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## THE INTESTINAL TRACT AS A SOURCE OF INFECTION.

BY

R. E. McKECHNIE, M.D.

In discussing the intestinal tract as a source of infection, I shall probably present facts, some of which are familiar to all of you, all of which are familiar perhaps to some of you, for there is no new thing under the sun, but my grouping of ideas will be new, and so a pen picture will be made, which I trust will convey to you the thoughts I have had, and the conclusions I have reached.

Each of us looks at a subject from his own point of view. Now, to-night, I want you to look at this important subject from my point of view, and having seen the picture I have seen, go away impressed with the thoughts which the work of others, masters in the art, has impressed on me. Living here, where West is East and East is West, at the outer fringe of civilization, with the centres of learning far removed from us, with poorly equipped hospitals and little opportunity for anything but routine work, it is almost impossible for any of us to be able to introduce, through our own work, anything new to the profession. All we can hope to do is to keep close to all advances made elsewhere, not to lag too far behind in the march of progress, and later as our opportunities increase, let us hope that some of our number may attain to eminence through important discoveries made by their own scientific work and research.

Much discussion has arisen over the classification of intoxications, exogenous or endogenous, some authorities including in the latter those intoxications due to absorption from the intestinal canal, others eliminating this latter group, and confining the term endogenous to those groups where the toxic products are formed in the tissues themselves. This would leave the intestinal tract as an exogenous source, and so I take it. Morphologically it is similar to the skin with which it is directly connected, and the fact, that this canal merely runs through the body, is not sufficient to make its classification different from that of the skin. Like the skin, it communicates directly with the exterior environment,

and hence, must always be septic, if we except the first few hours after birth. Holding in its lumen an ever present culture medium, the faeces, kept at the best temperature for growth, with but feeble antiseptic agencies at work to keep in check the growth of its contained bacteria, we find then its contents literally swarming with many varieties of microbes. The skin by adaptation to environment, has become hard and practically impenetrable, but the mucosa of the intestines, ever bathed by its warm, moist contents, has remained soft and pervious, and has developed for one of its chief functions the power of absorption, absorbing the products of digestion from out of this reeking mass of bacterial activity. How is it possible for this great absorption to go on, without the entrance of numerous bacteria into the organism? What plan has Nature prepared to protect herself?

It has been assumed that the normal mucous membrane forms an impenetrable barrier to the entrance of bacteria into the organism, and hence that the tissues of a healthy animal are sterile. Experiments have been undertaken to prove this; most elaborate bacteriological examinations have been made of the internal organs of freshly killed animals, employing the most approved methods of technique in handling the specimens and in utilizing the various culture media. The opinion arrived at in Germany was, that healthy tissues so obtained are free from bacteria. In America, Welch, of Baltimore, in 1891, speaking with especial reference to the *Bacillus Coli*, stated (Ford) "that he had only found this bacillus when there was present a distinct lesion of the intestinal mucosa." One of our own observers (Ford), working in the McGill Pathological Laboratory, has succeeded in proving the falsity of these experiments, and has found that at least 70% of the cultures made from the internal organs of domestic animals yield bacteria. He followed the same technique as the others, but they discarded their cultures as sterile on the third day, whereas he never found any cultural activity before the fourth day, and in some instances it was delayed as late as the seventeenth. We know that the blood and the tissues generally possess more or less bacterioidal properties and Ford supposes that the pieces of tissues used in these experiments possessed sufficient inhibitory power to prevent any active growth in the first three days. Later, this power diminishing, the bacteria were permitted to develop, proving that normal tissues may contain bacteria. Among those so isolated, may be mentioned staphylococci, both albus and aureus, and bacillus coli. It will be interesting to study their manner of entrance, a subject which has been admirably worked out by A. B. Macallum, of Toronto, whose name as an investigator has reached beyond this continent. In experiments on feeding iron, he found leucocytes free from

iron apparently passing between the epithelial cells towards the lumen of the bowel, others loaded with iron actually in the lumen of the bowel (outside of the body as it were), and these same ironladen leucocytes were traced back between the epithelial cells of the mucosa, into the venules of the villi and into the capillaries of the liver and spleen. These leucocytes while taking up iron and food stuff, from the cavity of the bowel itself, without doubt in their migration back into the tissues, carry innumerable bacteria. This has been proved by many observers, the bacteria being in a more or less disorganized condition. Thus Ruffer found bacteria-laden lymphoid cells on the free surface of the mucosa and between the epithelial cells while the cells of Peyer's patches contained enormous numbers. But Nature has prepared a line of defence in these same lymphoid elements so that normally the bacteria are destroyed—"the tendency is for the entering bacteria to be rapidly destroyed." (Adami).

The foregoing proves, that while these structures tributary to the intestinal tract, are not normally absolutely sterile, they are nevertheless potentially so, and it is only when the equilibrium between attack and defence is disturbed, by a weakening of the powers of the leucocytes, or by affording more favourable opportunities for development to the bacteria, that infection, properly so called, takes place from the intestinal tract.

Adami says, "if it does happen that bacteria enter the circulation under ordinary circumstances, all will agree, that the more frequent regions of entrance are likely to be found, not so much in connexion with the denser epithelial surface of the body, as in connexion with the more delicate mucosæ of the respiratory and alimentary tracts, \* \* \* in connexion with this alimentary tract we have very definite evidence that here bacteria may penetrate the protective barrier of epithelial cells, nay more, that they are *constantly* being taken into the system."

One would hardly class Hydatid disease as one of the infections from the intestinal tract, although we know that it invades the organism by this route, but abscess of the liver from Amoeba infection would come within the range of our discussion. However, owing to its rarity in our country, we need not take up time with it. But the complications of typhoid are liable to be met with by us at any time. Although it is rare, according to late investigators, to find the bacillus in the stools after the second week, still infection has already occurred through the alimentary tract, and the bacilli can be demonstrated in many complicating lesions. I wish to call your attention especially to its infection of the biliary tract, for late investigation is clearing up much of the mystery of Cholelithiasis. The lower third of the common bile duct is

normally septic, infected by direct continuity with the lumen of the bowel. Whether infection of the bile passages by typhoid germs occurs by direct continuity or through the lymphatics or blood, matters little. Musser says, that Cholecystitis mild or severe, may develop in the course of typhoid fever, generally in the third or fourth week, or even during convalescence, and he warns us to be on the lookout, as he says, many so-called relapses are not true typhoid relapses at all, but mild cases of Cholecystitis. These are to be noted as primary attacks, imitating changes leading to gallstone disease which, later, through secondary infection gives rise to septic Cholecystitis or Cholangitis. Thus Rudolph of Edinburgh, says, "typhoid fever frequently appears to produce this condition (cholecystitis), as was first pointed out by Bernheim in 1899, and it is interesting to note that the typhoid bacillus may be in the gall-bladder for years, and the patient will give the Widal reaction, years after the enteric fever has occurred." Hence, in Cholelithiasis, we should remember typhoid as a possible initiating cause. This subject of Cholelithiasis is the most interesting which can be discussed in connexion with infection of intestinal origin. The old theory that gallstones were formed by deposition of cholesterin crystals from a too thick bile, has been exploded, for it cannot be so produced experimentally. It was thought that the gallbladder played the most important part as a settling basin in their formation, but gallstones are found in elephants which have no gallbladder. Naunyn has shown that most of the cholesterin is produced by the action of an inflamed mucous membrane. Mignon, Fournier, Gilbert, Cushing and others have produced gallstones experimentally by injecting attenuated cultures of typhoid or colon bacilli into the gallbladder. Another observer, Mieczkowski, found the bile sterile in every case *not* cholelithiac, but containing bacteria in 18 out of 23 cases of Cholelithiasis. All catarrhal processes are not necessarily caused by bacteria. Stagnation, due to pressure of enlarged glands, tumours, kinking of the ducts from adhesions, and so on, could cause the same predisposing catarrh. But this catarrh predisposes to infection. The French school is very positive about the bacterial origin of gallstones. Gilbert and Fournier divide them into two classes, those due to the colon bacillus and those due to the typhoid germ. Legars of Paris, says, the microbial origin of biliary calculi has been demonstrated, by finding microbes in calculi, by producing calculi experimentally by injections of microbes, and finally certain cases in the human have been observed, where calculi have formed during an acute infectious process. The existence of microbes in the centre of gallstones, in one case out of three found at post-mortems, has been proved; calculi have been found in a boy of 14 a few weeks after an attack of typhoid. In a woman of 53, 17 years after typhoid and after 7 years

suffering from hepatic colic, cholecystotomy was performed. The fluid contents of the gallbladder contained typhoid bacilli, which were also found in the gallstones. In another case, four weeks after an attack of typhoid 58 small cholesterol calculi were removed from the gallbladder, and in these calculi as well as in the purulent contents of the gallbladder Eberth's bacillus was found.

These observations prove that Cholelithiasis is to be regarded as an infective disease, and like Appendicitis should be treated surgically. Legars says further, "the infectious origin of biliary lithiasis is proved, and this point is of the greatest importance as regards treatment, for the following reasons: If we have shown that gallstones do not depend on general and obscure humoral conditions, but on a local infectious process, the disorder becomes for the most part also a local matter, and as such accessible to direct local means: If when calculi are once formed, they increase and multiply, we can still be sure that they are due to a single attack of lithogenous infection. "At a given moment, often very remote, microbial invasion of the gall-bladder took place, and these microbial invasions of *intestinal* origin depend on various causes, and may occur in the course of different acute disorders; at any rate the calculous disorder comes from them, from this primordial lithogenous Cholecystitis. Once more, it is a complaint of the gallbladder and ducts, not of the bile, and lithogenous Cholecystitis is comparable to many other localized infections, such as Appendicitis for instance. By removing the calculi or the gallbladder recovery may be complete and final. Finally, we find infection not only at the origin of lithiasis but also at all the other stages of the disorder; it is the leading factor of the various complications as well as of the prognosis of the complaint."

Deaver says: "It can be emphatically stated that gallstones are always the result of precipitated salts and tissue debris following in the wake of bacterial infection, mild or severe in degree. Furthermore, the complications of chronic gallstone disease, adhesions, ulceration, fistulae, liver and pancreatic disease are also due to infection." He also says, "the treatment of chronic gallstone disease, its complications and sequelae can only be surgical. Gallstones are formed through the aid of infection and therefore the disease is local and requires local treatment, that is operation, and not solvents or cholagogues to relieve a condition resulting from faulty metabolism." Angiocholitis is also another disease, due to direct infection from the bowel, usually secondary to Cholelithiasis but it may be primary without a lithiac condition.

As regards Hepatic Cirrhosis, it has been proved that one of the functions of the liver is to destroy bacteria, brought from the bowel by the

leucocytes. Adami has by his investigations shown that a probable cause of Hepatic Cirrhosis is an infection by the colon bacillus, adding another to the list of diseases due to infection from the intestinal tract. Even Pernicious Anæmia may be due to a virulent infection of the upper gastro-intestinal tract by the colon bacillus, pure cultures of this microbe being found in the stomach (in the absence of hydrochloric acid), and numerous remains of this germ, iron laden, in the liver, this latter observation proving the destructive action of the infection on the red cells of the blood.

Pancreatitis, according to Deaver and other observers, either acute or chronic, accompanies gallstone disease in many instances, and for the reason that in both diseases the same factors operate. Infection and obstruction, of the excretory ducts of the pancreas and biliary tracts, are responsible for the lesions of those organs. Woolsey, of New York, in three cases of acute Pancreatitis operated on, had bacteriological examinations made in two, finding cocci in both. Mayo Robson says, that the causes of Pancreatitis are the same as those of the gallbladder, namely infection. He says there are three modes of infection, by contact of organs, by the blood, and by the duct, the last the most common route, as well as the most apparent. He says further, that in post-mortems on such cases, he has generally found infection with the colon bacillus, less often by cocci.

Mikulicz also says, "we know to-day, thanks to the researches of Robson, Opie and Koerte, that the pancreatic duct, like the common bile duct, is easily infected from the duodenum. The surgeon should always bear in mind that acute and also chronic pancreatitis often follows cholelithiasis and cholangitis, as the infection travels from the bile duct through the ampulla of Vater in a backward direction to the pancreatic duct." Again he remarks, "from what has been said, it is evident, that chronic pancreatitis must always be considered in making a diagnosis of cholelithiasis; and further, that with gallstones and cholangitis, especially when the common duct is involved, one must be prepared to find a lesion of the pancreas."

The infective nature of appendicitis is so evident, and the source of the infection from the bowel so obvious, that this very important class can be passed over in a few words, and yet it is only a very few years ago that knowledge on this subject was very hazy. Deaver, in his work on Appendicitis found pure cultures of the colon bacillus in over 72% of acute cases, while this bacillus was found either alone or with other bacteria in 91% of acute cases and 96% of chronic cases. The other bacteria found were staphylococcus pyogenes albus, and aureus, bacillus pyocaneus and streptococcus pyogenes. As all these may normally be found in the bowel, we have not far to look for the source of infection.

Of tuberculosis we need to say but little. Whether it occurs as a primary affection of the bowel, which Koch denies, we know it does occur as a secondary, and consequent to it we may have tubercular infection of the peritoneum, appendix, mesenteric glands, etc. Many other conditions can be traced to infective processes originating in the bowel, as empyema, meningitis, thromboses, etc., but I will conclude by a brief reference to infection of the kidney. Futterer, of Chicago, on injecting bacillus coli into the jugular vein of a dog, was able to find this microbe in the pelvis of the kidney in two minutes. Many other observers have had similar results, proving that one of the active functions of the kidneys as of the liver, is the excretion of bacteria. While in Vienna, I saw three cases of colon bacillus infection of the kidneys, pure cultures being obtained from the urine. In none of these cases was there any cause leading to this infection other than exposure. Since coming home I have had a similar case in a child, from which I easily isolated the colon bacillus. How are we to account for this? Normally, as we have seen, bacteria are being constantly taken into the body from the intestines, and we can easily suppose a condition to arise, when coincident with perhaps a reception of a larger number of microbes than usual, the resisting power or bacteriacidal power is lowered, by the effects of exposure, and so bacteria, potential to harm, reach the kidneys. We have scarlatinal nephritis, why not nephritis due to colon bacillus infection?

Lastly, researches have shown that during digestion, large quantities of bacteria are taken up by the leucocytes and carried into the system, while with an empty bowel this invasion comes to a standstill. This shows the importance of having the alimentary tract well cleared out before an operation, for if the invasion goes on, while the resisting powers of the organism are lowered by the shock of operation, it is easily seen how complications may arise through infection from the intestinal tract.

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## AN EPIDEMIC OF WATER-BORNE TYPHOID.

BY

JOHN A. HUTCHINSON, M.D.

Medical Health Officer, Westmount.

The epidemic to which I wish to direct your attention, occurred in the suburbs of Montreal, during the months of December, 1903, and January, 1904. The entire period of infection seems to have been in December, as very few new cases were reported after the middle of January.

It is very difficult to estimate the number of typhoid cases occurring



in Montreal and its suburbs during past years, because the law in regard to the reporting of typhoid patients has been practically ignored by physicians, and the provincial and local boards of health have allowed the law to be ignored. The reason given for this state of affairs, was, that, even if typhoid cases were reported, no action was taken; the children of the household were allowed to go to school, no placarding was necessary and no particular isolation was demanded. However, typhoid in this district seems to have prevailed sporadically during many years, but the number of cases was not in excess of other places of equal population.

The city of Montreal with the exception of St. Denis ward, has not had an excessive number of cases of typhoid this season, and this epidemic has been confined to the suburbs and St. Denis ward, which obtain their supply of water from a different part of the river. This fact would at once draw attention to the water supply as the cause, if other evidence was wanting, but in this case an array of evidence has accumulated that puts the cause of this typhoid outbreak beyond all doubt. Besides the cases of typhoid there were undoubtedly many cases of paratyphoid, diarrhoea with high fever and other illnesses resembling typhoid. At the time of the outbreak the weather was very cold and many cases of grippe occurred, so that for a while the situation was rather confused. However, I have reports from practising physicians that 82 cases of genuine typhoid occurred in Westmount, which has a population of about 10,000. These cases all took place inside of one month. How many cases occurred in the other municipalities supplied by the same water company I am unable to state definitely, but from reliable reports given me by practising physicians and health officers, I consider that they had an equal number according to their population. St. Henri, with a population of 23,280, had over 200 reported to the health officer. In Westmount the patients were in all parts of the town, the rich and poor alike and all ages were attacked. The milk supply was fully investigated. The 82 patients were supplied by 28 different milkmen and no individual milkman appeared to have an excessive number of typhoid patients who received his milk. On investigation no typhoid cases were found to have previously occurred at any of the dairies supplying milk in the town. This epidemic occurred late in the season, when typhoid is usually on the wane. The number of deaths was below the average, only 3 in Westmount out of 82 cases. The average time, before convalescence, was shorter than in the case of sporadic typhoid.

The discovery by Eberth of the bacillus typhosus, and confirmed by Koch, Meyer, Gaffky and others, is now accepted as the cause of typhoid. That water is the chief mode of conveyance of the infecting

bacillus, there can now be no doubt. The history of the epidemic at Plymouth, Pa., in 1885, at Paisley in 1893, at Maidstone in 1897 and at Belfast in 1898 prove this beyond cavil.

The recent epidemic at Butler, Pa., also illustrates the conveyance of typhoid by means of the drinking water. This was caused by the cessation of the use of the filtering plant for a short time. Immediately following this, typhoid occurred in Butler to an alarming extent. On resuming the use of the filter, the typhoid ceased. Also in February of 1903, Kingston, Ont., had an experience of water-borne typhoid, very similar to our own, and there it was abundantly proved that the cause of their epidemic was a broken pipe from the intake.

For several years an agitation has been going on with regard to the source of water supplied to the town of Westmount. The position of the intake was viewed with grave suspicion, as, at certain seasons of the year, it was in danger of being contaminated. The Montreal Water and Power Company, a private corporation, supplies water to all the suburbs of Montreal and St. Denis ward in the city, but Westmount and St. Henri appear to be the only municipalities that have taken any steps to ascertain whether the water they were getting was good or bad.

Two years ago Westmount Council engaged Mr. Milton Hersey to make an examination of the water. He reported that it contained *Bacillus Coli Communis* and other intestinal bacteria. Some doubt attached to this report, as the water was not taken from the intake or from the taps, but in different parts of the river near the intake. In the summer of 1903 the Health Committee of Westmount engaged Dr. Bruere to examine the water bacteriologically. He reported on July 8th that the samples obtained from the taps in the town gave evidence of faecal contamination.

Among the micro-organisms isolated and identified were the *Bacillus Coli Communis*, *B. Vulgaris* and *B. Alcalescens*. He concludes this report by saying that he is of opinion that the water supplied to Westmount is contaminated with surface water, containing animal excreta. On September 5th he reports another bacteriological examination of the water and again finds the presence of the *Coli* group.

On November 10th Prof. Starkey reports the results of his examination. The closing paragraph of it will give his estimate of the water. It is as follows: (1) Taking into account the nature of the water, the total number of organisms per c.c. is somewhat higher than one would expect. (2) The presence of the chief representative of the group of intestinal organisms, viz., *Bacillus Coli Communis*, in such numbers as found in the examination, certainly calls for serious investigation as

to the source of such. These two principal facts, coupled with the minor ones, viz., the existence of fair numbers of staphylococci, proteus vulgaris and of cotton, linen and wool fibres make one decidedly suspicious of contamination of the water, and would make one necessarily very diffident about recommending such as a safe potable water.

