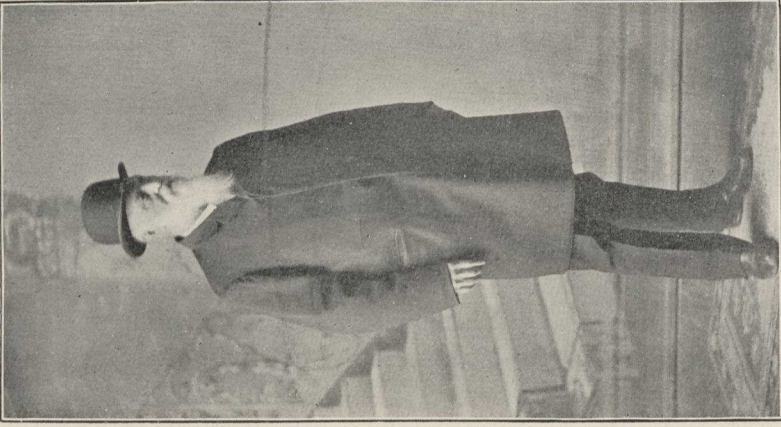






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## WILLIAM BEAUMONT. A PIONEER AMERICAN PHYSIOLOGIST.\*

**P**ROFESSOR W. OSLER delivered an address before the St. Louis Medical Society, on the 4th October, and which appeared in the *J. A. M. A.* of November 15, on William Beaumont. The opening scene of the lecture is laid in the Island of Michilimacinae, on the morning of June 6, 1822. The contents of a shotgun were accidentally discharged into the body of Alexis St. Martin, at a distance of only two or three feet from its muzzle. Dr. Beaumont, who was at the time a surgeon in U. S. uniform, and in charge of old Fort Mackinac, came at once to attend the wounded Frenchman. The wound was just under the left breast, and supposed, at the time, to have been mortal. A large portion of the side was blown off, the ribs fractured and openings made into the cavities of the chest and abdomen, through which protruded portions of the lungs and stomach, much lacerated and burnt, exhibiting altogether an appalling and hopeless case. The diaphragm was lacerated and a perforation made directly into the stomach, through which food escaped. Shot, clothing and torn flesh were removed. With the utmost care, at the end of ten months the wound was partially healed, but he was still an object altogether miserable and helpless. It was then decided to transport him as a pauper to his place of nativity in Lower Canada. Dr. Beaumont believed St. Martin could not make the journey, and took him into his own house and cared for him at his own expense for nearly two years.

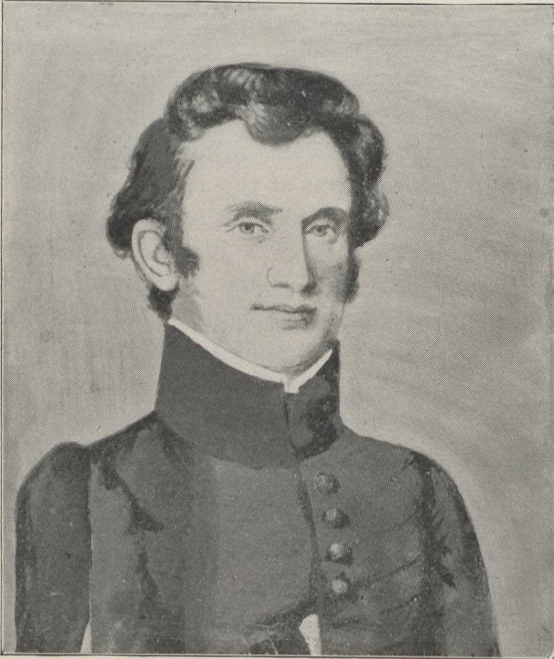
In the month of May, 1825, Beaumont began the experiments. He was ordered to Fort Niagara, where, taking the man with him, he continued the experiments. He took him with him to Burlington and Pittsburg. St. Martin returned to Canada in 1825. He married and had two children. Dr. Beaumont secured him again in 1829, and continued his observations till March, 1831. In 1832 and 1833 he again submitted to further series of experiments. In 1856 he was under the observation of Dr. Francis Gurney Smith, of Philadelphia, for a short

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\* Through the kindness of Professor W. Osler and Dr. Simmons, Editor of the *Journal of the American Medical Association*, we are able to furnish our readers with illustrations of Dr. Beaumont and Alexis St. Martin.

time. He died at St. Thomas, Quebec, in his 83rd year. He had often been jollied as "the man with a lid on his stomach." Professor Osler tried to secure an autopsy, but failed.

Dr. William Beaumont was born in the town of Lebanon, Conn., on the 21st day of November, 1785, and died in April, 1853, in St. Louis. He served with various U. S. regiments from 1812 to 1839, when he resigned his commission, settling down to practice in St. Louis, where he remained till the date of his death. He had an extensive and distinguished practice. He was a man of a most cheerful, but determined,



WILLIAM BEAUMONT, M.D.

disposition. The following is taken from a letter dated October 20, 1852, Domestic affairs are easy: peaceable and pleasant. Health of community good—no severe epidemic diseases prevalent—weather remarkably pleasant—business of all kinds increasing—product of the earth abundant—money plenty—railroads progressing with almost telegraphic speed. I expect to come to Plattsburg next summer all the way by rail." During his 27 years in the American army, he saw much active service, specially

in the war of 1812-1813. In March, 1853, he met with an accident—a fall while descending some steps. A few weeks later a carbuncle appeared on his neck, and proved fatal.

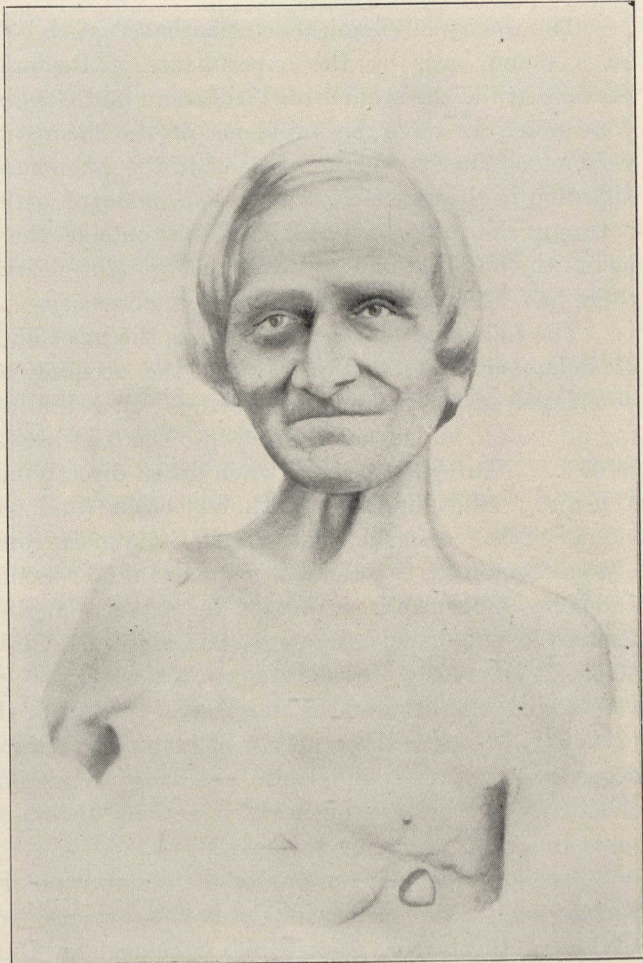
His book on "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," was published in 1833; and a second edition, under the supervision of his cousin, Dr. Samuel Beaumont, was published in 1847. In 1838, Dr. Andrew Combe issued an edition in Scotland with numerous notes and comments.

"There had been other instances of artificial gastric fistula in man which had been made the subject of experimental study, but the case of

St. Martin stands out from all others on account of the ability and care with which the experiments were conducted. As Dr. Combe says, the value of these experiments consists partly in the admirable opportunities for observation which Beaumont enjoyed, and partly in the candid and truth-seeking spirit in which all his inquiries seem to have been conducted. "It would be difficult to point out any observer who excels him in devotion to truth and freedom from the trammels of theory or prejudice. He tells plainly what he saw and leaves everyone to draw his own inferences, or where he lays down conclusions he does so with a degree of modesty and fairness of which few perhaps in his circumstances would have been capable."

To appreciate the value of Beaumont's studies it is necessary to refer for a few moments to our knowledge

of the physiology of digestion in the year 1832, the date of the publication. Take, for example, "The Work on Human Physiology" (published in the very year of the appearance of Beaumont's book), by Dunglison, a man of wide learning and thoroughly informed in the literature of the subject. The five or six old theories of stomach digestion, concoction, putrefaction, trituration, fermentation and maceration,



ALEXIS ST. MARTIN.

are all discussed, and Wm. Hunter's pithy remark is quoted, "some physiologists will have it that the stomach is a mill, others, that it is a fermenting vat, others, again, that it is a stew-pan: but, in my view of the matter, it is neither a mill, a fermenting vat nor a stew-pan; but a stomach, gentlemen, a stomach."

The theory of chemical solution is accepted. This had been placed on a sound basis by the experiments of Reaumur, Spallanzani and Stevens, while the studies of Tiedemann and Gmelin and of Prout had done much to solve the problems of the chemistry of the juice. But very much uncertainty existed as to the phenomena occurring during digestion in the stomach, the precise mode of action of the juice, the nature of the juice itself and its action outside the body. On all these points the observations of Beaumont brought clearness and light where there had been previously the greatest obscurity.

The following may be regarded as the most important of the results of Beaumont's observations: First, the accuracy and completeness of description of the gastric juice itself. You will all recognize the following quotation, which has entered into the text-books and passes current to-day. "Pure gastric juice, when taken directly out of the stomach of a healthy adult, unmixed with any other fluid, save a portion of the mucus of the stomach with which it is most commonly and perhaps always combined, is a clear, transparent fluid; inodorous; a little saltish, and very perceptibly acid. Its taste, when applied to the tongue, is similar to this mucilaginous water slightly acidulated with muriatic acid. It is readily diffusible in water, wine or spirits; slightly effervesces with alkalis; and is an effectual solvent of the *materia alimentaria*. It possesses the property of coagulating albumen, in an eminent degree; is powerfully antiseptic, checking the putrefaction of meat; and effectually restorative of healthy action, when applied to old, foetid sores and foul, ulcerating surfaces."

Secondly, the confirmation of the observation of Prout that the important acid of the gastric juice was the muriatic or hydrochloric. An analysis of St. Martin's gastric juice were made by Dunglison, at that time a professor in the University of Virginia, and by Benjamin Silliman of Yale, both of whom determined the presence of free hydrochloric acid. A specimen was sent to the distinguished Swedish chemist, Berzelius, whose report did not arrive in time to be included in the work. In a letter dated July 19, 1834, he writes to Professor Silliman that he had not been able to make a satisfactory analysis of the juice. The letter is published in *Silliman's Journal*, Vol. 27, July, 1835.

Thirdly, the recognition of the fact that the essential elements of the gastric juice and the mucus were separate secretions.

Fourthly, the establishment by direct observation of the profound influence on the secretion of the gastric juice and on digestion of mental disturbances.

Fifthly, a more accurate and fuller comparative study of the digestion in the stomach with digestion outside the body, confirming in a most elaborate series of experiments the older observations of Spallanzani and Stevens.

Sixthly, the refutation of many erroneous opinions relating to gastric digestion and the establishment of a number of minor points of great importance, such as, for instance, the rapid disappearance of water from the stomach through the pylorus, a point brought out by recent experiments, but insisted on and amply proven by Beaumont.

Seventhly, the first comprehensive and thorough study of the motions of the stomach, observations on which, indeed, are based the most of our present knowledge.

And lastly, a study of the digestibility of different articles of diet in the stomach, which remains to-day one of the most important contributions ever made to practical dietetics.

The greater rapidity with which solid food is digested, the injurious effects on the stomach of tea and coffee, when taken in excess, the pernicious influence of alcoholic drinks on the digestion, are constantly referred to. An all-important practical point insisted on by Beaumont needs emphatic reiteration to this generation: "The system requires much less than is generally supplied to it. The stomach disposes of a definite quantity. If more be taken than the actual wants of the economy require, the residue remains in the stomach and becomes a source of irritation and produces a consequent aberration of function, or passes into the lower bowel in an undigested state and extends to them its deleterious influence. Dyspepsia is oftener the effect of over-eating and over-drinking than of any other cause."

One is much impressed, too, in going over the experiments, to note with what modesty Beaumont refers to his own work. He speaks of himself as a humble "enquirer after truth and a simple experimenter." "Honest objection, no doubt, are entertained against the doctrine of digestion by the gastric juice. That they are so entertained by these gentlemen I have no doubt. And I cheerfully concede to them the merit of great ingenuity, talents and learning, in raising objections to the commonly received hypothesis, as well as ability in maintaining their peculiar opinions. But we ought not to allow ourselves to be seduced by the ingenuity of argument or the blandishments of style. Truth, like beauty, when 'unadorned is adorned the most'; and in prosecuting

these experiments and inquiries, I believe I have been guided by its light. Facts are more persuasive than arguments, however ingeniously made, and by their eloquence I hope I have been able to plead for the support and maintenance of those doctrines which have had for their advocates such men as Sydenham, Hunter, Spallanzani, Richerand, Abernethy, Broussais, Philip, Paris, Bostock, the Heidelberg and Paris professors, Dunglison, and a host of other luminaries in the science of physiology."

In reality Beaumont anticipated some of the most recent studies in the physiology of digestion. Doubtless many of you have heard of Professor Pawlow's, of St. Petersburg, new work on the subject. It has been translated into German, and I see that an English edition is advertised. He has studied the gastric juice in an isolated pouch, ingeniously made at the fundus of the stomach of the dog, from which the juice could be obtained in a pure state. One of his results is the very first announced by Beaumont and confirmed by scores of observations on St. Martin, viz., that, as he says, "the gastric juice never appears to be accumulated in the cavity of the stomach while fasting." Pawlow has shown very clearly that there is a relation between the amount of food taken and the amount of gastric juice secreted. Beaumont came to the same conclusion: "when aliment is received the juice is given in exact proportion to its requirements for solution." A third point on which Pawlow lays stress is the curve of secretion of the gastric juice, the manner in which it is poured out during digestion. The greatest secretion, he has shown, takes place in the earlier hours. On this point hear Beaumont: "It (the gastric juice) then begins to exude from the proper vessels and increases in proportion to the quantity of aliment naturally required and received." And again: "When a due and moderate supply of food has been received it is probable that the whole quantity of gastric juice for its complete solution is secreted and mixed with it in a short time." A fourth point, worked out beautifully by Pawlow, is the adaptation of the juice to the nature of the food, on which I do not see any reference by Beaumont, but there are no experiments more full than those in which he deals with the influence of exercise, weather and the emotions on the quantity of the juice secreted."



## SURGICAL TREATMENT OF GALLSTONES.\*

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**T**HE treatment of gallstones can be divided into medical and surgical. For many years the medical treatment prevailed and the greater benefits to be obtained by surgical treatment were not duly appreciated. Owing to the great advances made in surgery the tables have been turned and the sufferers from gallstones obtain a much greater measure of relief. I know but little of the so-called medical treatment of gallstones, and I am very skeptical as to its practical value.

### DANGERS INCURRED BY PATIENTS SUFFERING FROM GALLSTONES.

Not only is there a danger of sudden death from the passage of a gallstone, but there are many other dangers to be encountered. There is the great danger of gangrene of the gall bladder (closely resembling gangrene of the vermiform appendix), with rupture and death or with the formation of a secondary abscess; there is the danger of inflammation with empyema of the gall bladder, accompanied by chills, high fever and the occurrence of a suppurative pyelophlebitis followed by death. There is the danger that septic infection may travel from some ulcer, produced by gallstone irritation of the mucous membrane of the gall bladder or ducts, to the vessels of the liver. Even when no pus is to be found, either in the gall bladder or gall ducts, these septic conditions may spread beyond the confines of the gall bladder and produce inflammation of the peritoneum and surrounding structures. Abscesses may form external to the gall bladder and may perforate in various directions, upwards to the right pleural cavity, forwards through the skin, or backwards into the posterior hepatic pouch. These are grave conditions, and, if they do not terminate fatally, the patient is liable to be ill for many weeks.

I have seen one patient die from shock, produced by the passage of a gallstone through the common bile duct, and, a few years ago, I saw a gallstone that was presented to one of our medical societies after it had been removed postmortem from the common bile duct of a patient who died suddenly from shock during its attempted passage. Many other cases of death from this cause have been reported. Obstruction of the common bile duct by stone frequently occurs in patients advanced in years, so that this serious complication must be considered as a constant menace to those who are suffering from cholelithiasis.

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\*Read before the Canadian Medical Association, 17th September, 1902.

A few weeks ago I removed a gallstone from the common bile duct of a woman, aged 65, who was suffering for the first time from continued jaundice and who did not know that she was troubled with gallstones, though 147 were removed from the gall bladder. A more frequent resort to surgical treatment would prevent the occurrence of this serious condition in elderly people, and would also prevent that slow and living death that is to be looked forward to by many of these sufferers. They begin to have fever and chills and intermittent attacks of jaundice with impairment of the appetite and a loss of strength. The excessive use of opiates and alcoholic stimulants makes them still more miserable until death finally ends the scene.

A patient suffering from gallstones may, at any moment, become seriously ill and the surgeon will find himself face to face with as great a responsibility as if he was dealing with a case of acute appendicitis. At any time these patients may have a violent outbreak of a rapidly fatal cholecystitis with cholangitis. Repeated inflammations may produce such a condition of chronic inflammatory exudate as to prevent the surgeon from carrying out surgical measures for their relief. When brought face to face with these serious complications our responsibilities are increased.

