic.

For the paroxysm itself there are three remedies. Nitrite of amyl, two to five minims used by inhalation, either on a handkerchief or from cotton wool placed at the bottom of a wineglass, gives prompt relief in certain cases. But too much must not be expected of it. It is singularly uncertain. While affording prompt relief in some cases, in others it seems quite inert. In those cases where it fails to relieve the pain, an injection of a quarter of a grain of morphine should be given hypodermically, and repeated in half or three-quarters of an hour if the patient is not relieved. There appears to be a remarkable tolerance of this drug in some cases. In one of Dr. Osler's patients, five grains of morphine given hyperdermically and by the mouth between 10 p.m. at night and 1 p.m. on the following day, relieved the pain, but failed to produce sleep. In some cases a small dose given at the first indication of the attack checks it at once. In any paroxysm of great intensity while waiting for the nitrite of amyl or morphine to take effect, chloroform may be employed on a handkerchief. Balfour recommends that it be poured on a sponge in a smelling bottle and the patient told to breathe it through the nose as deeply as possible. Relief is obtained in a minute or two, and as the patient comes under the influence of the drug, the bottle drops from his hand, and in this way danger from overdose is avoided. Chloroform acts much more promptly, and is much pleasanter to take than ether, and Dr. Osler has never seen any dangerous effects from its use, even in persons with weak heart action.

For the syncope of serious attacks, the aromatic spirits of ammonia, with Hoffmann's anodyne and brandy, may be given by the mouth, or ether or camphor by hypodermic injection. For the dilatation

and cardiac weakness, which sometimes follow the attack, nitroglycerine with strong friction to the limbs may favour the circulation at the periphery, while digitalis or digitalin may be given to stimulate the heart's action. Caffeine and camphor may also be employed. If all these measures seem futile, Dr. Osler would not hesitate to employ puncture of the heart, a proceeding which may arouse to quite vigorous action a dilated and paretic organ. Instances, he says, are on record, notably the case of Sloane (*Edinburgh Medical Journal*, Vol XL,) in which puncture of the heart with a needle, driven firmly into the ventricle, has aroused the flagging action without apparently doing the slightest injury.

For the condition of chronic *état de mal angineux*, in which for many days or weeks the patient has recurring attacks with cardiac asthma and feebleness of the circulation, our resources will be taxed to the uttermost. Full doses of strychnine hypodermically may be employed. The bowels should be kept freely opened, and flying blisters to the præcordia and to the bases of the lungs may sometimes prove of service.

A. D. Blackader.



# Obstetrics and Diseases of Infants.

UNDER THE CHARGE OF J. C. CAMERON.

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## Treatment of Pruritus Vulvæ.

P. RUGE. "Zur Therapie des Pruritus Vulvæ."—*Zeitschrift für Geburtshülfe and Gynakologie*, Band. XXXIV., S. 355.

Few diseases of pregnancy cause greater inconvenience and discomfort to the patient and are more rebellious to treatment than pruritus. It may be merely the local expression of a general process such as diabetes, rheumatism, albuminuria, tuberculosis, neurasthenia, &c., when local treatment will fail and relief can be obtained only by treating the underlying general condition—or again, pruritus may be caused directly by some local pathological condition of the genitals, such as herpes, vaginitis, metritis, cancer of the uterus, &c.; a careful local examination should reveal the cause of trouble and indicate the proper line of treatment. Some obstetricians describe an *essential* or *idiopathic* pruritus without apparent local causation which they refer to central causes. Säger does not admit the evidence of essential pruritus, but affirms the existence always of some primary disease of the vulva, which secondarily affects the nerve endings, and he holds that in most cases direct external treatment will effect a cure, although in some obstinate cases resection of certain portions may be necessary. Ruge says that the essential part of the local treatment is thorough disinfection of both vulva and vagina. It should be done as carefully as if a vaginal operation were to be performed. Ruge washes, soaps and then disinfects with sublimate solution, the vulva, vagina and cervix till all pathogenic micro-organisms have been removed, he then applies to the vulva an ointment of carbolated vaseline (3 to  $\frac{1}{4}$  per cent) The obstetrician should carry out this local treatment himself, using his fingers, but not brushes or instruments which might cause fresh lesions. Ruge says that the positive and immediate results are in most cases surprising. In severe as well as in mild cases, even when complicated with deep and extensive ulceration, cure is rapid. For some years he has treated systematically in this manner all cases of pruritus, whether leucorrhœa was present or not, with surprising results. Ruge's paper was read before the Obstetrical Society of Berlin, and in the discussion which followed Martin, Fleischlen, Brose

Bodenstein and others corroborated his statements and for the most part coincided with his views.

### **Fibromyomata and Conception.**

G. PUJOL. "Fibro-myomes utérins et conception."—*Arch. de Gyn. et de Tocologie*, Oct., 1896, p. 720.

Most authorities agree that uterine fibromyomata cause sterility, if not *absolute* as affirmed by Louis, at least *relative*. In other words myomatous women are less fruitful than the average. The collected statistics of a number of observers give a total of 2,050 women with uterine fibromyomata; 620 were sterile, (1 in 3.14), whereas the average sterility in other women is only 1 in 8. Fibromata of the cervix have less harmful effect than those of the corpus. Recognising the coincidence of sterility and uterine fibromyomata, some observers (Virchow, Scanzoni, Spiegelberg, Bayle, &c.) have reversed the proposition and assert that sterility is the cause of fibromyomata. This opinion does not seem to be supported by the evidence. Recently Hofmeier has opposed the commonly accepted view that these tumours cause sterility, and seeks to prove by statistics that there is no diminution in reproductive power in such cases, but rather an increase. Kleinwachter supports this view. The fact remains, however, that diminution in fecundity is noted in most of the statistics and that the same thing has been observed by veterinary surgeons. It is claimed that the frequent uterine deviations and the inflammatory changes set up by the tumours (metritis, endometritis, vulvovaginitis) account for the sterility. Moreover experience has shown that women with uterine fibromyomata have not unfrequently become pregnant shortly after the removal of the tumour, although sterile for years previously.

### **Amniotic Infection after Rupture of the Membranes.**

L. DEMELIN. "Des infections amniotiques qui se produisent après la rupture des membranes."—*Archives de Gyn. et de Tocol*, Sept. 1896. p. 679.

When the membranes rupture, the liquor amnii generally remains aseptic, because the presenting part of the foetus usually presses down upon the cervical opening like a ball valve, and the microbes in the cervix and upper part of the vagina are generally non-pathogenic. But amniotic infection occasionally happens and is attributable to one of the following causes:

(1) A long interval between rupture of the membranes and the conclusion of labour (from 2 to 5 days).

(2) The long duration of labour. When the membranes rupture several days before labour, but confinement is completed rapidly after the pains set in, there is less danger than when labour lasts a long time.

(3) Repeated vaginal examinations after rupture of the membranes or self infection by introducing unclean fingers into the vagina.

(4) Infected clothing, dressings, sponges, douche-nozzles, instruments, bed-pans, &c.

(5) Face presentations and those which remain high, thereby favouring the entrance of air into the amniotic cavity.

(6) Certain pathological conditions, especially those accompanied with putridity, such as vegetations of vulva and vagina, vaginitis, leucorrhœa, cancer of the cervix, &c.

(7) Death of the fœtus, or death of one fœtus in a twin pregnancy. Before the fœtus perishes, meconium is generally discharged into the liquor amnii, which favours its subsequent infection.

*Consequences of Amniotic Infection.* The liquor amnii becomes modified in its odour and colour. The fœtor may be more or less marked and the colour may be normal, greenish or blackish. In grave cases, there is elevation of temperature and constitutional disturbance and the puerperium will have septic complications in most cases. There may be physometra, even though the foetal heart is heard. The child may scarcely suffer and may be born alive and in good condition, or its heart beats may become irregular and feeble and it may perish. The placenta may be fetid and often the foetal surface and the membranes are yellowish, dirty, opaque, sometimes covered with a layer of pus.

*Consequences of Amniotic Infection for the Newborn Child.* In the graver forms, the child may be born in a state of apparent death; it may be fetid, its body covered with a yellow purulent coating composed of a mixture of sebum and putrid liquor amnii, with streaks of meconium here and there. The cord is a dirty greenish yellow. There is complete muscular inertia, the eyes closed, chest motionless, heart beating slowly and feebly, greenish yellow mucus exuding from mouth and nostrils. Sometimes the condition is less serious and the child can be resuscitated but dies in a few hours. In still milder cases, the child may be resuscitated and seem to be doing well, but at the end of three or four days certain conditions may arise which lead to a fatal termination. The commonest of these are, cutaneous erythema, multiple abscesses, umbilical infection and suppuration, hepatitis, digestive disorders, vomiting, diarrhœa, malnutrition, affections of the respiratory tract such as simple or suppurative rhinitis and

broncho-pneumonia with cyanosis. These affections are often accompanied by fever, and sometimes by nerve symptoms and convulsions; whenever any of these complications has fairly set in the child usually succumbs.

*Treatment.*—When the membranes rupture prematurely, amniotic infection should be prevented if possible, by rest in bed in the horizontal position, genital asepsis, and covering the vulva with a large sterilised tampon (placed *upon* the vulva, not *in* it). The vagina should not be repeatedly douched, nor tamponed; one thorough antiseptic vaginal douche at the outset is sufficient. Vaginal examinations should be made as seldom as possible. Rapid delivery will give the best chance to both mother and child. Artificial dilatation of the cervix by means of a Champetier de Ribes bag, followed by forceps or version is the best treatment. Dührssen's multiple incisions of the cervix are not to be recommended. When the head is engaged, the Champetier bag may prove harmful by pushing back the head; Tarnier's dilator is then preferable. When the child is delivered, it should be washed several times, the throat and nose cleaned and irrigated with boiled water, an enema given and in fact all precautions taken to remove septic matters as far as possible. If subsequent complications occur, they should be treated promptly.

### Should Albuminuric Women Nurse Their Children ?

GAMULIN. "L'allaitement chez les albuminuriques."—*Arch. de Gyn. et de Tocologie*, November, 1896, p. 743.