Again, on January 12th, when the epidemic was in full blast, Prof. Starkey took samples of water from the taps of houses where typhoid existed. His report is much of the same kind as the last one. In it, he says, "Again the presence of the bacilli of the Colon group is in undiminished numbers, as compared with the November samples. The present sample of water is just as suspicious, if not more so, than the sample tested by me in November." It may be here stated that the bacillus typhi was not found by any of the bacteriologists.

However, it is an acknowledged fact, that it has often occurred, that B. Coli has been found in water supplies, where outbreaks of typhoid followed, while B. Typhi was not detected. Instances of this kind occurred at Maidstone and Belfast.

In the summer of 1902 I made the following statement in writing to the Westmount Water Committee: "The number of typhoid cases, though not great, is such as to call for investigation, as this disease is largely due to germs contained in the water consumed for drinking purposes. The supply used by the people of Westmount has not been properly investigated in the past. The intake of the Montreal Water and Power Company is not without suspicion, as filthy water from the north shore of the river might possibly contaminate it at certain seasons of the year. At the time of low water in the river this autumn, I advised the Water Committee to make an investigation of the currents, in order to prove, if possible, whether filthy water from the shore could reach the intake."

This advice was not acted upon until a year later, then too late to prevent this deplorable epidemic.

This year a commission of engineers was appointed to examine the currents from the north shore, and in an interim report they say: "The fact that during the periods of low water, and at unusual low water stages, as in November and December last, when the minimum flow of the river prevails, the Verdun sewer discharge then bears a larger proportion to the volume of water in the river, and the water is more susceptible to contamination than at any other time. Also, because the early ice forms on the shoals at low water, changing the direction of the currents towards the intake, and this condition exists until the water rises. For these reasons, and to secure the water supply at such a time from any possible danger of sewage contamina-

tion, we are of the opinion that the Verdun sewer outlet must be removed."

About two weeks before this outbreak of typhoid the ice did form when the water in the river was very low (there being little autumnal rains), and changed the currents from a polluted shore to the intake. The typhoid epidemic was the result. Typhoid cases were known to have occurred in Verdun sporadically during the last few years, and also this autumn several cases occurred.

The foregoing evidence shows that our drinking water was to a certain degree contaminated by sewage throughout the year, but about the latter part of November or the first part of December, a new current had formed by ice formation, conveying filthy water from the Verdun shore out towards the intake. Two weeks after this new channel had formed, typhoid cases began to be reported in great numbers. The chain of evidence is very strong, that our typhoid outbreak was due entirely to contamination of the water supply by sewage from the Verdun shore.

The appended diagram shows the position of the intake, in relation to the Verdun shore and sewer.

At the time of the epidemic, but after the period of infection, the Provincial Board of Health, instructed their bacteriologists, Prof. Adami, of McGill University, and Dr. Jules A. Chopin, to make an examination of the water supplied to St. Henri. It must be kept in mind that at the time this water was taken for examination the water in the river had risen, and the suspected channel had probably greatly altered its direction.

Their endeavours were directed towards determining whether the water supplied to the municipality of St. Henri presented bacterial evidence of sewage contamination, and whether they could isolate from that water the bacillus of typhoid fever, and so demonstrate a relationship between the water supply and the epidemic of typhoid fever from which the municipality has been suffering.

The following are their conclusions:

1. "That the number of colonies of bacteria obtained from those samples of the different waters above-mentioned, examined by us, afford no positive evidence of sewage contamination of the water supplied to the municipality;

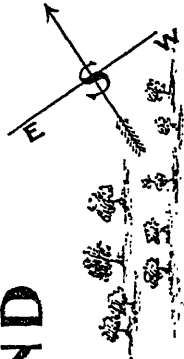
2. That, while all samples of the suspected water without exception afforded us evidence of the presence of gas-forming organisms, of microbes, that is, which, if present in any considerable number, are indicative of sewage pollution, nevertheless, when we made an exact determination of the number of coli forms present in the suspected

# ST LAWRENCE RIVER

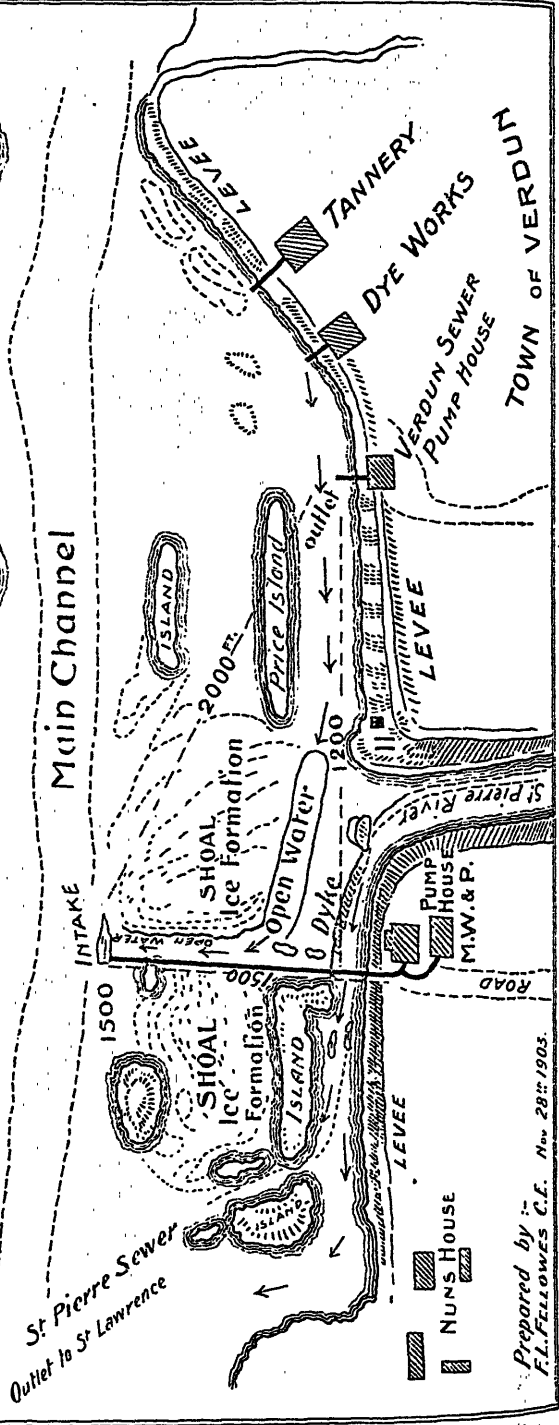
## NUNS ISLAND

N.B. Arrows Show direction of Current leading from Sewer and St Pierre River.

 NUNS HOUSE



3000 FT.



 NUNS HOUSE

Prepared by F.L. FELLOWES C.E. Nov. 28<sup>th</sup> 1903.

water, the number found was not more than that frequently present in water that is regarded as of fair quality—not more than might, for example, be obtained from the watetr supply of the city of Montreal;

3. That, as regards the specific presence of the bacillus of typhoid fever, we have been unable to detect it;

4. That, nevertheless, while all these methods have failed to afford clear indication of sewage contamination, our investigations lead us to be convinced that it exists, or existed. We have found in the St. Henri water a micro-organism possessing very characteristic properties, a form which we believe has not as yet been described, and we have also been able to isolate the same organism (one possessing similar properties) from the sewage water at the pumping station of the Verdun sewer.”

The existence of this new micro-organism in the water may explain those cases of paratyphoid and other cases simulating typhoid. Also, I may say, that in my own practice, I had several patients, presenting the general symptoms of typhoid, but not accompanied with an enlarged spleen or rose spots. Other physicians, who have attended many of the cases during the epidemic had the same experience. However, these were the exceptions; the great majority were undoubtedly genuine typhoid.

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## HUMAN AND COMPARATIVE MEDICINE.

BY

CHAS. H. HIGGINS, B.S., D.V.S.,

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In selecting the title of my paper, I little realized how broad the subject which I had taken would prove to be, although I knew that the interdependence of the one profession on the other was greater than is generally supposed. Had I anticipated that there would be such a vast amount of material at hand I would have confined myself to a less comprehensive statement, that details might be given more prominence than is here possible. However, in dealing with the subject, the desire will be to present in a different light some of the more common facts concerning the relationship existing between Human and Comparative medicine.

As a rule, medical practitioners are accustomed to look upon the practitioner of Comparative medicine as lacking in many of the essential qualifications necessary to place him on an equal footing with his

confrères in Human medicine. In this, I will not attempt to deny what is a well known fact, namely, that men presenting themselves for the study of Comparative medicine, have not been required to show qualifications equal to those necessary to enter the modern school of human medicine; nor, has it in many instances been sufficient to place them in a position to easily assimilate the knowledge imparted to them or to use to best advantage the educational facilities placed at their disposal during their college course.

This statement while true, is however, not without its exceptions, for there are men engaged in the practice of Comparative medicine, who, previous to their professional studies, had pursued college courses. Also, there are men who have from choice taken up its practice after pursuing courses and obtaining with honours both degrees.

The men themselves, however, are not to blame for this lack of educational qualifications, nor can we say that the institutions where this branch of the one great profession, that of medicine, is taught, are wholly responsible, for in many instances, the teaching staff has worked unceasingly with little or no remuneration for their services. On the other hand, the majority of institutions at present engaged in the teaching of Human medicine are richly endowed, the teaching staff is as a rule well paid and applicants are required to undergo strict examination to determine their fitness, before they are allowed to pursue their course.

Comparative medicine, I am happy to say, is awakening from its lethargic state, and is also, in certain instances, receiving the needed financial aid. At the present time almost all of the colleges have increased their curriculum from two to three years; and now we note a further advance in some cases, from three to four years, with a corresponding increase in the qualifications necessary for eligibility to pursue its study. This lengthening of the course is not without reason, for, is it not much more difficult to learn not only the anatomy, but also the physiology, together with the therapeutic action of the various drugs, on, not a single specie, as is the case in Human medicine, but upon a large number which are in no way related?

Take for instance the horse with a single stomach, relatively small for the size of the animal, indicating that he must be fed little and often to supply the necessary material for the repair of broken down tissue: compare him with the dog, an animal that can live comfortably on one meal a day. Also consider the ruminants, with their four stomachs, the first of which acts as a huge storehouse, the second preparing the food for remastication at the leisure of the animal, after which, in its return down the œsophagus it passes these two stomachs and enters the third, from thence to the fourth or true digestive organ.

In the physiological action of drugs we have as wide a 'dissimilarity as has been noted in connection with the very brief mention of the digestive apparatus. For example, under the influence of opium the pupil of the eye of the horse dilates, while that of the dog contracts. Strychnine may be used in large amounts with horses or cattle while dogs are very susceptible to its poisonous effects. One might indefinitely discuss variations similar to those already mentioned.

In disorders affecting the lower animals, diagnosis is dependent on two factors, the history of the case, which in the majority of instances is given by incompetent persons, and upon the physical examination of the subject. Since the historical speech of Balaam's ass, the lower animals have been deprived of the ability to communicate with man, consequently we are obliged to depend almost wholly upon the development of the reflexes to locate their disorders.

Thus, we are very forcibly impressed that the individual adaptability and the educational qualifications necessary to prepare practitioners of Comparative medicine for their life work, should be equal if not superior to those accorded the student of Human medicine. In Comparative medicine as well as in Human medicine, the personality of the individual plays an important part in his successful career, it being as necessary in many cases to treat the peculiar whims of the owner of an animal, as it is equally necessary for the Human practitioner to treat the patient and not the disorder.

Surgery, in its present state of perfection has only been made possible through animal experimentation and the development of that specialty, bacteriology. To as great an extent as any specialty, surgery has been investigated by practitioners of Comparative medicine, and indeed, some of the more common operations of to-day were originated and first performed by men who made their living, ministering to the ills of the lower animals. To be sure, many of these would to-day be termed "quacks," but they were nevertheless very skilful considering their work from the knowledge of their time.

To cite an instance, the following extract from Baas<sup>1</sup>, being a portion of an article by Gould<sup>2</sup>, in the Journal of the American Medical Association.

"The first Cæsarean section on the living and parturient woman was practiced by the sow-gelder, Jacob Nufer, of Siegershausen in Thurgau, on his own wife, about the year 1500. After thirteen midwives and several lithotomists had endeavoured in vain to relieve her, her husband, having invoked the assistance of God and obtained special permis-

<sup>1</sup> "Outlines of the History of Medicine and the Medical Profession." Joh. Herman Baas, M.D., 1889. Page 403.

<sup>2</sup> "Medical Discoveries by the Non-Medical." Geo. M. Gould, M.D. *Journal of the Amer. Med. Assn.*, May 30, 1903. p. 1477.



sion of the governor of Fruenfeld, operated, 'just as on a sow' with such good fortune that the mother survived to the age of 77, and was able subsequently to bear several children—and even twins—in the usual way. Undoubtedly, therefore, the operation was unnecessary, and the same was true of many of the operations which soon followed, for Cæsarean section became the fashion for a short time. A sow-gelder is said to have removed the ovaries from his daughter in consequence of her lasciviousness, during the 16th century (Weyer tells the story), so that such fellows, as operative gynecologists, are to be considered the predecessors of Hegar, and to be praised accordingly.

As a result of this enrichment of the technique of operative midwifery by a simple sow-gelder, the Cæsarean section seems in the course of the 16th century to have been practiced repeatedly, in Italy in 1540, by Christof. Bain, 1531; in Neusse, 1549, by Paul Dirlewany; on Marie Volscer, in Vienna, etc. Now it was performed in a somewhat more becoming fashion, and chiefly by barbers, though some will admit as the first Cæsarean section only the one performed by the surgeon Trautman in Wittenburg in 1610."

In more recent years we have the operation "tenotomy" first performed on the horse by a veterinary surgeon, Mr. Dick, father of the late Professor Dick, of the Edinburgh Veterinary College. Since that time the operation has been repeatedly performed in the relief of certain forms of lameness, particularly in horses. So successful has this operation proven in the hands of veterinarians that surgeons have taken it up in the repair of certain deformities of the human being, and it is frequently practiced in the majority of hospitals.

A further consideration of the relationship of the two professions may be undertaken by a brief mention of public health matters. It is the duty of the practitioner of Human medicine to take precautions with a view to preventing the communicability of the infectious diseases common to man. It is as well the duty of the practitioner of Comparative medicine to guard against the spread of contagious diseases among the lower animals, more particularly those which would, if allowed to take their course unchecked, jeopardize the live stock interests of the country; also those which are communicable to the human being, and as well, such diseases as would render the food products from animals unwholesome for human consumption. Both professions are concerned in the wholesomeness of our food products, and, as they are each educated on distinct special lines, their combined knowledge is invaluable to any country.

It is even necessary, in this age of specialization, to go further than a mere division of the work among the two professions, for the general

practitioner of either branch, is neither able nor capable of making a complete study of the various questions which enter this great problem.

In the matter of milk supply, which no doubt is of more concern to you as individual practitioners, experimenters have shown the conditions it is necessary to maintain to make it pure and wholesome. Veterinarians, cranks on ventilation and general sanitation, indicate the conditions best suited to maintain the health of the animals. Chemical analyses of the various foods and also of the water given to the animals, as well as analyses of the materials excreted by the system have given the proportion which furnishes nourishment to the body of the animal as well as that entering the milk. Breeding claims its share of attention and has been studied by practitioners of both professions with the result that it has been shown that the fat globules of certain breeds possess certain mechanical characteristics of value in the artificial feeding of infants and invalids. The bacteriologist determines whether the water supplied the animals is free from injurious germs. The bacteriological examination of the milk itself has shown us that it is possible to have it so drawn that it will keep almost indefinitely under certain conditions without the addition of preservatives. It has also shown that milk containing a large number of bacteria is more to be feared, and is also a more potent cause of intestinal disorders in infants than has generally been supposed. Physiological chemistry has taught us that the heating of the milk above a certain point renders its assimilation more difficult, and also that milk highly impregnated with bacteria even after Pasteurization, contains, not the living bacteria but the ptomaines manufactured by them which are in many instances more dangerous than the bacteria themselves.

Comparative physiological chemistry has shown us that the maternal milk of the lower animals is suited to the peculiar conditions under which the young are reared, and to the anatomical and physiological capabilities of the particular organism studied. What is true of the lower animals is also true in the case of man and in modifying milk for use in infant feeding the peculiar anatomical and physiological requirements should be uppermost in the mind of the physician.

In this matter of milk supply, the Veterinarian has been to the fore and the modern dairy should be under his supervision that the advanced knowledge of scientific experts and medical practitioners may be made use of in producing a more wholesome food for the infants and invalids who are wholly dependent on others for this one article of diet. The subject of "milk supply" is a very broad one, modern science having shown us the fallacy of the older ideas as to the regulations which should be enforced in its control. The further discussion of foods will

have to be passed over on account of the time that would be consumed by going into details in a matter of such importance, pointing out the responsibilities of each profession in their supervision and control.

In pathology and bacteriology we see the greatest evidence of the relationship of the two professions. Comparative pathology has within the past few years taken immense strides and it has indicated many facts, with the result that the treatment of common affections met with by the practitioner of Human medicine, has been completely revolutionized by the production of antitoxic serums which are almost specific against the disease for which they are prepared.

In the discovery of the cause of diseases exhibiting a malarial character we find that the parasite of "malaria," in the human, and "surra," in horses were described by Laveran and Griffith Evans, respectively, in 1880, but it remained for Theobald Smith, one of the greatest living comparative pathologists to demonstrate that "Texas fever," a cattle disease of malarial character was transmitted by an external parasite, the cattle tick (*Boöphilus Bovis*).

Not only was it shown by him that the disease could be carried from one animal to another by an infected tick, but, that the active virus could be transmitted through the egg to the young nymph which was itself capable of infecting susceptible cattle. Of such practical importance was this discovery that there now exists in the United States an imaginary line north of which Southern, or "tick infested" cattle, are forbidden, during certain portions of the year. This work stimulated other investigators and it has been proven that not only animal diseases exhibiting a malarial character are capable of being transmitted from animal to animal by an intermediary bearer, but also that certain diseases of the human race can be propagated in a similar way. Among the diseases affecting the human being carried in this manner are Bubonic Plague, Yellow Fever, Dengue Fever, the Spotted fever of the Bitter Root Valley of Montana, and many others.

Other special lines could be taken up and it would be found that no great scientific advance had been made without recourse to the lower animals and that practitioners of both professions are taking advantage of facts gained during such experimentation which have been but side issues in a long series of carefully conducted investigations.

In summing up, it is found that no matter to which profession we have allied ourselves we are engaged in that praiseworthy occupation of saving life and should therefore work hand in hand, each taking advantage of discoveries made by the other that our efforts may produce more beneficial and fruitful results in the usefulness and prolongation of life, whether it be of the human race or of the more unfortunate animals which they control.

# A CASE OF CARCINOMA OF THE RECTUM: KRASKE'S OPERATION: RECOVERY.

BY

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A gentleman, aged 37 years, consulted me early in May, 1903, on account of persistent constipation, a discharge from the rectum and general debility.

**PERSONAL HISTORY:** The patient has led an active life and enjoyed fairly good health until two years ago. He has always been troubled more or less with constipation, which, for the past two years has been obstinate, and at the present time there is never a proper evacuation of the bowels unless produced by purgatives. He has not been sleeping well for several months and has lost considerable weight. The only pains complained of have been occasional cramps which came on when the bowels were about to move. The discharge from the rectum has not been large in amount, but enough to be noticeable and to soil his linen. During the winter he had suffered from what he called "bleeding piles."

**FAMILY HISTORY:** Father died from carcinoma of the liver, one sister well. [Since these notes were written the sister has been operated upon for carcinoma of the breast.]