#### GENERAL CONSIDERATIONS.

In discussing the surgery of the region occupied by gallstones we must consider the organs with which we have to deal. Stones may find a lodgment in the ducts throughout any part of their course, or in the gall bladder, or in both. When removing these stones we are called on to open hollow organs that are liable to leak, to peel away tissues from a solid organ that is liable to bleed, and to readily absorb septic material, and we are called on to open ducts that are lying in close proximity to blood vessels that may be injured. The leakage of bile from open ducts and from an open gall bladder was to be feared before attention was drawn by Morison to the post-hepatic pouch and to the safety of gauze drainage by my friend, Dr. W. E. B. Davis, Birmingham, Ala., after he had demonstrated its usefulness in many experiments on dogs.

Morison's pouch should be used for drainage in all cases in which post-operative leakage is liable to occur. The method I have adopted is to institute through-and-through drainage by means of a piece of rubber tubing entering through the wound in front and emerging through a counter opening at the deepest part of this pouch. Not only should a rubber drainage tube be used, but iodoform gauze packing should be placed over the leaking point or points to still further assist the tube. With a due attention to this matter many of the operations for the

removal of gallstones are robbed of their terrors and patients who formerly would have died can now be carried safely through.

Owing to the introduction of this method of drainage it is no longer necessary to break up calculi by the needling process, or to open the intestine for the purpose of removing a stone from the common duct, and why? Because we no longer are afraid to make a direct incision over the stone into even the most friable duct. Then if necessary, we can readily break up the stone by means of gallstone forceps passed through the opening.

#### CHOLECYSTOSTOMY.

Gallstones are found most frequently in the gall bladder. They are sometimes formed with great rapidity. Among my collection I have several thousand taken from the gall bladder of one patient.

CASE 1.—In February, 1897, he had his first attack. Cholecystostomy was performed, a fistulous opening remained, and this was closed by two sutures. In November, 1897, he again had colic and jaundice; in March, 1898, Dr. Tiffany of Baltimore operated on him. He found no stones. In June, 1898, he was still in the hospital suffering from attacks of colic and transient jaundice. The gall bladder was again opened, but no stones were found. July 3, he suffered from a blow on the head for which a portion of the skull was elevated. In August, 1899, his colicky pains returned. October 1, he had colic for four days and was then jaundiced for two months. In November, he was operated on again, for the fourth time, a black tarry fluid and one gallstone, soft and black and of the size of a cherry pit, were found in the gall bladder. A cholecystenterostomy was then performed and anastomosis with the colon completed. At last reports the button had not passed. The subsequent progress of the case is unknown to me. The gallstones in this case were like grains of gunpowder, and it was not to be expected that operative procedures would give much relief.

But this is an exceptional case, and it is a well-known fact that a simple cholecystostomy in a large majority of cases gives complete relief, the larger the stone, or stones, the greater the freedom from recurrences; the smaller the stones, the greater the liability for recurrences.

#### GANGRENE OF THE GALL BLADDER.

While it is a well-known fact that gallstones may lie in the gall bladder for years without giving rise to trouble, it is also well known that they will frequently produce a condition of inflammation of the gall bladder that may even suddenly eventuate in gangrene. I have met two cases of gangrene of the gall bladder.

CASE 2.—Dr. R. aged 62, was taken suddenly ill with severe pain in the abdomen. The bowels moved after the administration of a purgative. Temperature and pulse were elevated. Nausea. Some few years before he had had a severe attack of what was supposed to be typhoid fever, after which he suffered from terrible pains that were supposed to be due to indigestion. On examination of the abdomen fulness was felt below the edge of the liver. There was no rigidity of the right rectus muscle. Notwithstanding this fact the case was diagnosed as one of appendicitis. On opening the abdomen the appendix was found to be healthy. On looking further up a gangrenous gall bladder was seen snugly placed among inflamed intestines and omentum. The incision was enlarged, these adhesions were broken down readily, the gall bladder was opened and drained. The fluid evacuated was muco-purulent. Five gallstones were removed, one of them obstructing the cystic duct. A long glass drainage tube was placed to the bottom of Morison's pouch. Patient made an uninterrupted recovery.

CASE 3.—Mrs. W., who had a baby a month old, was taken suddenly ill early in the morning with severe pain in the abdomen. Her physician, Dr. T. B. Richardson, was sent for and he found her in great agony, and immediately administered a large dose of morphia. He was afraid that she would scarcely survive. Pulse was rapid and thready and the patient looked very ill. Improvement took place, but, later in the day, the pulse began to fail and he was again alarmed at her condition. I was sent for, but as I was out of town he decided to wait until the next day. In the morning the patient had somewhat improved. The temperature still remained high, having risen to 104 at the onset of the illness. She complained of one tender spot beneath the edge of the liver over the region of the gall bladder. There was slight puffing of the abdomen and vomiting. When I saw the patient the pulse was rapid and she was profoundly septic. A hard, tender, resistant spot could be made out over the region of the gall bladder, and I concluded that this must be another case of gangrene of the gall bladder. In order to share the responsibility I asked for another consultant before proceeding to operate. Very little hope was held out of the patient's recovery even with operation, owing to the septic condition. The abdomen was opened, and on the tense gall bladder was found, a large, green, gangrenous patch involving at least one-third of its entire surface. The gall bladder contents were evacuated. The parts were too friable, swollen, and thickened to permit of removal and on this account through-and-through drainage was established and the gall bladder area was packed off from the rest of the abdominal cavity by means of a large packing of iodoform gauze. During

the convalescence it was necessary to again administer chloroform to remove the gauze, but the patient made an uninterrupted recovery. During the hurried manipulations, hurried owing to the patient's collapsed condition, no gallstone could be found.

It should be remembered that as the tender spot, an inch and one-half from the anterior superior spine of the ilium towards the umbilicus, points to appendicitis, so the tender spot an inch and one-half to the right and one inch and one-half above the umbilicus points to cholecystitis. Cholecystostomy was performed for the relief of this condition and was accompanied in the one case by gauze drainage and in the other by tube drainage with recovery in each. Gallstones do not necessarily produce such severe inflammation as to lead to gangrene.

#### EMPHYEMA OF THE GALL BLADDER WITH GALLSTONES.

The next condition of which I wish to speak is that of empyema of the gall bladder. Inflammation has taken place and pus has been formed. The patient may be very ill in the acute septic condition, or may be in fair health while the gall bladder may be filled with pus that is almost sterile, as it is found to be in other situations in which it has been retained for a considerable time.

It has been stated that it is necessary and wise in this condition, as well as in that of gangrene of the bladder, to remove the entire organ. I consider that this is too sweeping an assertion. It is not necessary to remove the gall bladder in cases in which it is inflamed and septic and thickened from chronic inflammation and filled with pus. After it has been drained for a time and the offending calculi have been removed, the organ soon resumes its normal condition. I have considered it advisable, under such circumstances, to carry out intermittent irrigation of the organ by means of a small catheter placed in the gall bladder and attached to a douche tin. It is, as a rule, easy to fasten such a gall bladder to the abdominal wall owing to the fact that it has been considerably distended. Suppuration may be found in a gall bladder containing a few or many stones and with or without complete obstruction of the cystic duct.

#### CHRONIC INFLAMMATION OF THE GALL BLADDER CONTAINING CALCULI BUT NOT PUS.

In these cases it is usual to find the gall bladder thickened, adherent, contracted, and sometimes sacculated. There is evidence that the patient has suffered from many attacks of inflammation. The operation of cholecystostomy may be a very difficult one to perform, under the circumstances. If such a gall bladder is put on the stretch and fastened to the

edges of the parietal incision it is liable to tear away. If stitched up and dropped back after the stones have been removed, the stitches are liable to tear out and permit of leakage, as it frequently happens that there is a partial obstruction to the flow of bile through the common duct. The operation of cholecystectomy, under the circumstances, would be a very difficult procedure. If saccules are present it may be necessary to incise them individually and remove their contents and then to close the opening in a "sort of a way." Such closures can not be depended on to be water tight. I have treated such cases by passing a drainage tube into the gall bladder and stitching the opening in the gall bladder firmly around the outer wall of the tube. None of the stitches go through the tube. Gauze packing is then placed around the tube and another drain is either put into the bottom of Morison's pouch or carried through a counter opening at its lowest point. The gauze is removed about the fifth day and the tube in the gall bladder is removed about the same time. If a counter opening has been made in the flank this is not allowed to close for a couple of weeks. These cases may be very successfully dealt with in this manner.

#### CHOLECYSTECTOMY.

When a stone becomes blocked in the cystic duct, the bile remaining in the gall bladder is decolorized after a time, and nothing will then be left but a clear mucoid fluid. The gall bladder may become thinner and may remain freely movable below the costal margin on the right side. While in this condition it may be so over-distended at any time as to become gangrenous, the gangrene usually beginning at its tip.

I operated on one such case where a sudden onset of pain and a tenderness on pressure over the gall bladder drew attention to the urgency of the condition. At the operation a very small gangrenous area could be made out at the end of the over-distended gall bladder. It is therefore advisable that all such cases should be operated on and the patient relieved from this source of danger.

The operation that should be performed, under the circumstances, is cholecystectomy; the entire gall bladder should be removed. This procedure can be carried out without difficulty. The tissues attached to the liver may be raised up with forceps and the finger can then be thrust into the layers of cellular tissue. Scissors will be required to cut through the peritoneum where it is dense. There is no hemorrhage to alarm the operator. The gall bladder is peeled off from the liver until the stone is reached; the duct is then further isolated beyond the stone and tied off with a fine silk ligature. Supporting sutures are placed

over the end of the duct to bring peritoneum to peritoneum and act as an additional safeguard against a leak. It is wise to place a small strip of iodoform gauze down from the abdominal wound to the end of the cystic duct. Unless the operation of cholecystectomy is performed for this condition a mucous fistula may persist, and this may require a second operation for its relief. This secondary operation is a difficult one to perform owing to the fact that strong adhesions are now present. I met with these difficulties in one case, and for a few days after the operation despaired of the patient's life.

All operators seem to be agreed that it is wise to perform the operation of cholecystectomy in all cases in which we have a much distended and atrophied gall bladder with an occluded cystic duct. On one occasion I left three stones lying side by side in the cystic duct after having removed a large number from the gall bladder by cholecystostomy. The stones passed on without difficulty and the patient made an uninterrupted recovery. At the present time I would not allow the patient to run any such risk, but would remove the gall bladder and the cystic duct with the stones *in situ*. It was interesting to note in this case that when one stone had entered the duct other smaller stones followed.

I removed a gall bladder two weeks ago with the stone in the cystic duct. The undilated duct could be seen beyond the stone. After looking at the enormous distension it was easy to understand how stricture of the duct may be produced after the removal of the foreign body. The patient from whom this was removed made an easy recovery and the operation only consumed a few minutes.

The other indications for cholecystectomy are at present being discussed by the surgical world. Many surgeons consider that the gall bladder should always be removed for the conditions above mentioned, namely, gangrene of the gall bladder empyema of the gall bladder, chronic inflammation and thickening of the gall bladder with or without contraction, and for cystic enlargement of the gall bladder. Others consider that this is too radical a procedure, that it is not necessary nor advisable, and that it is undoubtedly accompanied by a greater mortality than the operation of cholecystostomy. I feel satisfied that there is a danger that the pendulum may again swing, as it ever swings in the surgical world, too far toward the radical side, but to come back again, no doubt in the course of time.

Let us for an instant consider the two analogous conditions, gangrene of the gall bladder with one or more stones in its interior, and gangrene of the vermiform appendix with one or more coproliths in its interior. Do

we consider that it is always wise to remove a gangrenous appendix? Certainly not. There are times when we consider it wiser and safer to make our incision, to institute drainage and endeavor to isolate, with protecting gauze, the infected area. To dig down into and stir about these septic, infiltrated structures, under certain circumstances is not good surgery. This same applies to the treatment of gangrenous conditions of the gall bladder. If, however, the organ can be readily removed and the tissues are not too friable to hold ligatures, it may be advisable to remove the offending organ, but, in my experience with two cases, the patient has not been in any condition to undergo such a prolonged operation.

Cholecystectomy does not produce a more radical cure than cholecystostomy. Even after cholecystectomy has been performed gallstones may form in the ducts in the liver itself and may be passed onward through them into the intestines. Owing to the fact that there is no cholecystitis to be encountered they are not large. I have seen, on one occasion, gallstones of medium size lying in a row in the hepatic duct above the junction of the hepatic and cystic ducts.

Langenbeck has denied that obstruction can result from stones forming in the biliary ducts outside of the gall bladder, but, as I have just said, I have seen such obstruction. The smallest stone in the row was nearest the liver. I was able to milk the stones down the hepatic duct and up from the common duct through the cystic duct into the gall bladder. The gall bladder had been opened and the gallstones were all removed in this manner.

The gall bladder is not known to be of any particular value and many animals are able to get along without it. It is occasionally found wanting in the human species. It has been said that the hemorrhagic conditions of the mucous membrane of the gall bladder that is likely to occur as a post-operative complication after removal of gallstones, may be done away with by removal of the organ at the time of operation. Such hemorrhagic conditions are, however, rare. I have met with but one case, and at the postmortem examination it was found that the blood had come from a ruptured vessel in the liver, and, therefore, cholecystectomy would not have prevented death.

It has been stated as further argument in favor of cholecystectomy that by the removal of the gall bladder there is no danger of a recurrence of the cholecystitis, the disturbing element. I have not seen such disturbance occur after simple cholecystostomy and drainage if the stones have been thoroughly removed. It may always be desirable to remove the gall bladder for all the diseases to which it is liable, but the question to be answered is, is it always wise to do so?



In the presence of obstructive jaundice the operation of cholecystectomy is not advisable. The common duct being already obstructed it is desirable either to remove the stone and rely on the future patency of the duct for the relief of the patient, or to remove the stone and anastomose the gall bladder to the intestine, or to leave the stone in situ and perform cholecystenterostomy. It must be more difficult to anastomose the common duct itself than to anastomose the gall bladder to the intestine.

It has been stated that cholecystectomy should be considered as a curative operation, as it removes the cause of the disease. From what I have already stated I am satisfied that this is not so. Having seen large stones in the hepatic duct and in abscesses of the liver I am convinced that quite large stones may form outside of the gall bladder. There must, therefore, still be a danger of obstruction of the ducts even after the gall bladder has been removed. It would be interesting to ascertain whether the animals possessing no gall bladder suffer from gallstones.

A great deal has been said regarding the fistulae that are left after cholecystostomy. They are not comfortable, but are undoubtedly curative, and, in the large majority of cases, they close without trouble. The only fistula that is troublesome is mucous fistula, and, as we have already decided that the gall bladder should be removed in the cases in which the mucous fistula is liable to form, this difficulty is done away with. The fistula that forms owing to the fact that the common duct is still obstructed is a useful one, for without it the patient must undoubtedly continue to suffer from jaundice, and if it persists after having fulfilled its offices it may be done away with by making an anastomosis when the patient is in a greatly improved condition. So that we see the discomfiture to the surgeon and the discomfort of the patient have been blessings in disguise.

The formation of the fistulae teaches us that we should not use a large drainage tube for the purpose of draining the gall bladder. In this way the gall bladder opening can be reduced in size and the opening will close more quickly. Any suture used to fasten the gall bladder to the skin or the abdominal wound should be a continuous one, if non-absorbable, and it should be removed in a few days after operation. The drainage tube should be removed early except in cases of empyema of the gall bladder.

The argument that is used for the removal of the gall bladder in all cases owing to the fact that cancer is liable to supervene on gallstone irritation, is not based on a sure foundation. The surgeon does not propose to leave gallstones in the gall bladder to give rise to the irritation

that is to lead up to the cancer, so that with or without a gall bladder this danger will be done away with.

The flow of bile into the gall bladder is greatest at night. It has never been demonstrated that patients from whom the gall bladder has been removed suffer in the slightest degree as a consequence of this fact.

#### CHOLECYSTENTEROSTOMY.

The operation of cholecystenterostomy can be performed by means of the elastic ligature or the Murphy button. I have used both and prefer the button. When the button is used care must be taken to allow long threads to float from the portion of the button placed in the intestine into the lumen of the gut. These silk threads become entangled in the fecal matter and the slight extra traction that is exerted has a tendency to draw the button toward the intestine and away from the gall bladder. I used the smallest sized Murphy button that I could buy and then had some very small ones, that I show here, made to order by Truax, Greene & Co. These have been used with perfect satisfaction to myself and to the patients.

After the bile has been diverted through the new channel the concretion impacted in the common duct grows smaller and disintegrates. I believe that it is quite possible that it may entirely disappear and that the bile may again proceed to the normal channel. The reverse of this is the case so long as the bile is passing by the impacted calculus, owing to the fact that more bilirubin calcium is being precipitated on its surface until it may increase to a very great extent.

#### CHOLEDOCHOLITHECTOMY.

We have considered the treatment of stones in the gall bladder and in the cystic duct. We have now to turn our attention to the treatment of gallstones in the common or hepatic ducts. It is seldom that stones are met with in the hepatic duct. When they are met with they must be removed by pressing them down into the common duct, from which they may be removed by forcing them back through the cystic duct into the gall bladder, or they must be removed by direct incision. When a stone is lodged in the common duct it will be accompanied by an intermittent jaundice or a jaundice of varying intensity. The patient may be very deeply jaundiced for a great length of time.

The operation for the removal of the stone is in some cases fraught with such risk to the life and difficulty to the surgeon that it may be advisable to adopt another measure for the relief of the patient. An anastomosis between the gall bladder and intestine may be established. The colon is the portion of the bowel that can be most readily approxi-

mated to the gall bladder. Before this operation was carried out it was supposed that it was not advisable or, in other words, that the small intestine should be used instead. I have found that the patients do not have diarrhoea as a consequence of the pouring of the bile into the large intestine or any digestive disturbances. When the small intestine is used it must be either drawn up over the colon or taken through the folds of its mesentery. I have anastomosed the gall bladder to the large intestine on several occasions with the most perfect results.

Owing to the advances that have been made in gall bladder surgery cholecystenterostomy stands to-day in a different position. We can now incise ducts with impunity that can not, owing to their friability, be stitched, owing to the fact that we understand the safety given by careful and thorough drainage. The operation of cholecystenterostomy must now be regarded as rather a makeshift, only to be used when a patient is in a very bad condition.