Can or should a woman nurse her child if she has suffered from albuminuria during pregnancy, and is obliged to continue the milk treatment during the puerperium on account of the persistence of albumin in her urine? Most physicians forbid nursing under such circumstances on the ground that both mother and child would suffer. The mother would be enfeebled and albuminuria would not disappear so rapidly, and the child would probably suffer more or less from malnutrition. Gamulin opposes this view, and proves from the statistics of the Baudelocque Clinic where the mothers nurse their own children, that no evil results have followed, but, on the contrary, the mothers improved in health, and the albuminuria disappeared completely while they were upon a rigid milk diet. Their children thrived and grew, though not so fast as those of quite healthy mothers. The ultimate test of a woman's efficiency as a nurse is the increase in weight of the child. Tarnier has laid down the rule that a daily increase in weight of 20 grammes is the minimum with which

we should be satisfied. The average daily gain has been variously estimated by different observers. Bouchard makes it 25 grammes, Bidet 28, Winckel 35, Tarnier and Chantreuil averaging the averages of other observers place it at 30 grammes. Winckel has observed that more than 50 per cent. of new born children regain their birth weight by the tenth day. Of the children of albuminurics in the Baude-locque Clinic, only one in five did not gain 20 grammes per diem, and some reached 35 grammes; two-thirds regained their birth weight by the tenth day, and more than one-half of them by the seventh day. Albumin had disappeared entirely from the urine, or only a trace remained when the mothers left the clinic; in two cases it had increased and in five it remained stationary. From the consideration of these statistics, Gamulin concludes that the children of albuminurics nursed by their own mothers develop and grow as well as other infants, and that the mothers themselves, though kept on a strict milk diet, suffer no ill-effects from nursing their children. He believes, therefore, that every albuminuric mother can and should nurse her child; only in the rare cases when the albumin remains stationary or increases, should nursing be stopped.

*J. C. Cameron*

# Canadian Medical Literature.

UNDER THE CHARGE OF KENNETH CAMERON.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL. Such reprints should preferably be addressed to Dr. Kenneth Cameron 903 Dorchester street, Montreal.]

## PERIODICALS.

FEBRUARY, 1897.

### THE CANADIAN PRACTITIONER.

The phrenology of Gall, and Flechsig's doctrine of associated centres in the cerebrum—Lewellys F. Barker, Baltimore, p. 79.

Lacerated perineal wound; death from sepsis; use of antistreptococcic serum—A. Primrose, Toronto, p. 109.

### THE DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

Osteosarcoma—C. R. Charteris, Chatham, Ont., p. 121.

Colles' fracture—C. M. Stockwell, Walkerville, Ont., p. 123.

### CANADA MEDICAL RECORD.

Nursing the insane—J. V. Anglin, Montreal, p. 229.

Diplo-streptococcic puerperal infection treated with Marmorek's serum—A. J. Richer, Montreal, p. 245.

### THE MARITIME MEDICAL NEWS.

Dysmenorrhœa—J. Clarence Webster, Montreal, p. 41.

Some practical points in the application of plaster-of-Paris jackets—M. A. B. Smith, Dartmouth, N.S., p. 56.

Case of malformation of fœtus—T. C. Lockwood, Lockeport, N.S., p. 59.

### L'UNION MÉDICALE DU CANADA.

Traumatisme grave de l'orbite ayant intéressé le sinus maxillaire, ethmoïdal et sphénoïdal—A. A. Foucher, Montréal, p. 65.

Appendicitomie—A. Charbonneau, Ogdensburg, N.Y., p. 68.

Un cas de thyroïdectomie partielle—O. F. Mercier, Montreal, p. 71.

De l'emploi des cultures atténuées comme moyen d'éviter les pseudo-réactions dans de séro-diagnostic de la fièvre typhoïde par la méthode du sang desséché—Wyatt Johnston, Montreal, p. 74.

### LA CLINIQUE.

Plaidoyer en faveur du traitement rationnel des douleurs pelviennes chez la femme—J. Clarence Webster, Montreal, p. 255.

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### THE CANADA LANCET.

The bacteriological diagnosis of diphtheria—Shuttleworth, Toronto, p. 323.

On treatment of dysmenorrhœa—A. L. Smith, Montreal, p. 329.

### THE CANADIAN JOURNAL OF MEDICINE AND SURGERY.

Notes on the symptomatology and diagnosis of sensory, motor, or trophic paralysis, consecutive to lesions of contiguous parts, resulting from violence—Thomas H. Manley, New York, p. 93.

Chorea: treatment by training—B. E. McKenzie and H. P. H. Galloway Toronto, p. 99.

## THE MARITIME MEDICAL NEWS.

The treatment of typhoid fever—G. C. VanWart, Fredericton, N.B., p. 81.

Ovariectomy after rupture of cyst—Edw. Farrell, Halifax, N.S., p. 85.

A case of Friedreich's disease—F. S. Kinsman, Digby, N.S., and G. D. Turnbull, Arcadia N.S., p. 88.

A case of imperforate urethra—W. G. Putnam, Yarmouth, N.S., p. 91.

## THE DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

The relation of the physician to the public—A. McLean, Sarnia, Ont., p. 217.

Cases in practice—Radical cure of inguinal hernia in a child five and a half months old—Ernest Hall, Victoria, B.C., p. 224.

## LA CLINIQUE.

No original articles.

*Kenneth Cameron.*

## Reviews and Notices of Books.

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**The Practice of Medicine.** A text-book for Practitioners and Students with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Philadelphia Hospital, &c. Philadelphia: P. Blakiston & Co., 1896.

This, the most recent addition to the already large list of text-books on the practice of medicine, contains nearly twelve hundred pages. The author who has for many years occupied a prominent position as a Clinician in the University of Pennsylvania is already well known to practitioners and students in the English speaking world as the author of two excellent manuals, one dealing with the urine, the other with physical diagnosis. The volume under consideration has been the work of several years labour.

The first section deals with the infectious diseases, typhoid fever being first considered. It is hardly necessary to add that Dr. Tyson is an advocate of the cold bath treatment of this disease. What a striking contrast there is in respect to this method of dealing with typhoid fever between American and English authors. The former, hardly without an exception are thorough advocates of the measure, while the latter have not as yet seen their way to consider it a measure which is necessary to give a full description of, let alone advocate it.

For the treatment of pneumonia, Dr. Tyson is an advocate for blood letting, in the early stages in many cases, except those of pronounced adynamia. He says that the indications for blood letting are first: "great dyspnoea; second, full bounding pulse; and third, sharp, pleuritic pain. The relief to all of these symptoms is often magical." He recommends that at least twenty ounces should be withdrawn, but not the quantity of blood so much as relief to the symptoms should be the sign to stop the bleeding. He considers that the same results may be obtained by wet cupping, provided a sufficient amount of blood is withdrawn, but cupping although appearingly less formidable, causes the patient more distress.

We are pleased to see that Dr. Tyson gives the weight of his authority against the employment of cardiac depressants. About veratrum viride he writes: "I have never felt comfortable in relying upon it." There is surely an increasing loss of faith in the usefulness of such agents, powerful they no doubt are, but who can be sure that in a pneumonic patient they are not more likely to do harm than good.



The author thinks a large blister is useful in cases of delayed resolution.

Strychnine and alcoholic stimulants are considered to be the agents, on the whole, the most useful, but as he says, "a fundamental principle which experience has established is that no single plan of treatment dare be recommended for pneumonia, but that each case is a law unto itself." should always be remembered.

Our space forbids us dealing in any more details. We have much pleasure in recommending the work.

It is as far as we can judge an able and trustworthy guide for the practitioner and student. It is worthy of taking a high place among the textbooks published in the English language.

The illustrations are numerous and well executed. The publishers have certainly done their part of the work in a highly creditable manner.

J. S.

**Anomalies and Curiosities of Medicine.** GEORGE M. GOULD, A.M., M.D., and WALTER L. PYLE, A.M., M.D. Imp. 8vo. pp. 968, with 295 illustrations in the text and 12 half-tone and coloured plates. Philadelphia, 1897: W. B. Saunders, 925 Walnut Street.<sup>1</sup>

It is somewhat strange that great as is the interest in rare and curious medical cases and in anomalies of development, until the appearance of this volume, there has been published no encyclopædic collection of rare and extraordinary cases, or of the most striking instances of abnormality. A possible reason may be in the fact that any such full collection must largely deal both with anomalies of the genitalia and with perversions or diseased conditions of the generative functions, for of all departures from the normal these assuredly are in general estimation the most 'curious.' Whoever therefore essays to treat this subject is in danger of putting out a book which will appeal to an audience, outside our own profession, that is repugnant and the more a man is a true student, the more capable he is of searching through the medical literature of all ages and of compiling a satisfactory collection of strange cases, the more is he likely to shrink from the possibility of ministering in the main to depraved appetites.

Nevertheless the need has been so great for some convenient work of reference in which to find recorded extreme and unusual cases comparable with those one occasionally comes across in practice that we can only be grateful to Drs. Gould and Pyle that they have essayed to publish this work. The amount of research involved has been enormous, and they and their publishers are to be congratulated upon producing so valuable and handsome a work, containing such a mass of information out of the common. As the authors state in their preface, "to know extremes gives directly some knowledge of means, and by implication and inference it frequently does more. Remarkable injuries illustrate to what extent tissues and organs may be damaged without resultant death, and thus

<sup>1</sup> Price \$6.00 cloth, \$7.00 half-morocco. Sold only by subscription.

the surgeon is encouraged to proceed to his operation with greater confidence and some definite knowledge as to the issue. If a mad cow may blindly play the part of a successful obstetrician with her horns, certainly a skilled surgeon may hazard entering the womb with his knife. If large portions of an organ—the lung, a kidney, parts of the liver, or the brain itself—may be lost by accident and the patient still live, the physician is taught the lesson of *nil desperandum*." But more especially, perhaps, these examples of uncommon conditions have a medico-legal interest, for he is the best expert witness who knows best the limits of the possible, and looking through the pages of this work it appears to me that those parts which have a medico-legal bearing are the fullest and most valuable. Indeed much more might with advantage have been included that is of especial value to the physician and surgeon, pure and simple; many rare conditions and rare symptoms might be quoted which find no place in these pages. It must however be admitted that to collect and record extreme instances of each condition of disease would be to enter upon a wholly neglected field and would be a Herculean task. Evidently the authors regard what they have thus far accomplished as only a beginning and they invite communications upon rarities not here recorded.