**PRESENT CONDITION:** His appearance is that of a very sick man; pale, sallow and emaciated; pulse small and quickened, slight pyrexia, (T. 101% F.) abdomen prominent, somewhat distended; numerous hard movable nodules or masses varying in size from a walnut to a hen's egg, easily felt on palpation throughout the abdomen; the sigmoid flexure and descending colon distended with hard masses probably faecal; the liver and spleen not enlarged; heart, lungs and urine negative; no bladder symptoms.

**DIGITAL EXAMINATION OF THE RECTUM:** Two and a half inches from the anus a mass was felt surrounding the rectum, infiltrating its walls and fixing it in the pevis. This mass was hard and nodular with punched out ulcerated surface very painful to the touch. The calibre of the rectum was narrowed and the examining finger could not be passed above the mass.

A considerable quantity of dark grumous material mixed with blood and emitting a foul gangrenous odour escaped during the examination.

**DIAGNOSIS:** Carcinoma of the rectum. The nature and gravity of his malady was fully explained to the patient and he was informed that nothing short of a serious operation offered any chance of recovery.

Having decided upon operation he was admitted into a private ward of

the Western Hospital on May 19th. After nine days of preparatory treatment devoted to improving his general condition and getting the bowels thoroughly cleaned out, a preliminary colostomy was performed on May 29th. The abdominal contents were explored through the laparotomy incision; no enlarged glands were felt, the rectum was firmly fixed in the hollow of the sacrum, but the pelvic peritoneum seemed smooth.

The descending colon was brought out of the abdomen and held in the usual way upon a glass rod passed through the mesentery, as much slack sigmoid being left as possible. Two days after the operation the colon was opened, establishing an artificial anus, through which the bowels moved regularly, with great relief to the patient. Through the lower end of the artificial anus the rectum was irrigated daily with a solution of boracic acid, with marked benefit both in lessening the amount and odour of the discharge from the rectum, and in reducing the temperature and frequency of the pulse.

On June 24th, assisted by Dr. Geo. Fisk, I did a Kraske's operation for extirpation of the rectum, as modified by Rydygier and Tuttle. Some eight inches of the rectum, including the neoplasm and its surrounding cellular tissue and sacral glands, were removed.

The technique of the operation was briefly as follows: The patient was placed on the left side with hips elevated, the field of operation was cleansed, the rectum irrigated and packed with a strip of gauze. An oblique incision was made from the middle of the sacrum on the right side to the tip of the coccyx, then along the middle line to the posterior margin of the anus. The incision was bold and deep, exposing the cellular tissue posterior to the rectum, which was rapidly separated with the fingers from the sacrum, having first caught a few spouting vessels. The space thus found in the hollow of the sacrum, as well as the incision, was firmly packed with sterilized gauze. A transverse incision was then made at the level of the fourth sacral foramen, the bone sawed through at this level and the bony triangular flap reflected to the left.

The tumour was now isolated, and a strip of gauze passed around the rectum with which to draw it down; the peritoneal cavity was opened and the rectum dissected out by following and dividing its peritoneal folds; the sigmoid was well drawn down, the peritoneal cavity dried and closed off as well as possible by suturing the lateral folds of peritoneum to the bowel; the gut was clamped and divided well above the neoplasm. The entire mass (rectum, neoplasm, sacral glands and surrounding areolar tissue) was now carefully separated from the prostate and bladder and removed from above downwards; the healthy sigmoid was brought down and sutured at the anal site; the cavity of the

sacrum was packed with sterilized gauze, the end of which was brought out through the lower part of the wound. Finally the bone flap was placed in position, the transverse incision and upper half of the oblique were closed by deeply placed silk-worm gut sutures, and the whole dressed with sterilized gauze held in place by a T-bandage.

The patient's condition after the operation was anything but good, pulse small and difficult to count, face pinched, lips bluish white. A pint of saline solution was injected subcutaneously and a full dose of strychnine given. The patient was placed in bed wrapped in blankets and surrounded by hot water bottles. He came out of the anæsthetic quietly, the pulse soon improved and could be counted at the wrist (120 per minute). His convalescence was slow and tedious, for many weeks he complained bitterly of the dressings and was much annoyed by the profuse purulent discharge from the wound. He left the hospital October 22nd, four months after the radical operation, with the wound practically healed. He was able to void his urine, and his bowels moved regularly through the artificial anus; solutions could be passed from the colostomy opening through to the perinæum.

The last report, received a few days ago, states that the patient continues to improve, eats and sleeps well, is able to go about and is gaining in strength and weight.

The treatment of any carcinoma is always a serious matter and must continue to be so until the ætiology of the disease is solved. Before the days of asepsis, some of the most able surgeons considered the operation for extirpation of the rectum for carcinoma as unjustifiable, so high was the mortality. At the present time, with improved methods, statistics would indicate that the operation has an immediate mortality of 20 per cent. with only 14 per cent. of cures, that is to say, 14 per cent. of the cases operated upon survive the operation and live three years or longer.

The following table gives the results obtained by different operators:

	Cases.	Cures.	Percentage.
Kocher . . . . .	35.	10	28
Czerny . . . . .	109	16	14
Kronlim . . . . .	63	10	16
Bergmann . . . . .	46	8	17
Madelung and Garre . . . .	53	6	11
Kraske . . . . .	80	11	13
Kuster . . . . .	95	16	16
Hornegg . . . . .	93	12	12
Mikulicz . . . . .	66	6	9
Tuttle . . . . .	32	7	21.8

Average percentage of cures, 14.8.

The above figures, when considered with recently published vital statistics, showing an alarming increase in the prevalence of carcinoma throughout the world, force upon us the importance of being ever on the alert to recognize this dreadful malady; for until science discovers some preventive or more certain method of dealing with carcinoma than we have at the present time, we can only expect to obtain better results by early diagnosis and prompt, and radical operative measures.

At the Vienna General Hospital, in 156 cancers found at autopsy in the large intestine, 30 were found in the sigmoid flexure and 81 in the rectum. These and other statistics indicate that rather more than 80 per cent. of all cancers found in the intestines are located in the rectum. One may conclude then that malignant disease of the lower bowel is comparatively frequent. The importance of rectal examination as a matter of routine, in obscure abdominal derangements is forcibly demonstrated by this case, which for upwards of two years exhibited a group of indefinite symptoms in no way indicating the serious nature of the malady. I am indebted to Dr. Macphail for the pathological examination. The neoplasm was classed as an adenocarcinoma.

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### A CASE OF MYXEDEMA.

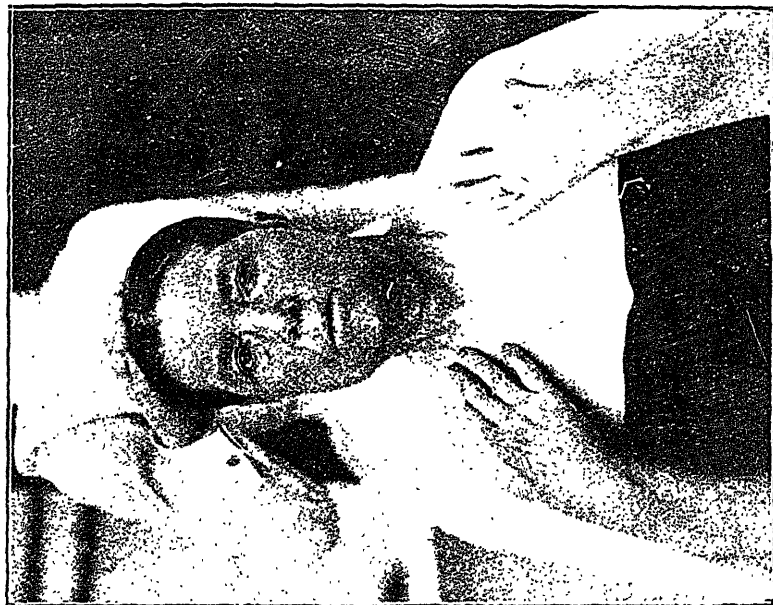
BY

H. A. LAFLEUR, M.D.

Mrs. M., aged 50, married, was admitted to the Montreal General Hospital on September 16th, 1903, supposedly for Bright's disease. She complained of swelling of the body, particularly of the legs, of weakness, soreness of her eyes, and of pain in one thigh, the result of a fall a few days before. She was so lethargic that it was impossible at the time to get a connected history of her illness, but subsequently the following facts were elicited. Some six years ago she noticed that her feet and legs were swelling so that she had some difficulty in putting on her boots, and at the same time her relatives remarked on the unnatural swollen appearance of her face, especially about the eyes. This condition gradually increased and was accompanied by muscular weakness, but she was still able to attend to her household duties. Her skin became rough and dry, and her hair began to fall out. It was noticed also that her complexion was changing—she was becoming quite sallow. There was a change in her voice, which became husky and croaking in character. In the summer of 1903 she fell on several occasions while walking, apparently from weakness of the legs or inability to control her



Myxedema—before treatment.



Myxedema—after 3 months treatment with thyroid extract.



movements. She had also suffered from wandering rheumatic pains and stiffness of her joints for some time.

Prior to her present illness she had always been well. She is the mother of 6 healthy children. So far as she knows, no illness similar to hers has occurred in any of her relations.

Her condition at the time of entering the hospital was as follows:—

Large, well-developed woman, weighing 159 $\frac{3}{4}$  lbs. The skin has a general sallow tint, with the exception of a small patch over the cheek bones where there is a light reddish flush. The face looks swollen, and there is puffiness of the eyelids, particularly of the lower ones. The features are coarse, and expressionless. The upper eyelids droop, and are raised slowly when she is roused, the eyes are bleary and watery. The skin is very dry and inelastic over the whole surface of the body, but not doughy, and on the hands, forearms and face there are innumerable fine wrinkles, the epidermis being cracked superficially, and the hands and forearms distinctly glossy. There is some fine branny desquamation on the upper extremities and on the forehead near the hair. The lower lobe of the right ear also shows desquamation in fairly large scales. The finger nails look normal, but the toe-nails seem to be stunted. The hair is very dry and thin, and there is marked seborrhœa sicca. The musculature is everywhere shrunken and flabby. Though the skin and subcutaneous tissues feel thicker than normal, there is nowhere the slightest pitting on pressure.

The mental condition is peculiar. The patient is apathetic and drowsy, and spends most of her time dozing in bed. When roused by a question she answers very slowly, seeming to have difficulty in collecting her thoughts, and to be disinclined to prolonged conversation. She is, however, quite rational, but her memory seems to be defective. The voice is husky, with a peculiar rough "leathery," and at times metallic tone.

The examination of the viscera gave no evidence of organic disease. There was some transverse enlargement of the area of cardiac dulness; the 1st and 2nd sounds at the apex were of almost the same quality, but there were no murmurs. The temperature was subnormal and remained so as a rule during the first six weeks. The pulse was 84-88, regular, of small volume and medium tension. The thyroid gland could not be felt.

Urine:—1031; acid; no albumen; no glucose; no casts.

From the history and the physical examination the diagnosis of myxœdema was made, and on September 22nd, treatment with thyroid extract was begun, 1 grain of the powdered extract being given three

times daily. This was subsequently increased to 2 grains and then 3 grains, which she continued to take till the time of her discharge on December 30th. Improvement soon showed itself and continued uninterruptedly. The skin became gradually soft and smooth, the capillary circulation improved, the hair became smoother, and as you will notice a fresh crop has grown. The voice gradually became stronger, though it still retains something of its peculiar quality. She has lost weight progressively, from 159½—135½. The mental condition is quite changed. Though not vivacious, she now answers questions readily and her speech has lost the characteristic slowness. She is continuing the thyroid treatment at home.

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### ACUTE MASTOIDITIS FROM STREPTOCOCCUS INFECTION— WITH REPORT OF TWO CASES.

BY

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Politzer claims to have proved by numerous post-mortem examinations "that in every acute middle ear suppuration pus is found in the cells of the mastoid process," but he points out, that pus in these cells does not necessarily imply local abscess formation, and that we cannot speak of the formation of a mastoid abscess unless, owing to micro-parasitic infection, the lining membrane and osseous tissue of these cells are inflamed.

Numerous micro-organisms have been found in the pus from mastoid abscesses, most frequently the diplococcus pneumoniae and the streptococcus pyogenes. Divergent views have been expressed by different authors as to the clinical characters of the inflammation resulting from infection with the various bacteria. According to Politzer, Nadoleczny holds that the milder forms of middle ear inflammation are, as a rule, produced by the pneumococcus and the severe forms with mastoiditis and other complications by the streptococcus, while Leutert states that the suppuration brought about by the pneumococcus is differentiated from that due to the streptococcus by its rapid course, by its tendency to invade the entire middle ear and result in mastoid and extradural abscesses. Gradenigo believes the streptococcus the exciting cause of severe otitis and that this organism is almost always the cause of sinus thrombosis, yet the same authority thinks the pneumococcus is the prevailing element in extra-dural abscess.

The following two cases of Acute Mastoiditis which have recently

come under my care, present some points of interest and demonstrate the clinical characters that may be met with in mastoid abscesses of streptococcic origin.

*Case 1.* Mr. V., age 50, diabetic. Had severe pain in right ear for 3 days following snuffing up of salt solution into the nose. The right tympanic membrane was found much congested and bulging, and of a bluish, purple colour. Two or three small subcutaneous hæmorrhages were noticed below, near the periphery of the drum membrane. There was some tenderness at the tip of the corresponding mastoid process. Free paracentesis was done in the posterior inferior quadrant of the drum membrane, and there was immediate free discharge of sero-purulent fluid with relief to the pain in the ear, the discharge continued very profuse and of seropurulent character for about four days, requiring 15 to 20 iampons in 24 hours to absorb it. The temperature, at the time of doing the paracentesis, was  $101^{\circ}$ , on the 5th day following it was normal and the mastoid tenderness had entirely disappeared, by the end of the second week the discharge was much lessened, but was blennorrhagic in character. After this until a relapse occurred on the 34th day, no acute symptoms were present. Pulsation which had been very distinctly seen at the perforation in the drum and strongly felt by the patient gradually disappeared, and could be neither seen nor felt by the 30th day, when the discharge, also, had almost ceased. Up to this time the patient remained indoors, mostly in his bedroom, and lived on a diabetic diet. An analysis of his urine was made twice a week by his family physician, who reported the absence of glucose on some occasions and at others as much as 2 per cent. From the 30th to the 34th day, patient insisted upon going to his business and taking part in other affairs, against the advice of his medical attendants. On the 35th day the discharge was markedly blennorrhagic and much increased, the temperature rose to  $100^{\circ}$ , and there was pain and tenderness over the mastoid, the tympanic membrane bulging. The perforation which had not completely closed was enlarged and an ice bag placed over the mastoid. The next day the acute symptoms had disappeared and the temperature was normal. From the 36th day the discharge was constantly profuse and composed of thick stringy yellow pus, the posterior wall of the meatus commenced to bulge causing a gradually increasing narrowing of the external auditory meatus, there was, also, a sensation of weight on the right side of head and intermittent attacks of slight pain and tenderness over the mastoid process, but no redness or swelling or elevation of the temperature. On the 39th day a specimen of 24 hours urine showed 2% of sugar, and the patient on the advice of a medical consultant was placed on von Noorden's diet,

and in a few days all trace of sugar had disappeared from the urine and did not return during the future course of the treatment. On the 44th day the discharge continuing profuse and the external auditory canal being much narrowed, although there was no redness or swelling or standing out of the ear, and only slight tenderness on pressure at the tip and base of the mastoid process the writer decided to lay open the mastoid cells. On doing so it was found that very extensive absorption of bone had taken place and that the mastoid process, excepting the external shell of hard bone, was one large abscess cavity filled with dark red granulations and pus, communicating freely with the antrum and tympanum. At the upper deeper portion of the cavity the dura mater was exposed over an area the size of the thumb nail. A culture was made from the mastoid pus and Dr. McCrae, of the pathological laboratory at the General Hospital, reported the presence of a pure culture of streptococcus.

The ultimate result in this case was most satisfactory, an uneventful recovery taking place. The discharge from the ear discontinued entirely within a week and by the 10th day the tympanic membrane perforation was healed.

In five weeks after the operation the cavity in the mastoid process was completely filled up with new granulations and covered with the epithelium, the only evidence of the operation being a somewhat deeply depressed scar. The hearing of the affected ear, which had been markedly impaired during the course of the acute attack, five weeks after the operation was nearly normal and equal to that of the unaffected ear.

*Case II.* Miss B., age 30, was sent to me on the 15th January, 1904, and gave the following history: Up to the present illness she had always enjoyed good health. In November, 8 weeks previously, while suffering from a severe cold in the head, the left ear became painful, four days later her suffering in that ear was intense, and she was seen by Dr. Orne Green, of Boston, who punctured the ear drum, giving her almost instant relief. The discharge gradually became less and after a few weeks she was sent to visit friends in Montreal; after coming here however, the ear discharge, instead of continuing to decrease, became very abundant and she consulted me in consequence.

THE CONDITION WHEN FIRST SEEN EIGHT WEEKS AFTER ONSET. The left ear was full of thick stringy yellow pus, not offensive to smell. After syringing this out a large perforation with pulsation was seen at the lower portion of the tympanic membrane (this pulsation was distinctly felt by the patient). Rather firm pressure over the mastoid process elicited marked tenderness, especially at its apex and over the

lateral sinus, immediately behind the process; there was, also, slight redness over the mastoid region but no perceptible swelling or standing out of the auricle. The external auditory meatus was narrow and there seemed to be some bulging of its posterior superior wall. The temperature was normal. The patient went immediately to hospital, and was given a saline aperient. Owing to the very profuse discharge from the ear it was syringed every 3 hours and an ice bag kept constantly upon the mastoid for 48 hours; after four days treatment the mastoid tenderness was much diminished as was also, the quantity of the discharge. Pulsation at the perforation was still visible, but much less distinctly felt, the external meatus, however, was constantly growing narrower. On the evenings of the 6th and 7th days after coming under my care her temperature was 99.4 and 99.8 respectively. The progress not being considered satisfactory, it was decided to open the mastoid cells on the following day. Just previous to the operation some swelling and induration was noticed in the neck, extending down from the tip of the mastoid process.

CONDITION FOUND ON OPERATION: After making the usual incision to expose the mastoid and removing about  $\frac{1}{8}$ th to  $\frac{3}{16}$ th of an inch of solid compact bone over the mastoid cells, a cavity containing pus and granulation was reached. The pus escaped with considerable force to the amount of about a drachm. A bacteriological examination of the pus showed the streptococcus in pure culture. After removing all the bone overhanging the cavity it was found to be very large and to occupy the whole mastoid process. The lateral sinus, to the size of a five cent. piece, was exposed. A small perforation was found at the tip of the mastoid process through which a grooved director was passed and pressure made upon the neck but no pus was found. The mastoid cavity contained large dark red cedematous granulations; when these had been thoroughly removed the mastoid antrum and cells were seen to form one cavity.

The after history of this case has been highly gratifying. The discharge from the external auditory meatus had completely ceased by the 4th day after operation, and the perforation was closed a few days later. Now, the 17th day, the mastoid wound has remained perfectly healthy and has diminished by half its size and healing is progressing rapidly. The hearing in the affected ear, which at the time of operation was very defective, is rapidly returning.

The fact demonstrated by these cases, to which it is desired to draw the reader's attention especially, is that a mastoid abscess of streptococcus origin may have mild clinical symptoms and be of slow progress, and yet be of a most insidious, destructive and dangerous character.

THE

# Montreal Medical Journal.

*A Monthly Record of the Progress of Medical and Surgical Science.*

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## CANADIAN MEDICAL ASSOCIATION.