On one occasion, when operating on a young woman, I found that she already had an anastomotic opening between the gall bladder and intestine that had been produced by the bursting of an inflamed gall bladder into the bowel.

It has been stated that the relations of the hepatic artery, the portal vein and the common duct may be changed and one of the vessels may run across the duct. If the positions of these important structures are altered the removal of a stone from the common bile duct is surrounded by a new and terrible danger. The condition might be detected during operation by a careful preliminary examination of the parts. Even when the structures are normally placed the operation is a difficult one. Much assistance can be attained by a forceps that I have had made by Stevens & Sons of Toronto. It is intended to replace the fingers of the left hand, to grasp the duct containing the stone and to draw it forwards to be within easier reach and away from the important structures beneath it.

The difficulty of the operation varies with the construction of the patient. It is more difficult to perform the operation on a patient with deep ribs than on one with short ribs. In all cases a large sandbag placed under the back and the transverse oblique incision should be employed, taking care to keep the incision well down below the hepatic margin. The liver can then be pulled upwards and the stomach inwards and downwards and the colon downwards so that the field of operation may be brought well into view. It is always advisable to pack in sponges to drag down the stomach and intestines and to protect the general peritoneal cavity from infection. I find that this dragging down of the stomach is of great assistance.

If the forceps I have mentioned are not used the duct must be held forwards with the thumb and index finger or the first two fingers of the left hand. With the duct held down either by the fingers or the rollers of the forceps the operator must decide on the length of the incision into the duct that will be necessary for the removal of a stone. A large stone may be crushed and the debris can be removed with a small scoop. When the length of the incision into the duct has been decided on a purse-string suture should be placed beyond its limits, the incision must then be made in the centre of the oval formed by the running suture. The stone having been removed and a probe having been passed through the common duct into the intestine the purse-string suture is drawn and tied and any further escape of bile over the field of operation is prevented. A supporting row of mattress sutures should now be placed to more securely close the opening into the duct. Before closing the abdomen it will be wise to place a small gauze drain down to the duct and to drain Morison's pouch by a single drainage tube from the front or by through-and-through drainage.

As I have said before, the intestine should not be opened for the purpose of removing a stone from the common bile duct. Such a procedure is not necessary according to the light of our more recent experience. It may happen that a malignant growth, a so-called cylindroma, obstructing the common bile duct is mistaken for an impacted gallstone. I have met with such a case in my own practice and have seen two similar cases in the practice of others. Under such circumstances the jaundice usually comes on suddenly without pain; it may be intermittent. A rounded mass will be felt after the abdomen has been opened that can only be differentiated from stone by means of a needle passed through the wall of the duct into the mass, or by means of the passage of a probe or a pair of forceps through an incision into the duct. Owing to its gritty nature a gallstone can be easily distinguished from a neoplasm. These growths are always rounded and not faceted and frequently move back and forth in the duct through a small space.

It is scarcely necessary for me to enter into a description of more than general details of these operations to such an audience. We all know that these operations can not be carried out successfully unless proper precautions are taken to prevent contamination of the peritoneal cavity. Sponges, absolutely sterile and plenty of them, must be made use of so that during the performance of the work all the intestines, except a portion of the colon and the stomach, are kept out of view. Sponges soiled with bile or gall-bladder mucus must be discarded and not used again during the performance of the operation.

And now, in conclusion, let me say that there are two great surgical principles involved in this work: firstly, thorough asepsis and thorough protection against the infection of any of the surrounding tissues; and, secondly, thorough and efficient drainage. If these two principles are kept in mind the operator can sacrifice thoroughness in his work for the sake of the benefit of haste to his patient. Many of these patients do not withstand the shock of a prolonged operation and the length of time occupied is of great importance. In the pelvis we have been endeavoring to do away with drainage while in this region we provide the most thorough drainage. The conditions are different.

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**CASES EXHIBITED AT THE SURGICAL DEMONSTRATION  
IN THE ROYAL VICTORIA HOSPITAL ON THURSDAY,  
SEPT. 18th, 1902, BEFORE THE MEMBERS OF THE CAN-  
ADIAN MEDICAL ASSOCIATION.**

By JAMES BELL, M.D.

Professor of Clinical Surgery, McGill Medical Faculty

**P**ATIENT aet. 68 years, larynx had been removed on the 5th of March, 1900, and he is now in perfect health and showing no signs of recurrence, although at the time of the operation the pathological examination of the part removed seemed to show that a portion of the disease had been left behind in the tissues of the neck.

This patient had begun to suffer from hoarseness and difficulty in breathing in the autumn of 1899 and an emergency tracheotomy had been done on the 1st of January, 1900. He was admitted to the Hospital on the 25th day of February with threatened asphyxia from encroachment of the disease upon the tracheal opening and much infiltration of the tissues of the neck. The operation had been done at his urgent solicitation in order to avert asphyxia and with no hope that a permanent cure could be effected. He can now make himself understood fairly well by a form of speech although there is no communication between the air passages and the pharynx.

2. Patient, aet. 45, had been admitted to the Hospital on the 11th of September, 1901, with recurrent sarcoma which had originated in the spine of the right scapula. It had been twice removed before his coming to the Hospital.

On the 18th of November, 1901, the whole extremity was removed by an intra-scapulo-thoracic amputation. The patient made an excellent recovery and is still quite well.

3. A girl, aet. 18, had received a blow upon the right shoulder in August 1901, by a heavy swinging door. The shoulder was swollen and painful for a week. On the first of February 1902 she slipped on the ice and fell hurting her shoulder again; pain and swelling followed, the swelling subsided in ten days but the pain persisted. Enlargement of the shoulder was first noticed March 1st.

She was admitted on the 23rd of April and the extremity removed by an intra-scapulo-thoracic amputation on the 8th of May. On the 18th she contracted measles, and on the 10th of June was returned to the surgical ward and was discharged on the 14th with the wound quite healed and no evidence of recurrence of the disease. The day after her return home she began to suffer from pain in her side and on the 27th of June she died from sarcoma of the pleura.

4. A man, aet. 38, had had a mole on the top of the right shoulder over the spine of the scapula, from childhood. In February, 1902, it began to enlarge and in May it had reached the size of a walnut and was removed. About the first of July he noticed enlargement of the gland in the axilla and was admitted on the 28th of July when spots of melanotic epithelioma were found in the cicatrix and surrounding skin for a considerable area, with very great enlargement of the axillary glands and great swelling about the shoulder joint.

He suffered extremely and amputation was undertaken for the relief of pain rather than with any hope of affecting a cure. Intra-scapulo-thoracic amputation was done on the 18th of August a very large area of skin removed and the patient is now quite well with the exception of a granulating area which had been left uncovered by skin. He is now being treated by X-ray method as a prophylactic against recurrence.

The organs were shewn of,

1. A man aet. 55, who had died of chronic glanders. He was a farmer and had had glanders among his horses for three years and finally had them shot. The disease dated back to November, 1900, and he died on the 1st of September, 1902. The lesions had been intermittent and acute and generally in the lymphatic glands or subcutaneous with the exception of the lesion of the cranium in the occipital lesion and from each of the acute lesions the bacillus was easily found and inoculation of guinea pigs produced the usual results.

2. The kidneys of a man, aet. 65, in whom simultaneous obstruction of both ureters had occurred causing complete suppression of urine for nine days with a copious flow on the 10th day when patient was in articular mortis.

3. A series of kidney stones and gall stones was also shewn.

REMARKS ON THE SURGICAL DIAGNOSIS OF DISEASE OF THE GALL  
BLADDER AND BILE DUCTS.

The following remarks were part of the discussion on gall bladder disease.

If a distinction is to be drawn between the medical and the surgical diagnosis of diseases of the gall bladder and biliary passages, it would seem to be in the direction of later specialisation in those conditions which fall into the hands of the surgeon for operative treatment, for most of these cases are first treated by the physician and only a limited number of them are subsequently treated by the surgeon. The conditions which are generally referred to the surgeon are—1st., gall stones in the gall bladder or bile passages; 2nd., infective conditions leading to suppuration; and 3rd., malignant disease.

They should be enumerated in this order because both infective conditions and malignant diseases are usually sequels to an irritative lesion produced by the presence of gall stones. It must be remembered, however, that gall stones may remain for a very long time in the gall bladder without giving rise to symptoms, or perhaps it would be better to say, without having given rise to special diagnostic symptoms. Such I believe is the experience of surgeons so that in many of these cases submitted to operation, the patient, some 5 or 10 years after operation, will declare that he or she has never felt so well for a great many years, and that prior to operation, for a great many years he or she suffered from "dyspepsia," "indigestion," painful conditions about the lower part of the chest, etc., etc., general symptoms which could not be referred to any special lesion, and since operation all these have been entirely absent.

I believe that in many case such symptoms as those referred to are due to the presence of gall stones in the gall bladder, perhaps for a long time before characteristic symptoms appear. The first of the characteristic system of gall stones is usually the so-called biliary colic, which is due to an attempt on the part of the gall bladder to expel the stone or stones through the bile passages, and if this attempt is not successful recurrence of the symptoms from time to time is to be expected.

In this connection I may say that I have recently come to the conclusion that the bile passages are capable of a degree of dilatation and of allowing the passage of much larger stones than I had hitherto believed or than is generally taught. I have known of the passage of very large stones which must have found their way directly through the gall passages and not by any irregular route. I have known of the

passage of large and long pieces of gauze which had been left accidentally in the gall bladder after operation.

Cholecystitis occurs, sooner or later, as a rule, when gall stones are present in the gall bladder, and then special symptoms are produced. Locally, pain and tenderness, fever, with usually, at first, distension of the gall bladder and later contraction until it is not recognisable. In this condition infection is most likely to take place. Infection by the typhoid bacillus, the colon bacillus, etc., being quite common and leading to suppurative or gangrenous conditions. Toxic symptoms, which are expressed by chills, fevers, etc., frequently occur in such cases, but it is a remarkable fact that the severity and frequency of the chills and the height of the fever do not give any actual indication of the seriousness of the lesion, for instance, very severe and frequently repeated chills with very high temperature, may occur in cases in which at operation no evidence of pus or of any suppurative process can be found and the gall bladder, in addition to containing stones, contains what is to the naked eye appearances at least normal bile. In other cases in which the symptoms are no more severe, multiple liver abscesses or a suppurative cholangitis is discovered at the time of operation.

Jaundice is not such a frequent symptom as is generally supposed, and in fact is only due to obstruction of the common duct, either by the lodgment of stones within it, or swelling of its mucous membrane and extension of a cholecystitis. The differential diagnosis between gall stones and malignant diseases of the biliary passages, especially in the early stages of the latter, is very difficult indeed, and in fact in most cases impossible.

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### A CURE FOR RED NOSES.

**S**OME unfortunate persons suffer from a tendency to redness of the nose, due to fugitive erythema which supervenes under slight causes, either internal or external. A Berlin physician, not improbably a sufferer himself, announces that this ephemeral but distressing condition may be cured by the application of benzine. He applies it on a folded piece of lint, which is kept in contact with the erythematous area for a few seconds, carefully avoiding any friction of the skin. If the application be repeated a few times the skin covering the nose becomes paler and less shiny. The benzine application may even be used as a prophylactic, so that persons whose noses are liable to vie in hue after dinner with the red, red rose can avert the calamity by including benzine among their cosmetic appliances.—*Medical press and Circular.*



## INSOMNIA.\*

By H. H. MCKAY, M. D., New Glasgow, N. S.

**P**ROBABLY the best way to define insomnia would be to define what sleep is, and as there are different degrees of sleep, there would have to be the corresponding degrees of inability to sleep, or 'insomnia.'

Sleep might be described as that condition of physiological repose in which the functioning of the brain and nervous system is no longer projected on the field of consciousness. Sleep does not usually fall with equal force upon all the organs at once. Its invasion is progressive—some parts of the body may be fast asleep, while others are partly awake, and while still other portions may be more active than when ordinarily awake. Upon this fact depend the phenomena of dreams and various forms of somnambulism.

General sleep of the whole body is made up of the particular sleeps of its various parts, the cerebrum, sensorium, spinal cord, and the various muscles and organs must jointly and severally repose, for sleep to be sound and complete.

Excitability of one or more of these systems disturbs the repose of the whole body, and insomnia results. In this way we can readily see the necessity of using all of the parts of the body nearly equally if we are to have sound and complete sleep. Sleep is preceded by a feeling best described as sleepiness, and usually comes on gradually, one set of centres in the brain being obscured after another, generally in definite order, until all are involved.

The centres in the motor areas are the first involved, one group of muscles after another becoming relaxed, until the whole body resumes the horizontal position. Even the tension of the firmly contracted muscles of a hemiplegic limb is lessened during sleep. The only exception to this rule is where the sphincters remain contracted, but these in children sometimes relax during profound sleep, giving rise to enuresis. The motor centres in the brain fall asleep before those in the spinal cord, so that the normal inhibitory influence of the former is, for the time being, lost; and the activity of the centres in the cord is manifested often, by spasms and muscular contractions, when persons are falling asleep, more especially if tired by muscular exertions. The action of the freed spinal centre is so strong at times that the spasm awakens the sleeper.

Sleep next extends to the psychical centres in the hemispheres of the brain. The will ceases to control the working of the intellectual

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\* Read before the Medical Society of Nova Scotia, New Glasgow, July, 1902.

faculties and the power of perception grows less. The mind, no longer inhibited from within, nor corrected from without, revels in absurdities, fantasies, and dreams until, at length, all intellection terminates, or, at least, no knowledge of it is retained.

The special senses are next invaded. The eye ceases to see clearly, the eye lids drop, and the eye balls are rotated upwards, the pupils being contracted, as if to shut out the light, the extent of contraction of the pupil indicating the depth of sleep. Any external excitation through the skin, or other sensory organs, causes dilatation of the pupils, even if it does not awaken the sleeper. This feature can be studied easily during chloroform narcosis. The senses of touch and taste fail next, as illustrated by the infant going to sleep with its mouth full of food. The sense of smell is more persistent and often prevents sleep. This is often illustrated by certain plants in bed rooms preventing sleep, but if sleep is once produced the sense of smell is weakened because, for the keen perception of odours, it is necessary that the fragrant particles be dissolved in the mucus of the schneiderian membrane, and during sleep this mucus is very scantily secreted—hence odours that would prevent sleep will not awaken one. The sense of hearing (superior tempo-sphenoidal convolution), seems to be the most persistent of all the special senses. This sense has been used to estimate the depth of sleep by comparing the loudness of noise necessary to awaken the sleeper. Noises frequently, though not necessarily, prevent sleep, and loud noises often fail to awaken the sleeper, such as thunder, while an accustomed, or expected, noise readily arouses.

Lastly, the centres in the medulla are affected to a certain degree, the respiration is slowed, and the heart beats are reduced correspondingly. Sleep, having progressively invaded these parts of the nervous system, is said to be profound, and no act of volition can modify or terminate it.

If the inception of sleep be considered, it will be apparent that the centres situated highest in the cerebrum are the first invaded, while those at a lower level are successively included. This may depend upon the centres growing inactive consecutively, according to their position, and ceasing to attract a working supply of blood, or it may arise from the vascular supply of the centres becoming lessened relatively to their distance from the heart.

Probably the best way to study the cause of 'insomnia' would be to study the cause of sleep. Among the causes of natural healthy sleep we might mention the alternation of day and night. It would appear that sunlight is a stimulant to organic activity, more especially in its

higher forms and with its disappearance this activity is replaced by a period of repose.

The night brings sleep  
 To the green woods deep,  
     To the bird of the woods its nest ;  
 To care soft hours,  
 To life new powers,  
     To the sick and weary rest.

In this tendency to repose at night, man shares with all other living creatures. It would be very interesting in this connection, if we had the time, to look into the causes that have induced part of the animal kingdom to reverse this order of nightly repose and replace it by a period of activity. Prominent among the causes which predispose to sleep at night is the cessation of a majority of sensations which are constantly pouring in upon the brain during the period of daylight. Physiologists are now agreed that during normal sleep there is vascular dilatation of the skin, as a result of which there is a fall of blood pressure in the arteries at the base of the brain which lessens the blood supply to the cortex.

Professor Mosso, of Turin, conducted upon three persons, in each of whom a portion of the skull was wanting, permitting movements of the brain to be felt through the scalp, a series of experiments connected with the cerebral circulation, particularly during sleep. By means of special instruments, he took tracings of the movements of the brain and thoracic walls, and of the pulsations of the heart and of the radial artery at the wrist. He further devised the plethysmograph by means of which he estimated and registered the quantity of blood in the forearm. He showed :

(1) That in the act of going to sleep, a dilatation and relaxation of the vessels of the forearm occurred with a corresponding contraction in the vessels of the brain, this change becoming more pronounced during deep sleep.

(2) That all external stimulation, however slight, such as a ray of light falling upon the eye, a noise, etc., is attended by a contraction of the vessels of the forearm, a greater blood pressure, and an increased flow of blood to the brain.

(3) That these changes are accompanied by a modification of respiratory rhythm and an acceleration of the heart beats.

(4) And that during sleep the quantity of blood in the brain is subject to fluctuations without any apparent cause. These fluctuations may account for dreams and the different degrees of sleep.

Fatigue of any sort is one of the most energetic causes of sleep. Every muscle rests after contraction ; even the heart gives a momentary pause after contraction. We often see women going to sleep between

the pains of a severe labour. Based upon these experiences, physiologists have suggested that sleep was caused by a supposed loading of the cerebral tissues with the acid products of their own disassimilation during the period of wakeful activity. The acid reaction of the brain and nerves after exertion, corresponding to the acid reaction of muscle after contraction, suggested the probability that an excessive presence of lactic acid and its sodic compounds might be the real cause of cerebral torpor and sleep. If this were so, the lactate of sodium would be the best medicine for "insomnia" which it is not. This theory does not explain the great stupefaction produced by cold, nor the unbroken sleep of the unborn.