Altogether so far as it extends the work is in itself a great advance and is invaluable, and large as it is we sincerely hope that it will undergo future great extension.

J. G. A.

**Lectures on Renal and Urinary Diseases.** By ROBT. SAUNDBY, M.D., F.R.C.P. Second edition, with numerous illustrations. Bristol: John Wright & Co.; London: Simpkin, Marshall & Co., 1896, pp. 434 8vo.

Dr. Saundby's writings upon Bright's Disease and upon Diabetes, are so well known and so useful as a comprehensive study of these conditions, that we welcome this new edition in which they are re-published in a single volume. They have been carefully revised, new matter has been added, among this a section upon miscellaneous affections of the kidney, which makes the book very complete as a text book upon renal and urinary diseases.

It is to be remembered that this work is a republication in a single volume, of lectures upon Bright's disease and upon Diabetes. It is in connection with these two conditions that the work is fullest. But reading over the book we find, that there is very little of importance bearing upon diseases of the kidney that does not receive a clear and thoughtful treatment. Add to this, that not only are we given Dr. Saundby's own extensive observations upon pathological conditions of the organ with numerous histories of illustrative cases, but that the intimate acquaintance with the literature on the subject which was shown in the original lectures, is if possible still more evident, and throughout has been brought down to within the last few months.

The form of the work, the printing and the illustrations, which include numerous coloured diagrams of associated retinal conditions are throughout excellent. While personally we may not wholly agree with Dr. Saundby's conclusions as to the pathology of Diabetes, we cannot but acknowledge that he has throughout most conscientiously given the diverse opinions and theories of the numerous writers upon this subject, and we truly acknowledge that this want of complete agreement between ourselves and Dr. Saundby in the matter is by no means an indication of any weakness in the work, for it is notorious that no two men at the present time have identical views upon the subject. J. G. A.

**Practical Diagnosis: The Use of Symptoms in the Diagnosis of Disease.** By H. A. HARE, M.D., B.Sc., Professor of Therapeutics in Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital. Illustrated with 191 engravings and 13 coloured plates Philadelphia and New York: Lea Brothers & Co., 1896.

The method adopted by the author in this volume is entirely different from that usually followed. The prominent symptoms of the various diseases are fully described and under the heading of each is a list of the possible diseases capable of giving rise to such symptoms. Thus, under the head of vomiting, we have first an account of the symptom, its different forms, its various causes, and the differential diagnosis between them. In many, but not in all respects such a method has distinct advantages. It appears to be a more natural and simpler way of arriving at a diagnosis.

Dr. Hare has certainly given us a valuable work, and he has followed his plan throughout with great care and ability. The work contains numerous new illustrations. J. S.

**Autoscopy of the Larynx and Trachea** (direct examination without mirror), by ALFRED KIRSTEIN, M.D., Berlin; authorized translation (altered, enlarged and revised by the author), by MAX THORNER, A.M., M.D., Cincinnati, O., with twelve illustrations. Philadelphia: The F. A. Davis Co., 1897.

This work is mainly a translation by Dr. Max Thorner, of Cincinnati, of Dr. Kirstein's already well-known monograph on the autoscopy of the larynx and trachea.

There is probably a great future for autoscopy in laryngeal work, but still certain anatomical obstacles are bound to occur in a number of cases which can be only overcome by the mirror.

In suitable cases, after once the knack has been learned, it does undoubtedly surpass the mirror laryngoscopy.

The viewing of the larynx directly with the autoscope instead of by reflected light, is itself a great advance and operative technique is made much more accurate and easy.

The difficulty is, as Kirstein remarks, to secure the knack of using the autoscope rapidly, and yet painlessly.

Another drawback is that the surgeon has to get the patient's breath full in the face.

Dr. Kirstein himself does not claim everything for his autoscope, but yet holds it is capable of still further development.

If only a very little of what Dr. Kirstein claims for it is correct, no throat surgeon should fail to have one.

The book itself is well printed and illustrated and the directions are very clear.

J. W. S.

**Transactions of the American Ophthalmological Society,**  
32nd Annual Meeting, New London, Conn., 1896. Hartford: Published by the Society, 1897.

The Transactions of the American Ophthalmological Society for 1896, are just to hand and supply some interesting reading.

The size of the volume is above the average, but although increased in bulk the contributions are hardly up to a very high standard.

It may be said to consist almost entirely of a long series of case reports. These are very interesting, true, but in a large flourishing Society like the American Ophthalmological, one can be excused for looking for original work and something more than case reports.

Orbital and intraocular tumours are in strong evidence.

Dr. C. S. Bull's paper on the course and prognosis of orbital tumours is very instructive. Dr. Knapp reports a rare case of multiple intracranial and orbital osteosarcomata.

Dr. Emerson's production of a patient with double optic neuritis, likely due to intracranial aneurism is also very interesting.

Two cases are mentioned in which the X rays were used to locate a metal foreign body in the eye.

Dr. Wadsworth, of Boston, reported a patient suffering from embolism of the central artery of the retina, with retained central vision, likely due to the macula drawing a part of its blood supply in this case from an abnormal cilio-retinal artery, which was clearly visible with the ophthalmoscope.

Dr. P. C. Harlan deals with the retention of the pupillary light reflex in absolute blindness, the cause of the blindness necessarily lying in the cornea, beyond the pupillary centre, at the base.

The above will suffice to show the style of last year's transactions, which are interesting and instructive, but rather lacking in original work or research.

J. W. S.

### **The Nursing World Bed-Side Record.**

We have received from the Imperial Granum Company several copies of this "Bed-Side Record." A short time ago the "Nursing World" offered prizes for the best method of taking notes of cases. As none of the

forms suggested by the competing nurses were quite satisfactory, the enterprising editor, Dr. J. Ed. Brown, selected the best points from all the designs which were submitted and the result is the chart before us. It is so comprehensive that a detailed description would require more space than we have at our disposal, but the Imperial Granum Co. will send copies to any physician or nurse desiring to use them. As careful note taking is to be encouraged, we would advise every practising physician to at least make a trial of this Record. Each book contains 42 pages for the record of symptoms, etc., besides temperature charts for six weeks, and blank pages for the record of prescriptions, previous and subsequent history of the case, and memoranda.

**Transactions of the Medical and Chirurgical Society of the State of Maryland.** Ninety-eighth Annual Session held at Baltimore, April, 1896.

As usual this report contains some interesting reading. The President's address, by Charles G. Hill, on the effect of thyroid feeding on the insane, is an account of the results obtained in forty cases treated by this method, with the deductions which he has drawn from them. The annual address, on the relation of disease and recovery to therapeutics, is by Solomon Solis Cohen, and in it he points out the need for rational therapeutics. The appendix contains an address by James R. Chadwick on Medical Libraries in which he gives statistics of the growth of these libraries in the United States. This, with the reports of the committees, completes the volume.

## Society Proceedings.

*Stated Meeting December 31st, 1896.*

GEORGE WILKINS, M.D., PRESIDENT IN THE CHAIR.

### **A Cardiac Case for Diagnosis.**

Dr. W. F. HAMILTON exhibited a boy aged ten years, the subject of a cardiac lesion. He read the history of the case, demonstrating the physical signs present, and pointed out the difficulty of classifying it among any of the recognised heart lesions. The case was examined thoroughly by the members present, but no one was able to give a satisfactory solution of the problem.

### **A Case of Vicarious Labour Pains.**

Dr. WYATT JOHNSTON read for Dr. D. D. MAC TAGGART and himself a paper on this subject, which will appear later.

### **Associations of Tonsillitis and Diphtheria.**

Dr. J. C. CAMERON related this case, a report of which appeared in the December number of the JOURNAL.

Dr. C. W. WILSON related the history of two of the cases referred to by Dr. Johnston. The first was a case of hernia, and was seen on the second day after tonsillitis had developed. The follicles were filled with a dirty grey secretion which could be rubbed off and was discrete, not in patches. A swab was taken and sent to Dr. Johnston who found no diphtheria bacilli microscopically, but next morning the growth upon the culture medium showed diphtheria bacilli distinctly. Three cc., of Schering's antitoxin were injected and nothing further developed. Two days later, although no constitutional symptoms were present, another swab was submitted and diphtheria bacilli found once more, and four days later again they had disappeared. A case of diphtheria had occurred two weeks previously in the house of a cousin, where frequent visits were interchanged.

The second case occurred in the Montreal General Hospital. A child suffering from hip-joint disease developed a tonsillitis with acute symptoms. A swab was submitted and a negative report received. The tonsillitis subsided; but a second swab, taken two days later, showed diphtheria and the child was sent to the Civic Hospital to avoid causing infection to the other occupants of the ward and the disease has had an uneventful course.

Dr. A. W. HALDIMAND referred to a case in which there was a dis-

tingent membrane on the tonsils, soft palate and pharynx, and which he immediately diagnosed as diphtheria. A culture was submitted to Dr. Johnston who reported that no bacilli were present. The membrane gradually disappeared under the use of peroxide of hydrogen spray. From a second swab a report was received of "present (?)"

Dr. G. T. Ross thought the subject was of great practical importance and that Dr. Johnston's statements supported the progressive infection theory of diphtheria put forth by several authors. They considered that many cases were of the nature of ordinary angina, infective, but containing no true bacilli, and that later true diphtheria was engrafted upon them, perhaps a week after the appearance of the tonsillitis. He alluded to an epidemic which had been recently reported of 100 cases of sore throat, in a school of 300 pupils, where there were no symptoms of diphtheria, but later on a case of diphtheria came in contact with one of these and the disease developed. He asked if Dr. Johnston had done any work on the microbic theory of rheumatism. This disease was said by some writers to develop from tonsillitis by the lymphatics supplying the tonsils, conducting the poison into the system.