The thirty-seventh annual meeting of the Canadian Medical Association will be held in Vancouver on the 23rd, 24th, 25th and 26th of August. The local committee is already at work, to make the meeting an event worthy of all Canada, and the president, Dr. Tunstall, has made a journey through the Eastern cities, consulting and advising and forming plans. The meeting in London last year did not receive a large attendance of members from beyond the borders of Ontario; from Montreal there were only four persons, and the Maritime Provinces made an equally poor showing.

The men in the west are approaching the thing with a fresh mind. They have arranged a low transportation rate; they have interested the whole profession and are keeping in touch with it through small local committees in every centre. The programme is being made up, and some guarantee taken that papers on the list will actually be presented. Out of forty-six papers set down for the London meeting

only twenty-nine were actually read, and the same thing happened at the meeting of the Maritime Association in St. John, in July. It is easy to make an attractive programme, if there is no intention of having it carried out.

But after all preliminary arrangements have been made, the success of the meeting depends largely upon its management, and the committee in Vancouver are profiting by past experience. There should be a distinct line drawn between the actual business of the meeting and the entertainments; the papers should be read at the hour appointed, and the speakers strictly limited in respect of time and subject. Instead of the full reading of a paper, the main facts might be briefly presented; or even a printed abstract prepared in advance. The registration of those in attendance should be done with system, and the names, with addresses, posted in a public place. A large part of the business of the meeting is done outside of the sections, and accommodation should be provided for the less serious minded; a surreptitious cigarette at the end of a passage is not all that every man desires.

The committee should guard against those members, who put in an appearance the last day of the meeting, caring only to receive railway certificates; and lastly, something should be done to prevent the unseemly scramble for papers by editors of journals, intent only upon filling their pages somehow during the lean summer months. The profession in British Columbia may rest assured of a hearty support throughout Canada. If the British Association meets in Halifax in 1905, that will probably decide the place of the Canadian Association for that year, and it is not too early to suggest Quebec as the meeting place for the year following.

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#### THE TUBERCULOSIS EXPOSITION AT BALTIMORE.

Quite one of the most successful in all its details of local exhibitions and of local medical congresses, was the Tuberculosis Exposition held in Baltimore. It was a model of what such should be. Not too much was attempted; the arrangements grew and developed naturally, and the result was a demonstration of what can be and has been accomplished in interesting the public in a matter of vital importance. It was purely a scientific exhibition and congress free from any aspects of commercialism. The State Commission on Tuberculosis had gathered together a valuable series of statistics upon the prevalence of tuberculosis among the various divisions of the population of the State of Maryland, and wished to draw some little attention to their results. To this end the active head of the commission, Dr. Fulton, had tabulated and charted the results in a series of large diagrams, which

presented the facts in such a form that they could be easily grasped by the meanest understanding. They were, in fact, so excellent that it was felt that it would be wise to afford some additional attractions to induce the public to visit and study them. The large halls of the Johns Hopkins University were offered for the purpose and gradually the form of the exposition took shape. The district nurses were invited to instal a model sick-room for tuberculous patients; tents, chairs, lounges, and other conveniences for the open air treatment of the disease were gathered together; the better known sanatoria were invited to send photographs and plans of their buildings, and charts exhibiting the results obtained by treatment. A valuable collection of the more important works bearing upon the subject, from Hippocrates onward, was brought together and annotated by, we believe, Dr. Osler. A small museum was formed as an annex showing the various manifestations of the disease in man and the lower animals: this not for the general public, but for the visiting members of the profession. And, lastly, a series of evening lectures was arranged by various speakers, of whom Dr. Adami was one, from outside the State.

Developed thus, the exposition was a very remarkable success. Throughout the day, and in increasing numbers as the week proceeded crowds of the general public visited the exposition. They were of all classes of the community; there was a large attendance of medical men from all parts of the State, and each evening thronged audiences attended the lectures. Apart from the wise way in which the whole scheme had been developed and had been brought to public notice, the exposition afforded a most satisfactory demonstration of the fact that the public in general is now thoroughly interested in the subject, and of the fact that the public is now awake and prepared to join heartily with the profession in preventing the spread of the disease.

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### THE UNIVERSITY LECTURE.

Professor Macnaughton, who delivered the University lecture on February 11th, brought to the undertaking a fresh mind and a high point of view. The lecture was a strong plea for the retention in educational systems of some tincture of letters. Such voices, in time, are bound to be heard, even if for the present they do seem to be lifted up in the scientific wilderness. It was not a plea that the university body should array itself in the cast-off garments of mediæval learning—professors of classics are too fond of recommending that form of folly. The burden of the message was that the future belongs to the people who will take the trouble to think. The Germans are not behindhand in scientific and industrial activity, and yet they give more thought to



literary study than any other nation; the Greeks, who gave birth to science in the island of Kos made their education wholly literary.

It is only in the intellectual atmosphere generated by the wide diffusion of great literature, that Science thrives, and the short-sighted utilitarianism, which despises the one, is in the end fatal to the other. Under all diversity of manifestations the spirit of man is one; to interfere with any one of its main expressions is to lower the general vitality and stunt all other activities as well. In the interest of science itself, literature must not be neglected. There is much of which science does not take account. Besides La Place with his mechanism of the heavens, said the lecturer, we need the nineteenth psalm. The beauty and mystery of things, the appeal they make, needs the interpretation and recreation of the poet, and human life needs the sympathetic and penetrating presentment which only the great literary artist can give. These and many other high thoughts found expression in this year's university lecture. Every one will agree with Professor Macnaughton's conclusion, that no holder of a degree should be allowed to leave the university without some fairly adequate conception of what good literature is, and some capacity to enjoy it.

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#### ATHLETICS AND THE STUDENTS.

The debate between the members of the McGill Medical Society upon the influence of athletics on the physical and mental development of the student ended as most discussions do when the opponents find they are talking about different things. The undergraduates arrived at the conclusion that the influence is not adverse. This decision was entirely proper, if by athletics is meant measured movements to the sound of a piano or the instructor's voice, or the other feats of strength and daring habitually carried on in a well ordered gymnasium. But if athletics be made responsible for the evils which accompany or flow from university sports, the excess of zeal in contests, the unreasoning desire for victory at all hazards, and the mental unrest arising from hope or fear as to the outcome of a wager, then it might be well to arrange a fresh debate in which these elements should come in for consideration. Without wishing to supply arguments in advance to either side, it might be suggested that some speaker could find material for forceful utterance in the postponement of the University Lecture, on account of the exigencies created by a hockey match. That incident might be made to show that the educational system is sufficiently tinctured with a love of sport, and to prove that the plea for a tincture of lectures was not inopportune.

## MEDICO-CHIRURGICAL SOCIETY.

The three case reports presented at the last meeting of the Medical Society were models of what case reports should be; nothing essential was omitted, and nothing foreign to the subject was included. Dr. Ross's modest relation of a case of pregnancy with complications led up to the reading of a report by Dr. Goodall, which, in completeness and in style of presentation, was entirely creditable to himself, and to the hospital with which he is connected. This in turn opened up a discussion in which the whole question of eclampsia was handled. The diversity of views expressed gave force to Dr. Chipman's plea for a more faithful clinical study of all the elements in this strange disorder.

Dr. Keenan's report of a case of sarcoma of the tongue revealed incidentally a brilliancy of diagnosis, arising as all brilliant diagnosis does, from a profound study of every element in the case under consideration. This report too led to an informing discussion upon the relation existing between lymphoid and sarcomatous tissue, a relation which is by no means clear.

The salient feature in Dr England's communication of a report upon an incision of the rectum by Knaske's method was that the patient is still alive, nearly a year after the operation. The importance of that fact in surgical procedures should not be lost sight of.

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FRENCH AND ENGLISH.

Now that the French and English portions of this community have come so close together in educational harmony, it would be well to make the best face possible against that part of the world which lies outside of the Province of Quebec. The College of Physicians and Surgeons have issued, in French and English, a report of the proceedings of that very harmonious meeting held on the 30th September last, to which we have so often referred with pleasure. Against the report itself there is nothing to be alleged, and the French edition contains the grace of style, the vivacity and that note of intimacy peculiar to the language in which it is written. In the English version these qualities are not so apparent, and a correspondent, whose letter bears an Ontario post-mark, pretends to find it amusing. He instances the censure passed upon the Secretary, "who showed very little zeal in acknowledging, at least, the merit of those who worked with the greatest impartiality at the revisal of the rules," and the case of the midwife, who was refused "for want of sufficient scientific qualifications," and yet again the case of the applicant, who demanded a license "without presenting any documents, "as he left them at his residence." This correspondent also affects to find something tragic

in the series of events, which overtook Henri Desmarais, and are made a plea for "regulating his position, so that the examinations which he is convinced, he will undergo with success, will be equally passed under the control of your Assessors, this will permit him to receive the required license without further delay." The pleading continues: "that, he intends to go to Europe, to continue his studies; this, he will do with more courage were he free from the thought that he will then be obliged to reside in the United States, far from home, cruel necessity to which he was resigned to submit, when he entered the University, under the circumstances before mentioned, and, when the delay of one year might have been of an inestimable value if the fears entertained on his father's health had been unfortunately realized."

The answer to all this cavilling is, that if the Council of Ontario were to publish their proceedings in French, we in Quebec would in turn find something which would minister to our amusement.

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The recent epidemic of typhoid fever has drawn public attention even more than usual to the water supply. During ordinary winters, we are apt to find that the water in the morning tub becomes clearer and less tan-coloured. This is due, not to any admixture with the St. Lawrence water proper, but to the fact that the small streams draining the boggy and moorland areas along the Ottawa Valley, become frozen up, and so the main bulk of the water coming down the Ottawa at this period is derived from springs. This year, during the last few weeks, everyone must have noticed that yet further change has occurred. The water has not merely been beautifully clear but it has taken on an exquisite pure, faint bluish colour when seen in any depth so that the mere contemplation of the bath has been a source of æsthetic pleasure.

What has happened is very remarkable. According to M. Janin, the Civic Engineer, who has been investigating the cause of the phenomenon, it is the following:—Below the Cascade Rapids the frazil ice carried down has heaped up and become converted into a huge barrier of solid ice. From soundings made by him in the immediate neighbourhood of the barrier, it is found there has been formed a wall of this solid ice, not less than 67 feet high, and so strong as to completely divert the current of the St. Lawrence, which now, instead of proceeding downwards, is turned at a northerly angle so that the main stream makes its way over the locks and along the course of the Soulanges canal and then, crossing the bed of the Ottawa, this current strikes the head of the Island of Montreal, so that now, for the first time in the memory of man, the waters of the St. Lawrence pass, not merely along the southern shore of the island, but also flow down the

Back River and we in Montreal are drinking and disporting ourselves in pure St. Lawrence water.

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An effort is being made in several quarters to draw the Medical Society into a discussion of the medical inspection of public schools. Inspection to be of any value must be thorough, and even then it is valuable chiefly against such diseases as scabies, trachoma, tinea and scrofula, conditions from which this community happily is fairly free. It will not do to quote the experience of larger centres, where the population is continually shifting, and school children are deprived of medical supervision in their homes. In Montreal, the humblest families have medical aid within their reach, and until some great need for public inspection of the schools is fully demonstrated, it would seem to be the part of wisdom to encourage parents and teachers to make use of the facilities ready at their hand.

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The standard for entrance into the medical profession is steadily rising. Queen's University has decided to make the matriculation the same as in Arts, with the exception of modern languages. The new regulations will require English, ancient British and Canadian history, physics, Latin, mathematics and chemistry, each covering more ground than at present. Ten per cent. of Queen's medical students are usually arts graduates, and seventy-five per cent. more generally pass the arts matriculation before beginning the study of medicine. It is only the other fifteen per cent. who would find the new regulations more stringent, and it will do them no harm to comply with them.

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The reponse, which the Provincial Board of Health received to its circular letter drawing the attention of the profession to its obligation in reporting cases of typhoid fever, has not been as free as the necessities of the case and the law demand. Only sixty-two French physicians complied with the request, and a fewer number amongst the English. The board has always proceeded by way of persuasion, but they have in reserve very full powers for dealing with epidemic diseases, in case it should be necessary to resort to the stringent measures of the law.

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There is good ground for Dr. Burgess's plea at the annual meeting of the Hospital for Insane, that the law be modified, so as to permit of voluntary retreat into an asylum. The plan is in operation in many places with only the best results. There are cases which can be benefited in no other way; but under the present law, a physician hesitates to strain the regulations so as to admit them. The stringent

rules governing the admission to asylums is a legacy from times past when many abuses were imagined to prevail within their walls. The doors of a modern asylum should not be closed against anyone, who might be benefited by a temporary residence within.

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All interested in medicine must regret to hear that the great fire of Baltimore has seriously crippled the resources of the Johns Hopkins Hospital and Medical School. It was with relief that we heard that the hospital buildings were well outside the fire zone; but the income is in part derived from house property, and, no less than sixteen houses and stores belonging to this governing body have been completely destroyed, so that a direct loss of \$400,000, or \$20,000 a year has to be faced—a sum which must greatly threaten the efficiency of their work in the future.

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The Memorial Hospital for Children, of which Dr. A. Mackenzie Forbes is Secretary is now open for the reception of patients, both public and private. An obvious advantage of this hospital is that it will receive chronic cases from the general hospitals, and leave those institutions free to give more attention to cases requiring instant relief.

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The International Medical Magazine, edited by Dr. Boardman Reed, and the Archives of Pediatrics, both published by E. B. Treat & Co., will be merged into one journal.

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### Reviews and Notices of Books.

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TRYPANOSOMA AND TRYPANOSIAMIASIS WITH SPECIAL REFERENCE TO SURRA IN THE PHILIPPINE ISLANDS. By W. E. MUSGRAVE, M.D., and MOSES GLEGG, Manila; Bureau of Government Laboratories, 1903.

We have here before us another of those valuable reports, in part compilations, in part the record of original studies by Government officials to which, of late years, the various departments of the American Government called upon to deal with medical problems, have accustomed us. In this volume of 250 pages we are given the history of the development of our knowledge of Trypanosomes, of the distribution of diseases in various animals due to trypanosomes; the life cycle of these hæmatozoa; the classification of the different forms found in birds, oysters, fish, rats, horses, and cattle; the discussion of the various modes of transmission and infection which have been suggested or studied by various authorities; a chapter upon symptomatology; an-

other upon general pathological anatomy; yet another upon the disease as seen in various animals; with further discussions upon the course, complications and differential diagnosis of Surra, Nagana, Dourine, Mal de Caderas; chapters upon serum therapy and treatment; the whole ending up with a bibliography of over two hundred names. Altogether the work is a most valuable one for reference, but to review it adequately, interesting as it is, and interesting more particularly to us in Montreal seeing that three of our men, Dr. Todd, in the Congo State; Dr. Wolferstan Thomas in Liverpool, and Dr. Paul G. Woolley in Manila, are actively at work studying the subject, would demand an article much longer than is fitting in this section of the Journal.

Apart from the value of the work as affording a very faithful record of the successive stages of the development of our knowledge of the subject, the most important result is to be found in the conclusion that is reached by the authors, namely, that Surra, the horse disease of India; Nagana or Tsetse-fly disease, affecting horses and other animals in South Africa; mal de caderas of South Africa and probably dourine or maladie du coit, affecting the horses of Southern Europe, etc., are one and the same disease and that all are caused by the *Tr. evansii*, the form Dr. Evans first described in 1880 as causing surra. These views are divergent from those of several other observers, nor does it seem to us that the authors have wholly made out their point. Yet they have brought forward much which further observers must consider and test very carefully. Incidentally the authors carry back the first observation upon forms which were probably Trypanosomes to Valentin in 1841; while, calling to mind the rather bitter contest there was a few months ago between the members of the London and Liverpool Schools of Tropical Medicine regarding priority in the discovery of Trypanosomes in human beings, they show that, already in '98 Nepveu published observations made by him in 1890 in Algiers, that observer having, in a study of 200 patients, mostly malarial, found various forms of Trypanosoma in six. Nepveu did not note any symptoms characteristic of this special parasitic invasion. Probably as a consequence of this, his work was, for a time, overlooked. We should add that Dutton in his article contributed to the Thompson Yates Laboratory Reports (Vol. 4, Pt. 2, 1902), did not overlook Nepveu's work, though he inferred that from absence of clear description and illustrations and failure to observe concomitant symptoms his observations were of minor value. It is to Forde, Dutton and Manson that we owe the recognition that these hæmatozoa induce very characteristic symptoms in man, and already quite a num-

ber of cases are on record of human Trypanosomiasis, while lately Castellani, confirmed by Bruce, has shown that the remarkable West African condition of sleeping sickness is due to the presence of a peculiar Trypanosome in the cerebro-spinal fluid of the patients and, more recently, Leishman has brought forward evidence to show that the "Dum Dum" fever of India is another manifestation of Trypanosomiasis.

J. G. A.

FIRST REPORT OF THE COMMISSION TO SENEGAMBIA, 1902; TRYPANOSOMIASIS. By J. EVERETT DUTTON, M.D., Vict., and JOHN L. TODD, M.D., McGill; Longmans, Green & Co., 1903.

The above report of some sixty quarto pages gives the result of the work of Drs. Dutton and Todd upon Trypanosomiasis in Senegambia in 1902 and 1903. A second report is promised. This gives the distribution, clinical symptoms and morphology of trypanosomes in man and horses. Other species were found in rats, mice, birds, snakes, tortoises and frogs, but time forbade the study. It may be remembered that in 1901 Dr. Dutton saw Trypanosomes in the blood of a European suffering from an illness characterized by a peculiar combination of symptoms and that a very pretty little contest has been waged between the representatives of the London and the Liverpool Schools of Tropical Medicine regarding priority in the discovery of this new tropical disease. As more than one case was thus discovered, the Committee of the Liverpool School of Tropical Medicine sent this expedition to Senegambia to make further investigations. Briefly, out of 1043 natives examined in various parts of Gambia, six cases were discovered. The authors admit that their routine method was imperfect, that the short time at their disposal and the exigencies of travel prevented the full leisurely study which should have been given to each case. There was no evidence to show that natives living in any particular type of locality were specially subject nor did the disease occur in well marked zones or belts. Some of the natives appeared to be perfectly healthy, others, however, showed symptoms resembling those described by other workers.

Out of thirty-six horses examined, ten were found to be infected. In these horses the organism differed clearly from the human organism. We may here note that Dr. Wolferstan Thomas, is at the present time engaged in studying these different forms of Trypanosomes and their effect upon different species of animals, and that Dr. Dutton and Dr. Todd are already back again upon the west coast of Africa making further studies.

THE ELEMENTS OF KELLGREN'S MANUAL OF TREATMENT. BY EDGAR F. CYRIAX, M.D. (Edin.); John Bale, Sons & Danielson, Ltd., London.

This work is the most important exposition of the treatment of disease by manipulation and movement that has appeared in recent years. Comparison with the *Hand-book of Medical and Orthopædic Gymnastics*, by Anders Wide, naturally comes to the mind, and the chief differences we note is the stress laid by Kellgren on nerve frictions for irritative conditions of the internal organs. For example the writer says, "I have never failed to find tenderness between the scapulæ in acute or chronic bronchitis or phthisis." He claims to have produced eructations by frictions of the 6th, 7th and 8th left intercostal nerves, and catching of the breath by frictions of the 1st and 2nd lumbar nerves, through their influences on the diaphragm.

The author quotes case reports in which the treatment is used for acute infectious fevers, a subject scarcely touched upon by Wide. He places no restriction on diet beyond the patient's own inclinations, nor does he enforce rest in bed in cases of typhoid and scarlet fever, measles or diphtheria, except during delirium, and he introduces manipulations designed to control cerebral excitability, to quiet the circulation and to stimulate the excretions. The case reports of this class of disease are more interesting than convincing, but many of his results in manipulation of the nerves are so astonishing in their extent and promptness as to demand most careful consideration.