Pflüger advanced the hypothesis that the state of wakefulness is maintained by a certain degree of activity in the cortical substance of the brain. Like all other bodily organs, this substance is renovated by the assimilation of nutrient material derived from the blood. By this process, oxygen, is stored up in chemical combination, forming explosive compounds, of which the precise composition is not understood. When for any reason the supply of oxygen is insufficient, as in haemorrhage producing cerebral anaemia, or when the red blood cells are impregnated with CO., chloroform, or any substance, capable of excluding oxygen from the haemoglobin of the blood, the cerebral tissues are imperfectly renovated, the explosive constituents of the cortical substances are thus inadequately renovated after mental activity, and the sensitive portions of the brain are no longer fitted to manifest the higher forms of intelligent activity. But, when nothing interferes with healthy nutrition, the requisite degree of instability in the protoplasm of the brain, is effected by the taking up of oxygen. Under the influence of the various nervous impressions reaching the brain, the unstable protoplasmic compounds break up into simpler forms. The energy thus liberated, in some way we cannot understand at present, and projected upon the field of consciousness, bring us into conscious relation with the external world.

By the 'neuron theory' sleep is explained in a simple way. The cortical cells of the motor areas have processes, extending toward the surface, called dendrites, and a protoplasmic process, extending downwards through the white matter of the brain, the internal capsule, the crus, the pons, the medulla, and into the spinal cord, where it terminates in a brush like extremity, the end tuft. Here it has a certain relation with the motor cells in the anterior horn of the cord, probably one of contact, though this is not definitely known. If the nerve cells retract, this contact is broken: if the abnormal contraction of the nerve process is relieved, for the time being, the contact once more takes place. Evidently, if the neurons are functionally active their dendritic processes

must be in contact, without which consciousness is impossible. When the nerve cells are exhausted by fatigue, there is every reason to believe that their volume shrinks, and it is therefore more and more difficult for them to remain in contact. When relaxation comes, the processes retreat and unconsciousness, that is sleep, supervenes.

From this it would seem reasonable to suppose that unconsciousness, or sleep, is produced by something acting on the nerve cells in the brain which causes their dendrites, or processes, to retract so that the contact between each cell is broken. Whether this be due to something introduced into the blood by the metabolism of the tissues, or by chemical changes in the nerve cell itself, it is hard to say. Whatever the exact cause is, it seems to be proved beyond doubt that, during normal sleep, there is cerebral anaemia, with corresponding vascular dilatation of the skin. In the treatment of insomnia we should bear this in mind. The bulk of evidence goes to show that there are no vaso-motor nerves to the cerebral vessels, and that the volume of circulation through the brain is regulated by variations of arterial pressure in other parts of the body.

It is not my intention to go into the classification of insomnia, nor to diagnose its special causes. What we require more than anything else, in order to treat any abnormal condition, is to first understand the physiology of the normal condition, and thence to trace out the various causes which lead to the abnormal.

In persons of a sanguine temperament, the heart is, as a rule, large and powerful, and the bodily functions easily and quickly performed, so that, in health, such persons usually sleep well and soundly. In middle life, they frequently become subject to circulatory derangements which not infrequently leads to disturbed sleep. Many in this class are gouty, and, consequently, have a predisposition to insomnia, depending on an altered state of the blood from imperfect metabolism. Such persons bear loss of sleep badly. If the cause of insomnia is recognized, intelligent treatment can be given.

The neurotic temperament includes a class whose brain and nervous system dominate greatly over the other systems of the body. In health, sleep is of short duration, they are great workers, and apt to fatigue their nervous systems, which combined with a tendency to nervous disease, is apt to bring about insomnia. In middle age, when defective innervation brings about faulty digestion, resulting in impaired nutrition of the brain and nervous system, sleeplessness is seldom absent.

Persons of lymphatic temperament usually sleep well. Their functions, being languidly performed, have no tendency to circulatory or neurotic diseases which are great sources of insomnia.

It is well, therefore, to study the temperament of the individual, as it often gives a clue to the cause of the insomnia and the recognition of the cause is necessary for rational treatment.

## CIRRHOSIS OF THE LIVER IN THE YOUNG.\*

By J. T. FOTHERINGHAM, M.D., Toronto.

LAST November I was reminded of the saying that if an odd case of accident or disease happens in one's practice one will shortly see two more, by a series of three enlarged livers which came under my attention within about three weeks. Each patient was a female, and their ages were respectively, 29, 6 and 12 years. As in no case was *post mortem* examination available as a means of imparting exactitude to my research, I may state in advance that I do not pretend to any great scientific value for this paper, and do not even claim that each case mentioned is simply one of cirrhosis. The details of the cases in brief are as follows:

*Case 1.*—Mrs. A., aged 29, seen in consultation last November with Dr. J. C. Mitchell, of Enniskillen.

Family history.—Unimportant.

Personal history.—First pregnancy three years ago, with icterus and albuminuria at time of delivery, but good recovery and no serious illness before or since, till the present.

Present illness.—Delivered at full term six weeks ago. For some weeks before had jaundice, albuminuria, pallor, anemia, marked breathlessness, and much bronchitis, or at any rate over-secretion from the bronchi. By four weeks after labor, which seemed normal and had caused much temporary relief, she began to suffer again as before.

Present condition.—Temperature, 101-2F.; pulse, 100 to 120; respiration, 30 to 40, pale, breathless, orthopneic, syncopal, jaundiced, but not severely so.

Digestive system.—Tongue clean, blue and cyanotic, appetite poor. Diarrhea nearly constant of late. Spleen much enlarged; liver very large, down to level of navel, smooth, hard and painless. Some ascites, and a good deal of tympanites.

Genito-urinary system.—Urine contains albumin and is scanty and ill smelling (full examination not made).

Circulatory system.—Very anemic (blood examination not made). Heart very rapid, second sound relatively accentuated, some irregular complication at apex, great dilatation and diffusion of impact evidently myocardial change.

Respiratory system.—Fine râles here and there all over. Has been some consolidation of left base behind, now clearing up. A moderate effusion exists in left pleural cavity. Death occurred about five days after I saw her. The probable sequence of events here was, I think, as follows:

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\* Read before the Huron Medical Association at Stratford, July 10th, 1902.

(a) Toxemia during first pregnancy, shown in both albuminuria and icterus, at that time hemic, and reaching both the liver and kidneys in the blood.\*

(b) Cirrhosis of the liver, biliary in type, not portal, the organ being now both cirrhotic and "nutmegged" from state of circulation.

(c) Splenic enlargement, due probably both to chronic venous congestion and to "vital reaction" to toxins reaching it by the blood.

(d) Myocardiac degeneration, with dilatation, due to chronic toxemia.

(e) Low inflammation of bases of lungs, with edema, and later pleural effusion.

*Case 2.*—Mrs. G's girl, seen in consultation in March, 1900, and again in November, 1901. History of chronic intestinal dyspepsia, with tympanites, etc. Large, well grown, but flabby child, with mild, chronic icterus, for past three months little or no ascites, very protuberant abdomen, capricious appetite, foul, irregular stools, diarrhea and constipation alternating, and the usual train of symptoms seen in chronic intestinal indigestion. Examination showed very large, smooth, hard, painless liver, lower margin down almost to navel, and left to be almost, if not quite over to left side of body. No heart or other visceral complication. After spending the winter in Bermuda, she is now at home doing very well, playing about all the time, and with health apparently restored. Examination of the liver this week shows it to be much smaller, though still distinctly enlarged, but soft and natural to the touch, and free from tenderness.

*Case 3.*—H. H., brought to Children's Hospital from country last November, aged 12. A well-grown girl, well nourished, had been at school till three weeks before, when the parents began to notice swelling of abdomen. Father said he could feel hard lump in epigastrium a year before. Previous history very indefinite; nothing beyond the ordinary digestive disturbance of childhood—malaria, alcohol and syphilis all definitely excluded.

Present condition.—Abdomen enormously distended with fluid, very breathless, face edematous and typically suffused and congested by obstructed venous return; not able to walk 20 feet, nor to lie down, particularly on left side. Edema of face, chest and lower limbs, appearance typical of chronic and very advanced valvular disease. No kidney lesion, urine normal; no cardiac lesion, but sounds loud and ringing; no murmurs; pulse regular though small, heart displaced upwards very

\* This toxemia is familiar to us in the form of scarlatinal nephritis, and in those cases of hepatic cirrhosis which die from sudden so-called "uremic" poisoning instead of the gradual effects of circulatory embarrassment, though one must remember the important point that it is parenchymatous and not mainly interstitial in its effects, as seen in scarlatinal nephritis. I am not, of course, in a position to deny that the whole trouble arose from an undetected or unreported valvular lesion of the heart, perhaps of long standing, with compensation breaking down under pregnancy and parturition.

decidedly. Liver pushed up to nipple line on right side. Tapping of abdomen done November 9th, and 130 ounces fluid removed, clear, greenish-yellow, no fibrin or flakes in it, quite non-inflammatory in character. On the 13th a second tapping withdrew 96 ounces of a similar fluid. This child was taken from the Hospital for Sick Children, and on the advice of an outside man, who is reported to have said that it was peritoneal tuberculosis, was sent in to the General Hospital, where an exploratory incision was made, and the diagnosis of cirrhosis of the liver confirmed. The omentum was anastomosed; and though the fluid at first returned I was informed some weeks after from her home that she was then doing very well, and had very little ascites, having apparently largely recovered her circulatory balance, though no one would, of course, call this a complete cure, for the organic change in the liver has gone beyond full restoration. As some one has said, we might as well say that chronic valvular lesion is cured when ruptured compensation has been temporarily restored by rest and digitalis.

Points of similarity of all these cases are: 1. Age—childhood and early adult life. 2. Sex—all three female, contrary to usual experience, 22 of a series of 26 quoted by Osler from Schoehmann being males. 3. Etiology—extreme indefiniteness, also frequently seen in such cases. Alcoholism, syphilis, malaria and chronic lead or other similar intoxication can be reasonably excluded with certainty in each case, as well as valvular lesion, a very common cause of the hepatic enlargement known as mixed “nutmegging” and cirrhosis. I freely admit that in the absence of histological examination an element of uncertainty prevails, not as to the gross anatomy of the organ, but as to exact histological condition. One point in which Case 3 presents a striking difference from the other two, is in the presence of ascites and other evidence of extreme portal obstruction. Ascites is rare in such cases, but of course the rule in ordinary “portal” cirrhosis.

To turn aside for a few moments to an academical discussion of this disease, one need scarcely remind one's self of that most useful modern distinction of cirrhosis of the liver into (a) portal cirrhosis, (b) biliary cirrhosis, and (c) mixed cases. In portal cirrhosis the irritant, usually alcohol, reaches the organ by the vein and sets up the well known changes, development of scar tissue along the larger vessels so as to produce the multilobular or hobnailed type, or around the finer portal radicle to produce the unilobular type. One is struck by the unsettled state of pathological opinion on this disease. In Allbutt's system, Vol. IV., the article by H. P. Hawkins, of St. Thomas's Hospital, rejects the view that biliary cirrhosis, that is cirrhosis due to mischief *via* the common duct, exists as distinct from portal cirrhosis. It is spoken of as



“problematical,” and though the problem of biliary cirrhosis is discussed at great length, the writer declines to accept the views of Hanot, Charcot, Hayem, Cornil and others, and claims that though the clinical features are very different from those of multilobular cirrhosis, the “difference depends partly upon the anatomical arrangement of the new fibrous tissue.” The statement made in the same article can scarcely be accepted by any possibility, that it is “whether any cases of unilobular cirrhosis of the liver own any other cause than alcohol, and possibly malaria.” It seems to be the case that while most livers cirrhused by alcohol, and particularly by spirits, are very soon atrophic, some alcoholics particularly beer drinkers, show a combination of fatty parenchymatous change in the fine cirrhosis, the organ being enlarged, which justifies the view that some hypertrophic cirrhosis are alcoholic. Indeed the combination of cirrhosis with fatty degeneration usually results in enlargement. These views, however, do not at all justify a refusal to accept the possibility of the existence of a true biliary cirrhosis, overgrowth of bile canaliculi, particularly in the periphery of the lobule, with accompanying fibrosis and general increase of the organ in size, the irritant being either (a) a nonpyogenic ascending cholangitis from the common duct and intestine, or (b) a blood-borne one affecting the canaliculi from above and causing a descending cholangitis. One may easily in this connection establish a very suggestive analogy between the liver and the kidney. In the latter organ it has been long recognized that there may be (a) a parenchymatous inflammation (large white kidney) from blood-borne irritants, *e. g.*, scarlatinal toxins, to which the large “biliary” type of cirrhosis seems to correspond closely in some cases; (b) chronic contracting interstitial vascular change, due to alcohol in many cases, to gout, etc., the exact counterpart of the contracted liver in both etiology and disturbance of function, but differing in this very important point that epithelial degeneration is not so prominent a feature in the liver as in the kidney, and (c) mixed cases of parenchymatous and interstitial inflammation. It is about this latter group of cases in the liver that dispute seems mainly to have persisted.

In the *Encyclop. Med.*, Vol. VI. the article by H. D. Rolleston, of St. George's Hospital, supports in a very convincing manner the view that there are two distinct groups of cases, (a) portal cirrhosis, commonly multilobular, though sometimes unilobular and fatty, and those often hypertrophic. (b) Biliary, always hypertrophic, and due either to (i) ascending cholangitis, the secondary infection being an essential in the process as well as the obstruction to the free outflow of bile, due in many cases to primary simple gastroduodenitis or (ii) to descending cholangitis, the process being begun at the upper end of the biliary “tree” in the

periphery of the lobule, and consisting mainly in proliferation of the normal bile canaliculi under the influence of an irritant brought there by the blood. By this infection theory the liver condition is only a local manifestation of a general infection, and arguments in its favor are given by Rolleston *loc. cit.* as follows:

(a) Other irritants, *e.g.*, toluylene diosmin produce it experimentally. (b) The frequency of fever. Can this not be due in very many cases to the intestinal intoxication, by ptomains and leucomains? (c) The splenic enlargement, which sometimes precedes, and is often relatively greater than that of the liver. (d) The leucocytosis, which is not found in portal cirrhosis, as if the system were reacting as it does to other infections, *e.g.*, the pneumococcus, or in appendicitis. (e) Glandular enlargement, not only in the portal fissure but sometimes in more distant parts.

To these arguments one may add the most suggestive work of Adams, of McGill, three or four years ago, in which, while investigating the Picton cattle disease for the Dominion Government, he isolated and grew a distinct, and constantly occurring organism.

He is tempted to accept the opposite view of an ascending cholangitis, particularly in the case of children with their frequent gastroduodenitis and catarrhal jaundice. There is little doubt in my own mind that both the children I have spoken of began in this way. Gilbert and Fournier regard the process as due to the colon bacillus with an ascending infection. They have found the colon bacillus in blood withdrawn from the liver by puncture during life, and subsequently in the liver and spleen in the same case. Hayem also found the diplococcus pneumoniae in blood aspirated from the spleen during life in a group of cases closely associated, if not identical, with hypertrophic biliary cirrhosis, in which there were enlargement of spleen, with jaundice and recurring fever. He gave them the name "chronic infectious jaundice." And the analogy between this view and the well known origin of bronchopneumonia from an ascending bronchitis is a particularly tempting one. Of course the chronicity and the absence of suppuration make it necessary to assume that the organism cannot be a pyogenetic one.

I may conclude my very hurried and imperfect handling of a complicated and undecided subject by reminding ourselves that here, as so constantly elsewhere in medicine, one must be on his guard against attempting to generalize too widely, or to adopt too Procrustean a system of classification, and on the other hand against making too many pigeon-holes with their contained theories. The truth, probably here as on other occasions, lies in the midst, and the error of the opposing champion lies not so much in either theory as in their notion that their own theory is always right, and the other man's always wrong.

## PROLAPSED KIDNEY.\*

IN the *New York Medical Journal* of June 1st appears an original article on the subject of prolapsed kidney by Augustin H. Goelet, M.D., Professor of Gynæcology in the New York School of Clinical Medicine. A very distinct line is drawn by the author between floating kidney and movable or prolapsed kidney. The former is a congenital condition, where the viscus projects into the peritoneal cavity, is covered by peritoneum, as is also its pedicle. In the latter condition the kidney is dragged down out of its position, its fatty capsule becoming elongated to accommodate its movements. The organ is, however, still extra-peritoneal in position. The right kidney is found prolapsed more frequently than the left, its position under the right lobe of the liver with that weighty organ resting upon it, placing it at a disadvantage. Prolapsed kidney is much more frequent in women than in men. In an analysis of one hundred women taken at random at the author's clinic, twenty had prolapsed kidney.

*Causation of prolapsed kidney.*—This is largely a matter of conjecture. Rapid emaciation with accompanying absorption of the renal fat and associated with lax abdominal walls is regarded by many as conducing to the lesion. The wasting is more probably caused by the digestive and nervous disturbance provoked by the abnormality itself. In many cases the women discovered with prolapsed kidney give no history of emaciation and are well supplied with fat. On the other hand the author has noticed an absence of prolapse in many women who are extremely thin. Child-bearing and its consequent straining efforts during labour and the subsequent loss of flesh during lactation, may be regarded as prolific causes. Then again prolapse of the kidney is found in nulliparous women and in young unmarried girls. An instance is recalled of prolapse of the right kidney following upon prolonged sea-sickness in a newly-married woman of fifty-two years. Excessive vomiting and retching, straining and violent exertion, may be put down as definite causes of the displacement. Cases are recorded of the condition succeeding upon bad whooping cough.

*Symptoms.*—In the order of their frequency the author gives them as: Chronic indigestion accompanied by great and persistent bowel distension with gastric irritability; nervous restlessness with insomania; fatigue on exertion, particularly after standing or walking; palpitation and vertigo; epigastric pain to left of median line; dragging pain in the loin and down the thigh. To these may be added functional visceral derangements as, transient jaundice, irritable bladder, pseudo-ovarian

pain, and pain over the appendix. Disturbances produced by prolapsed kidney are generally in proportion to the degree of misplacement and the length of time it has existed. Pain referable to the kidney region is a most infrequent sign of kidney prolapse. Most of the symptoms may be termed "reflex" in their development, and acute pain is rare.