Dr. WYATT JOHNSTON in reply said he did not consider it necessary to isolate cases in which only a few bacilli were found. It was, however, a good plan to give a dose of antitoxin. He had had no experience of rheumatic tonsillitis.

#### **The Quantitative Estimation of the Serum Reaction by the Dried-blood Method.**

Dr. WYATT JOHNSTON read a report of this method by Dr. D. D. MAGTAGGART and himself. (See page 709 of the March number.)

*Stated Meeting, January 15th, 1897.*

JAS. BELL, M.D., IN THE CHAIR.

#### **"Tic Convulsif."**

Dr. F. G. FINLEY exhibited two brothers suffering from this malady. (See page 718 of the March number.)

Dr. W. F. HAMILTON said that these patients reminded him of a case which was a puzzle in diagnosis. The first case shown by Dr. Finley illustrated the character of the movements in his own case; there were increased and spasmodic movements on voluntary motion, but, in addition, the trunk muscles were involved as well as the diaphragm and other respiratory muscles, causing a quick expiratory puff at times during the height of a seizure. He had classified it as one of paramyoclonus multiplex. The disease dated from the age

of three years to the present age of twenty-three. There were no mental changes or epileptiform seizures, and the family was not one showing neuropathic tendencies.

Dr. W. E. DEEKS suggested that the movements might be due to a loss by control of the cerebral centres over the lower or spinal cord centres, the result being that the latter acted in an irregular manner; the cerebral centres initiating movements which they could not control.

#### **Renal Calculi.**

Dr. J. B. McCONNELL read the medical and Dr. G. E. ARMSTRONG the surgical report of this case. Will be published next month.

#### **Renal and Vesical Calculi.**

Dr. JAS. BELL exhibited the specimens. (See page 791.)

Dr. LAPTHORN SMITH asked Dr. McConnell if he considered the disease preventable, and if he knew whether the patient was in the habit of abstaining from water before the disease began. Questioning whether the case could have been one of traumatic delirium, he referred to one occurring in his own practice following a total hysterectomy which he had attributed however to the large quantity of iodoform in the gauze packing.

He asked Dr. Bell if he did not think it would be better to operate on the kidney through the abdomen as he had himself extirpated a kidney by this method. He thought it was of the greatest advantage before removing one kidney to feel the other, and also to see that it contained no stones. He felt that it was only prejudice that favoured the operation in the back. The latter's only advantage was from the better drainage secured. He thought the fear of infecting the peritoneal cavity an ephemeral one, as the kidney which he had removed contained several quarts of pus and many calculi and he had had no difficulty in disinfecting the peritoneal cavity; the same was true after the rupture of stinking pus-tubes.

Dr. McCONNELL in reply to Dr. Smith, said that he was quite unable to give any directions as to how one might prevent the formation of stone. He could not suggest keeping the urine either acid or alkaline, as calculi formed under both conditions. Of the patient's previous habits he knew nothing. He was very temperate, took good care of himself, but indulged a great deal in Turkish baths. He was inclined to attribute the final event to the condition of the kidneys to a large extent, and thought that chloroform would have been preferable to ether as the anæsthetic.

Dr. ARMSTRONG said that the diagnosis had been made by Dr. McConnell. The man was failing in health and passing pus and



blood in the urine after exercise. This pointed directly to the kidneys. He had been in doubt of finding stone, as he did not understand how a calculus could be present without producing pain.

The question of abdominal section was important, and a great deal might be said in its favour in cases of contemplated nephrectomy. Exploring through the front, too, would establish the presence of a second kidney or of any contraction of the ureter.

He felt that the impression that ether was likely to have an injurious effect upon the kidneys was not well founded. The only evidence he had seen of the relative effects of chloroform and ether on the kidney was in Prof. Schede's Clinic, where upwards of a hundred cases of each had been examined before and after anæsthesia, and the results were in favour of ether as being the less injurious.

Dr. Bell's cases opened up a very important field for discussion, namely, the treatment of vesical calculi in old men with large prostates. He personally preferred the crushing operation, as the statistics were far ahead of the other methods.

The modern operation of litholopaxy gave most satisfactory results. It was true, stones were sometimes reformed in the bladder after litholopaxy, but they sometimes increased after perineal and suprapubic lithotomy. Mr. Reginald Harrison was now suggesting that in suitable cases double vasectomy should be performed some time previous to the crushing of the stone. By this means he sought to bring about an atrophy of the prostate and thus facilitate the litholopaxy.

Dr. JAMES BELL, in reply, said he thought there were many obvious reasons for not operating in pyonephrosis through the abdominal wall, but for nephrectomy it was otherwise. It was important to verify the existence of the second kidney, and it offered greater facilities for dealing with the pedicle, especially on the right side, where the renal veins were short and often difficult to secure. In comparing pus from the kidneys with that from stinking pus-tubes one must remember that pus differed in virulence. Thus, pus from an appendix abscess was much more dangerous than that from the Fallopian tubes, and probably kidney pus was also more virulent; consequently, the escape of urine and pus into the abdominal cavity would be a very serious complication. He referred to the frequency with which stone occurred in both kidneys at once, and to the extreme difficulty of making a definite diagnosis, many cases with hæmaturia giving no clue as to which kidney contained the stone.

The statement that ether was injurious in kidney cases, Dr. Bell looked upon as simply and purely a libel upon ether. Wood and others, during the last few years, had proved the contrary. With

reference to the question of crushing, his reason for not doing so in the young man was that he was suffering from cystitis and had had urethral fever every time an instrument had been passed. Besides this, he was, speaking generally, in favour of the cutting operation, especially in old men. With a large prostatic shelf and possibly a sacculated bladder, there was the greatest difficulty in washing out the last fragments of the stone. In females, and young men with healthy bladders, litholopaxy might be preferred, though he saw no reason why a cutting operation should be dangerous. The results of the former were better, as Dr. Armstrong had said, but that was because the statistics included the operation of pre-aseptic days. He entirely dissented from the statement that litholopaxy was better than cutting in inexperienced hands, for no surgical procedure required more technical skill and experience than the use of the lithotrite.

#### **The Biological Consideration of Menstruation.**

Dr J. CLARENCE WEBSTER read a paper on this subject. (See page 761.)

Dr. WESLEY MILLS said he regretted that so interesting and exhaustive a paper had been read at so late an hour, as he would like to have heard it discussed and to have considered most of the points raised, himself. As he had said at a recent meeting, he was not prepared to believe that, in primitive peoples or among perfectly normal women at the present time, there was no connection between ovulation and menstruation. The phenomena of rut in the lower animals and menstruation in the human female had points of biological resemblance. Rut was divisible into stages and was accompanied by psychic phenomena, which had their analogies in the human subject during menstruation. It might well be that in our complex modern life there might result some dislocation of processes that were once more closely related in time and physiological sequence. Apart from rut, it did not seem to be possible to understand the evolution of menstruation. No doubt the advances in our knowledge of the innervation of the viscera, together with a deepening conviction of the importance of the essential connection of the nervous system with nutritional changes (metabolism) as such, in all parts must lead to the belief that menstruation, like other vital processes, was controlled by the nervous centres. Nevertheless, to assume that there was one single nerve presiding over menstruation in the same sense as nerves do over glands did not seem to harmonise well with physiological conceptions. Menstruation was part of a series of changes in the uterus, over all of which the nervous system presided; further, menstruation was but one of a series of related processes in the generative

organs, all of which were correlated by the nervous system. Such views, and the conception that there was throughout a difference between the sexes not confined to the generative organs or the body, but extending to the mind, were doctrines Dr. Mills had long been accustomed to teach and the realisation of which seemed of vital importance now that the social and economic relations of the sexes were undergoing such radical changes.

Dr. LAPHORN SMITH felt indebted to Dr. Webster for his timely paper. The generally accepted views concerning menstruation, as taught in the text books, were wrong; and Dr. Webster had performed a useful task in collecting the more correct and modern views, scattered through the literature of the last few years, into one paper. Dr. Smith felt convinced that ovulation was going on long before menstruation began and long after it had stopped; that nature prepared a fresh nest every month and intended that a fecundated egg should invariably come down to occupy it, but that if by any chance the egg was not fertilised, it died, and the nest being of no use degenerated and came away. In other words the menstrual flow was the funeral of a dead ovum. Sir William Hingston and others, including the speaker, knew of many women in this province who were normal, that is to say, had never menstruated, having become pregnant before menstruation began and were either pregnant or nursing until the menopause. Professor King, of Washington, in an able study of hysteria, pointed out that primeval women instinctively took measures, such as feigning sickness and attracting the attention of a male or calling for help, &c., to ensure that their ovum should become impregnated before menstruation appeared or as soon as their uterus was ready to receive the egg and nourish it, so that a menstrual flow was exceedingly rare among them. Menstruation as we see it to-day is a product of civilization; the more highly civilized and cultivated the woman, the more, as a rule did they flow. Dr. Smith also agreed with Johnston, of Cincinnati, that menstruation, like a tidal wave of blood towards the uterus leading to the formation of a nest, was under the control of the great sympathetic nerve, and that by tying the main uterine branch of it near the corner of the uterus menstruation would be stopped. The removal of the ovaries alone without tying the nerve under the tubes, did not arrest menstruation. He had several cases still menstruating after removal of every particle of both ovaries. But the removal of the tubes and leaving the ovaries would stop menstruation. Some are of the opinion that pregnancy takes place after menstruation but this is an error; if that were so the Jews, who abstain from intercourse for a week, and among some for twelve

days, would not be more prolific than Christians; and yet they are. Probably keeping the males away for twelve or fifteen days was an advantage because breeders of animals found that when the males and females were kept apart for some time they would breed more surely than if they were kept constantly together. He had carefully inquired from women who had been seduced and became pregnant, and had learned that the only intercourse had been just before a period, and that the period then due did not make its appearance. A leading physician had told him that he had several young ladies in his practice who had to be locked up every month for a few days before their period in order to avoid a scandal, but they could be safely allowed out the moment the flow appeared. This, he thought, proved that nature meant women to be married before menstruation began and to be pregnant or nursing all the time for the next thirty years.