In his methods of applying massage, certain differences from the generally accepted methods are noticeable. No ointments are used, the sittings are shorter in duration, and the manipulations are carried on through intervening clothing, preferably linen. Among his most cogent reasons for condemning the use of mechanical appliances in this work is the fact that "they cannot encourage the patient by admonishing him to do his best." This, after all, is what has kept and will keep the systematic manipulative treatment of disease in a comparatively small field. Years of practice combined with a natural talent, are required for its thorough mastery so that it must always remain a gift of the few rather than an accomplishment of the many.

SOCIAL DISEASES AND MARRIAGE. BY PRINCE A. MORROW, M.D.  
Lea Brothers & Co., New York, 1904; Morang & Co., Toronto.

Whatever medical writers may say, this is an unclean subject; yet Dr. Morrow handles it in a clean and careful way. It is of as much importance to society as tuberculosis, and yet, because it dwells on the



borderland between science and immorality, it has been largely left to itself, save by writers, who had a great deal better have left it alone entirely.

Twenty per cent. of blindness is caused by infection with gonococci and there are in the United States more than fifty thousand persons totally blind. Osler says there are more families with a syphilitic than with a tubercular taint; it is variously estimated that between five and eighteen per cent. of all persons are infected. It is responsible for 42 per cent. of all miscarriages, and of children who are born of syphilitic parents 68 per cent. die in infancy. In the United States, one marriage out of eleven is sterile from all causes, and one out of twenty-three is sterile from antecedent gonorrhœa. This takes no account of the metrites due to the disease nor of the social and domestic misery it entails. All this shameful record is set forth in the book, and all of its aspects considered in relation to society, to marriage and divorce, to population and to the profession. Nor is the prophylaxis left untreated. Dr. Morrow discusses all the attempts that have been made to deal with the evil and he dismisses them as futile. He has no ready made system to set up in their place, but he protests that sanitary science should not make an unconditional surrender to diseases which are essentially evitable. Amongst the remedies he proposes are a reform in morals, but of that he is not over sanguine in such a world as this and with such people as inhabit it. He urges that venereal diseases should be put under the same control as other infectious diseases, that a knowledge of their dangers should be disseminated; yet it is not the most ignorant who are most contaminated. The subject is painful, and if Dr. Morrow does little to add to our comfort, he has done much in setting forth the case with the weight of his authority, and we may add with fine feeling and good taste.

THE AMERICAN TEXT-BOOK OF OBSTETRICS, FOR PRACTITIONERS AND STUDENTS. By James C. Cameron, M.D., Edward P. Davis, M.D., Robert L. Dickinson, M.D., Henry J. Garrigues, M.D., Barton Cooke Hirst, M.D., Charles Pirett, M.D., Howard A. Kelly, M.D., Richard C. Norris, M.D., Chauncey D. Palmer, M.D., George A. Piersol, M.D., Edward Reynolds, M.D., Henry Schwarz, M.D., J. Clarence Webster, M.D., Richard C. Norris, M.D., Editor Robert L. Dickinson, M.D., Art Edition with nearly 900 illustrations. Second edition, revised. Published by W. B. Saunders & Company, Philadelphia and London, 1903. J. A. Carveth & Co., Toronto.

No better indication of the high quality of this work can be given than the list of authors on the title-page; men already made familiar

to us by their scientific writings; men eminent for attainments in their own several departments; men of experience in the teaching as well as the practice of the obstetric art.

The editors are to be much congratulated on the general excellence of the book; the arrangement of the subject matter is commendable; the illustrations throughout are models of artistic workmanship; they are of the utmost practical value, and in fact leave nothing to be desired. There is on the whole an admirable balance between the different sections which is most difficult of attainment in a composite work of this sort. The scientific student will find that his requirements have not been overlooked; he is offered the anatomy and physiology of the generative organs down to the minutest point; the physiology of pregnancy and the development of embryo and fœtus are given in detail, and the pathology of all abnormal conditions fully considered.

In regard to the art of obstetrics the recent graduate or the busy general practitioner may turn with delight to section III., where he will find "help in the hour of need"; instructions so clear, so concise, so practical, so thorough that "he who runs may read."

Some of the points on which special emphasis is laid, are: the value of pelvimetry and external palpation; the necessity for absolute obstetrical cleanliness; the indications for and technique of catheterization and its attendant dangers. The bug-bear of the student, the mechanism of labour is handled so simply and lucidly, that this subject is rendered comprehensible and interesting if not actually enjoyable. The article on Puerperal Infection is the least satisfactory in the book.

**A PRACTICAL MANUAL OF INSANITY FOR THE MEDICAL STUDENT AND PRACTITIONER.** By DANIEL R. BROWER, A.M., M.D., LL.D., and HENRY M. BANNISTER, A.M., M.D. W. B. Saunders & Co., Philadelphia; J. A. Carveth & Co., Toronto.

No better manual on mental disorders has been placed in recent years in the hands of those for whom this work is designed. In the initial sections of the book the authors deal with insanity in general, its prevalence, causation, diagnosis, symptoms and treatment. Later, the varieties of mental diseases liable to be met with in practice are fully described, including not a few that seldom enter hospital wards, borderland cases and the like, which, nevertheless, give the family physician much anxiety.

The volume abounds in practical hints, most useful when an attempt at treatment outside of an asylum is to be made. In the main the style of the text is simple and uninvolved, which cannot be said of

all alienistic works of American authorship. The chapter on classification, while in a sense, perhaps, the least conclusive, is of special interest as it details the schemes of the leading modern teachers on insanity, and gives a comparative table thereof. The authors themselves follow closely the classification of Kræpelin, than which none has greater merit to-day. The concluding chapters are devoted to the examination of patients, etc., and are of much service to the general practitioner, who has to send his case from home for treatment or confinement.

J. V. A.

**DISEASES OF THE EYE.** By Dr. G. E. DE SCHWEINIZ, A.M., M.D., with 280 illustrations and six plates, 4th edition; W. B. Saunders & Co., Philadelphia; J. A. Carveth & Co., Toronto.

A fourth edition of this well known text-book has been published, and the new matter which it contains brings the work well up to date; the chromo lithographs and additional engravings are clear and well executed. The articles on vascular change as evidenced by the retinal vessels, and on Optic Neuritis, illustrated as they are by excellent plates, should prove very useful to the general practitioner. The obscurity of classification which usually obtains in the discussion of optic neuritis is perpetuated to a great extent in the latter article; but until the period of inception of definite inflammatory changes, in cases of choked disc which are primarily oedematous and in cases of retrobulbar neurites, which are due to toxic action upon the nerve fibres, can be demonstrated, the wisdom of any radical change may be doubted. As so many exaggerated results from the use of new remedies are reported, it is pleasing to note the conservative attitude of the author regarding many recent and highly lauded therapeutic agents. The general arrangement of the work is too well known to require comment; containing as it does, great wealth of detail concisely stated and easily accessible.

**PORTFOLIO OF DERMICHRONES.** By Professor JACOBI, of Freiburg im Breslau. English adaption of text by J. J. PRINGLE, M.B., F.R.C.P., Physician to the Department of Diseases of the Skin at the Middlesex Hospital, London. Rebman, Ltd., London; Rebman Co., New York; Charles E. Wingate, Toronto, 1903.

Part three of this atlas of skin diseases contains thirty plates, all in colours, of cutaneous affections; and part four, fourteen plates of venereal affections, comprising in the main cutaneous syphilis.

The illustrations in this work are taken mainly from models in the Breslau Clinic and the Baretta collection in the Saint Louis Hospital in

Paris, and when it is said that the process used (cliché), is more perfect than any hitherto employed in the reproduction of colours, the great value of the work can be appreciated. It in reality brings the magnificent collections of these two clinics within reach of every practitioner of medicine. In one particular, too, this work will be found of more than ordinary value, namely, in that the commoner rather than the rarer dermatoses are depicted in it. Parts I. and II. of this admirable publication received mention in a previous number of this Journal. Vol. XXXII., p. 680.

**THE SELF-CURE OF CONSUMPTION WITHOUT MEDICINE.** By CHAS. H. STANLEY DAVIS, M.D. E. B. Treat & Company, New York, 1904; 75 cents.

The words "without medicine" are unnecessary, as the cure of consumption, self or otherwise, depends upon other measures entirely. Those measures are fully described in this little book—open air exercise, proper breathing, diet, climate, sanitarium, etc. The attitude of the consumptive towards his malady has entirely changed in recent years, and this book will serve to inspire him still further with confidence and hope of an eventual cure. It expresses the most recent and soundest views upon the subject.

**"THE BLUES."** By ALBERT ABRAMS, A.M., M.D. New York: E. B. Treat & Company, New York, \$1.50.

The blues is now splanchnic neurasthenia, if there be any comfort in that; at least that is the thesis which Dr. Abrams endeavours to establish in his book. Best of all, he thinks, there is no variety of neurasthenia, which is more amenable to treatment, and that is in itself gratifying intelligence. The cause of the disorder he affirms is congestion of the intra-abdominal veins, and he tells in plain words how it may be cured. The treatment is directed towards emptying those veins by specially designed exercises and other methods; and certainly, as Johnson said of a bolus for rheumatism, composed of sulphur, mustard and treacle, "it has the appearance of efficiency."

**THE PRACTICAL MEDICINE SERIES OF YEAR BOOKS.** Edited by GUSTAVUS P. HEAD, M.D., Vol. III.; the Eye, Ear, Nose and Throat; The Year Book Publishers, Chicago.

The present volume is one of a series of ten issues at monthly intervals, and covering the field of medicine and surgery; each volume complete for the year prior to its publication and on the subject of which it treats, the price of each volume \$1.50, of the series of ten volumes \$5.50. The eye is dealt with by Casey Wood, an old friend of the pro-

fession in Montreal. He has gleaned the field well, and has included Stirling's case of cataract following electric shock; another reference to this Journal however cannot be verified. We have often said that this series is interesting and reliable, handy, and cheap in price.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Vol. XXI.

Edited by RICHARD H. HARTE, 1903.

In this volume are to be found Geo. E. Armstrong's report of cases of single ulcer of the urinary bladder, non-tuberculous and non-malignant in origin, and F. J. Shepherd's case report upon aneurysm of the external iliac artery, treated by digital compression. In addition there are thirty-eight articles of great importance, covering nearly all the surgical conditions that may arise, with nine important illustrations. The volume is entirely creditable to American Surgery.

ESSENTIALS OF HISTOLOGY. By LOUIS LEROY, B.S., M.D. W. B. Saunders & Co., Philadelphia; J. A. Carveth & Co., Toronto.

This volume of 250 pages is the twenty-fifth in Saunders' series of question-compends, of which over two hundred thousand copies have already been sold. The author disclaims the intention of making an exhaustive text-book, yet his work contains all that it is essential for a student to know of histology. There are ninety-nine illustrations, most of which are original, and each chapter concludes with a series of questions, which will be useful for purposes of self-examination. The whole field is well covered, and the descriptions are succinct, clear and accurate. The same publishers issue a companion volume upon the eye by Edward Jackson, M.D., which, in the main, also possesses the qualities above mentioned.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION, Washington, May, 1903.

This volume contains 18 papers; amongst them is Dr. Shepherd's note on a rapid method of diagnosing leprosy. The method is to remove a portion of the ulnar nerve and submit it to bacteriological examination. All the papers are of great value to persons interested in diseases of the skin.

AIDS TO SURGERY. By JOSEPH CUNNING; London: Baillière, Tindall & Cox; Toronto: J. A. Carveth & Co., 1904.

This is a condensation of the main facts in surgery in such a way as to make their impression upon the memory easy. It has a field of usefulness for hasty preparation for examination, and as such is sure to find favor with students.

# Medical News.

## McGILL MEDICAL SOCIETY.

The 25th anniversary of the McGill Medical Society was marked by a debate in the Royal Victoria College on the 3rd of February, the subject being: that athletics interfere with the best physical and mental development of the student. The decision was in the negative. In the absence of Principal Peterson through illness, the chair was occupied by Dr. W. F. Hamilton, honorary president of the society. Mr. V. L. Miller, B.A., '04, president of the society, told of its history for the past twenty-five years, since its establishment with Dr. Osler, as president, and Dr. Shepherd, as vice-president. Others who spoke were Dr. Hamilton, Dr. Wesley Mills, Dr. Shepherd, and Dr. C. F. Martin. The judges of the debate were Drs. C. F. Martin, R. Tait McKenzie and D. D. McTaggart.

## MONTREAL GENERAL HOSPITAL.

During the month of January 246 patients were admitted to the wards and 225 patients were discharged. The average number of patients in the hospital was 190; the greatest number at one time 199; there were 21 deaths. The ambulance responded to 136 calls, and the number of consultations held in the Out-Door Department was 2,432.

The eighty-second annual meeting of the Montreal General Hospital was held on the 16th February, 1904. The report of the secretary showed that there were 3,066 indoor patients treated during 1903, an increase of 188 over 1902; of these 184 remained over from the previous year, 3,671 being admitted during the year; 188 remained in the hospital at the end of the year. There were discharged from the hospital 2,828, and there died in hospital 238, of whom 84 died within three days of admission. The mortality was 7.7 per cent., or, excluding patients dying within three days of admission, 5 per cent. The average number of patients in the wards was 184.7. The average number of days in hospital per patient was 22, and the aggregate number of days in hospital by all patients 67,438, an increase of 1,843 as compared with the year ending December, 1903.

In the Outdoor Department there were 35,984 cases treated during 1903: Medical, 10,544; surgical, 12,852; eye and ear, 5,120; gynæcological 1,172; nose and throat, 2,829; dermatological, 1,440; dental, 107; emergency cases 1,920.

The ambulance made 1,400 trips during the year. Two hundred and seventy-nine autopsies were performed, and 1,176 examinations made by the attending staff of the hospital.

In the X-ray department, 646 skiagrams were taken, 109 fluroscopic examinations, and 217 exposures for therapeutic purposes.

The average cost per patient was \$1.56, as against \$1.50 of the previous year. The excess of expenditure in 1903, over ordinary income was \$13,453, against an excess of expenditure last year of \$10,774.

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#### NOTRE DAME HOSPITAL.

During the month of January, 1,262 patients were treated in the Out-Door Department; the ambulance responded to 111 calls, of which 45 were private calls; 171 indoor patients were admitted and 160 were discharged cured or improved. During January, eight cases of typhoid fever were taken in. Five patients suffering from typhoid died during January, three of which had been admitted during the same month and two in December.

Dr. Marmoreck's anti-tubercular serum was given a trial in the hospital. Two cases, one surgical and one medical, were experimented upon; results in the first case were nil—neither good nor bad effects were noticed. In the other cases the results were bad. The patient received nine injections; the temperature remained the same, but the pulse rate increased; the sputa were weighed every day during the period of injections and showed a daily increase up to two ounces more on the ninth day than on the first day of the injections. Patient weighed 118 lbs. at the beginning of treatment; after the ninth injection a loss of 3 lbs. was found; cough increased and was more harassing. The treatment was then discontinued at the patient's request.

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#### PROTESTANT HOSPITAL FOR THE INSANE.

The annual meeting of the directors of the Protestant Hospital for the Insane was held on the 3rd of February. According to the Medical Superintendent's report, the admissions for the year numbered 152 and the number who had received treatment 581. Fifty-seven patients were discharged as cured, and 23 as improved. There were 44 deaths and the percentage of discharge was 58.55. The recovery rate was 37.5. The gross receipts for the year were \$96,695, and the expenditure \$101,437, leaving a deficit of \$4,742.

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#### JEFFREY HALE HOSPITAL, QUEBEC.

The following is from the annual report for year ending 31st December, 1903: In the private and public wards there were treated during the year 147 surgical, 231 medical and 135 ophthalmic cases; total 503; out-door patients 1,800.

The treasurer's statement shows an income for the year of \$17,356; while the expenditure amounted to \$15,056, showing a balance of \$2,300.

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British Columbia is taking measures preliminary to establishing a sanitarium for the care and treatment of patients suffering from tuberculosis. A convention has been held in Victoria and a basis of agreement reached. It was recommended that Kamloops be selected as the most suitable place.

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The Montreal League for the Prevention of Tuberculosis is making an appeal for funds to carry on their work. The intention is to establish consulting rooms, from which cases can be supervised, and ultimately to erect a sanitarium, for which the Provincial Government has granted a site at Trembling Mountain.

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Dr. C. A. Hodgetts has been appointed secretary of the Provincial Board of Health and Deputy Registrar-General for Ontario to fill the vacancy caused by the resignation of Dr. P. H. Bryce, who has accepted the position of Medical Inspector of Immigration and of the Department of Indian Affairs for the Dominion Government.

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A general hospital is in course of erection at Moosejaw to cost \$20,000. It is intended to serve the district of Central Assiniboia, and those territories, which are served by the railway ending at Moosejaw.

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Dr. T. J. Norman, of Toronto, has been appointed Assistant Superintendent of the Asylum for Feeble-minded at Orillia, in succession to Dr. Moher, who has been promoted to the medical superintendentship of Brockville Asylum.

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The report of the library committee for 1903 of the McGill Faculty of Medicine has been issued. It shows that there were 13,015 readers during the year, that 307 volumes were bought and that 1,200 volumes and 500 monographs were donated.

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A new wing has been added to the Charlottetown Hospital, fully equipped for surgical operations, and the care of patients with contagious diseases.

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Dr. C. I. Kelly (McGill, '91), practising in Hamilton, is reported to have recently delivered a very able lecture on "Electricity and Magnetism" before the Royal Astronomical Society of Canada.



Dr. Freeman has been appointed superintendent of the Hamilton Hospital.

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Mr. Chauncey A. Adams, '02, has been appointed assistant secretary of the McGill Young Men's Christian Association.

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The extension of the Woodstock Hospital is now in a fair way of being undertaken; plans are also in hand for a nurses' home.

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Dr. C. R. Shaughnessy, St. John, N.B., died of phthisis on the 2nd of February.

Dr. D. P. Merritt, died in Elmira, where he had practised for many years. His family live in St. John and he received his education in Toronto.

Dr. Robert Lambert died in Windsor on the 22nd of January. He was in the 76th year of his age and was a graduate of Queen's in the class of '59.

Dr. Sangster, of Port Perry, died suddenly in Toronto on the 26th of January in the seventy-second year of his age. He will be remembered as the author of Sangster's Arithmetic and a strong opponent of the early constitution of the Ontario Medical Council. The council was composed of representatives elected by the profession throughout the province, representatives of the colleges and of the homœopathists. Dr. Sangster claimed that colleges not teaching medicine should not have representatives on the council, and won a good part of his case in the Legislature. Of late years Dr. Sangster was an elected member, and had become in sympathy with the council as now constituted.

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## Retrospect of Canadian Literature.

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### L'UNION MEDICALE DU CANADA.

The January number contains a paper by Dr. Alexandre Marmoreck, upon *Serum et Vaccin Antituberculeur*, which was read by Dr. Lemieux before La Société Médicale de Montréal, as reported in this Journal at the time. Dr. Oliver Tourigny, of Trois-Rivières, has an article upon the Examination of Blood and its diagnostic value. There are two case reports by Dr. Alphonse Mercier upon cancer of the œsophagus and of the kidney; and one by Dr. Nadeau upon Extra-Uterine Pregnancy, with operation and recovery.

The December number opens with a paper by Dr. A. A. Foucher upon paraffin injections for correcting deformities, with the reports

and photographs. There is a report by Dr. Oscar Mercier of a case of Empyæma opening externally and into the stomach, and a communication by Dr. F. E. Dubé upon the Treatment of Irregular heart. The *Chronique Médicale* is very full.