*Diagnosis.*—Before commencing what should be a very complete physical examination, purges and enemata should be given to thoroughly clear the bowels. The patient should be placed in the standing position against a table or wall. She should then be directed to incline her body forward from the pelvis to relax the abdominal muscles. The examiner sits in front of the patient, a little towards the side to be explored. He then grasps the loin with one hand the thumb in front and just below the border of the ribs. The patient now takes deep inspirations and expirations, while the examiner's other hand manipulates the front of the abdomen so as to get a displaced kidney, should there be one, between his fingers and the thumb above. Renal prolapse must be differentiated from distended gall-bladder, tumors of the pylorus, intestinal growths, and impacted feces in the colon.

*Treatment.*—Should the condition not give rise to troublesome symptoms no treatment need be suggested unless the patient be neurotic or liable to exaggerate her slight abnormality. She should be cautioned to avoid strains as tending to increase the displacement. A properly fitting corset would furnish all the support required. Where the prolapse produces recognisable but not severe symptoms, an abdominal bandage and pad might relieve but will never cure, as it does not hold the organ in position or replace it in any way; it simply affords sufficient support by pressure upon the intestines to prevent the kidney dragging to its fullest limit. The indication for operation is such an extent of prolapse as to cause symptoms prejudicial to health. Fixation with sutures is the only method of cure. The author's observations have led to the following conclusions:—

1. That prolapsed kidney is more frequent than generally supposed.
  2. That it is often not suspected, as the symptoms arising are not directly referable to the kidney.
  3. It is often missed through inexperienced examination.
  4. When the prolapse produces definite symptoms, no palliative measures are of avail.
  5. Lumbar fixation is the correct method of treatment.
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## CURRENT MEDICAL LITERATURE.

Conducted by A. J. MacKENZIE, B.A., M.B.

### PRIMARY SPASTIC PARAPLEGIA.

AN address by Erb delivered at the Post Graduate College, London, on this subject is reported by the *British Medical Journal*, Oct. 11th. He described the condition as early as 1875, but his views met with considerable opposition, and indeed do so at the present. The trend of symptoms, which, by their constant occurrence as a syndrome, led the author to claim for them recognition as a separate disease, are a certain amount of feebleness (paresis) of the lower extremities, more or less muscular rigidity in the same region, and a marked increase in tendon reflexes. A fourth symptom has lately been recognized, the so-called Babinski reflex of the sole of the foot, but is closely related to the exaggerated tendon reflexes. No other symptoms are present in the cases of this "pure spastic spinal paralysis," but there is a family form where it occurs in a number of cases in the same family—probably due to hereditary influence.

The post-mortem appearances are a pure lesion of the pyramidal tracts, and in addition slight lesion of the direct cerebellar tracts and trifling sclerosis of the column of gall—the latter are not of primary importance in Erb's opinion. Clinically, the feet and legs are first affected and the progress of the case is very slow—extending over years and decades—the arms, back, neck and head may become affected but the disease in itself rarely produces fatal results. Nothing certain is known of the etiology.

### POISONING FROM PENNYROYAL.

IN the *Virginium Medical Semi-Monthly* Holland reports a case of poisoning from this "popular" abortifacient as follows:—

Married woman; age, 24 years; had never borne children, and greatly abhorred the idea of becoming pregnant: strong and robust. She had gone over her menstrual period about one week. She applied to a fellow practitioner of mine for something "to bring on the flow." The remedy prescribed was oil of pennyroyal. About 3 o'clock P.M. she took seven drops of the drug, with no effect; at 6 o'clock she repeated the dose, and still no effect; at 9 o'clock, she informs me, she took about

half teaspoonful and immediately retired. She soon dropped to sleep, and in about an hour awoke and complained to her husband of great dizziness and nausea. In a few moments she vomited and began to complain of her extremities becoming stiff and cramped. By this time she had lost consciousness and was seized with a violent tonic contraction of all the muscles, opisthotonos being well marked. This spasm lasted only a few minutes and left the patient talking incoherently and tossing about the bed. The toxic symptoms now gradually began to subside and consciousness was regained in about half hour, but there was no recollection, on the part of the patient, of what had happened during the past hour. Upon my arrival she had regained consciousness, but complained of great weakness and cramps in the stomach, and slight desire to go to stool. The pulse was rapid—108—and feeble; respiration and pupils normal, and toxic symptoms seemed to be subsiding, so I gave nothing, and watched the course of the symptoms. There were no more spasms or untoward symptoms, and I found the patient, next morning, attending to her daily duties.

The toxic dose in this case was half drachm, and from the symptoms produced by this dose, it is evident that the drug should be administered with great caution.

I should have stated that the desired effect of "bringing on the flow" was not accomplished.

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#### THE USE OF POTASSIUM CHLORATE IN CASE OF HABITUAL DEATH OF THE FÆTUS IN THE LATER MONTHS OF PREGNANCY.

**I**N the section for obstetrics and gynaecology at the recent meeting of the British Medical Association, a paper was read by Jardine, of Glasgow, giving results of the use of potassium chlorate in cases where pregnancy was habitually terminated in the later months by death of the fœtus. The treatment was suggested by Sir James Simpson for non-syphilitic cases half a century ago but has fallen into disuse. Jardine describes five well marked cases in which it was successful. Of course the treatment is different where syphilis is suspected.

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#### RECENT STUDIES OF IMMUNITY.

**T**HE fourth Huxley lecture reported in the *British Medical Journal*, October 11th, was delivered at the opening of the winter session of Charing Cross Medical School by Welch of Johns' Hopkins on the subject of Immunity in its relation to Pathology. It is interesting to note

that Huxley delivered in 1876 the opening lecture at Johns' Hopkins University and as Welch says: "gave utterance to ideas concerning university, and especially, medical education which were at the time and have remained their inspiration and guide. After referring to the opposing theories of Metchnikoff and Nuttall, the writer refers to the discovery of that important physiological capacity of the healthy organism that enables it to produce substances specifically antagonistic to all sorts of foreign cell and cellular products and derivatives. The activities of these are manifested in various ways as the neutralization of poisons and of ferments, injury or destruction of cells, associated with characteristic morphological changes, cessation of motility of cells or their appendages, agglutination of cells, precipitation and coagulation, and from these activities they derive their titles as antitoxins, antienzymes, cytotoxins, agglutinins, precipitins and coagulins, or generically anti-bodies. Recently these anti-bodies have been differentiated into two groups. Antitoxins, which are single bodies; the others, cytolytins, consist of two bodies, one of which produces the specific effect only by the inter mediation of the second, which is ordinarily the product of immunization known as intermediary bodies or amboceptor, the first being known as complement or alexin and containing the toxophoric atomic group. Ehrlich's theory as to the action of these substances is the latest, representing the affinities of the cells, toxins, etc., as side chains or receptors called haptophore groups. The essence of the idea is tersely expressed by Behring: "The same substance which, when incorporated in the cells of the living body, is the prerequisite and condition for an intoxication, becomes the means of cure when it exists in the circulating blood."

The animal body is not endowed with properties designed to meet pathological emergencies, its weapons of defence being only those with physiological function, but Ehrlich believes that the physiological power of good assimilation is turned to account for purposes of protection.

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#### THYROID TREATMENT AND PUERPURAL ECLAMPSIA.

NICHOLSON, of Edinburgh, contributed a paper to the section of obstetrics and gynaecology of the British Medical Association on the relation of thyroid inadequacy to puerpural eclampsia, and the use of extract of the gland in its treatment. Threatened eclampsia is marked by (1) changes in the character of the pulse and blood pressure. (2) Marked diminution in the amount of urine secreted. (3) Diminished quantity of urea in the urine, suggesting some interference with nitrogenous metabolism. Similar conditions obtain in thyroid inadequacy.

The cause of puerperal eclampsia in a general way is as follows:— The supply of codo-thyrine in the tissues becomes insufficient for the needs of abnormal metabolism; hence certain toxic substances find their way into the circulation, which by their action on the blood vessels lead to the arrest of the renal secretion, and in this way prevent their own excretion. In support of this we note (1) During the course of normal pregnancy there is no marked alteration in the character of the pulse; the sphygnographic features are those of moderate pressure and remain so till labor has commenced. (2) In women who threaten to become eclamptic the characters of the pulse become strikingly altered; the sphygnographic appearances are those of vaso-constriction. (3) There is no great or lasting increase in the blood pressure in normal pregnancy except during labor. (4) With the appearance of the first pre-eclamptic symptoms there is a pronounced and permanent rise in blood pressure, which increases still more before the onset of convulsions. (5) When pre-eclamptic symptoms are fully developed the radial arteries are contracted and their calibre is diminished. (6) In this condition the secretion of urine is at its lowest.

So in this kind of suppression of urine the main object of treatment is to relax the spasm of the renal arteries, and thyroid extract possesses a specific action in enlarging the calibre of the vessels and hence the indication. Moreover it is probable that it possesses the power of correcting the errors in metabolism and thus increasing the secretion of urea, in itself a valuable agent in producing diuresis.

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#### TYPHOID BACILLUS A YEAR AFTER ATTACK.

**I**N *The Lancet* Oct. 4th, Jonas reports a case of typhoid abscesses which appeared about a year after the febrile attack, and which on opening yielded a pure culture of bacillus typhosus. Notwithstanding rigorous precautions this was replaced by staphylococcus aureus to the entire exclusion of the first mentioned bacillus. This case was complicated by a perforation of the profunda femoris artery, but made a good recovery.

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#### ANÆSTHESIA IN THE SOUTH AFRICAN CAMPAIGN.

**I**N the *Medical Times and Hospital Gazette* for October, R. W. Collum, who was attached as civilian medical officer to the South African field force writes on the use of anæsthetics during the war. Chloroform was used entirely, as the temperature forbade the use of ether, and in the field hospitals no conveniences for its administration were supplied. The most striking feature was the large amount of the drug required, in



individual cases averaging 4.85 oz. per hour; the average in England being about 1 oz. in 54.17 minutes. The average amount used for induction of anaesthesia was 6.20 drms. and the time 8.30 minutes—the excessive amount used is due, probably, to the exposure to sun and wind.

One case was anaesthetised eleven times in sixteen days, once while asleep, the time required for induction decreased with each repetition; the amount of chloroform required increased up to the fourth time but decreased finally to a half of the amount used at first.

#### POST-DIPHTHERITIC PARALYSIS.

**E.** E. LASETT, (Victoria University, M.D. Thesis) as a result of a careful study into the pathology of post-diphtheritic paralysis, concludes:—

(1) That, in the paralytic stage of diphtheria, the only important change discoverable is situated in the peripheral nerves.

(2) That, if there are any changes in the cells during the preparalytic stage, they do not stand in a causal relation to the parenchymatous degeneration in the nerves.

(3) That, therefore, the parenchymatous degeneration of the nerve fibres must be regarded as the primary lesion.

#### DIAGNOSIS IN RENAL CASES.

**I**N the October number of the *Cleveland Medical Journal* Lower concludes a discussion of this subject and suggests:—

1. Before doing a cutting operation upon the kidney—especially before doing a nephrectomy, the presence of a second functioning kidney should be established.

2. The best and safest method for ascertaining the presence of a kidney is by the aid of cryosecopy and ureteral catheterization.

3. The function of the kidney is best determined, in order of importance:

(a) By the freezing-point of the urine.

(b) By phloridzin glycosuria.

(c) By the quantity of urine excreted.

(d) By the freezing of the blood.

4. The most reliable method of obtaining the separate urines is by the ureteral catheter.

The determination of the freezing-point of the urine and of the blood is the latest devised method of determining the amount of products of the metabolic processes present in these fluids and is an indication of the condition of the kidney epithelium.

## DISEASES OF THE EYE, EAR, NOSE AND THROAT.

Conducted by PERRY G. GOLDSMITH, M.D., Belleville, Fellow of the British Laryngological, Rhinological and Otological Society.

### THE PRESENT STATE OF THE "OZÆNA" QUESTION.

THOSE who have to do with patients suffering from atrophic rhinitis, wherein the nasal passages are unduly wide and contain more or less foetid pus and crusts, will welcome any contribution, tending to throw light on the ætiology of the disease, or assisting in mitigating its disagreeableness.

L. Grünwald, of Munich, well known for his decided views on this question, read a paper at the recent meeting of the British Medical Association, giving his views of the pathology and treatment of ozæna. Grünwald believes all cases of ozæna have some suppurative foci in the accessory cavities of the nose, and, when this is found and cured, the purulent secretion stops. In cases where no foci are to be found, he says it does not follow they are absent, but that they are too obscure to be easily detected. The long series of remedies recommended in many publications, have soon found their deserved fate. Nevertheless imperfect local treatment, along with general treatment of the mucous membrane, can, in some cases, alter the whole condition so far that the disease disappears. In concluding the remarks on treatment, Grünwald says, "Considering the very great difficulties of radical treatment of focal suppurations in many cases, and especially in disease of the maxillary sinus, it will in each single case be a question of consideration whether to take the uncertain way of relief by general measures or the *more certain* but troublesome one of radical cure by treatment of the focal disease." By cure, the author means a cessation of the suppuration and not a regeneration of the atrophied intra-nasal structures.

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### THE NON-OPERATIVE TREATMENT OF STRABISMUS.

GEORGE M. GOULD, at the recent meeting of the American Medical Association, read a paper on this subject which is published in the Associations Journal. The author, for some years, has been foremost among the few who have been trying to prevent the furore for strabismus operations. Gould does not believe there is ever any necessity of a strabismus operation. He says, "Catch the babies early enough and no operation will be needed, provided that requisite intelligence, patience,

and conscience are brought into play. I know of no more heinous sin of ophthalmologists than the one that has been and still is revealed almost every day in my practice, the sin of telling parents that operation will be required, but not before the child is seven or nine years old. At that late age, generally speaking, irreparable injury may have been done." Exception to these statements is made in cases of traumatic strabismus, paralytic strabismus, in most cases of alternating strabismus, and in some anomalous cases that defy all rules of diagnosis and treatment.

TREATMENT.—(1) *Prophylaxis.*

(a) Public instruction should be given that strabismus (misnamed squint), in its earliest stages is curable without operation, but only on condition that the child is put in charge of an oculist at a sufficiently early age.

(b) The individual child should be taken in hand, by the oculist, at the earliest day when heterophoria, temporary or acute strabismus, is diagnosed.

(2) *Treatment.*

(a) The treatment of ametropia (sub-normal vision due to error of refraction) requires that proper glasses should be put on the child as soon as he may safely wear them. It may not be necessary, or advisable, at this time to demand that they be worn all the time, but only at stated periods. If they are correctly prescribed, made, and worn; and, if they are needed, a child of two years may wear them with the happiest results.

(b) *The treatment of Heterophoria* (disturbances of equilibrium). Gould has never seen a case of heterophoria that requires operative measures, nor has he ever seen a successful case that has been operated on by others. He has been able to cure, or entirely relieve, symptoms by thorough going prism gymnastics. Correction of any error of refraction may be all that is necessary.

(c) *The treatment of Amblyopia.* In those cases of great inequality of vision between the two eyes, the eye with the least acuteness of vision becomes more or less blind. Very little, as a rule, is done for these cases, usually the good eye is fully corrected, and a partial correction is given for the other eye: or, if the vision be very bad, no attempt at all is made to give it vision, a plane glass being used for cosmetic reasons.

Gould comes out squarely against this practice he corrected the error in each eye, and, though there is some discomfort in wearing the glasses at first, he perseveres. By using a blinder over the good eye at meal times, the amblyopic eye is gradually educated, so to speak, to see again. Very great accuracy is absolutely essential to good results, fre-

quent re-testing and changing of the lenses, as occasion arises, being necessary for accurate and successful work. The muscle balance must also be carefully treated. The final success will depend on the patients persistence, patience and co-operation. In children, too small to wear glasses, or the blinder willingly, keep the *good* eye under continuous mydriasis for weeks, or a month or two.

#### THE DIAGNOSIS AND TREATMENT OF MALIGNANT STRICTURE OF THE OESOPHAGUS.

IN opening the discussion on this topic before the Laryngological Society of London, Charles Symonds, F.R.C.S., gives the results of his observations throughout many years of active practice and close observation of oesophageal diseases. In his paper, published in the *Journal of Laryngology, Rhinology and Otology*, he summarizes the diagnosis in the following way:—

(1) Among early symptoms we may have so-called "dyspepsia," nausea, and revulsion for food; pain alone when the central district is affected.

(2) The passage of a bougie is the only way to clear up the case, and its employment need not be feared.

(3) That extra-oesophageal disease rarely gives rise to serious dysphagia.

(4) That spasmodic obstruction, apart from the hysterical form, has always, when decided, an organic cause and that this would be better called intermittent dysphagia.

(5) That with regard to the three special districts it may be said:

(a) That all organic obstruction in the upper third is malignant and has a special tendency to cicatrize.

(b) That in the central half of the gullet, a sarcoma, or a myoma, both rare diseases, may cause fatal obstruction; that here, also, a pouch may give rise to difficulty in diagnosis, but can generally be excluded.

(c) That in the lower end alone does simple stenosis occur, and that here there may be difficulty in distinguishing it from cancer of the stomach, causing great reduction of the cavity (leather bottle stomach). Finally, that in estimating the extent of the disease, the special value of the *steelbulb* is noted and also the use of the *Condé bougie* in obstruction of the lower end.

*Treatment.*—(1) While the patient can swallow fluids and semi-fluids or a bougie can be passed and plenty of nourishment taken, he may be left so long as (a) he can swallow well, (b) a small bougie No 12 (catheter gauge), can be passed.

(2) If the dysphagia increases, even though a bougie can be passed, a tube must be inserted, or gastrostomy performed. These conditions are seen in the soft pungating forms.