Dr. W. E. DEEKS thought we must look upon menstruation as analagous to rut in the lower animals. If not, what in the process of evolution had become of this function, and what in the lower forms corresponded to menstruation?

In invertebrate life, as well as in a great many forms of vertebrates, ovulation was not necessarily periodical nor depended in any way on the access of the male, but went on continuously for months. Why not then look upon ovulation in the same way as a gland functioning independently and producing ova more or less continuously between and during menstrual periods.

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BRITISH MEDICAL ASSOCIATION.

We publish with very great pleasure the list, given below, of the officers appointed by the home authorities for the forthcoming meeting of the British Medical Association in Montreal. It would, we think, be difficult to have a more distinguished list of office bearers, especially when it is taken into account how many of the leaders of the profession in the old country have already filled the most important posts at previous meetings, and, as a consequence of the wise system of rotation adopted by the Council of the Association, were not eligible to serve here. That so many who have not previously accepted office have consented to preside here in Canada, is a matter for genuine self congratulation.

Of those appointed to deliver addresses we need say little:—Dr. Osler is one of ourselves, even if a great American University has for a time secured him for its staff, and as a Canadian is a most happy choice. inasmuch as he belongs to Toronto as well as to Montreal. Mr. Mitchell Banks is the most popular surgeon in the North of England, is a speaker of great power and is already no stranger in Canada.

Of Presidents of Sections, we heartily congratulate the Association as well as ourselves, that we have secured Dr. E. P. Lachapelle and Dr. R. M. Bucke, representing as they do the best work accomplished in this country in their respective branches. Dr. Stephen Mackenzie and Mr. Christopher Heath's names are familiar to all of us. The Owens College and the active Medical School of Manchester, supply two presidents, Dr. W. J. Sinclair, one of the ablest writers upon gynecological subjects in Great Britain, and Dr. D. J. Leech, the founder there of one of the very few laboratories of pharmacological research in the old country. In pathology and bacteriology, Mr.

Watson Cheyne has a reputation only equalled by that of Mr. Nettleship in ophthalmology. Dr. Augustus Waller is the most brilliant of metropolitan physiologists. Mr. Malcolm Morris is an ideal president for the section of dermatology and Dr. Grenville Macdonald is the leader of the younger school of British laryngologists. Most of the great London medical schools and hospitals are represented upon this list which altogether, we would repeat is most distinguished and is in itself a guarantee of the success of the meeting. Looking over the list of Canadian vice-presidents it will be seen that the whole Dominion is worthily represented, though we shrewdly suspect that the local executive would gladly have seen some possibility of suggesting an increase in the representation in the larger subjects of medicine, surgery, gynaecology and obstetrics. Under the circumstances it seems to us the selection is admirable and is an earnest that the meeting must be a national and not a local event.

#### PRELIMINARY PROGRAMME.

President: Henry Barnes, M.D., M.R.C.S., F.R.S.E., J.P., Physician Cumberland Infirmary, Carlisle. President-Elect: T. G. Roddick, M. D., M.P., Professor of Surgery in McGill University, Montreal. President of the Council: Robert Saundby, M.D., F.R.C.P., 83A Edmund Street, Birmingham. Treasurer: Charles Parsons, M.D., Dover. Addresses will be delivered as follows:

Medicine.—Dr. W. Osler, F.R.C.P., Professor of Medicine in the Johns Hopkins University, Baltimore, U.S.A.

Surgery.—Mr. William Mitchell Banks, F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

Public Medicine.—

The scientific business of the meeting will be conducted in eleven sections, as follows, namely:

Medicine.—President: Dr. Stephen Mackenzie, London. Vice-Presidents: Dr. J. E. Graham, Toronto; Dr. W. Bayard, St. John, N.B.; Dr. J. P. Rottot, Montreal; Dr. F. W. Campbell, Montreal; Dr. J. Stewart, Montreal; Dr. H. P. Wright, Ottawa. Secretaries: Dr. H. A. Laffeur, Montreal; Dr. W. F. Hamilton, Montreal; Dr. Wm. Pasteur, 4 Chandos Street, Cavendish Sq., London, W.

Surgery.—President: Mr. Christopher Heath, London. Vice-Presidents: Sir Wm. Hingston, Montreal; Hon. Dr. Sullivan, Kingston, Ont.; Hon. Dr. Farrell, Halifax, N.S.; Dr. I. H. Cameron, Toronto; Dr. F. LeM. Grasett, Toronto; Dr. James Bell, Montreal; Dr. G. E. Armstrong. Secretaries: Dr. R. C. Kirkpatrick, Montreal; Dr.

Thomas Walker, St. John, N.B.; Mr. Jordan Lloyd, F.R.C.S., Richmond Hill, Birmingham.

Obstetrics and Gynæcology.—President: Dr. W. J. Sinclair, Manchester. Vice-Presidents: Dr. Wm. Gardner, Montreal; Dr. James Perrigo, Montreal; Dr. J. A. Temple, Toronto; Dr. J. C. Cameron, Montreal; Dr. T. J. Alloway, Montreal; Dr. James Ross, Toronto. Secretaries: Dr. D. J. Evans, Montreal; Dr. W. Burnett, Montreal; Dr. A. E. Giles, 58 Harley Street, Cavendish Sq., London, W.

Public or State Medicine.—President: Dr. E. P. Lachapelle, Montreal. Vice-Presidents: Dr. P. H. Bryce, Toronto; Dr. R. Craik, Montreal; Dr. Montizambert, Quebec; Sir James Grant, Ottawa; Dr. R. H. Powell, Ottawa. Secretaries: Dr. Wyatt Johnston, Montreal; Dr. E. Pelletier, Montreal; Dr. Henry Littlejohn, Townhall, Sheffield.

Psychology.—President: Dr. R. M. Bucke, London, Ont. Vice-Presidents: Dr. D. Clark, Toronto; Dr. T. J. Burgess, Verdun, Que.; Dr. A. Vallee, Quebec; Dr. G. Wilkins, Montreal. Secretaries: Dr. J. V. Anglin, Montreal; Dr. Geo. Villeneuve, Montreal; Dr. J. G. Blandford, London County Asylum, Banstead, Surrey.

Anatomy and Physiology.—President: A. Waller, F.R.C.S., London. Vice-Presidents: Dr. F. J. Shepherd, Montreal; Dr. A. B. McCallum, Toronto; Dr. T. Wesley Mills, Montreal; Dr. A. Primrose, Toronto; Dr. J. B. A. Lamarche, Montreal; Dr. Fraser, Stratford, Ont. Secretaries: Dr. J. M. Elder, Montreal; Dr. W. S. Morrow, Montreal.

Pathology and Bacteriology.—President: Mr. Watson Cheyne, London. Vice-Presidents: J. G. Adami, Montreal; Dr. J. Caven, Toronto; Dr. J. Stewart, Halifax, N.S.; Dr. J. C. Davie, Victoria, B.C.; Dr. L. C. Prevost, Ottawa; Dr. M. T. Brennan, Montreal. Secretaries: Dr. W. T. Connell, Kingston; Dr. C. F. Martin, Montreal.

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Pharmacology and Therapeutics.—President: Dr. D. J. Leech, Manchester. Vice-Presidents: Dr. A. D. Blackader, Montreal; Dr. James Thorburn, Toronto; Dr. C. R. Church, Ottawa; Dr. J. B. McConnell, Montreal; Dr. F. J. Austin, Sherbrooke. Secretaries: Dr. F. X. L. DeMartigny, Montreal; Dr. J. R. Spier, Montreal; Dr. A. H. Carter, 33 Temple Row, Birmingham.

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### THE TRAINED NURSE.

The trained nurse is being brought very prominently before the public just now, and not always in a favorable light. In the *Nineteenth Century* for January, Lady Priestley writes, under the heading of "Nurses a la mode," an article which certainly does not give the trained nurse an enviable character. She accuses her of "giddiness and thoughtlessness" and various other graver things. In the February number of the same magazine, Mrs. Bedford Fenwick, formerly matron of St. Bartholomew's Hospital, replies and says that the diplomaed nurse is guiltless of any inproprieties in thought, word, or deed, but that it is those *who are not trained nurses at all* to whom Lady Priestley's charges refer. Her remedy for any difficulties which exist at present is to have a register of trained nurses on the same lines as the Medical Register. The true state of affairs is probably between the two extremes represented by these writers. The trained nurse has become a great factor in the daily fight with disease. She is a great improvement on the days of Sairey Gamp, but she is not as many of them apparently think, indispensable. In losing the old-fashioned nurse we have, in many cases, lost a great deal. She may not have known much, but she did her work cheerfully and was not particular about her duties; she came in a time of trouble and came to help and not to add to the burdens of the afflicted family; if the mother of the family was laid up she looked after the children and made things run until health returned. The trained nurse in many instances is too particular about her duties, about what it is her place to do; in attempting to become professional she becomes unsympathetic, and the question of remuneration plays too prominent a part in all her calculations. All trained nurses are not like this, nor indeed are the majority so; even Lady Priestley says that she has known many an ideal nurse. But the faults we have pointed out are far too common and it behoves the nurse to endeavour to remedy them.

The trained nurse is really a luxury; the price put upon her services removes her out of the reach of any but the well-to-do. Various schemes have been devised to help the man who is not well-off. One



scheme, which has been tried in several American cities with considerable success, is that of visiting nurses; the nurse is sent for when she is required, be it for a surgical operation, a confinement, or any other cause, and leaves the house as soon as her services can be dispensed with; afterwards she visits the patients once or twice daily to attend to them. Each visit is charged for at a definite rate and thus the nurse receives an adequate remuneration for her services and each individual patient obtains what attendance he needs at a comparatively low rate.