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#### THE CANADA LANCET.

The February number has four photogravures for frontispiece, and an opening article by Dr. W. G. MacCallum, which had been read before the Toronto Pathological Society December 30th, upon diseases due to organic insufficiency. Dr. Todd, gynecologist to the Winnipeg General Hospital has a paper on Leiomyoma, and Dr. Rudolph contributes an article upon the paratyphoid fever state. There is a paper by Dr. John Caven upon Angina Pectoris and a communication by Dr. A. Groves, of Fergus, which was to have been read before the Canadian Medical Association in August last, upon Tuberculous Peritonitis. A reprint of an article upon the treatment of pneumonia completes the body of the number. The news of societies is very full, also the personals and reviews. The editorials deal with the treatment of cancer, pneumonia, tuberculosis, and the uses of organic extracts.

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#### DOMINION MEDICAL MONTHLY.

The January number contains a paper read by Dr. Butler, before the Canadian Medical Association in August last, upon the Interrelations of Diabetes and other Constitutional States, and an article by Dr. T. A. McGraw, read at the same meeting, upon Intestinal Anastomosis. There is a case report upon Impetigo Circinata by Dr. Graham Chambers, of Toronto, and a report of a series of cases by Dr. Ross, of Halifax, read before the Maritime Medical Association in July. Dr. Grimmer supplies an account of paraffin injections in correcting nasal deformities. There are editorial articles upon getting into the medical profession, and upon the Canadian Medical Protective Association. The February number is devoted chiefly to papers by members of the profession in Vancouver.

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#### LE BULLETIN MEDICAL DE QUEBEC.

The December number has an original communication by Dr. P. V. Faucher, upon Preventive Sero-therapy, and general abstracts. The November issue contains an article by Dr. Sirois upon the means that should be adopted to prevent the degeneration of the French-Canadian race, and a paper by Dr. Michaud on the administration of cod liver oil.

## QUEEN'S MEDICAL QUARTERLY.

This Review, established seven years ago, has been acquired by Queen's Medical Faculty and the October number is issued under their auspices. It deals chiefly with ceremonies attendant upon the celebration of the fiftieth anniversary of the university.

### MONTREAL MEDICAL.

The November number, the last at hand, contains an article by the editor Dr. Lecavelier upon the importance of clinical diagnosis, and several reprints, chiefly from European journals.

### LA REVUE MEDICALE.

This Review appears regularly every Thursday. The original articles for the past few weeks have been by Dr. Marmoreck, by Dr. Tourigny on *La Maladie de Little*, and by Dr. Lasnier, "ex-assistant chirurgien in London Hospital." There is a serial story or *feuilleton* by Dr. J. Jehin-Prume, entitled "Nelly Brown."

### CANADA MEDICAL RECORD.

Dr. Laphorn Smith records in the September number a report of a large fibroid polypus filling the vagina: recovery after operation.

### THE MARITIME MEDICAL NEWS.

The January number has Notes on Mastoiditis, by Dr. Putnam, which were read before the Medical Society of Nova Scotia in July, and a report done with much humour, by D. Murray, M.D., from Logan's Tannery, of an extraordinary recovery from strangulated hernia. Dr. Geo. C. Corbet contributes Notes on Some Drugs.

## Retrospect of Current Literature.

### SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

G. A. SYME, M.S., Melb., F.R.C.S., England. Carcinoma of the Duodenum; Resection; Recovery." *Lancet*, January 16, 1904.

The chief points of interest in this case are the rarity of the disease. According to Ewald, out of the 1,148 cases of carcinoma of the intestines only 19 were in the duodenum, and the fact that no less an authority than Butlin states that if a malignant tumour is found

obstructing the duodenum, resection is practically impossible. The case presented the clinical picture of obstruction at the pylorus probably due to a malignant growth. The operation showed the obstructing growth to be in the lower third of the duodenum. About three and one-half inches of the gut was excised, and the ends brought together by two rows of silk sutures, the first including all the coats, the second to invaginate the sero-muscular when the bowel had a peritoneal coat and muscular only when there was no peritoneum on the posterior surface. The case improved rapidly, though a second operation was necessary to cure a small omental hernia which occurred at the lower angle of the wound.

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CHARLES A. POWERS, M.D., Denver, Col. "Cancer of the Rectum; Combined Abdominal and Perineal Operation." *Boston Medical and Surgical Journal*, January 21, 1904.

The thoroughness of removal in cases of malignant disease should be the chief object of the surgeon, yet in the case reported, the question may be asked if the sacrifice of tissue and subsequent discomfort did not exceed the requirements of the case. The growth began  $2\frac{3}{4}$  inches from the anus and extended for  $4\frac{1}{2}$  inches up the rectum. Considering the extent to which the sigmoid can be brought down, and the situation and limits of the disease, it would seem that a Kraske operation would have been the better operation. The growth could have been as completely removed, and the ends of the gut approximated with the great advantage of retaining the action of the sphincters. Instead, the entire rectum and some of the sigmoid as well, for the pathological report states "the specimen consists of  $11\frac{1}{2}$  inches of rectum" was removed and an artificial anus formed. The patient made a good recovery and pursues satisfactorily the occupation of cook in a private family. The writer believes it to be a type of operation which will gain in favour.

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DR. DAMIANOS. "A Contribution to the Operative Treatment of Tuberculosis of the Elbow." *Deut Zeit. f. Chir.*, January, 1904.

This article is a statistical study of the results obtained in cases of elbow tuberculosis in von Mosetig-Moorhof's clinic in Vienna. The late tendency towards extreme conservatism in the treatment of joint tuberculosis, for which Mikulicz has been largely responsible, finds no favor in v. Mosetig-Moorhof's eyes. Radical removal, usually by an atypical resection, is the rule in his clinic, even in the earliest cases. He uses uniformly v. Bruns' transverse incision, through the olecranon,

with preservation of the triceps attachment; he begins active and passive movements about the 10th day; and he claims to have had no flail-joints nor subluxations in his results. Of 60 resections done during the period 1892-1901, the end results were investigated in 39. The exact details must be read in the original. Approximately, however, 80% showed elbows completely healed, though in a few slight fistulæ had necessitated small secondary operations. Death, often from pulmonary tuberculosis, occurred in 15% of the cases after the first year. Good free movement in the joints was secured in 29%; moderate in 38%; ankyosis in 33%. As regards function, the elbow was fit for hard work in 50%; for light work in 40%; and in 10% it was useless.

Danianos proceeds to cite figures from half a dozen of the other large surgical clinics of Germany; and, comparing these with the results of those who advocate the conservative method (notably Henle, of Breslau), claims a very decided advantage in favor of radical treatment.

We believe his claim to be justified, at least in so far as the elbow is concerned. Certainly one must individualize; and the elbow is a particularly grateful joint (to use the German expression), for radical operative treatment.

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DR. KARL THOENES. "End-Results in the Operative Treatment of Peritoneal Tuberculosis." *Deut. Zeit. f. Chir.*, November, 1903.

In view of the recent reaction in some quarters against laparotomy in tuberculous peritonitis, the present article, a frank defence of the procedure, acquires an added interest. Thoenes has obtained the after-histories of 42 cases operated upon in Braun's clinic (Göttingen), and with these collates the results of 8 other surgeons.

He makes a rough division of cases into the ascitic and the plastic-adhesive forms; and finds that the former, in which fluid predominates, give a decidedly better prognosis than the latter. Taking a time-limit of 2 years, his 42 operated cases yielded about 60% of cures; and of 247 cases reported by 9 prominent surgeons he finds 54% cured. Such figures may certainly be regarded as favorable. But what are we to make of the report of Borchgrevink (Christiania), who not long ago claimed 81% of permanent (2 year limit) cures in a series of 22 cases treated medically? It is probable that the pendulum of enthusiasm has swung too far toward the surgical side during the last 10 years. Nevertheless, as regards Borchgrevink's statistics, Thoenes claims that 6 out of his 22 cases were plainly of so mild a nature that they should not be brought into comparison with those treated surgically. There are very light cases, he says, whose tendency towards

spontaneous cure is of the most evident; these are outside the domain of surgery. There are others of a very severe nature, with grave complications such as ileus, or suppuration, which are as plainly outside the domain of medicine. The intermediate cases, should properly alone furnish the basis for comparison in deciding the rival claims of surgeon and internist. Upon examining the statistics of 4 internists, Thoenes found reported 76 cases treated medically with 41% cures,—a figure 13% below that of the 9 surgeons quoted above. His conclusion, therefore, is that all patients who, after a period of medical treatment, fail to show amelioration, should be subjected to a laparotomy.

In an interesting digression the writer emphasizes the fact that the peritoneal tubercle may occasionally lack all specific microscopical appearances; it may, that is, be a pure fibroid, without bacilli, caseation, or giant cells; and the proof of its nature is obtained only by its subsequent infectiousness or by collateral evidence. The reviewer has had an opportunity of observing the truth of this statement.

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CHARLES H. FRAZIER. "A Discussion of the Surgery of Tumours of the Brain, with a Resumé of the Operative Records of Five Craniotomies." *Amer. Jour. of Med. Sciences*, February, 1904.

The major portion of this article is concerned with a discussion of various points of interest in intracranial operations. As to the technique of craniotomy, Frazier uses the dental engine with trephine and burr; and allows 8 to 10 minutes in uncomplicated cases for raising the ordinary osteoplastic flap. He thinks highly of Cushing's pneumatic tourniquet for controlling scalp hæmorrhage. Crile's ligature of the carotid he is opposed to, as being neither safe nor,—as regards venous bleeding which is in reality the more troublesome,—effective.

He emphasizes the importance of keeping accurate tab on the blood-pressure during operation by means of the Riva-Rocci instrument; and, indeed, he urges the adoption of such a record as the only scientific criterion upon which to judge the advisability or otherwise of the two-stage operation. If a marked fall in blood pressure to below normal occurs after raising the bone flap and reflecting the dura, the operation should be finished at a second stage; otherwise it may be completed at once. Frazier is a strong believer in trephining as a purely palliative measure in obscure or inoperable cases. The relief of intracranial pressure almost invariably secures cessation of the headache, and prevention or amelioration of the optic neuritis and consequent blindness.

Interesting observations concerning "initial" and "consecutive"

bulging of the brain are too long to be properly quoted here. In conclusion, Frazier reviews (quoting from Woolsey), the results of operation for intracranial growths during the past 5 years, and finds them decidedly encouraging. As much can hardly be said for the results in his own series of 5 cases, the report of which he appends. In none of these was operation attended by any permanent result; in only one by temporary amelioration, a fatal recurrence appearing in 7 weeks. In one the growth was not found; in another the condition proved to be a "méningite en plaques" of tuberculous nature and inoperable. In the fourth operation had to be abandoned on account of the bad condition of the patient; and the fifth was a case of multiple sarcomata.

E. W. A.

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### MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY H. A. LAFLEUR AND  
W. F. HAMILTON.

FRANCIS DELAFIELD. "Some Groups of Kidney Disease." *N. Y. Medical Record*, February 6th, '04.

All the cases of kidney disease which occur are classified in five groups, according as they possess certain important characteristics in common. Thus, in the first group are included those cases which occur secondarily in the course of some infectious disease; second, those which are associated with endocarditis; third, cases occurring during pregnancy; fourth, cases of young persons with albumen and casts, but no symptoms beyond anæmia; and fifth, the group of cases of nephritis, which run a subacute course from the outset. Appropriate remarks are made upon each group, and the whole is an admirable summary of present knowledge.

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LOUIS PARKES, M.D. "Cancer Mortality and Grouping of Cancer Cases in Chelsea." *The Practitioner*, February, 1904.

With the object of shedding some light upon the subject of endemic areas and "cancer houses," Dr. Parkes, the medical health officer of Chelsea, examined the mortality statistics for malignant cases in this district during the period 1891-1903. There were 859 deaths of private residents and of these 763 were of persons residing at or shortly before the date of their deaths in 763 separate houses; that is to say, in the 13 years only one death was registered in connexion with each of these 763 houses. Ninety-six of the deaths occurred in 47 houses, namely 90 in 45 houses, or 2 in each house; and in 2 houses 3 deaths in each were recorded during the period under review. In 763 houses, therefore, a

single death was recorded in the 13 years; in 45 houses 2 deaths were recorded, and in 2 houses 3 deaths were recorded. In 17 cases out of 45, over 5 years elapsed between the deaths of the patients who lived at the same address, and it hardly seemed likely that any direct infective agent had relation to the second case. In one of the houses where three cases occurred, there was an interval of three years and seven months between the first and second death, and of two years and nine months between the second and third death. In the other house where three cases occurred, there was an interval of one year between the first and second death, and of six months between the second and third.

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JULIUS H. HOELSCHER. Original Research Regarding Human Perspiration. *N. Y. and Philadelphia Medical Journal*, February 13th, 1904.

This paper deals with the analysis of human sweat in normal and abnormal subjects, 89 in all. The following conclusions are drawn:—

1. The hot air bath causes a temperature rise in the healthy adult, increases the pulse rate, lessens blood pressure, and increases oxidation and the elimination of carbonic acid.

2. The hot air bath is of decided value in acute and chronic uræmia, shown by the fact that the perspiration contains a considerable excess of urea and nitrogen.

3. In articular rheumatism, in conjunction with salicylates the hot air bath gives more rapid results and lessens cinchonism.

4. Certain types of myocarditis seem to be benefited by the hot air bath.

5. Pilocarpine should never be used without the aid of hot applications to the body.

6. All tests failed to disclose the presence of bile pigments in the sweat.

7. Sugar tests failed to reveal the presence of sugar in sweat obtained from diabetics.

8. A case of chronic constipation and indicanuria did not disclose the presence of indol or skatol in the sweat.

9. Regarding the function of eliminating normal and abnormal substances, the skin is not to be compared with the kidneys.

10. Free sweating seems to favorably affect the course of psoriasis and other skin diseases.

11. 1,000 c c. of sweat contain about eleven and one-half grammes of solids (nearly three drachms), one-half inorganic and one-half organic; about six decigrammes (nine grains) of urea; and about .47 centigramme (eight grains) of nitrogen.



H. C. EARL. "The Cytology of Serous and Serofibrinous Effusions of the Pleural and other Serous Cavities." *The Dublin Medical Journal*, December, 1903.

This is the subject of a presidential address, delivered before the section of Pathology in the Royal Academy of Medicine in Ireland, 6th November, 1903, by Dr. Earl. The investigation was very thorough, and strong evidence was obtained that cyto-diagnosis is worthy of a place with other microscopic methods.

ROBERT H. WILSON. "The Significance of Urinalysis in Pregnancy." *American Journal of the Medical Sciences*, February, 1904.

Dr. Wilson discusses what are the customary findings in normal pregnancy; the significance of departures from the normal, and the dependence which may be placed upon urinalysis as a warning of impending eclampsia. Amongst other conclusions, it is affirmed that a severe eclampsia may develop in cases in which the urine was apparently normal, and that the prognosis is improved, if, to other methods be added free bleeding and transfusion of saline solution.

J. T. HALSEY. "Concerning the Formation of Sugar from Leucin." *The Amer. Journal of Physiology*, January, 1903.

The question of the formation of sugar from proteid has engaged the attention of the physiological chemists for many years and there was some experimental evidence to show that leucin was one of the intermediate products. Dr. Halsey, in the pharmacological laboratory of McGill University, has taken the question up again, and conducted an elaborate series of experiments with the view of determining if such a relation existed. The sum of his observations is that leucin, when fed to fasting dogs, does not produce sugar, though he admits the possibility that the leucin complex, as it exists in proteid, may be concerned in the formation of sugar, or that when leucin is fed with the other end-products of digestion, as in the experiments of Lusk and Stiles, it, together with some other substance or substances, plays a rôle in the synthesis of sugar.

JOHN A. SAMPSON, M.D. "Ascending Renal Infection; with special reference to the reflux of urine from the bladder into the ureters as an etiological factor in its causation and maintenance." *Johns Hopkins Hospital Bulletin*, December, 1903.

Dr. Sampson arrives at the following conclusions:

I. The vesical portion of the ureter changes under the various de-

degrees of dilatation and of intra-vesical tension of the bladder, and in each of these conditions one may find special provision for guarding the lumen of the ureter and thus preventing a reflux of urine from the bladder into the ureter. Under all conditions of the bladder the direction of the current of urine from the kidney to the bladder is a constant factor in the prevention of ascending infection. In addition there are present:

(a) In the distended bladder, the very oblique course of the ureter and the long ureteral valve, the lateral walls or labia of the ureteral orifice, the mucosa of the ureter.

(b) In the contracted bladder, the course of the ureter is less oblique, the ureteral valve is shorter and these factors apparently play a less important part in the protection of the ureter, than they do in the distended bladder. On the other hand, additional protection is afforded by a puckering of the ureteral orifice; the ureteral labia may come together, and the ureteral mucosa is thrown into folds.

II. The anatomical structure and physiological action of the ureters as well as clinical experience would indicate that the function of the ureters is not only to carry urine from the kidneys to the bladder, but also to prevent fluid from passing into the ureters from the bladder, and that under normal conditions it is impossible for the latter to take place. Cases have been reported which contradict this statement. The fact that an occasional case has been reported in which apparently a reflux has occurred, especially when nothing is known of the condition of the ureteral orifice in these instances, cannot be regarded sufficient evidence for supposing that it may occur in all cases.

III. Organisms may be conveyed from the bladder to the kidney through the following channels:

I. The general circulation.

II. The vesico-utero-ovario-renal anastomosis. There is both a venous and an arterial communication between the renal and vesical vessels through the ovarian and uterine vessels.

III. The blood-vessels of the ureter. The renal and vesical vessels may communicate with each other through the free anastomosis of the ureteral vessels.

IV. The lymphatics. The communication between the lymphatics of the bladder and those of the kidney is indirect either through the local glands of the bladder and kidney or through the lymph vessels of the ureter. (Sakata.)

V. The lumen of the ureter. This may be as follows:

(a) By injuries to the intro-vesical portion of the ureter.

(b) By the extension of an inflammatory process from the bladder

through the ureteral walls or along the lumen of the ureter. This is probably the most frequent way.

(c) By organisms travelling up the ureter, especially when the current of urine from the kidney to the bladder is interfered with by a stricture or something occluding the lumen of the ureter.

(d) By a reflux of urine from the bladder into the ureters, which may be due to:

1. Intra-vesical pressure, forcing the urine into the ureter.

2. Reverse peristalsis on the part of the ureter carrying urine from the bladder into the kidneys.

3. By suction of air into the ureters, when patients are examined in the knee-breast posture, through an open cystoscope.

The reflux of urine from the bladder into the ureters may be considered an etiological factor in the causation and maintenance of renal infection only when the intra-vesical portion of the ureter is diseased, thus impairing its function, or when some ureteral abnormality exists.

Two accessory etiological factors of great importance in the causation of renal infection must be considered:

I. An injured kidney, that is, one which presents a lowered *local* resistance. The most frequent cause of this is probably a ureteral stricture due to cystitis or calculus.

II. General ill health of the patient, that is lowered *general* resistance.

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## PEDIATRICS.

UNDER THE CHARGE OF A. D. BLACKADER AND G. G. CAMPBELL.

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FRANCIS HUBER, M.D., New York. "Lumbar Puncture in Otitic Serous Meningitis; Cerebrospinal Form of Typhoid Fever; and Cerebrospinal Meningitis. *Archives of Pediatrics*, January, 1904.

Huber reports three cases admitted to the Ben Israel Hospital in which lumbar puncture was used as a therapeutic measure in meningitis and meningeal irritation due to various causes. The result in at least two of these cases is such that, taken in conjunction with other favourable reports of this method of treatment which have appeared recently, there is good ground to hope that in a certain proportion it will prove of real value as a curative method.