(3) If a bougie cannot be passed, or goes down with difficulty, then the same course must be followed, as we know that complete closure may occur at any time.

(4) If both conditions arise—the patient cannot swallow, or a bougie cannot be passed—then immediate mechanical treatment is required.

In cricoid obstruction, the long rubber tube gives excellent results. When not well borne, gastrostomy, if selected, should be performed early.

In disease of the central portion, the short tube is serviceable in a fair number of cases, and, when it acts well, is superior to any other method. It must be replaced by a long feeding tube when pulmonary symptoms arise.

In disease of the cardiac orifice, tubage is so uncertain that gastrostomy should be performed when dysphagia becomes serious.

#### TINNITUS AURIUM.

**L**EWIS, in the *Philadelphia Medical Journal*, has a very practical paper on tinnitus. A great many factors must be considered before the aurist undertakes the management of these cases. The underlying cause must be sought for and found before intelligent treatment can be adopted. Suppurative, and non-suppurative catarrh of the tympanum, foreign bodies in the external auditory canal, various degrees of labyrinthitis, circulatory disturbances as anaemia, hyperaemia, aneurism, or heart disease, or renal disease, acting through the circulatory system, may be a factor, as well as the too heroic administration of quinine, or the salicylates.

*Treatment.*—The administration of nitro-glycerine, or the inhalation of amyl nitrate, will lessen the noises due to anaemia, while it increases those due to hyperaemia. In the circulatory form of tinnitus, due to excess of blood in the tympanum, or labyrinth, general vascular sedatives, with care of the general health, will often be sufficient. Bavarian aurists have had some splendid results with compressed air in this form. In the non-suppurative cases of middle ear catarrh, with, or without, ossicular adhesions, the occasional use of a catheter and the frequent use of aural massage often gives very satisfactory results. Vassant, of Philadelphia, claims good results from the use of dry hot air in the tympanum. Hydro-bromic acid is of most use in the hyperaemic forms, and should be given in 15 minum doses three times daily freely diluted in water. Pilocarpine (hypodermically) is of most use in the purely

labyrinthian forms. Kramer treats tinnitus, unaccompanied by deafness, with a solution of strychnia (gr. 1 to  $\bar{3}1$ ) through the eustachian catheter into the tympanic cavity. Gleason, in the catarrhal forms, uses a pill containing argent, nitratis, gr. 1-4 ; ext. hyoseyami, gr. 1-3 ; and strychnia, gr. 1-13 ; one to be taken after each meal. Dunkanson gives ammon. mur. in nervous tinnitus. Gomez reports excellent results from the use of conium hydrobromate, gr. 1-60, three times daily, in nearly all forms of tinnitus. Gruber and Wilde prescribe tincture of arnica, 15 mins., three times a day, when there is no congestion. There is a certain proportion of cases, however, in which one may try all these remedies, and all will probably fail.

#### SUB-CONJUNCTIVAL INJECTIONS IN DISEASES OF THE EYE.

**G**IBBONS, in *the Journal of Eye, Ear, and throat diseases*, writes on this method of treating ocular inflammation, particularly the interstitial and suppurative forms of keratitis and writes: The injections act by stimulating the lymphatics to absorb the products of inflammation, and also acts as a diluent to the toxins. It makes little difference whether one employs a normal salt solution, or a 1-8000 solution of hydrarg, bichlor, save in specific cases, when a solution of potassium iodid and iodine seems of greater efficacy. The solution is introduced into the lymph space of tenon, from whence it makes its way into the perichoroidal lymph space, and is then brought into direct contact with the diseased area

In syphilitic cases, the solution used is made as follows.

R̄ Pot. Iodid	grs. xv.
Iodine	grs. 1/7
Aq. ad.	$\bar{5}1$ .

#### FOR ECZEMA OF THE EARS.

R̄ Zinci oxide	10 parts.
Starch,	10 parts.
Petrolatum,	20 parts.
Calomel,	2 parts.
M ft. unguentum.	

In the foregoing prescription, for the Calomel, acid carbolic  $7\frac{1}{2}$  grs; acid Salicyl, from  $7\frac{1}{2}$  to 15 grs.; xeroform tribromo-plennol bismith 30 grs. or ichthyol, 15 to 30 grains may be substituted. One must not mistake the acute dermatitis, not infrequently seen about the external auditory meatus, and caused by the irritating nature of the aural discharge, for ordinary eczema.

## PROVINCE OF QUEBEC NEWS.

Conducted by MALCOLM MACKAY, B.A., M.D., Montreal.

**T**HE following cases were reported at the Montreal Medico-Chirurgical Society :

Dr. James Stewart presented a living case of asthenic paralysis. The patient was a man of large frame and in the prime of life. The symptoms began with an internal strabismus and a ptosis of both lids, followed by general weakness coming on gradually. This weakness was not nearly so marked when the patient got up in the morning, but became progressively worse towards evening, and exertion of any kind tired him out very rapidly. For example, he was always compelled to rest the muscles of his jaw when at meals. The characteristic rapid exhaustion was also present on electrical stimulation.

Dr. Shepherd showed a case of aneurism of the femoral artery which was so high up that operative interference was not deemed justifiable, and consequently he resorted to digital compression. Relays of students at intervals of five minutes carried on the treatment, and the result was a complete success. Drs. Elder and Hutchison recalled a similar case in 1884, in which the result was also good, the patient being still alive and in good health.

Dr. Bell showed a hair-ball, forming a complete mould of the stomach, removed from a girl of 12 years of age. The patient had been ailing for about two years and had become very greatly emaciated. When the patient was examined at the Royal Victoria Hospital a tumor was easily seen in the epigastrium ; palpation confirmed inspection, and the mass was found to be firm, movable, and corresponding in shape and position to the dilated stomach. A diagnosis of hair-ball was at once made, and the history of biting and pulling the hair was subsequently obtained on close questioning. There was considerable difficulty experienced in removing the mass, as it extended several inches into the duodenum, but at length a complete cast of the stomach and upper portion of the duodenum was delivered. Some twenty-six cases were found reported in the literature of the subject. Of these but two were diagnosed before operation.

Dr. Chipman read an interesting and carefully prepared paper on two cases of caesarian section, followed by subperitoneal hysterectomy.

In each case the mother recovered, and while in one case the premature child died, in the other a full-term child survived.

A public meeting, which was attended by His Excellency the Governor General, was held in the Art Gallery on October 30th for the purpose of forming an organization to combat the spread of tuberculosis. In opening the proceedings His Excellency said that as honorary president of the Canadian Association for the Prevention of Consumption, he was pleased to avail himself of the opportunity for showing his sympathy with the movement directed against the ravages of tuberculosis. He had no intention of going into details concerning the effects of the disease or the best means of combatting them; he left this to the medical men to dwell upon, but he would suggest that, since public opinion has been at length aroused, the objects in view would be best attained by local effort, provided always that the maturely considered advice and direction of those who have made not only a scientific study of the fatal illness, but of the habits and manner of life of the population which it assists is accepted, recognizing too that the success of any such undertaking must of course largely depend on unanimity of effort, and that individual benevolence must be prepared to combine for the common good. Professor Adami next gave a few statistics in regard to the mortality resulting from tuberculosis. He said that last year 833 persons died in Montreal from this cause alone, 791 the year before, 1,000 the year before that and 1,047 in 1898, as compared with 7,000 deaths from all other diseases.

A resolution was carried, on motion of Dr. Roddick, the last clause of which read thus: "That there be appointed a committee of citizens of Montreal to create a enlightened public interest regarding tuberculosis, to establish a fuller knowledge of the dangers of and losses caused by this disease, and to further the employment of all means whereby it may be prevented or its ravages lessened." A second resolution, proposed by Sir W. Hingston, outlined the measures to be instituted by this committee, which is to consist of nearly two hundred leading citizens with the following members as executive: Drs. Roddick, Lachapelle, Blackader, Adami, Richer, James Stewart, Lt. Col. Burland, Mr. S. P. Stearns, C. M. Holt, R. H. Lane and Prof. Bovey.

The officials of the Royal Victoria, the General, and the Western hospitals, in reply to a request that the hospitals would say whether or not they desired to care for patients afflicted with contagious diseases, stated that they had come to the conclusion, with the advice of their respective medical boards, that it would be injudicious to set apart any portion of their existing buildings or premises for the



reception of infectious cases, believing that it would prejudicially affect the purposes for which their hospitals were instituted, namely, the treatment of general surgical and medical diseases; and that they were therefore unable to make any proposal to the city for the care of such cases in connection with the existing hospitals. They suggested, however, that the project which would meet the approval of and gain the greatest support from the English-speaking community would be the establishment of a separate and distinct infectious hospital for English-speaking patients, such hospital to be under the control of a separate board of governors, who would have charge of its management and finances and the appointment of a medical and nursing staff. In making this suggestion it was assumed that the Hotel Dieu and the Notre Dame Hospitals would undertake to make the necessary provision for the care of the patients from the French-speaking section of the community. It is very likely that this proposition will be adopted, for the aldermen have already made an offer to the above mentioned hospitals. As a matter of fact it is beginning to dawn upon the civic authorities that the situation is very grave; for the house on Mount Royal Ave., which has been turned into a species of civic hospital, is almost full, and very soon all fresh cases will of necessity be turned away. The whole affair has been such a disgrace to Montreal that it is to be hoped that a solution has at length been found.

At the quarterly meeting of the Board of Governors of the Montreal General Hospital the committee of management emphasized the financial stress under which the hospital was labouring. The treasurer's account for the last quarter stated that the income amounted to \$17,094, an increase of \$647 over the corresponding quarter of last year; the expenditure for the past quarter was \$23,250, or \$809 less than the corresponding quarter of last year. For the first nine months of the current year, Jan. 1st to Sept. 30th, the receipts were \$67,524 against \$74,496 in 1901, expenditure \$74,562 against \$64,204 in 1901, indicating the necessity of still further increased financial support from the friends of the hospital. The medical superintendent reported that 743 patients had been admitted to the hospital during the quarter against 720 in 1901, and 8,301 outdoor patients against 7,638 in 1901.

The city analyst has been doing good service in exposing the sale and manufacture of adulterated food stuffs in the city. A short time ago he made the sweeping statement that the most of the so-called "home-made tomato catsup" owed its attractive colour to aniline dyes, and also that a vast quantity of "strawberry jam" was on the market which had never approached a strawberry. His most recent exposure is

in the sausage line. The outer coat of a sausage is stained, even as we stain a baccillus, with Bismark brown, thus saving much time in the smoking process and giving them a delightful "well done" appearance. "Renovated" or "process" butter, an ingenious product of this modern civilization of ours, also came under his ban, as well as an unusual quantity of that unfailing commodity "watered" milk.

The annual dinner of the medical faculty of McGill University at the Windsor Hotel on December 8th was an eminently successful affair. The Governor-General was present in his capacity of visitor to the University, and by a happy coincidence Dr. Parkin, late principal of Upper Canada College, was also present. The dining-room was filled with guests, and the interest was sustained to the end of the long toast list, which was interspersed with selections from a good musical programme. Mr. J. M. McCullough, '03, was chairman, and seated beside him were the Governor-General, Principal Peterson, Dean Roddick and Dr. Parkin. After the toast of "The King" had been honoured with typical McGill enthusiasm, Mr. W. E. Campbell proposed the health of "Our Visitor, the Governor-General." His Excellency was warmly received on rising to respond, and, after thanking the students for the reception granted him, he proceeded to speak of the prominent position which McGill held at the present day, and of the splendid facilities for hospital work afforded the students. In closing he spoke of the efficiency of the teaching staff and hoped that the students would still further show their appreciation of their work by pressing on to new laurels in the realm of medical science.

In responding to the toast of "Our Alma Mater," Principal Peterson strongly hinted that a residence for the students of McGill would shortly be erected. Dr. Parkin followed Dr. Peterson in responding to the toast. The key note of his address was Imperialism in its relation to Canada. He said that Canada was the most interesting centre of the world's development at the present time, and that it had an amazing future before it; already it was going by leaps and bounds, and therefore Canadians ought to stand in the forefront of that development. The students before him should make the best they could out of McGill, then, after having obtained all they could from their alma mater, they should search the world for its best and then return to Canada and pour it out upon their native land.

To the toast "Our Dean and Professors" Dr. Roddick replied, and he was followed by the newly appointed professor in hygiene, Dr. Starkey, who expressed his pleasure at having the opportunity of publicly meeting so many of the undergraduates.

## MARITIME TOPICS AND NEWS.

Conducted by W. D. Forrest, M.D., C.M., B.Sc., M.R.C.S., Eng., Halifax.

**D**URING the latter part of the summer and fall, typhoid fever was prevalent throughout the provinces. The hospital at Halifax had an unusually large number of cases. These, for the most part, came from the country and suburbs of the city, where the water supply is not all that might be desired.

Lately there has been a number of cases of diphtheria in Halifax and vicinity. We have not learned of a single death in cases where anti-toxim was used early.

An epidemic of smallpox visited York county, N.B., but we believe it has been about stamped out. There were a number of cases of the disease in Halifax last winter. The city board of health ordered a general vaccination. Of course there were the usual number of cranks, who had their objections; but, in spite of this, the order was pretty generally observed by the citizens. Most of these had their children vaccinated anyway. This is as it should be in a port like Halifax, where immigrants are being landed nearly every week during the winter months.

A rather interesting point, in connection with the Halifax epidemic, is the fact that it was traced to a town on the coast of Maine. A fishing schooner was in the harbour of that town. Several sailors attended a dance at a house in which there happened to be a case of smallpox. These men never reached here, but some others, with whom they had been associating, did. They arrived on a coasting steamer. No one on the steamer showed any signs of smallpox until some time after, when one of the crew was found to be suffering from the disease. Later on, it broke out in several parts of the city where these men had gone, although they themselves never showed any signs of it. Happily there has not been a case since early summer. The epidemic in St. John, N.B., was also stamped out with equal success.

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The second meeting of this branch of the British Medical Association was held at the Victoria General Hospital on the evening of October 29th. A very large number of the medical men of the city were present. After some preliminary matters were attended to, Dr. Kirkpatrick presented a very interesting case of aniridia, or congenital absence of the iris. Two brothers of the patient and one sister were afflicted in the

same way. The parents, irides, as far as could be learned, were normal. Dr. Kirkpatrick made some remarks on the condition, and pointed out that the lens in the right eye was floating, that of the left being attached above. In this case there was considerable defect of sight.

Dr. Silver showed a case of alcoholic neuritis. The patient, in this instance, had been under observation for some time. The case illustrated the noxious effects of alcohol on the nervous system, in as much as relapses had followed improvement under treatment. The cause of the relapse being his inability, or unwillingness, to abstain from alcohol.

Dr. Curry presented a case of gastric ulcer which had been cured. The continuance of the pain, in this case, led to considerable discussion. It was suggested that, as this patient had been having morphine from time to time, this might account for the condition he was now in.

Dr. Chisholm gave a report on several cases of intestinal obstruction that had been recently operated upon by him successfully.

Dr. Murphy commented on Dr. Chisholm's report and referred to several cases of his own.

Dr. James Ross showed a boy who had suffered from lupus on the arms and legs. The boy had been in hospital for some time and had made wonderful improvement. He was first treated by the x-rays, but of late was getting urea, as recommended by Harper in the *London Lancet*. Since getting the urea his progress towards recovery had been much more rapid.

After this part of the programme was completed, Mr. Kenney, the Superintendent of the hospital entertained the members at luncheon.

On Wednesday evening November 12th, the society met at the Halifax Hotel.

Dr. G. M. Campbell, President of the Branch, was appointed a member of the advisory committee of the Victorian Order of Nurses.

Major Jones, late of No. 9 field hospital, read a very interesting paper on his experiences in South Africa, during the latter part of the late war. Dr. Jones gave a detailed account of the enlistment, equipment, and transport of the field hospital, together with what they did when there. He gave a general idea of the faults that existed and suggested some improvements in our medical service. The paper was followed by some remarks from Drs. Hare, Murphy and Hawkins.

The ladies who have been collecting for the Victorian Order of Nurses have been very successful. So far nearly \$2,000.00 has been raised. This will enable them to employ several nurses.

Dr. M. T. McLean, of North Sydney, was recently married to Miss Blanche Lehigh, of Brockville, Ont.

## UNIVERSITIES AND COLLEGES.

### TRINITY MEDICAL COLLEGE.

**T**HIS College has in charge of its various departments a staff of twenty seven professors, lecturers, demonstrators and instructors. It is in affiliation with Trinity University, University of Toronto, Queen's University, University of Manitoba, and is recognized by the Royal College of Surgeons, England, the Royal College of Physicians, London, the Royal Colleges of Physicians and Surgeons, Edinburgh, the Faculty of Physicians and Surgeons, Glasgow, King's and Queen's College of Physicians, Ireland, and the Conjoint Examining Boards of London and Edinburgh.

The history of this College dates from 1850, when a Medical teaching faculty called at first, "The Upper Canada School of Medicine," was established by the late Drs. Hodder and Bovell, who, with the colleagues they selected, constituted a body of excellent Medical teachers. In the fall of the same year this "School" became the "Medical Department of Trinity University." But in 1856, notwithstanding its brilliant prospects, circumstances occurred, over which the faculty had no control whatever, and such as could not happen now, which led to the resignation of the entire Medical Staff.

After the lapse of fifteen years, the Trinity Medical Faculty was reorganized in the Spring of 1871 on a basis suggested by Dr. Geikie, the present Dean of the College.

At present there is a large number of students in attendance on lectures.

The following fees are charged : Matriculation, \$5 ; Registration, \$5 Annual College fees, \$100 ; Hospital perpetual ticket, \$34 ; Hospital for six months, \$14 ; Lying-in Hospital, \$8 ; College Fellowship Examinations, first year, \$5 ; primary, \$5 ; third year, \$5 ; final and diploma, \$5 ; Supplemental Examination, \$5 ; Registration in Trinity University, \$5 ; for degrees, M.D., C.M., \$40, which may be paid \$15 for primary, and \$25 for final examinations ; supplemental primary, \$15 ; if not more than four subjects, \$8 ; supplemental final, \$12 ; if not more than five subjects, \$5.