Another scheme, which it is proposed to introduce in Montreal, is that one of our hospitals should retain the services of three or four of its graduate nurses, giving them board and lodging within the hospital and paying them a yearly salary. The services of these nurses would then be available to any one who is unable to pay the full rate, for the hospital authorities, after due enquiry into the patient's financial ability, would let him have a nurse at a reduced rate. This scheme, while it evinces an honest desire to overcome what is admittedly a difficulty and a hardship, does not recommend itself to us, for the simple reason that it practically amounts to making those patients who avail themselves of this offer on the part of the hospital, recipients of charity. After carefully reading the letters which have appeared in the daily papers, we can only come to the conclusion that the amount received by the hospital from the patients in return for the services of the nurses will not be sufficient to defray the expenses thereof. This means a deficit and this deficit will have to be made good by the contributions of the charitably disposed. We cannot but think that the average man in receipt of a fair income would rather have a nurse for part of the time and pay for her, than have a nurse all the time and have somebody else bear part of the expense.

Still another scheme is to have two classes of nurses: a fully trained class as at present for those who can afford to pay the necessary fees, and a second class who have taken a shorter course and consequently, being less fully trained, will work for less money. Such an arrangement appears to be rather a dangerous experiment. Much time and labour have been expended in bringing trained nursing to its present high state of efficiency and this proposed scheme seems like a retrograde step and we greatly fear will prove to be such. To a large proportion of the laity a nurse is a nurse no matter how long or how short a time she has spent in acquiring her training, and the public mind would utterly fail in many instances to grasp the difference between the two classes of nurses. A short time ago, eighteen months was considered quite long enough for a nurse to

remain in a training school; now many of the hospitals are demanding three years of their time before they consider them sufficiently trained to enter upon private practice. Therefore, if this scheme be carried out, we fear that if a nurse with one year's training is good enough to nurse some people she may be considered good enough to nurse all the people.

These are the main schemes which have been propounded to relieve a condition of affairs which actually amounts to a hardship. The first scheme, that of the "Visiting Nurse," seems to more nearly suit the requirements of the case than the others. That so much thought and energy should be expended to relieve the necessities of suffering humanity, as is evinced by the very multiplicity of schemes, is a satisfactory and gratifying proof of the growth of true charity in our midst.

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### THE CASE OF DR. CULLINGWORTH.

In connection with the above, this *cause célèbre* may be mentioned, for the chief actor in it was a trained nurse. The facts of the case are briefly as follows: The nurse came under Dr. Cullingworth's care for a condition which apparently necessitated the removal of the uterine appendages on one and possibly on both sides. The patient declined to give consent to the complete operation and the doctor declined to operate unless given full permission to deal with the case as seemed best after the abdomen was opened. Finally a relative of the patient told the operator that the patient had given consent and thereupon the operation was performed, both sides being operated upon. Throughout the case there was never any question about the advisability of the course pursued during the operation, the whole question being whether the patient had given her consent or not. The patient brought suit against the doctor alleging that she underwent the operation on the distinct understanding that only one side was to be operated upon. The case came up for trial and was won by Dr. Cullingworth and being appealed it was decided again in his favour. The judge gave as his opinion that the operation had been performed in good faith and under such circumstances it would be unjust to condemn the operator for completing an operation when by so doing he could cure the patient, whereas a partial operation meant certain failure. The verdict was received with general satisfaction and Dr. Cullingworth was heartily congratulated on all hands at the happy termination of a most annoying piece of business. In all such cases it is undoubtedly wiser to have a very clear understanding with the patient herself and that in the presence of witnesses. It evidently

does not do to put much faith in the feelings of gratitude which the patient is popularly supposed to entertain for the physician, nor yet in the ethical consideration or feelings of professional honour which are supposed to govern dealings between nurses and doctors.

### THE VICTORIAN ORDER OF NURSES.

It is proposed that in Canada the Diamond Jubilee of Our Beloved Queen shall be celebrated in a manner thoroughly in keeping with her expressed wishes. Always ready, both by precept and example as well as by substantial aid, to help on all charitable works, the establishment of this order of nurses cannot fail to afford gratification to Her Majesty. To Her Excellency, the Countess of Aberdeen, is due the inception of an idea which we trust is destined to give relief to sufferers throughout the whole Dominion. It is especially designed to reach the sparsely settled districts of our great Northwest. Stated briefly, it is proposed to establish centres throughout the country where one or more trained nurses will be located. From these centres the nurses will go forth as necessity may arise, and lend their aid wherever and whenever required. The expenses of the nurses are to be guaranteed, in part at least, by the district in which they are settled. As yet the idea is in its infancy and the working out of the details will take time and thought. It is an idea that appeals to all, although its very magnitude makes many fearful of its success. But every good work must have a beginning, and this one having such powerful supporters seems destined to success and certainly deserves universal support and assistance.

### MEDICAL LIBRARY OF THE MEDICAL COLLEGE, MCGILL UNIVERSITY.

Donations to the Library for Quarter ending Feb. 27th, 1897.

To the following authors the Library is indebted for copies of their works :

D. Campbell Black, M.D., L.R.C.S., Edin.—The Urine in Health and Disease and Urinary Analysis, 1895; Medical Environment, 1896.

J. Clarence Webster, B.A., F.R.C.P., Edin.—Die Ektopische Schwangerschaft Ihre Aetiologie, Klassifikation, Embryologie, Symptomatologie, Diagnose und Therapie.

A. C. Abbott, M.D.—Principles of Bacteriology 3rd Ed., 1895.

J. Burney Yeo, M.D., F.R.C.P.—Food in Health and Disease.

John C. Thresh, D.Sc. Lond., M.D. Victoria, D.P.H. Cambridge.—Water and Water Supplies, 1896.

H. Scurfield, M.D., Ed., D. Ph. Camb.—Animal Tuberculosis and their Relation to Human Tuberculosis. Tr. from the French, 1895.

W. E. Fothergill, M.A., B.Sc., M.B., C.M.—Manual of Midwifery, 1896.

Stephen Paget, M.A., Oxon., F.R.C.S.—The Surgery of the Chest, 1896.

As well as the following pamphlets.

A. E. Barker, F.R.C.S., Eng.—Traumatic Derangement of the Knee Joint, Clinical Lecture on Seven Cases of Perforated Gastric Ulcer treated by Operation with three Recoveries: Notes on the Permanent Subcutaneous Method of Wiring the Patella for Fresh Transverse Fracture.

W. F. Gairdner, M.D., LL.D.—On certain Arrangements made in the City of Glasgow, with a view to the Prevention of Epidemic Cholera; Address on Medical Education.

It has also received the following for which it is much indebted to the contributors.

Professor Adami—Gazette des Hopitaux for 1896. Medical Chronicle Vol. XII.

Professor Shepherd—Der Lustige Aesculap, by Von Dr. Peter Hilarius; Transactions of the American Orthopedic Association, Vol. IX, 1896. The Diary of a Resurrectionist, 1811-1812, by J. B. Bailey, B.A., 1896, Pamphlets.

Professor Blackader—Materia Medica, Therapeutics and Pharmacology, by G. F. Butler, Ph.G., M.D., 1896.

Professor J. C. Cameron—American Journal of Obstetrics, 1896.

Professor Finley—Fortschritte der Med. Bd. 94 and 95; Transactions of the Medical Society of the State of New York, 1892; International Clinics, Vol. III, 1893; La Semaine Medical, 1896.

Dr. D. J. Evans—Archiv. für Kinderheilkunde, XVII, Bd. 1894, XVIII, Bd. Nos. 1-2.

Dr. Kirkpatrick—(Montreal Medical Journal) Unbound journals and pamphlets.

Dr. Gould—University Medical Magazine, Vol. 1; Medical News and Abstract, Vol. 33-39; Medical News, Phil., Vols. 18 to 30.

Editors of the Montreal Medical Journal; Clinical Skiagraphy, Vol. 1, Pts. 1-2.

Dr. James Kerr—Photomicrographs of Normal Histology, Human and Comparative. 3 Vols., 1893.

Boston Medical Library—Guy's Hospital Reports, Vols. 16-25.

Bristol Medical Library—Brain, Vols. 12, 13, 15, 16, 17, 18; Annals of Surgery.

Royal College of Physicians, Lond.—Calendars.

Transactions of the Philadelphia Pathological Society, 14 Vols.

Transactions of the Ophthalmological Society of New York.

Transactions of the Ohio State Medical Association.

Ophthalmic Record from the Publishers.

Royal College of Surgeons, Eng., one hundred and eleven pamphlets and four books.

Transactions of the Medical Society of the State of New York, 36 Vols.

Dr. A. S. Myrtle—Journal of Balneology and Climatology.

Second Annual Report of the Board of Health, Prov. of Quebec.

NEW BOOKS AND JOURNALS—Guide to the Practical Examination of the Urine, Tyson, 1896; Jahresbericht der Gesamten, Med.; Diseases of Women, Lewers, 1896; Charité-Annalen; International Clinics; Archiv. f. exper. Path. u. Pharm.; Medical Record; Annals of Surgery; American Journal of Medical Science; Revue des Sciences Médicales; Journal of Cutaneous and Venereal Diseases; System of Surgery, Treves, 2 Vols. 1895; Archiv. für Klin. Medicin, 1868-78; L'Union Médicale du Canada; Archiv. für die Gesamte Physiologie Plüger; Zeitschrift für Klinische Medicin; Fortschritte der Medicin; Clinical Gynæcology, Keating & Co., 1896; System of Medicine, Allbutt, Vol. 2, 1897; Text-book of Physiology, Foster, 1896; Virchow's Archiv. für Path. Anat. 12 Vols.; Anomalies and Curiosities of Medicine, Gould and Pyle, 1897; Centralblatt für Bakteriologie und Parasitenkunde; Medical News, Phil.; New York Medical Journal; Medical Record; Berliner Kl. Woch.; University Medical Journal; Practitioner, Lond. 1896; Science and Art of Surgery, Erichsen, 2 Vols. 1895; Text-book of Medical Jurisprudence, Reese.

The Library is indebted to Messrs. Henry Birks & Sons for a very beautiful Library Clock.

## CONVOCAATION OF MCGILL FACULTY OF MEDICINE.

The sixty-fourth Annual Convocation for conferring degrees in Medicine in McGill University took place on Friday afternoon, April 2nd, in the Queen's Theatre. The Chair was occupied by the Chancellor, Sir Donald A. Smith, and on the platform were seated the members of the Faculty and other members of convocation.