The first case was diagnosed as Otitic Serous Meningitis, and occurred in a child aged 2½ years. There was a history of a foul-smelling discharge from the ear for a period of two years preceding the attack. After four days of slight evidence of ill-health in the child, convulsions came on and were repeated at intervals of half an hour or less for ten days, when the child was admitted to the hospital. The condition then

pointed conclusively to a meningitis, in all probability due to the otitis. An operation was performed by Dr. Freudenthal and the diseased mastoid cells removed, when it was noticed that the intracranial pressure was such as to cause the dura mater to bulge into the wound. Rather than run the risk of infection by evacuating the fluid through the wound, the tension was relieved by a lumbar puncture, which allowed 30 grams of spinal fluid to escape. The following day 16 grams more were drawn off in the same manner with the result that the symptoms gradually subsided and the child was discharged from the hospital well.

The second case was that of a child, nine years of age, admitted to hospital four days after the onset of an acute illness with symptoms of meningeal irritation. A positive Widal reaction obtained on several occasions led to a definite diagnosis of typhoid fever of the cerebrospinal form. Lumbar puncture was done on the third and fifth day of the child's stay in hospital and two drachms of fluid obtained on each occasion. The author, while admitting that there was some doubt as to whether the subsidence of the cerebral symptoms was due to the effect of the lumbar puncture, is inclined to believe that such was the case.

The third case reported is much more definite as regards the beneficial effect of this form of treatment. It is that of a child aged 2½ years brought to hospital after an illness lasting five days, and characterized by fever, headache, vomiting and constipation. On admission there was retraction of the head, photophobia, Kernig's sign and a semi-stuporose condition with other symptoms pointing definitely to meningitis. On the day after admission an unsuccessful lumbar puncture was made, but the following day on repeating the attempt, 11 drachms of cloudy fluid escaped through the needle. No micro-organisms were recognized in it, but there were numerous pus cells. Three days later there was marked improvement in the child's condition and recovery was complete by the end of two weeks. While it is impossible to establish absolutely between the treatment and result the relationship of cause and effect, the large amount of cerebrospinal fluid which escaped pointed to much increased tension, the lowering of which it is reasonable to hold would tend to promote absorption.

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F. M. FRY, B.A., M.D., and C. F. MARTIN, B.A., M.D., Montreal.  
"Some Cases of Infantile Nephritis." *Archives of Pediatrics*, Jan., 1904.

The authors point out the slight attention which has hitherto been paid to the subject of nephritis in infants; with the single exception of J. L. Morse's article, nothing is to be found in the literature.

An investigation was made of 100 infants under the age of three

months without regard to the apparent condition of their health at the time, selected inmates of the Foundling, Maternity, and Grey Nunnery institutions, Montreal. With males, the usual method of obtaining the urine, that is, strapping a bottle to the infant's thigh, was followed, but in females Dr. Fry devised a means of securing samples which is vastly superior to the usual one of squeezing out the urine passed into a napkin or sponge. Reflex stimulation of the bladder by means of cold applied above the pubis or by manipulation of the orifice of the urethra was found to result in the expulsion of the urine with sufficient force to allow of its being collected in a bottle placed so as to receive the stream.

Of the 100 infants under investigation 65 were fed artificially and 35 breast-fed, and the urine was examined on three different days in each case. The specific gravity was low, an average of 1006.1, with extremes of 1028 and 1001, being obtained. The reaction was acid in 64 per cent. and neutral in 36 per cent., a much higher percentage of neutral urines being found among the artificially fed, only nine per cent. of the breast-fed giving a neutral reaction. Albuminuria was present in 19, and 17 of the 19 showed casts as well, mainly granular and hyaline with occasional epithelial. On the other hand, 14 cases had casts without albumin. Uric acid was in abundance in 26 cases, of which 24 showed albumin and casts and all but two either albumin or casts. There seemed to the authors to be a relationship between excess of uric acid and renal irritation or disease. Of the 26 showing evidence of uric acid excess, 19 died and autopsies were obtained on 7, and the finding in every case was parenchymatous nephritis, uric acid infarcts, and marked degeneration of the convoluted tubules.

The authors conclude "that whatever may be the relation of uric acid to nephritis, one can say that the nephritis which occurs in infants is not alone associated with the toxic conditions incident to marasmus. That it has been closely associated in some of these cases with the presence of marked increase of uric acid and that in many it is recovered from, may indicate a possible association between those two conditions, diseases which under favourable conditions are recovered from without any serious permanent disturbance."

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WM. H. PARK, M.D. and L. EMMETT HOLT, M.D., New York. "Report upon the Results with different kinds of Pure and Impure Milk in Infant Feeding in Tenement Houses and Institutions of New York City: A Clinical and Bacteriological Study. *Medical News*, Dec. 5, 1903.

The writers of this report undertook to study the problem of infant feeding with cows' milk in New York from a new standpoint, the re-

sults obtained by the observation of healthy children in tenement houses. Hitherto, most of the statistics collected have been from institutions devoted to the care of children, and the majority of these children are, if not actually the subjects of disease when admitted, at least weakened by previous want of care, many of them being illegitimate, so that the results obtained were not a fair indication of the value of the different methods of feeding under other conditions.

The investigation began during the summer of 1901 and was continued for two years under the supervision of the Rockefeller Institute for Medical Research and the Research Laboratory of the Department of Health, New York city. The staff of physicians employed divided the cases under observation into groups, each worker having under his personal observation a group of not more than fifty infants, who were followed on an average for ten weeks. After excluding all cases which from any cause had not been under observation sufficiently long to furnish reliable data, there remained a total of 632, of which number 421 were observed during the summer months and 211 during the winter.

The clinical portion of the investigation consisted in the physician himself keeping an accurate record of the weight of the children and visiting them twice a week in their own homes. Advice was given in the matters of hygiene and the general care of the children. Where gastro-intestinal disturbances ensued, the milk feeding was stopped temporarily.

The bacteriological investigation of the milk was carried on in the Research Laboratory of the Health Department and the Carnegie Laboratory of the New York University. It consisted in a bacterial count once or twice a week of the milk supplied to the infants under observation at the time, and the identification of the different bacteria which were found to be present in the largest numbers. The pathogenic properties of these were determined by feeding cultures to young kittens and by subcutaneous or intraperitoneal injections of these cultures into guinea-pigs. Of the 239 varieties thus isolated and studied, very few were found to have come from the udders and milk ducts of the cow. The majority were found to be due to contamination of the milk after it had been withdrawn from the cow by bacteria from dust, manure, feed, etc. Cleanliness in handling the milk and the temperature at which it had been kept were found to exert a marked influence upon the predominant varieties of bacteria present. While no apparent relationship could be established between the special varieties of bacteria present and the health of the children, in about 40 per cent. of those investigated 2 c.c. of a broth or milk culture proved fatal when injected into the peritoneal cavity of guinea-pigs. On the other hand

in only one case was illness or death produced by feeding 48-hour cultures to kittens from two to ten days of age.

The cases selected for observation were healthy children in the most densely populated part of the city, very few ( $\pm 7$ ), being a few months over a year old and over 50 per cent. under six months of age. A fact noted by all the workers was the surprisingly small proportion of infants in the districts canvassed that were bottle-fed. The following were the methods of feeding most extensively used in the area under supervision.

*Condensed Milk.* This was usually of the sweetened variety, was bought in cans, and prepared by adding hot water which had been previously boiled in most cases.

*Store Milk.* Milk supplied by small dealers and kept in large cans. It proved to be the poorest grade met with, averaging about 3.75 per cent. of fat. It is purchased twice a day, carried home and kept in pails or pitchers. In the summer it is usually heated at once in a saucepan, the temperature being raised until the milk begins to foam. Up to the age of 10 or 11 months, infants were given equal parts of milk and boiled water or barley water, and over this age, the whole milk. The bacteriological examinations showed it to contain from 4 to 200 millions of bacteria per c.c., the average being 20 millions per c.c. The form of heating employed, killed, it was found, from 95 to 99 per cent. of the bacteria. During winter the average number of bacteria was 400,000 per c.c.

*Bottled Milk.* This was nearly always in good order when received by the consumer and averaged 500,000 bacteria to the c.c. It was used in the same manner as store milk.

*Milk from Central Distributing Stations.* This was of good quality but contained poor cream. It was mostly modified after a manner and Pasteurized before being sent out, three or four standard formulæ being used. The milk was supplied in small bottles each containing just enough for a single feeding. Directions were given to the mothers regarding the number and quantity of daily feedings by the physicians in charge at the central stations.

*Infant Foods* were but little used, expense being the probable cause.

*Breast Feeding* was not reported upon except in a few cases as a control. It was found to be a common practice for the infant to be nursed once or twice during the day or only at night, and to be given the bottle for the remainder of the day.

In estimating the results obtained from the different methods, variations in weight and the presence or absence of digestive disturbance, particularly of diarrhœa, were considered. The cases were divided into

four groups:—Those who did (1) well, (2) fairly, (3) badly, and (4) the fatal cases.

The influence of *season* was shown by the good results obtained in 93 per cent. of cases during the winter as compared with 69 per cent. during the summer. The authors believe that heat is a primary factor in producing this difference, bacteria and their products being a secondary one.

The influence of *food* is shown by the following table, but here it must be remembered that store milk being the cheapest was used by the poorest class, among whom the least care was exercised in the preparation of the food.

	Percentage of good results.	
	Winter.	Summer.
Store milk . . . . .	96	56
Condensed milk . . . . .	92	60
Bottled milk . . . . .	94	61
Milk from Central Distributing Stations . . . . .	93	81

A test was made by feeding during two summers 51 infants on raw and 41 on Pasteurized milk of the same quality, and it showed in a most conclusive manner the value of Pasteurization.

In addition to collecting statistics the physicians engaged in watching the infants in their own homes were asked to state their own conclusions regarding the problem of infant feeding in the tenements. "It was practically the unanimous opinion that the most important factor in securing good results is intelligent care. This covers much: clean bottles and nipples; the willingness and ability to carry out directions as to methods of feeding, quantities, frequency, the stopping of milk at the first sign of diarrhoea, etc.; proper care of the milk itself while in the house, and methods of sterilizing; suitable clothing and cleanliness of the children, and as much fresh air as possible."

In a summary of the report the authors bring out the following points:—

During cool weather, neither health nor mortality was appreciably affected by the kind of milk nor the number of bacteria it contained.

During hot weather, the kind of milk taken influenced both the amount of illness and the mortality, and the effect of bacterial contamination was very marked when the milk was taken without previous heating.

When milk is taken raw, the fewer the bacteria the better are the results.

With milk of average quality, those infants fed on sterilized milk did much better than those fed on raw milk.



No special varieties of bacteria were found which seemed to have any special importance in relation to the summer diarrhœas of children.

After the first twelve months of life, infants are less and less affected by the bacteria in milk derived from healthy cattle.

Since a large part of the tenement population must purchase its milk from small dealers at a low price, everything possible should be done by health boards to improve the general milk supply of cities by enforcing proper legal restrictions regarding its transportation, delivery, and sale.

Of the methods of feeding now in vogue, that by milk from central distributing stations undoubtedly possesses the most advantages.

Since what is needed most is intelligent care, all possible means should be employed to educate mothers and those engaged in the care of infants in proper methods of doing this.

Bad surroundings, though contributing to bad results in feeding, are not the chief factor.

Close percentage modification of milk is not necessary to obtain excellent results in the great majority of infants.

The injurious effects of table food to infants under a year old, and of fruits to all infants and young children in cities, in hot weather, should be much more generally appreciated.

G. G. C.

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## Society Proceedings.

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### OTTAWA MEDICO-CHIRURGICAL SOCIETY.

#### *Eighth Meeting, February 21st.*

Held in the County of Carleton General Protestant Hospital, the president, Dr. H. B. Small, in the chair.

The programme was entirely made up of the exhibition of clinical cases by Drs. McElroy and Robinson of the attending staff.

#### *Ninth Meeting, February 4th, 1904.*

#### THE PRESIDENT, DR. H. B. SMALL, IN THE CHAIR.

A paper on "Eclampsia" was read by Dr. Thos. Gibson. The frequency, the mortality, the pathology and etiology so far as known or conjectured, were first briefly taken up. The treatment was spoken of more fully. The necessity for prophylactic measures was emphasized. First of these was the routine examination of the urine, especially towards last 2 or 3 months of pregnancy. In suspicious cases, the time-honoured treatment by milk diet and rest in bed, was first to be tried together with stimulation of the skin and bowels.

Dr. Gibson drew attention to the beneficial result he had obtained in a couple of cases from the feeding of thyroid extract—the effect being one of diuresis due to vaso-dilatation and increased metabolism.

Where convulsions actually commence the essential measures are chloroform, bleeding, with infusion of salines hypodermically or intravenous sedatives, especially morphine and chloral, active stimulation of the skin and bowels with the induction of labor artificially if it does not commence spontaneously.

Pilocarpin as a diaphoretic is to be used with extreme caution. Veratrum viride is highly recommended for reducing the pulse tension, but it is doubtful as to how it actually does its work.

The discussion was opened by Sir James Grant. He emphasized the necessity of a close watch upon the urine for albuminuria and the limbs for oedema in all pregnant women. He used the bitartrate of soda to a large extent as a means of relieving the system by purgation.

Dr. Valade had many cases of eclampsia during his experience. His routine treatment was bleeding and, for the past ten years, morphine. He had lost but two cases. In those he did not bleed, as the condition of anæmia was so great, he did not think they would stand it.

Dr. J. G. Smith cited three cases of eclampsia. In the first there was no premonitory sign. The convulsions were controlled by chloroform and morphine and labor was brought on at once. The skin was stimulated by hot packs and pilocarpin. This is the only case in which he has ever used pilocarpin, and the effects were disastrous. Oedema of the lungs set in at once and three days afterwards, an abscess of the lung from aspiration was noted. The patient recovered. In the second and third cases Dr. Smith had noted premonitory signs, but prophylactic treatment failed. With the onset of convulsions, he used chloroform, morphine hypodermically and bromides and chloral per rectum. Active purgation and diaphoresis were used. Both cases were bled. Both cases recovered without the onset of labor but in each, four weeks after labor set in spontaneously with delivery of a dead foetus.

He put the questions: First, is it advisable always to bleed to reduce the blood pressure: second, should we not always deliver in eclamptic convulsions, by inducing labor artificially, if necessary.

Dr. Small, emphasized the treatment by bleeding. He was quite satisfied that one need never fear to draw blood freely. It is well though to inject intra-venous saline solution subsequently. He had never met a case in which it was necessary to induce labor—as in all his cases it had come on spontaneously.

Drs. Robinson, Echlin, McElroy, and M. O. Klotz, also took part in the discussion.

Dr. Gibson closed the meeting with a few words in reply to questions put.

It was announced that at the next meeting Dr. Lafleur, of Montreal, would speak on "Dilatation of the Stomach Without Actual Obstruction."

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## SOCIETE MEDICALE DE MONTREAL.

*Meeting January 26th.*

DR. VALIN, PRESIDENT, IN THE CHAIR.

DR. J. E. DUBÉ read a paper upon Syphilis and Tuberculosis. He laid special stress upon the possible simultaneous development of the two conditions and the influence of the one upon the other. He dwelt upon the seriousness of the prognosis, and thought that the antisyphilitic treatment should be suspended when tuberculosis was present.

DR. DEMARTIGNY hoped that Dr. Dubé would, at some future time discuss the question of the differential diagnosis and treatment. He quoted a case of gumma in the frontal region which was about to be operated on by a surgeon as a malignant tumour; yet disappeared after appropriate treatment. He had also seen a case of amenorrhœa of three years' standing which had puzzled gynecologists, and was overcome by the use of iodide of potash and mercury.

DR. LECAVELIER cited a case of pulmonary syphilis occurring with tuberculosis and said that at the autopsy, cavities holding bacteria were present with gummata in neighbouring parts.

DR. MERCIER favoured treatment by injection of cacodylate of mercury and said he intended bringing a patient suffering from the two diseases before the society.

DR. VALIN agreed with Dr. Dubé that the best authorities were in favour of suspending antisyphilitic treatment when tuberculosis was present.

DR. H. LASNIER reported a case of retro-uterine abscess. The patient was in good health, the mother of three children and had suffered from severe perineal laceration. The first examination gave the impression of a pronounced retroversion; the os and cervix were found directed upwards with a soft fluctuating mass in the vagina resembling the fundus of the uterus. By the use of a sound the real position of the uterus was revealed, and at the same time all doubt as to the nature of the mass in the uterus was removed. An incision

through the vagina into the presenting point of the abscess allowed about a litre of pus to escape. Drainage was secured by a rubber tube kept in situ by a tampon and recovery was uninterrupted.

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### MONTREAL MEDICO-CHIRURGICAL SOCIETY.

*Ninth Meeting, 5th February, 1904.*

H. S. BIRKETT, PRESIDENT, IN THE CHAIR.

DR. HARVEY CUSHING, of Baltimore, read a paper entitled *Observations on twenty cases of Gasserian Ganglion Extirpation for Trigeminal Neuralgia*. In his paper he discussed (1) the various operative procedures which have been proposed, (2) the twenty cases done by him with their operative and post-operative complications, and (3) the physiological consequence of removal of the ganglion.

Dr. Cushing presented numerous photographs of his cases upon which in all cases the anæsthetic area was traced out. He also showed diagrams of the operation in detail and described his operation graphically on the blackboard, as also by a skull upon which the operation had been performed on both sides.

SIR WM. HINGSTON : My experience is limited to one case. I did not follow Dr. Cushing's method and so came to grief, as I was deluged with blood and had to discontinue the operation which ended unfortunately for the patient. I recollect well the remarks of Krause upon the operation; it was comparatively new then and the method adopted was not the method adopted to-day, and the statistics published some years afterwards, that is four or five years ago, showed only a percentage of 25% recoveries and very often without relief. Again, I recollect with pleasure that Kocher, of Berne, one of the greatest of surgeons, after analysing the various methods of operating, by the sphenoidal method, the higher temporal method and the lower temporal method, emphatically pronounced in favour of the last as being the best and the one which should be generally adopted. He also spoke of the method of removing the zygoma and getting it out of the way, detaching it at both ends and turning it down, enabling one to get through the bone where it was thin and coming at once upon the trigemina. I may say, that, to find out that it was the Gasserian ganglion that was at fault and not the trigeminal is a comparatively recent work, and as this was not known long ago, the trigeminal might be divided and yet with no result. With this operation one sees just what one he is about, and the credit of this belongs to the reader of this excellent paper. How is it, that some in operating on the zygoma advise turning it out and replacing it, others suturing at each end after

putting it back in its place, and in the present case the removing of it altogether, thus getting it entirely out of the way? Krause reported I think some 30 cases, but he had operated on the dead subject, familiarizing himself with the position of the trigeminals and of the vessels so that he knew where to find them and where to avoid the one and divide the other.

DR. BELL : I was very much impressed with the operation devised by Horsely and Krause and still look upon it as a very brilliant discovery in operative procedures. In the one case which I had, I did the operation two or three times on a cadaver first, and then upon my patient a woman of 50, who was sent me by Dr. Stewart. I did the osteo-plastic resection of the temporal bone with very great ease, as in Dr. Cushing's first case. The after result was exceedingly good. The operation was done about 11 years ago, and six years later I reported the case to Dr. Hartly along with a letter and photograph of the woman received at that time; she had had no return of pain whatever, though she still complained of paralysis of the masseter muscle and the collection of food in the mouth. I quite appreciate the points with regard to the lower operation; first of all there is the avoidance of the meningeal artery, which fortunately in my case I had no trouble with, and second, the advantage of the removal of the zygoma allowing the arch to be brought down to a corresponding degree with the wasted muscle. I have since that time advised the operation in half a dozen cases but my patients have not consented to have it performed. I fully agree that this operation is to be reserved for the major cases of trifacial neuralgia. The practice of the operation is comparatively limited and it is still further limited by its supposed gravity. I felt that Rose's operation was a very serious procedure, but on doing Horsely and Krause's operation on the cadaver, I felt that it ought to be a safe operation, and since it is still further improved by the avoidance of hæmorrhage by the low method, I think it ought to be more widely employed. I still have a feeling that the osteo-plastic operation gives one a good deal of room in pressing the brain away to the middle line of the skull and it seems to me that a considerable amount of room is necessary.