The following scholarships are offered : In the first year, three of the value of \$50, \$30, and \$20 ; Dr. Sheard offers a prize of \$25 for highest standing in first year physiology ; in the second year, two

scholarships, \$50 and \$30. Trinity Medical College offers to final students a gold and two silver medals. Trinity University offers a gold and two silver medals to the students taking the final M.D., C.M., and two silver medals to those taking the primary examination for M.D., C.M. These medals are not awarded on less than 75 per cent. of the marks.

The clinical instruction is given at the Toronto General Hospital, St. Michael's, and the Hospital for Sick Children. These hospitals have a total capacity of 600 to 700 beds.

Students who have not otherwise matriculated and who do not intend to practice in Ontario, but who desire to take the Fellowship Diploma of Trinity Medical College, or to graduate in Trinity University, are required to pass an examination which consists of the following subjects:

(1) Writing and Dictation; (2) English Language including Grammar and Composition; (3) Arithmetic; (4) Algebra, including simple Equations; (5) Euclid, Books I., II. and III.; (6) Latin Grammar and Translations from Cæsar's *Bellum Gallicum*, Bks. I., II., or III. and IV.; or V. and VI.; or Cicero, *de Lege Manilia* or Virgil, *Æneid*, Bk. I.; also translation of easy passages from unspecified Latin authors; (7) and any ONE of the following optional subjects *which may be selected by the candidate*: (a) Scripture History and Mathew's Gospel, ch. i. to x. incl., in Greek; (b) Xenophon's *Anabasis*, Bk. I.; (c) French, Voltaire's *Charles XII.*, Bks. VI., VIII.; (d) German, Schiller's *Thirty Year's War*, Bk. I.; (e) Natural Philosophy, including Mechanics, Hydrostatics and Pneumatics (Balfour Stewart's *Lesson in elementary Physics* is recommended); (f) or Logic.

The Matriculation in Arts of Trinity University, or of some other recognized University will be accepted in lieu of the above.

The standard of passing is 25 per cent. on each paper and 33 per cent. in each department.

The Candidate for Degrees of M.D., C.M. of Trinity University must be of the full age of twenty-one years.

He must furnish certificates of having attended at least four Winter Sessions at some Medical College recognized by the University, except he be a graduate in Arts or Science, when attendance at three Winter Sessions will be accepted.

Before admission to the Primary Examination in Medicine he must have attended in some recognized Medical College the following courses of lectures:—Two courses (attended in different years) of eight months each, on Descriptive Anatomy, Practical Anatomy, General Chemistry, *Materia Medica* and Pharmacy, Physiology, and Histology. And one

course of four months on Practical Chemistry, and on Toxicology respectively.

Before admission to the Final Examinations he must further have attended, in different years, two courses of Lectures of eight months each. in some recognized College on Theory and Practice of Medicine, Principles and Practice of Surgery, Midwifery and Diseases of Women and Children, Clinical Medicine, and Clinical Surgery. Two courses of four months each on Medical Jurisprudence, Therapeutics and the art of prescribing. And one course of four months on General and Special Pathology (taken during the Third year). And one course of four months on each of the following subjects: Applied Anatomy, Sanitary Science, Pathology, Practical, General and Special (taken during the Fourth Year.) He must have attended for at least *eighteen* months, the practice of some general Hospital, and, during two sessions, Clinical Lectures on Medicine and Surgery. He must have attended for at least six months the practice of a Lying-in-Hospital or must give satisfactory evidence of having otherwise had equivalent advantages of obtaining obstetrical knowledge, with a certificate of attendance upon at least six cases of labor.

He must have passed two University Examinations, viz., the Primary and the Final Examinations in Medicine.

Before admission to the Primary Examination, he must produce a certificate that he has passed the First Year's Examination in some recognized Medical College.

The Primary Examination may be passed at the end of the Second Year. The subjects are: Descriptive Anatomy, Practical Anatomy, Physiology, Histology, General Chemistry (including Chemical Physics), Toxicology, Practical Chemistry, Materia Medica and Pharmacy.

The Primary Examination of other recognized Universities, or that of the College of Physicians and Surgeons of Ontario, Quebec or Manitoba, will be accepted in lieu of the University Primary Examination, provided that the Candidate shall in all cases pay the full fee for the Degree, but if any of the subjects of the Primary Examination do not form part of the Examination allowed, the Candidate shall be required to take such subjects together with his Final Examination.

Graduates of any recognized University will not be required to take such subjects of the Primary Examination as they have already passed in their University Examination.

Candidates for Final Examination in Medicine will be required to furnish proof that they have passed an Examination at the end of their Third Year in such subjects as the Faculty of the Medical College or School they have attended, may require.

In cases where this has been unavoidably omitted, as from illness, an equivalent Examination must be passed prior to taking the final Examination.

The final Examination shall take place at the end of the Fourth Year: The subjects are: Theory and Practice of Medicine; Principles and Practice of Surgery; Clinical Medicine, Clinical Surgery, Midwifery, Gynæcology, Diseases of Children, Medical Jurisprudence, Sanitary Science, Therapeutics, Applied Anatomy, Practical Pathology, General and Special Pathology, including Bacteriology.

In order that a Candidate may pass in either of these Examinations he must obtain thirty-three per cent. of the marks assigned to each paper, and fifty per cent. of the total marks of the Examination.

Trinity Medical College holds an Examination at the end of each of the four academic years. On the results of these Examinations, the College Fellowship Diploma, Scholarships and Medals are awarded. This Fellowship Diploma has the rank, in Great Britain, of a degree in Medicine from a Colonial University. For the Fellowship Diploma, the candidate must have passed a recognized matriculation, have attended lectures for four sessions, and have passed the four Annual College Examinations.

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#### UNIVERSITY OF TORONTO, MEDICAL FACULTY.

**T**HE Medical Faculty of the University of Toronto was established in the year 1887. At present there is a staff of teachers of fifty-six professors, lecturers, and demonstrators. There are in attendance on lectures some 475 students.

The fees are as follows: For registration, \$5; tuition, first year, \$100; tuition, second year \$100; tuition, third year, \$100; tuition, fourth year, \$100; biological laboratory supplies, first year, \$1.50; second year, \$2.75; physiological laboratory, \$2; chemical laboratory, first and second years, \$3; tuition fee for a fifth year, \$50; medical psychology, fourth year, \$5; matriculation or registration, \$5; for a supplemental examination, each subject, \$2; annual examinations, \$10; practical chemistry examination, \$0.50; *adeundem statum*, \$10; degree of M. B., \$20; degree of M. D., \$20; *adeundem gradum*, \$20; a perpetual hospital ticket, \$34; an annual hospital ticket, \$14; and the Burnside lying-in-hospital, \$8.

The following Scholarships are offered: At the first examination, one of \$50, and one of \$30; and at the second examination, one of \$50, and one of \$30.



A gold medal and three silver medals are offered annually by the faculty among those students who are honour Candidates for the degree of M. B.

Dr. Daniel Clark offers two prizes of \$30, and \$20, for the purpose of stimulating the study of mental diseases.

The George Brown Memorial Scholarship was founded by Dr. A. H. F. Barbour of Edinburgh. It is tenable for one year, and is the interest on one thousand pounds sterling. It is awarded on the subjects of anatomy, biology, physiology, embryology and histology, and pathology.

The Reeve Scholarship is awarded on the results of the work in medicine and clinical medicine, surgery and clinical surgery, obstetrics, and pathology. It is of the value of \$250 and is awarded annually for four years.

The Starr medals, three in number, one gold and two silver, are awarded to Candidates for the degree of M. D. whose theses on the subjects of anatomy, physiology, and pathology attain a sufficiently high standard.

Clinical instructions are given by members of the medical staff at the Toronto General Hospital, 425 beds; at St. Michael's Hospital, 160 beds; and the Hospital for Sick Children, 160 beds.

The degree of M.B. is given to students who have matriculated and who have completed the prescribed course of study and passed the examinations required.

Candidates for a degree must pass the Junior Matriculation Examination, unless (1) they possess a degree in Arts, not being an Honorary Degree, from any Canadian or British University; or (2), have already matriculated in the Faculty of Arts, or in the Faculty of Law in this University; or (3), have been registered as matriculated in the College of Physicians and Surgeons of Ontario. Candidates may delay Matriculation until any time before the Second examination for the degree of M.B. Certificates of having passed Second or First Class; Junior or Senior Leaving; or Forms II., III. or IV. examinations of the Education Department of Ontario will be accepted *pro tanto* for subjects of the General Course at any Junior Matriculation Examination.

The subjects for Pass Junior Matriculation shall be taken in *one* examination, and shall be as follows:—English Composition, English Literature, English Grammar, Algebra, Euclid, Arithmetic, History (British, Canadian and Ancient), Latin, and any *two* of Greek, French, German, Experimental Science (Physics and Chemistry).

The following are the requirements of the professional examinations:

The subjects of the First Pass Examination are Physics, Inorganic

Chemistry and Biology; and the certificates required are: Anatomy, a course of at least 50 lectures; Physiology, at least 50 lectures and demonstrations; Inorganic Chemistry, at least 50 lectures; Physics, at least 25 lectures and demonstrations; Biology, at least 40 lectures; Practical Chemistry, at least 50 hours; Practical Biology, at least 50 hours, and Practical Anatomy, instruction during six months.

The second examination covers Anatomy, Physiology, Embryology and Histology, Materia Medica and Elementary Therapeutics, Chemistry, Organic and Physiological, and the certificates required are:

Anatomy, a second course of at least 50 lectures; Physiology, a second course of at least 50 lectures and 50 demonstrations; Organic Chemistry, at least 50 lectures; Materia Medica and Elementary Therapeutics, at least 50 lectures; Embryology and Histology, laboratory instruction of at least 50 hours; Practical Chemistry, a second course of laboratory instruction of at least 50 hours; Practical Anatomy, a second course of instruction during six months; Practical Pharmacy, instruction during three months.

The results of the laboratory work in Physiology in the Second Year are taken into consideration in making up the standing of all students in that subject in the Class List. For those students who obtain their instruction in Physiology elsewhere, a practical examination in Physiology is held during the annual examination.

The subjects of the Third Year's Examination are: Clinical Medicine, Clinical Surgery, Physiological Obstetrics, and Pathology. The results are considered in determining the standing at the Final Examination. The following certificates are required for this examination:— Medicine, a course of at least 50 lectures; Clinical Medicine, at least 50 lectures; Surgery, at least 50 lectures; Clinical Surgery, at least 50 lectures; Pathology, at least 50 lectures; Practical Pathology, instructions of at least 50 hours; Physiological Obstetrics, at least 50 lectures; Medical Jurisprudence and Toxicology, at least 50 lectures and Materia Medica and Therapeutics at least 50 lectures.

The final examination consists of Medicine and Clinical Medicine Surgery and Clinical Surgery, Obstetrics, Pathology, Therapeutics, Gynaecology, Medical Jurisprudence, and Toxicology, Hygiene, Topographical Anatomy, Eye, Ear, Nose and Throat.

The certificates required are: Medicine, a course of at least 50 lectures; Clinical Medicine, at least 50 lectures; Surgery, at least 50 lectures; Clinical Surgery, at least 50 lectures; Pathology, at least 50 lectures; Practical Pathology, at least 50 hours; Obstetrics, pathological, at least 30 lectures; Gynaecology, at least 50 lectures; Topographical Anatomy, at least 50

hours ; Hygiene, at least 25 lectures ; Medical Psychology, at least 12 lectures ; Ophthalmology, Otology, Laryngology and Rhinology, 25 didactic lectures and 25 clinics ; having conducted at least six labours.\* proficiency in vaccination ;\* attendance for eighteen months in the wards of a public hospital having not less than 100 beds ; attendance for twelve months on the out-practice of a hospital, or dispensary, or with a registered practitioner, and having attended twelve autopsies.

Graduates of this University in the Honour Department of Biological and Physical Science may enter at the beginning of the Third year and may postpone the examination in Materia Medica and Elementary Therapeutics until the third examination.

Graduates in Arts of the University may enter at the Second examination, but will be required to take such subjects of the First examination as they have not taken in their Arts course, though in these subjects they shall not be required to take an Honour standing. In the case of Undergraduates in Natural Sciences, certificates of attendance on the second course of Practical Anatomy and on the second course of fifty lectures on Anatomy, may be presented with the certificates of attendance on the lectures of the Third year.

The special attention of students entering Medicine is directed to the recent enactment of the University Senate instituting a New Curriculum in Science leading to the Degree of Bachelor of Arts. This course is specially adapted for students who intend entering eventually upon Medicine, and embraces the purely Science Subjects which are demanded of students in the primary years of Medicine. This new curriculum is so arranged that at the completion of the Fourth Year in the Arts Course the student has already fulfilled the requirements of the first two years in Medicine. It will therefore be possible in the future for a candidate who has obtained his Arts Degree in this course to enter immediately the Third year of Medicine, and he will be qualified to present himself for the Degree of Bachelor of Medicine two years after graduating in Arts. In other words, it is possible for one to obtain the Degree of Bachelor of Arts and Bachelor of Medicine after six years study at the University.

#### DEGREE OF M.D.

Bachelors of Medicine at least one year's standing may obtain the degree of M.D. on the fulfilment of either of the following conditions :—

1. Having composed a thesis of approved merit on some scientific subject in the department of Medicine, or
2. Having passed an examination in Clinical Medicine and Surgery in together with an examination in the History of Medicine.

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\*Certificates will be received from any registered practitioner.

## THE ONTARIO COLLEGE FOR WOMEN, TORONTO.

**T**HIS College is now in its nineteenth year. It is the only College in Canada wholly devoted to the teaching of women. The College session is one of eight months. It has a staff of 38 professors, lecturers, and demonstrators. It is in affiliation with the University of Toronto, and the University of Trinity College, and also prepares its students for the examinations of the College of physicians and surgeons of Ontario, as well as for its own College Examinations. The students of the College may select any other University for the purpose of obtaining a degree in medicine.

There are about thirty students in attendance on lectures.

The fees are as follows: The matriculation fee is that of the University or examining body the students select; The faculty fee for each year is \$100; perpetual hospital ticket, \$34, admitting to St. Michael's, the General, and the Children's; Toronto Dispensary, \$2.50, 6 months; College maternity department, \$8; Burnside, \$8. The clinical instructions are given at these hospitals.

The following prizes are offered for competition:

1. A first and second prize (value \$15.00 and \$10.00) in books or instruments, awarded for the best examination, written or oral, in the Primary branches.

2. The Ross Prize in Gynæcology is awarded on the following conditions:

a. That there be a written and an oral examination therefor.

b. The written to be in two parts at Christmas and Easter—and by the Lecturer in Gynaecology.

c. The oral to be practical and final and given by the Donor.

Candidates must in all cases give satisfactory evidence of regular attendance at lectures during the session.

To obtain any of the afore-mentioned prizes, candidates must pass the prescribed examination with First Class Honors.

Three courses are open to a student beginning the study of Medicine.

(1) To qualify to pursue the practice of medicine in the Province of Ontario. The Matriculation Examination is in July. The course is five years from and after the date of passing the Matriculation Examination.

(2) To qualify to obtain a degree of M.D., C.M., or M.B. The Matriculation Examinations are held in October and March (Trinity University), for Toronto University. The course is four years.

(3) To qualify for the diploma of the College. There is no Matriculation examination. The course is four years.

The lecture tickets of the Ontario Medical College for Women are accepted by all of the above mentioned examining bodies.

For the Matriculation and Academic course of these bodies, see their respective Curricula.

College examinations may be held at the end of each session by the Professors.

No candidate will be considered as having passed any College examination, who has not obtained at least 50 per cent. of the number of marks allotted to each subject of such examination.

To obtain honors in any College examination, or any single subject of such examination, 70 per cent of the aggregate marks allotted to such examination, or single subject will be required to entitle the candidate to the standing of First Class Honors, and 60 per cent. to that of Second Class Honors.

All students who present a certificate from any University, acceptable to this College, of having the first year examination of the said University, will be credited as having passed the first year examination of this College, and be entitled to have their names published with the names of those who take the College examination.

Diplomas will be awarded at the close of the Final Examination to successful candidates. The candidates for diplomas must furnish satisfactory proof:

Of having attended a full course of lectures in the Primary and Final branches of the Ontario Medical College for Women.

Of having spent four entire years in the study of medicine at the Ontario College for Women, or at some recognized University, College or School, the last of which must be attended at this College.

Of having passed the Faculty Examination at the end of their fourth year. In lieu of this examination the certificate of having passed the Final Examination of any University recognized by the Board of Directors will be accepted.

The College is not empowered to grant degrees in medicine. The College, therefore, requires no certificate of Matriculation examination but will accept that of the University selected by the student.

The College building is one of the most complete of its kind in America. The various rooms are furnished with every requisite for the comfort and assistance of the students. The dissecting room is entirely separated from the main building.

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## MEDICAL SOCIETIES.

### MINUTES OF THE TORONTO MEDICAL SOCIETY.

(STATED MEETING NOVEMBER 20TH, 1902.)

THE meeting was held at the Toronto General Hospital. The President, Dr. Hay, in the chair. The minutes of the last meeting were read and adopted. Drs. Burns, Heggie, McFaul, Fletcher, Moore, Brown and Kerr were elected to membership.