The proceedings were opened with a short prayer, after which the Dean read the pass-lists and the prizes were presented. The graduates, seventy-six in number, were "Capped" by Dr. Peterson and then Dr. J. G. MacDougall delivered the student's valedictory. The valedictory on behalf of the Faculty was read by Dr. Birkett. Professor Craik, Dean of the Faculty gave his Annual Report of the work done during the session.

He stated that the total number of students enregistered in the Medical Faculty during the past session was 385 of whom 134 were residents of the Province of Quebec; 113 were from Ontario; 98 came from the Maritime Provinces including Newfoundland and Labrador; 23 from the United States; 13 from the Northwest Provinces and Territories; 2 from the West Indies; and one each from Ireland and Chilli, thus fully sustaining the cosmopolitan character of the College.

He made the pleasing announcement that Mr. Drake had endowed the Chair of Physiology to the extent of \$25,000, and that the name of the late Dr. Joseph M. Drake was to be attached to the endowment.

The re-organization of the department of Hygiene was referred, to as well as the improvements in the Museums and Laboratories in the College.

The success of the Post-graduate course was a subject for congratulation, as it more than fulfilled the most sanguine expectations. The fact was mentioned that this was the last time that the Convocation would be held at this time of year, for the increased length of the session would postpone it until June.

The death roll included Dr. Reynolds, a graduate of 61 years standing.

The following gentlemen, 76 in number, have fulfilled all the requirements to entitle them to the degree of M.D., C.M., from the University :

Barclay, J.....	Montreal, Que.
Brown, W. K.....	Montreal, Que.
Brown, C. L., B.A.....	Port Lewis, Que.
Burrell, R. H., B.A.....	Yarmouth, N.S.
Campbell, I. G., D.V.S.....	Montreal, Que.

Clindiniu, S. L.....	Brighton, Ont.
Curran, T. J. J.....	Montreal, Que.
Delmage, F. W., B.A.....	St. Marys, Ont.
Doyle, J. J.....	Halifax, N.S.
Dunbar, W. R.....	Abercrombie, N.S.
Eberts, E. M. von.....	Winnipeg, Man.
Foster, G. M.....	Pembroke, Ont.
Foster, A. L.....	Ottawa, Ont.
Gilday, F. W.....	Montreal, Que.
Gordon, G. S.....	Halifax, N.S.
Gourley, T. A.....	Eganville, Ont.
Gurd, C. C., B.A.....	Montreal, Que.
Harding, E. S.....	Amherst, N.S.
Harvey, F. C.....	Wolfville, N.S.
Hayden, E. W.....	Cobourg, Ont.
Hurdman, H. H.....	Ottawa, Ont.
Johnston, J. A.....	Emerald Junc, P.E.I.
Johnston, W.....	Charlottetown, P.E.I.
Jost, A. C., B.A.....	Guysboro, N.S.
Keenan, C. B.....	Ottawa, Ont.
Kerr, R. A.....	Montreal, Que.
Kirby, H. S.....	Ottawa, Ont.
Laidley, I. H.....	Montreal, Que.
Laing, A. L.....	Montreal, Que.
Lennon, H., B.A.....	Montreal, Que.
LeTouzal, J. R.....	Goderich, Ont.
Lockary, J. L.....	St. Stephen, N.B.
Lyster, H. F.....	Richmond, Que.
MacCallum, E. C.....	Kingston, Ont.
Macdonald, D. J.....	Whycocomagh, C.B.
McDougall, G. P.....	Grand River, P.E.I.
McDougall, J. G.....	Blue Mountain, N.S.
McElroy, A. S.....	Richmond, Ont.
McKinnon, F. W.....	Vankleek Hill, Ont.
McLennan, A. A.....	Lancaster, Ont.
McLennan, D. A.....	Montreal, Que.
McNally, W. P.....	Abrams Village, P.E.I.
McRae, J. D.....	Glen Ellis, Ont.
McRae, W. R.....	Baddeck, C.F.
Malloch, N.....	Kenmore, Ont.
Maloney, M. J.....	Eganville, Ont.
Merkley, E. A.....	Morrisburg, Ont.
Morris, C. H., B.A.....	Windsor, N.S.
Morse, L. H., B.A.....	Bridgetown, N.S.
Midgley, R. J.....	Woodstock, Ont.
Milburn, J. A.....	Peterboro, Ont.
Pallister, W. T.....	Guelph, Ont.
Palmer, A. J.....	Buckingham, Que.
Pennoyer, A. R.....	Gould, Que.
Ritchie, A. A.....	Dalhousie, N.B.
Robert, G. C.....	Holyoke, Mass.
Robertson, H. M.....	Chatham, Ont.

Rogers, F. E.....	Brighton, Ont.
Roy, J. J.....	New Glasgow, N.S.
Scott, W. T.....	Montreal, Que.
Skeels, A. A., B.A.....	Montreal, Que.
Smith, H.....	Acadia Mines, N.S.
Smith, R. A.....	Durham, Ont.
Stanfield, H. M., B.A.....	Truro, N.S.
Sterling, A.....	Fredericton, N.B.
Sutherland, G. R.....	Hodgson, N.S.
Tierney, J. A.....	Valleyfield, Que.
Thomas, H. W.....	Montreal, Que.
Thomas, J. E.....	Montreal, Que.
Thompson, J. A.....	Kinnears Mills, Que.
Tozer, F. W.....	Newcastle, N.B.
Trainor, J. B.....	Kelly's Cross, P.E.I.
Wainwright, F. R.....	Montreal, Que.
Wainwright, S. F. A.....	St. Andrews, Que.
Williams, E. J., B.A.....	Sherbrooke, Que.
Wilson, F. W. E.....	Montreal, Que.

**HONORS, PRIZES AND MEDALS.**

**HOLMES GOLD MEDAL** for the highest aggregate in all the subjects of the Medical Curriculum, JOHN GEORGE McDUGALL, of Blue Mountain, Nova Scotia.

**FINAL PRIZE** for highest aggregate in Third and Fourth years subjects, ALEXANDER ROSS PENNOYER, of Gould, P.Q.

**CLEMESHA PRIZE** for Clinical Therapeutics, ISAAC HENRY LAIDLEY, of Montreal, P.Q.

**SUTHERLAND MEDAL** to ARTHUR LYALL McMURTY, of Bowmanville, Ont.

**SECOND YEAR PRIZE** to WILLIAM OLIVER ROSE, of Lakefield, P.E.I.

**SENIOR ANATOMY PRIZE** to NEWTON ESHA DRIER, of Richmond Corners, N.B.

**FIRST YEAR PRIZE** to ALVA HOVEY GORDON, of St. John, N.B.

**JUNIOR ANATOMY PRIZE** to LAUGHLIN GEORGE CAMERON, of Ottawa, Ont.

**BOTANY PRIZE** to THOMAS TURNBULL, of Stratford, Ontario.

**ZOOLOGY PRIZE** to ALVA HOVEY GORDON, St. John, N.B.

**HONORS IN AGGREGATE OF FINAL SUBJECTS.**

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|----------------------|---------------------------|
| 1. McDougall, J. G.  | 7. MacCallum, E. C. D.    |
| 2. Pennoyer, A. R.   | 8. Stanfield, H. M., B.A. |
| 3. Keenan, C. B.     | 9. Laidley, I. H.         |
| 4. Gurd, C. C. B.A.  | 10. Roy, J. J.            |
| 5. Eberts, E. M. von | 11. { Lennon, H, B.A.     |
| 6. Jost, A. C., B.A. | { Lockary, J. L.          |

**HONORS IN SURGERY AND CLINICAL SURGERY.**

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|----------------------|-----------------------|
| 1. McDougall, J. G.  | 12. { Laidley, I. H.  |
| 2. Pennoyer, A. R.   | { Skeels, A. A., B.A. |
| 3. Eberts, E. M. von | 14. Harding, E. S.    |

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|------------------------|----------------------|
| 4. Lockary, J. L.      | 15. Smith, H.        |
| 5. Keenan, C. B.       | 16. Malloch, N.      |
| 6. Pallister, W. T.    | 17. Johnston, J. A.  |
| 7. Jost, A. C., B.A.   | 18. Roy, J. J.       |
| 8. MacCallum, E. C. D. | 19. Robertson, H. M. |
| 9. { Thomas, J. E.     | 20. Tozer, F. W.     |
| { Lennon, H., B.A.,    |                      |
| { Gurd, C. C., B.A.    |                      |

### HONORS IN MEDICINE AND CLINICAL MEDICINE.

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|---------------------------|------------------------|
| 1. Keenan, C. B.          | 4. Pennoyer, A. R.     |
| 2. McDougall, J. G.       | 5. Smith, H.           |
| 3. Stanfield, H. M., B.A. | 6. Skeels, A. A., B.A. |

### HONORS IN GYNÆCOLOGY.

- |                        |                           |
|------------------------|---------------------------|
| 1. { McDougall, J. G.  | 7. Keenan, C. B.          |
| 2. { Pennoyer, A. R.   | 8. Morse, L. H., B.A.     |
| 3. MacCallum, E. C. D. | 9. Stanfield, H. M., B.A. |
| 4. Gurd, C. C., B.A.   | 10. { Jost, A. C., B.A.   |
| 5. { Eberts, E. M. von | { Maloney, M. J.          |
| { Smith, H.            | 12. Lennon, H., B.A.      |
|                        | 13. Trainor, J. B.        |

### HONORS IN OBSTETRICS.

- |                         |                         |
|-------------------------|-------------------------|
| 1. MacDougall, J. G.    | 10. { Kirby, H. S.      |
| 2. Keenan, C. B.        | { Morse, L. H. B.A.     |
| 3. Gurd, C. C., B.A.    | { Johnston, W.          |
| 4. Johnston, J. A.      | 12. { McLennan, A. A.   |
| 5. Delmage, F. W., B.A. | { Wilson, F. W. R.      |
| 6. Pennoyer, A. R.      | 15. Eberts, E. M. von   |
| 7. Barclay, J.          | 16. MacCallum, E. C. D. |
| 8. { Midgley, R. J.     | 17. Jost, A. C., B.A.   |
| { Wainwright, F. R.     |                         |