DR. BULLER : I do not see why the motor root should be got rid of in this operation, as its removal could not influence the sensory. I should like to know if the operation would not be more perfect, if, instead of taking pains to destroy the motor root one might take pains to preserve it—it certainly cannot be responsible itself for the pain.

DR. ARMSTRONG : I think possibly in given cases, resection of the nerves in front of the ganglion would be effective and in three cases I

carried this out, one in a young woman who had a very long experience of this pain. She came to this country thinking that a change might help her, and after being treated at the hospital several times I resected the nerve just over the supra-orbital foramen but that gave no relief, and consequently I made a Horsely-Krause incision. After getting hold of the first branch I gradually teased off about half an inch from the cavernous sinus and removed it. She wrote me some three or four years afterwards from England, saying that she had been perfectly well up till that time with no return of the pain in the nerve. In the two other cases I did the same incision, and with a blunt hook I got out the 2nd and 3rd branches and removed, I think, in each case nearly half an inch. Of those cases I have no subsequent record, but they left the hospital quite well and free from pain. The method of approach certainly seems to me to be a direct one, and if one is operating for the Gasserian ganglion this is the proper way to get at it. I should like to know if there is any way of determining whether a resection of a portion of the nerve in front of the ganglion would be sufficient, or in what cases it would be sufficient, or whether to get permanent results it is necessary to go farther back and remove the ganglion itself—we should then have a classification which would be very useful.

DR. MILLS : I should like to ask what, in Dr. Cushing's opinion, is the bearing of this operation and its results on the question of the influence of the nervous system on nutrition.

DR. SHIRRES : Last summer I saw a case operated on eight months before by Sir Victor Horsely, where he divided the nerve posterior to the ganglion, but it was not a success. Drs. Mitchell and Dawson, of Johns Hopkins, did a considerable amount of work in connection with the spinal roots two or three years ago and got regeneration taking place frequently, and, I think other observers have found the same thing, so the division behind the ganglion physiologically would not be a proper method of carrying out this operation. The operator in St. Luke's, who recommended the division of the three branches and then inserted rubber tissue between the nerves and the ganglion, from the number of cases he operated on seemed to be rather successful. In the case of Dr. Valance reported upon some nine months ago he had to stop the operation on account of the very severe hæmorrhage; the following day the pain was relieved, and within a week it had entirely disappeared and the subsequent operation was never carried out, showing that disturbance of the parts often has a beneficial effect. I saw two specimens of nerves in Queen's Square, and one by Dr. Barker, where there was absolutely no degenerative changes found in the nerve. I would like to ask the nature of the changes noticed after removal.

DR. ARCHIBALD : How do you get away from the ophthalmic division beside the ophthalmic sinus; Krause simply evulses it, and I would like to know how Dr. Cushing managed that part of the operation.

DR. GARROW: With Krause, middle meningeal hæmorrhage has been the chief difficulty in the procedure which he undertakes, but from reading the extended reports by other operators it would seem that hæmorrhages from the cavernous sinus and also from the small vessels in the neighbourhood have frequently been a source of this hæmorrhage demanding cessation of the operation and temporary packing and then proceeding with the operation some 24 hours afterwards.

DR. CUSHING, in reply to the various questions said that his operation was merely a modification of the original procedure. In reply to Dr. Bell's question he stated that the chief objection to the high operation was the compression needed to give the room necessary, that this compression was the thing to be avoided as it had produced the largest amount of fatalities. Krause had 7 deaths in his 27 cases more than others who followed his method; in five of these, the autopsy showed injury to the cortex with brain softening from hæmorrhage into the brain. With regard to Dr. Archibald's remarks, any acute increase of intracranial tension caused a great rise in the blood pressure and this takes place with no more difficulty in the experimental work than in this variety of conditions. In the high operations it is very much more marked than in the lower, and it is the failure of the vaso motor centre to respond to this stimulus that, I think, causes the profound shock which Horsely and Krause experienced. That is the chief objection to a large amount of room. The details of the osteo-plastic flap mean a very much more assiduous task when the bone is not removed. It is unfortunate, as Dr. Buller has said, that the motor roots cannot be left as there is only one result, as Dr. Shirres has shown in Sir Victor Horsely's case, in which there was return of pain after dividing the root, and that is, if that operation had been successful, it would have been possible there to have saved the motor root, or even if in this procedure the motor root had been divided and the ganglion extirpated, then you would have had a regeneration of the motor root. The whole question is whether there is from these cells a central regeneration as well as a peripheral one, we know there is a most active peripheral regeneration. You all know the experiment of dividing a nerve and inserting the end into a quill. Dr. Armstrong spoke of the resection of the rami on the peripheral side of the ganglion. I do not think this suffices, though it is a curious thing, that slight operations do have an important effect in some cases, but a peripheral division very often means regeneration, and it is almost the same thing to go

in below the base of the skull dividing the nerves at their point of exit. With complete extirpation, one almost never sees disturbance of the eye, unless some foreign disturbance occurs. Taste is also preserved. With regard to the parts divided the important point is to remove the portion containing the cells so that there will be no possibility of regeneration. As Dr. Garrow says my operation is merely a modification in the approach, and in removing the ganglion there is just as much hæmorrhage in one case as in the other, except that the hole is not so deep, and you can pack and press, with the structures nearer to you. But hæmorrhage varies from case to case; one may be quite dry and in another we may have to postpone the operation till its cessation. Practice on the cadaver is of the utmost value and particularly on a fresh subject.

Upon motion of Sir Wm. Hingston, seconded by Dr. Shepherd, a vote of thanks was tendered to Dr. Cushing.

*Tenth Meeting, 19th January, 1904.*

H. S. BIRKETT, M.D., PRESIDENT, IN THE CHAIR.

DRS. J. J. ROSS, W. W. CHIPMAN and J. R. GOODALL, presented a case report of childbirth with complications, illustrated by a chart showing the quantity of urea and albumin excreted daily during three months. The complications referred to were those associated with eclampsia.

DR. LAPHORN SMITH: The theory to my mind which fits these cases is that urea or some other toxine is the cause of eclampsia, and that which brings on the convulsions is a spasm of the blood vessels in the brain; and, as we have convulsions in both men and women it does not seem that the placenta or thyroid has any influence. Anæmia of the brain is really the cause of the convulsions, and cases are recorded from all over the world where the administration of veratrum viride has immediately arrested the convulsions. One thing which interested me was the large resort to saline injections under the breast; in my own cases I simply use saline enemas, as my patients complain bitterly of the pain under the breast. I am glad that chloral is passing out of use, as it has been the cause of many fatalities. Of the three cases I reported last year all recovered with the administration of veratrum viride. Many years ago I advocated the opinion that, where this condition was suspected we might not be justified in letting the woman go beyond the third month, with a possibility of such grave risk. I was the only one who held that opinion, but since then it has been much more largely adopted, though again since veratrum viride has been used, many have been allowed to go on, though there is often a permanent damage to the kidneys.



DR. EVANS : One feels utterly incompetent to advance any theory either as to causation or treatment that will apply to all cases. As for *veratrum viride* I have used it conscientiously and carefully and have abandoned it, as it did not meet the requirements; it suits apparently some cases, for others it does not answer at all; there is no treatment which will suit all cases alike. With regard to the epidemic theory a peculiar thing to be noted is that cases vary at different times; one set of cases may prove fatal in spite of all treatment, while another set of cases may recover completely, though there is no apparent difference in the onset or course. In the Maternity Hospital we have had six or seven cases with only one death, the patient being moribund on entrance to hospital; all these cases recovered without *veratrum viride*. With regard to the pathological conditions, in a recent number of the *Zeitschrift* is reported two very interesting cases, one of a child dying from convulsions, the other of a child of an eclamptic patient dying a few hours after birth. There were the same identical conditions in the liver. I myself have noted the occurrence of convulsions in children of eclamptics often with deaths. It is studies, such as we have heard to-night, which will greatly aid in bringing us to a better understanding of the condition. The author's theory is that the toxine is of foetal origin, whether from the foetus or placenta is a question, and that this has produced a toxine in the maternal blood that acts deleteriously on the tissues, particularly the liver and kidney.

DR. SHAW : I have made an extensive study of urine of pregnant women both before and after delivery, separating the various constituents. With regard to the urea, its presence varied, convulsions occurring where the amount excreted was normal; but more often when present the urea was as Dr. Goodall has described. At one time there was a theory that acetone had something to do with the occurrence of eclampsia, but I found that it occurred in cases without eclampsia, that it was not present where there was a dead foetus, as has been stated, and that it was present under normal conditions. I have seen four post-mortems on women dying from eclampsia; in one case the cause of death was general miliary tuberculosis, in another, hæmorrhage in the brain, while the other two showed a condition of the liver somewhat as described. In the tubercular case there was albumin in the urine in small amount, and the acetone was very large; in the other case there was a fair amount of albumin. Bouchard has brought forward the theory of autointoxication, and supported it in many ways, but he also showed that urea was not the essential poison. There may be poisons circulating in the blood, which when eliminated by the kid-

neys are broken up and do not appear as poisons in the urine; leucomaines for instance, and they vary with the individual. Certain of these are very poisonous to rabbits, which, when injected into dogs have no appreciable effect.

DR. F. J. HACKETT : I would like to ask if there was any history of mental taint in this case. Not long ago I attended a case in which these symptoms were manifest; there were delusions of hearing, memory was lost and there was an indifferent behaviour to the child. On return of strength these conditions disappeared, but some time later I was again called, when there were the same symptoms and a high temperature. She now developed a typhoid with this very low mental condition. The child died at eight months. One plan of treatment I adopted was the letting of blood and I found this relieved the symptoms at once. Although the convulsions may be synchronous with urea one should not overlook the presence of albumin; the amount of albumin excreted is a good indication of danger to the patient.

DR. J. J. ROSS : With regard to insanity I had no data whatever. As to anæmia of the brain, in one case where there was an autopsy the brain was very much congested. I have not observed anything to induce me to believe in the epidemic theory.

DR. KEENAN read a case report of sarcoma of the tongue.

DR. ARCHIBALD : The pathological diagnosis in this case has been very well worked out, all the fine points of this tumour being brought to light. It is a most difficult thing to diagnose between this condition and the tonsillar tissue at the root of the tongue. I saw the sections of this case showing the connective tissue framework, the vessels, the evident absence of inflammatory admixture and the intermixture of newly formed vessels together with mitosis; all these things had to be fully worked out, in order to distinguish it from the more benign form.

DR. BIRKETT : This case came to me at the Royal Victoria Hospital and had all the appearances of an innocent growth in the lymphoid tissue at the root of the tongue. On removing a portion of the growth which was the size of a walnut, I was surprised to find it was pronounced a case of sarcoma, consequently it was passed over to the surgical side. At that time there was considerable discussion as to the nature of the growth, which showed the difficulty in arriving at the true nature of these tumours of lymphoid tissue. I operated some years ago on a boy for ordinary adenoids in the naso-pharynx; three years later the cavity was again filled with the growth, it was thoroughly removed and three years later another operation had to be performed, this was attended with the most violent hæmorrhage; in eight

months subsequent to this third operation the naso-pharynx was again filled, the only difference being that it appeared to grow from the lateral walls forming a bridge across the vault. The parents declined further operation, and on consultation with a colleague in New York, it was decided not to interfere, though the pathologist thought it was benign tissue. A specimen was submitted to Dr. Welch, but he also could not pronounce on the condition. On going to England interference was also declined. Dr. Wyatt Johnston pronounced it to be lympho-sarcoma. The patient still has this mass in the vault of the pharynx and the question is what is it. It is well known of course that adenoids do not recur after thorough removal.

DR. ENGLAND read a report of an operation for carcinoma of the rectum by Kraske's method, followed by recovery. This case is reported at page 179.

DR. ARCHIBALD in reply to a question by the President: I have seen about half a dozen cases at the Royal Victoria Hospital, operated on by our surgeons, and the percentage of cures for the three years limit would approximately be one in every 4, 5, or 6. This case shows the importance not only of a rectal examination, in all cases of chronic constipation, with the finger, but also with the proctoscope which may reveal a condition that the finger would miss.

### McGill Undergraduates Medical Society.

#### FRANCOIS POUPART.

BY

F. J. TEES.

François Poupart, naturalist, anatomist and surgeon, was born at Mans in France in the year 1661. Until his death in 1709 he lived in a state of comparative poverty, but this he bore without discontent. His early education was received from the fathers of the Oratory in his native place, and he was drilled in the humanities and in philosophy.

His love for science took him to Paris, where he studied at the Jardin du Roi. The curriculum seems to have been a varied one and included physics, natural history, comparative anatomy, philosophy and geometry. Entomology had an especial charm for him and he devoted much time studying the habits of live insects and the anatomy of dead ones.

Poupart realized that the smallness of his means was sufficient to discourage him from pursuing his investigations at a time when scientific work was unlikely to lengthen one's purse, but this did not thwart his purpose. Mainly as an aid to his other work he applied himself seriously to the study of anatomy and surgery. He finally pre-

sented himself for examination in the latter at the Hôtel-Dieu in Paris and is said to have passed with credit, although he subsequently astonished everybody by announcing that he had studied but the theory and did not even know from experience how to bleed a man. Opportunity to practice surgery was thereupon given him and at the end of three years he took his doctor's degree at Reims.

Some articles published in the *Journal des Savants* gained him an immediate reputation, and Fontenelle narrates how with great astonishment people learned that this obscure man, modest inwardly and outwardly, even poorly clad, was none other than a genius. In 1599 he was admitted to the Academy of Science as the pupil of the celebrated Mery, anatomist and court surgeon, a man of gruff manners and of positive opinions. Mery expended much good energy in writing a book on the foetal circulation to prove among other things that the foramen ovale serves to convey blood from the left to the right auricle in opposition to the theory held then and now. Yet Mery accomplished much of genuine worth and was the first to show that in herina the peritoneum is not pierced but is carried down as a covering of the protrusion. He was a very diligent worker, and not satisfied with the labours of the day, he is said to have spent his nights secretly dissecting in his bedroom, a practice not always to be commended where health inspectors exist. He had a great antipathy for Latin, and the biographer Eloy writing about 1775, cites him as a proof that a degree in Arts was not necessary at that time to produce a very excellent doctor.

Mery's pupil, Poupart, was not less diligent than his master. Much of his work was published in the *Journal des Savants*, and in the publications of the Academy, and included various memoirs on hermaphrodite insects, a "Dissertation on the Leech," a "History of Formica leo and Formica pulex," "Observations on Mussels" and a "Treatise on the Apparition of Spirits." His "Complete Surgery" was his masterpiece and became one of the best known works on the subject at the time. In it was included a "full and exact account of osteology."

Eloy credits him with the discovery that the sacrum and coccyx are but modified vertebrae. He seems to have made a study of deficiencies compatible with a continuation of the bodily functions; thus he describes the case of a patient who went through the world short of one kidney, and gives an account of how a woman from whom he had removed half of the skull used to gain her livelihood by receiving alms in the receptacle thus provided.

Poupart's name is seldom heard now except in connexion with the ligament described by and called after him, although his description, so says the biographer, was neither new nor accurate.

# JOHANN FRIEDRICH BLUMENBACH—1752-1840.

BY

F. J. HEWITT.

Johann Friedrich Blumenbach, a distinguished anatomist and physiologist, was born at Gotha, 11th May, 1752. He studied medicine at Jena, and afterwards at Göttingen, where he took the degree of Doctor in 1775. Such a high opinion was entertained of his acquirements that he was appointed adjunct professor of medicine in 1776, and in 1778 he was made professor. In 1812 he was elected secretary to the Society of Royal Sciences. He was a member of nearly all the societies of Savants of the civilized world of his day. He did great service by investigations in general Anthropology of which he was, in fact, the founder.

His researches in Comparative Anatomy and the history of development rendered him famous. He collected all the facts, touching on comparative anatomy, which had been stored up in the literature of earlier observers, and added to them observations of his own.

He was the first to undertake the task of determining the anatomical differences between the various races of man, especially Europeans, Negroes and Indians. His far-famed collection of skulls, of various nationalities, had a stimulating influence upon the study of this important part of ethnology.

Amongst his discoveries was that made during the dissection of the eye of a seal :—that the axis of that organ admits of being lengthened and shortened, thus permitting the animal to see clearly in media of different densities, as, air and water. In physiology, he was of the school of Haller, and was in the habit of illustrating his theory, by a careful comparison of the animal functions of man with those of lower animals.

He was the author of many works on Medicine, Physiology and Anatomy. His thesis, on the occasion of taking his degree of doctor 1775. *De Generis Humani Varietate Nativa*, was the germ of the craniological researches to which so many of his subsequent enquiries were directed.

In 1778 he began to enrich the pages of the *Medicinische Bibliothek*, of which he was editor from 1780-1794, with various contributions on medicine, anatomy, etc. In 1787 he published *Institutiones Physiologicae*, a condensed and well arranged view of the animal functions. This work went through many editions in Germany, where it was the general text-book of that science. It was translated into English, in America, by Caldwell in 1798, and in London by Elliotson in 1807.

His *Handbuch* of Comparative Anatomy, a work by which he was widely known, went through many editions. It was translated into

English in 1809 by the eminent English surgeon Lawrence, and later, with the latest improvements and additions by Coulson in 1827. This manual of Blumenbach's will always be esteemed for the accuracy of the author's own observations, and his just appreciation of the labours of his predecessors.

One of the most extensive of Blumenbach's works was *Decas Collectiones suæ Craniorum Diversarum Gentium Illustrata*, in which, accurate delineations of the skulls in his collections are given with brief description of each. It appeared in parts until sixty crania were represented, exhibiting, in a striking manner, the peculiarities in form of the skulls of different nations, and justifying the divisions of the human race into several great varieties or families: Caucasian, Mongolian, Malayan, Negro and American. The classification, he thus prepared, has been very generally received and most later schemes have been modifications of it.

He addressed to Sir Joseph Banks, London, 1794, a work called *Observations on some Egyptian mummies*, which was translated into French by Chardel in 1806. Blumenbach enriched the medical literature of his time with a great number of memoirs and short articles, and was a constant contributor to the current medical magazines and papers of the day. Although the greater part of his long life was passed in Göttingen, in 1787 he visited Switzerland. He was in England in 1788 and 1792. The prince Regent conferred on him the office of physician to the Royal family in Hanover in 1816. The Royal Academy of Paris elected him a member in 1831. He died at Göttingen 22nd January, 1840.

The slanting surface of the body of the sphenoid bone between the sella turcica and the basilar process of the occipital bone, the clivus, has been called after him, and is known as the Clivus of Blumenbach.

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A meeting of the general committee appointed by the meeting of graduates at the Windsor Hotel on March 4th, 1903, for the purpose of devising means for the collection of the amount required to build a Students' Union, will be held at 8.30 o'clock on Wednesday evening, the 2nd March, 1904, at the Windsor Hotel. As several important questions concerning this scheme must be decided at this meeting, every member of the committee is earnestly requested by the secretary to be present.