### HONORS IN SPECIAL PATHOLOGY.

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|----------------------|-----------------------|-------------------|
| 1. McDougall, J. G.  | S. { Pallister, W. T. |                   |
| 2. Eberts, E. M. von |                       | { Roy, J. J.      |
| 3. Johnston, W.      |                       | { Tozer, F. W.    |
| 4. Keenan, C. B.     |                       | { Maloney, M. J.  |
| 5. { Gordon, G. S.   |                       | { Merkley, E. A.  |
| { Jost, A. C., B.A.  |                       | { McLennan, A. A. |
| 6. LeTouzel, J. R.   |                       | { Pennoyer, A. R. |

### HONORS IN OPHTHALMOLOGY.

- |                           |                             |
|---------------------------|-----------------------------|
| 1. Pennoyer, A. R.        | S. { Smith, H.              |
| 2. McDougall, J. G.       | { Keenan, C. B.             |
| 3. Trainor, J. B.         | 10. Campbell, I. G., D.V.S. |
| 4. Eberts, E. M. von      | 11. Johnston, J. A.         |
| 5. Stanfield, H. M., B.A. | 12. McRae, J. D.            |
| 6. { Jost, A. C., B.A.    | 13. Lockary, J. L.          |
| { Wainwright, F. R.       | 14. Roy, J. J.              |

Dr. Edward Playter, who has been investigating the causation and cure of consumption, is desirous of the co-operation of the medical profession in obtaining data with regard to the respiratory capacity of those predisposed to consumption. His idea is that these persons



have a relatively small respiratory capacity, and he asks all physicians who have such patients to send him the information indicated in the following questions:

Give (1) name (or initials); (2) sex; (3) age; (4) occupation; (5) height; (6) weight (average when in usual state of health); (7) circumference of the chest on a level with sixth costo-sternal articulation when momentarily at rest after an ordinary expiration, and also (8) after habitual natural expansion or inspiration (which last (8) usually exceeds the first measurement, expiration (7), by an increase of only about one-fourth of an inch); finally (9), the circumference after a *forced* expiration, and also (10) after a forced inspiration (these two measurements, 9 and 10, varying or showing a range of from  $1\frac{1}{2}$  to 4 inches). The patient should of course be as calm as possible and had better, usually, practice the *forced* breathing for a few acts before these two last measurements, 9 and 10 are taken.

To be of value, all four measurements should be taken as carefully, accurately and free from haste as possible.

Any further information, in brief, as to degree of heredity (family history) in cases, *prominent* symptoms, loss in weight, cough, dulness on percussion, etc., etc., or any remarks, will be a decided advantage.

(Address)

EDWARD PLAYTER, M.D.,

Ottawa, Ont.

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The Columbus Medical Journal has removed from 150 E. Broad St. to its new quarters, 68 Buttle Ave., Columbus, Ohio.

Dr. Roddick, the President-Elect of the British Medical Association has been elected an honorary member of the London Medical Association.

The seventh annual meeting of the National Confederation of State Medical Examining and Licensing Boards, will be held in Philadelphia, commencing Monday, May 31, 1897.

The objects of the confederation are to consider questions pertaining to state control in medicine and to compare methods in vogue in the several states, to collect and disseminate information relating to medical education, and to consider propositions that have for their purpose the advancement of the standards in the United States. A cordial invitation to attend the meeting and participate in its proceedings is extended to all members and ex-members of State Medical Examining Boards, and to physicians, sanitarians and educators who are friendly to the objects named. A. Walter Suiter, Secretary, Herkimer, N.Y.

## Obituary.

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### SIR SPENCER WELLS.

Another of the great medical worthies of the Victorian era has passed away in the person of Sir Spencer Wells. So many have left us lately that the obituary notices have in this instance been relatively brief, and yet Sir Spencer accomplished work that will not easily be forgotten, and he will surely always be counted among the great surgeons of the century. We well know that others before him had performed ovariectomy. Old Latin writers refer to the removal of the ovaries of the healthy female by the Egyptians and Lydians, and even at the present time the custom has not died out among the aboriginal Australians and in sundry parts of India, while both in England and America the diseased ovaries had been removed years before Spencer Wells appeared upon the scene. Others again in late years have performed the operation with a more brilliant technique and a yet greater measure of success. But he may rightly be said to have been the first to *practice* the operation, and he it was who by his practice and by his writings fixed the attention of our profession upon this mode of relieving much suffering in the gentler sex, and who again, by the successive publication of his 2000 cases of ovariectomy with failures as fully treated as successes, demonstrated to the medical public wherein lay the advantages and the dangers of the operation.

There is no good movement but is liable to be harmed by zealots, and—let us acknowledge it straightly—by fools, and we have sorrowfully to admit that the conservative and cautious procedure of Sir Spencer Wells has at times been replaced, on the part of some of his followers, by rash and utterly indefensible ablation of the internal genitalia. But all must acknowledge that the benefits conferred upon woman-kind—the arrest of agony, the return to healthy activity, the gift of years of life—all these far exceed any abuse of ovariectomy that has occurred during the last forty years. While further we must acknowledge that the successful results obtained by the ovariectomists have led to the remarkable expansion of abdominal surgery in general.

Though born in 1818, almost within sight and sound of St. Paul's Sir Spencer Wells was not a London student proper, nor had he the ordinary career of the great London surgeon, rising by slow degrees from one hospital appointment to the other. On the contrary before

settling in London he had passed through many schools; Trinity College, Dublin, Leeds Infirmary, Anatomical School, Dublin, and St. Thomas's Hospital, and had spent years in the navy where he saw active service. At the outbreak of the Crimean war he was made chief surgeon of the hospitals at Smyrna and Renkioi. Such was scarce the training one would picture as developing the great gynæcologist. But such it was and on his return to England he rapidly came to the fore, and in 1865 he published his first great work in which was detailed his ten years experience in abdominal surgery and especially ovariectomy. Other well-known works followed including the "Diagnosis and Treatment of Abdominal Tumours," in 1885. In 1882-83 he was President of the Royal College of Surgeons, in 1883, he was made a baronet. Dublin, Leyden, Charkof and Bologna conferred honorary degrees upon him, while the list of learned societies of which he was an honorary member is long and embraces many countries.

The surgeon cannot hope to continue in the active exercise of his profession so long as the physician. After seventy the co-operation of eye and hand are not in most men sufficiently sure. Thus for some years Sir Spencer had practically ceased from active work. Nevertheless he continued to be a well-known figure in English medical circles, with his round genial face, fresh, almost apple blossom complexion, and characteristically English appearance, a country gentleman edition of Pickwick with a subtle something that proclaimed the medical man of the best school.

J. G. A.

#### JOHN MOWBRAY McCLURE BRATHWAITE, M.D., C.M.

It is only a year ago that Dr. Brathwaite's name appeared in the list of those who had successfully passed the examination in the final branches of McGill University. He passed most successfully, taking honours in gynæcology, but he was destined never to practice his chosen profession. He was not in good health at the time of the examinations and never regained his strength. He was the son of Mr. John H. Brathwaite, of East Point, in St Philip, Barbados, and the great-grandson of General Brathwaite. He passed away on January 21st, 1897, at the early age of 24, mourned and regretted by all who knew him.

#### ROBERT TODD REYNOLDS, M.D.

We regret to record the death of Robert Todd Reynolds, M.D., of Chicago. Dr. Reynolds was the oldest living graduate of McGill University, having graduated in medicine in the year 1836. He

practiced in Berlin, Ont., for fifty-five years, retiring in 1891, and since has resided in Chicago, with his son-in-law, Mr. R. M. Jaffray.

At the time of his death he was in his 86th year. He was the only son of Commissary-General Robert Reynolds, of the British Army, who was stationed with the 34th Regiment at Fort Mulden, in 1837. Dr. Reynolds was a highly respected practitioner. His advice was for more than half a century much sought after. He truly died full of years and of honour.

### WILLIAM GRANT, M.D.

It is with sincere regret that we chronicle the death of William Grant, M.D., of Perth, Ont., which event occurred unexpectedly at his home on the 17th of January. Dr. Grant was born in Summerstown, in the County of Glengarry, in 1846, and graduated in medicine from McGill University in 1867. He shortly afterwards established himself in Perth, where he continued to practice his profession up to the morning of his untimely death. In addition to conducting a large practice, Dr. Grant took an active part in all matters relating to the educational and material progress of the country. His place will with difficulty be filled.

### NEW BOOKS, ETC., RECEIVED AND NOTED.

Anomalies and Curiosities of Medicine. By George M. Gould, M.A., M.D., and Walter L. Pyle, A.M., M.D. Philadelphia: W. B. Saunders.

Remarks on the Management of Glaucoma. By Leartus Connor, A.M., M.D. Reprint from Journal of American Med. Assoc., Aug. 20th, 1896.

Transactions of the American Ophthalmological Society. Thirty-Second Annual Meeting, 1896.

Bacteriology and Infective Diseases. By Crookshank. H. K. Lewis, London: Fourth Edition.

High Altitudes for Consumptives. By A. Edgar Tussey, M.D. P. Blackiston, Son & Co., Philadelphia.

American System of Practical Medicine. By A. L. Loomis and W. J. Thompson. New York & Philadelphia: Lea Bros. & Co.

Dental Surgery. By A. W. Barrett. London: H. K. Lewis.

On Deafness, Giddiness and Noises in the Head. By Edward and Claude Woakes. London: H. K. Lewis.

New Method of Performing Intestinal Anastomosis. By J. A. Bodine. Reprint from Medical News, Jan. 9th, 1897.

The American Year-Book of Medicine and Surgery. Gould, 1897. W. B. Saunders, Philadelphia.

The Hunterian Oration. By Christopher Heath, F.R.C.S.

The Treatment of Carcinoma Mammæ. By Carl Beck. Reprint from the Clinical Recorder, October, 1896.

Pyothorax. By Carl Beck. Reprinted from the International Medical Magazine, January, 1897.

Beitrag zur Literature der subphrenischen Abscesse. Von Carl Beck. Sonderabdruck aus dem Archiv. für Klinische Chirurgie, 52. Bd. Heft. 3.