Dr. W. P. Caven exhibited a case of cardio-vascular condition, age 71. Six weeks after the onset of a cough had a pain when coughing. A systolic bruit was plainly to be heard. Dr. Oldright related a case of aneurism, the sac being in the lung and bursting into the pleural cavity. Dr. Price-Brown related a case that had been intubated. No aneurism had been found but a fibroid of the larynx had been detected. Dr. McPhedran said that aneurism appeared to be less frequent than formerly. He had seen this man a month ago, when there was no bruit and no tracheal tug. He said that persistent pain was a symptom of aneurism. He had had one case, at least, where the pain was the only symptom and was intrathoracic. Dr. Ferguson said that aneurism and syphilis were closely related, the aneurism developing years after. The iodides gave improvement for a time at least, both by treating the underlying syphilis and by relaxing peripheral arterial tension. Dr. Hunter asked if there were any laryngeal symptoms. Dr. McPhedran presented a case, age 31, gardener, 8 years ago his back was injured when working as a motorman. There was spasm of the right leg during cough. Three years ago he was well. A year ago he wounded himself with a pick. For the last four months he has been unable to work. The arms are spastic, there is loss of power to empty the bladder, sexual power is gone, there is no sensory disturbance, all the reflexes from the shoulders down are increased. Ten years ago had a pimple. Drs. Thistle, Ferguson, Macgillavry, Webster, and Chambers discussed the case. Dr. McPhedran said in reply in spastic paraplegia there were no genital, urinary, bowel, or sensory symptoms. In syphilitic paraplegia there were spastic plus urinary, sometimes bowel, genital, and often some sensory.

Dr. McPhedran then showed a case of amyotrophic lateral sclerosis. A year ago he was overworked and exposed, his legs became stiffened, later his arms were effected. Six months ago the hands were involved with twitching. Three months later the hands began to waste. In

another month swallowing and speech were affected. Jaw-jerk was marked. Dr. Ferguson asked had strychn. nit. been tried hypodermically. Dr. Price-Brown asked as to the condition of the vocal cords. In reply it was said the vocal cords were not affected, even though bulbar paralysis was present. He had used strychn. nit. hypodermically without much benefit.

Dr. McPhedran also showed a case of general sebaceous cystic condition.

Dr. C. L. Star exhibited a case of operation for talipes equino-varus. The man was 35 years old.

Dr. Thistle showed a case of progressive muscular dystrophy. Dr. Ferguson discussed this case and outlined the diagnosis and classification of the disease.

(STATED MEETING DECEMBER 4TH, 1902.)

The President Dr. Hay in the chair.

Dr. Rudolf read a paper on the results of the use of antitoxine at the Sick Children's Hospital. The main point was that there had always been diphtheria at the hospital, with exacerbations in the spring and fall. The antitoxine had been used in all cases and as a prophylactic for two years. They had since then not had a single case on the books. With only two deaths during the period of treatment by the antitoxine.

Dr. Barker, the guest of the evening, then gave a short description of the work done in the investigation of the plague. He said that the plague was due to the bacillus pestus, found for the first time in Hong-Kong, where the recent epidemic originated. There was no disease where germs were so abundant as in bubonic plague, it was a discovery due to the modern method of investigation and due to bacteriological research. The main form was the glandular,—bubonic. There were also the pneumonic and septicæmic types. The inguinal, femoral, axillary, and cervical glands were the most frequent seats of the buboes, in the order named, and depending on the seat of infection, or point of entry. The sputum was hæmorrhagic in the pneumonic form, and contained the bacilli. In San Francisco there had been six cases, the rats there were not infected. He then described a plague camp in India, and the method of disposal of the dead of the different castes, illustrating through the discourse with lime light views. Dr. Bryans moved a hearty vote of thanks which was seconded by Dr. Oldright and carried by a standing vote.

Dr. Rudolf's paper was then discussed. Dr. Carveth said he was glad to hear that Dr. Rudolf had no bad after effects. He had developed

a very troublesome urticaria himself after the use of the serum. Dr. Hunter said that it would seem from the report of two cases that the antistreptococcic serum had been of more benefit than the antitoxic. Dr. Ferguson said that he had never seen a bad symptom after the use of antitoxine. That duplicate infection was very common such as diphtheria and streptococcic, scarlet fever and diphtheria. Dr. Webster said he was struck most with the immunizing effects. Were the two fatal cases one of pure infection and most in need of the serum? Dr. Wilson said that mixed was more frequent than pure infection. That the serum was more prompt in its action in pure cases. Dr. Rudolf said in reply that he did not think that the effect was entirely due to the antistreptococcic serum in the two cases reported.

Dr. Greig presented a patient to the society for examination. It was a case of Charcot's joint disease. He outlined the history, man about 40, 13 years ago was a hard drinker, and had syphilis, 3 years ago a paralysis of the third nerve developed, got better in two months under the iodides. While bathing this year he turned over upon his right ankle. It was swollen with very free movement and grating. Dr. Galloway, in discussing the case, said that it was a very rare disease. This was the fourth case he had seen. The swelling and crepitation were usually out of all proportion to the condition and complaints of the patient.

Dr. Powell read a paper, giving the histories of a number of cases of genital strangulation: (1) An iron ring was found at the base of the penis, there was a great deal of tumefaction. The ring was removed by a saw made for cutting iron. (2) A man, 35, said that a condom had torn and rolled up and been left on for a time. It was rolled into a ring. After removal, the penis took a month to regain its normal size. (3) A child of two was brought in with the penis in almost a gangrenous condition. Behind the corona was found a deep sulcus, at the bottom of which was a ring of hair wound round. It was 20 inches in length when unwound. (4) A case of Dr. D. B. Frazer's of Stratford was reported. A man, a railroad employee, had slipped on a large iron nut. With a new file, it had taken five hours continuous hard labor to remove the nut. He related also two other cases where brass rings had been removed, one by immersion in mercury, and three of gold wedding rings, and one of a gold keeper.



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# THE CANADA LANCET

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## EDITORIAL.

### THE ONTARIO MEDICAL COUNCIL MATRICULATION.

IN the December issue of THE CANADA LANCET we had something to say on this subject. It was there held that the attempt to raise the matriculation standard ought to meet with approval, and no doubt will from all who have the best interests of the medical profession at heart. But it may be possible, in the desire to do good, to go too far, at least in the first advances made in the standard. In our last article it was remarked that the Council should adhere to the position already taken that the honor matriculation should be the one required of medical students. Since expressing that opinion, we have taken considerable pains to enquire into this matter, and find that to take honors in all subjects would be a very difficult, if not an impossible, task.

To take second class honors, the candidate must obtain 50 per cent. of the marks, and, for first class honors, he must secure 66 per cent. of the marks. The honor matriculation course consists of Greek translations from prescribed authors, sight translation of authors not prescribed, translations of English into Greek, and grammatical questions. Latin of similar extent and treated in the same way. English composition, literature, and rhetoric, or English authors. French grammar and translations from French authors and English into French. German to the same extent as the French. British history since 1763, Greek and Roman history, and the geography of these periods, and countries. Mathematics: Algebra to advanced work, euclid six books, trigonometry. Physics, namely, mechanics, hydrostatics, and electricity. Chemistry: Chemical theory, and practical chemistry. Biology, as the elements of Zoology and Botany.

It may be admitted that the honor work in History, French, German and Mathematics cannot be regarded as important subjects, while the sciences must be taken during the professional course. In the pass matriculation, the candidate must take English Composition, Literature, and Grammar; Algebra; Euclid, books I., II., and III.;

Arithmetic ; British and Canadian History ; and Latin, and any two of Greek, French, German, and Science. If to this general pass course, the honor work in the English subjects and Latin were added, the matriculation requirements would be as near perfection, as, under the circumstances, it may be possible to make them. We would suggest that, of the four subjects in the pass matriculation, any two of which may be taken, the pass Greek should be made compulsory, with any one of the remaining three, or none of them for that matter. A knowledge of Greek, however elementary, is of much value to the proper understanding of many medical terms.

If the Council would modify its resolution of last June, so as to read the pass matriculation with Greek, and one of French, German or Science, or omit these three altogether from the list, and the honor English subjects and honor Latin, no serious objection could be raised against the standard demanded. As a means of encouraging further culture on the part of those about to enter upon the study of medicine, the Medical Council could well afford to accept first year standing in any of the Canadian Universities. The General Medical Council for Great Britain accepts the matriculation of the various Universities. The council should also state that second-class honors will be accepted. It should also be made clear whether or not the resolution of the Council means merely a pass standing on the honor matriculation subjects. The regulations of the Education Department give a pass standing to those who write on the honor matriculation, but only obtain the pass marks of 33 per cent. This might technically be held to be passing the honor matriculation.

A careful study of the opening lectures, delivered before the students of a number of the British Colleges, by such leading educationists and teachers as Sir Arthur Rücker, Sir Dyce Duckworth, Sir Frederick Travers, W. B. Cheadle, T. Whipham, etc., shows that there is a strong desire in their minds to raise the standard of the general education required for registration as a medical student. The General Medical Council for Great Britain has adopted a five year course of professional study. The subjects of medicine, surgery, and obstetrics are not written off until the end of the fifth year. In this respect the Ontario Medical Council has done well to adopt a five year course of study. Quebec, we are glad to see, is moving in the same direction. At a recent meeting of the Board of Governors for Quebec, it was decided to adopt the five year course, but this requires confirmation by the Legislature before it becomes law.

We feel sure that, if the members of the Medical Council will carefully study the regulations of the Education Department, and also take the opinions of leading educationists throughout the Province, they will

come to the conclusion that the above course of preliminary study will prove suitable in every way, and acceptable to the student, the teacher, and the public alike.

To remove any doubt as to the interpretation to be given to regulation 1 of section 1 of the regulations of the Medical Council for 1902-3, it was recently decided by the executive committee that the standard of admission for 1903 shall be the same as for 1902, and for 1904 and subsequently the standard of admission shall be either:—

- (1) Junior matriculation in arts, including physics and chemistry with honor standing in any one subject of the course, or
- (2) Senior matriculation in arts as now provided by regulation 2, section 1.

As the changes now announced will not come into operation until 1904, there will be ample opportunity for their discussion and amendment if necessary at the coming meeting of the Medical Council next June.

### THE ANNUAL MEDICAL DINNERS.

THESE annual banquets of the medical students and the members of the teaching staffs of the medical colleges are now regarded as among the most important and noteworthy of the many functions of the social life of Toronto, and many other cities. At these gatherings there is a union of teacher, student and graduate on terms of intimate friendship, which must redound to the benefit of the College, whose friends thus assemble round the festive board. The banquets of this year were not less memorable than those of former years.

One of the features of the speeches at each of the banquets was the decided tone of loyalty in each case towards the respective colleges. It was a case of we have a worthy alma mater and we shall prove ourselves worthy sons. He who is a worthy alumnus of his college will be a worthy son of his country, and we rejoice in this strong spirit of college loyalty. The *esprit de corps* of college life becomes the *esprit de corps* of national life. The graduates of these colleges are now a numerous body, and many of them have no small degree of influence in their various localities, while some have acquired a fair amount of wealth. It would not be a difficult task for the alumni of these colleges to do something of a substantial character in aid of the scientific branches of medical study. To endow the chairs in anatomy, physiology and pathology, would be a worthy object for the alumni to keep constantly before their minds.

Another feature of the speeches was the determination on the part of both colleges to keep abreast of the advancement now going on in medical science. This is a laudable ambition, but to make it effective demands money; and the alumni, as above indicated, could do much. To raise an endowment fund for scientific purposes of \$50,000 would be an easy task to a body of professional men, numbering among the thousands. At the Trinity Medical banquet Dr. N. A. Powell spoke of the fact that new responsibilities were arising and must be met. He claimed that the graduate going forth from the college must be able to cope with conditions of practice as they now exist, and hold his own with the graduates from other colleges. Prof. Barker, of Chicago, speaking at the banquet of the medical students of the University of Toronto, dwelt upon the vast amount of work that was now being expended on original research. Along these lines a great army of workers are engaged searching out the true causes of diseases, and in a scientific effort for means of their prevention and cure. *Nec silet mors, nec arcanum sit remedium.* Prof. Barker also spoke of the tendency to establish a short B.A. course for those who are going into the study of medicine. This we think is highly commendable. A fair degree of general culture is of the utmost importance to the professional man. Already the University of McGill and the University of Toronto have formulated courses of study by which a student can obtain his B.A. and M.B. in six years. It would be well if the medical council could do something to encourage students to take this combination course. We see no reason why it could not, and indeed we are strongly of the opinion that it can and should. Students who take such a course could be allowed to go up for their license at the same time as they obtain their M.B.

We wish to refer to the remark of Dr. Pepler, at the Trinity Medical banquet, that he saw in the future a closer relationship between the Medical College and the University. This is in the right direction, and is in harmony with the tendency of the day. The great universities of Europe, Britain, Canada and the United States have their medical faculties as an integral part of the university system of teaching and work.

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### THE ONTARIO HOSPITAL ASSOCIATION.

**I**N the month of February last, at the call of a circular letter which was sent to the secretaries of the hospitals in Ontario, a large number of persons, interested in hospital work, met at the Queen's Hotel, Toronto. An Association was formed, and officers elected. The report of the meeting was published in THE CANADA LANCET for March.

The Association promises to be an influential organization. Many of the hospitals in the Province have joined it, and also many of the trustees and others interested in hospital work have become members. The objects of the Association are to procure increased Government aid for the maintenance of indigent patients in the public hospitals of Ontario; to take steps to secure a proper amount of county and civic aid, and to promote, by mutual suggestion and discussion, the interests of hospital work throughout the Province.

The above objects are of a most praiseworthy character. There is good work, and plenty of it, to do along the above lines. It is only too true that many municipalities make but scant provision for their destitute poor. There is a strong desire, in many places, to unload the common duty, in this respect, on to the generosity of the individuals who take an interest in the needy sufferer.

There are some persons who impose upon hospitals. They are hospital inhabitants. They go from one hospital to another, seeking shelter and attendance. Something may be done by the Association to rid the hospitals of the expense of caring for such imposters. When once detected, they should be watched.

The Association might also do a good service for the medical profession by putting an end to the abuse, now prevalent, whereby a person of means takes a bed in a public ward and claims free medical and surgical attendance. To save expense he takes the cheapest accommodation, and pays the doctor nothing. In all cases where the patient is not admitted under an order from the municipality as a pauper, he should be required to pay for his medical attendance. This should apply also to persons placed in a hospital by societies and corporations. The governing bodies would do well to apply the rule of free attendance only to certified charity cases. They would only be doing justly by their medical staff to exempt the latter from giving free attendance simply because the person or his friends chose a public ward. It is to be hoped that this abuse will soon cease. Hospitals should not do anything that would deprive the medical profession of its legitimate fees. In this regard there should be perfect accord between the governing bodies of the hospitals and the members of the profession.

In all cases where patients pay for their maintenance in a hospital they should be free to select their own medical attendant. Such medical attendant would be required, however, to observe the rules of the hospital.

## PERSONAL.

Dr. Thomas W. Irwin, of Pembroke, died suddenly on 12th November, 1902.

Dr. Barr, M. P. P., for Dufferin, has recovered from his recent injury.

Dr. Devine has been appointed professor of Materia Medica and Therapeutics in Manitoba Medical College.

Dr. R. J. Dwyer, of Toronto, has passed the examination for the diploma of M. R. C. P., London.

Dr. G.C. Stephen, of Montreal, and a brother of Lord Mountstephen, died suddenly of heart disease in London, Eng., at the age of 43.

Dr. R. A. Davies, who practised at Easton's Corners for many years, died at Ottawa on 2nd December. He was in his 60th year.

Dr. D. Brochu, of Quebec, who is President of the Association of French Physicians of North America, was banquetted a short time ago by his medical friends.

Dr. Brock, of Guelph, the representative of the Wellington and Waterloo district, entertained recently several members of the Council and other medical gentlemen.

Dr. J. A. Ferguson, who was the recipient of the Royal Humane Society's medal, died at Ottawa, 19th November, 1902. He was 29 years old.

Dr. J. M. Forster, Assistant Superintendent at the Mimico Asylum, has gone to Britain for three months to study mental and nervous diseases.

Dr. T. A. Starkey of the University College, London, England, who was recently appointed Professor of Hygiene at McGill University, Montreal, has arrived in that city to assume his professional duties. Dr. Starkey was graduated from University College in 1894. After serving for a short time as interne in the Brompton Hospital, he went to India, and from 1899 to 1901 was stationed at Bombay, working under the famous bacteriologist, Haffkine, in the Imperial Research Laboratory. Since his return to England he has been pursuing his public health work in the laboratories of University College, London.



## BOOK REVIEWS.

### A BEAUTIFUL CALENDAR.

**T**HE New York Pharmacal Association have issued a handsomely illustrated calendar, which is given with compliments of Lactopeptine.

### MERCK'S INDEX.

**T**HIS is a large octavo volume of 375 double-column pages. It is got up in excellent form. It gives a complete list of preparations and their origins, natural history, and composition. The work is arranged alphabetically and contains a vast amount of very useful information on pharmacology.

### ELECTRO-THERAPEUTICAL PRACTICE.

A ready reference guide for physicians in the use of Electricity Seventh Edition, revised, rewritten and greatly enlarged. By Chas. S. Neiswanger, Ph. G., M. D., E. H. Colgrove & Co., Chicago, 1902.

**T**HIS is a handsome volume 200 pages, bound in limp leather, and interleaved for notes. The book covers the science and practice of electro-therapeutics in a brief but thorough manner. The various books on electricity and all kinds of electrical appliances, mentioned in the work, can be procured through the McIntosh Battery and Optical Company of Chicago.

### SYPHILIS—A SYMPOSIUM.

Special contributions by L. Duncan Bulkley, A.M., M.D.; Follen Cabot, Jr., M.D.; Louis A. Duhring, M.D.; Prof. Fournier, M.D.; Eugene Fuller, M.D.; E. B. Gleason, M.D.; William S. Gottheil, M.D.; Robert H. Greene, A.M., M.D.; J. B. Thomas, M.D.; Norman B. Gwyn, M.D.; Orville Horwitz, M.D.; Thomas G. Morton, M.D.; Edward L. Keyes, M.D.; G. Frank Lydston, M.D.; D. J. McCarthy, M.D.; Boardman Reed, M.D.; A. Robin, M.D.; \$1.00, 1902. New York: E. B. Treat & Co., 241-243 West 23rd Street.

**T**HIS work is made up of a series of papers prepared for general practitioners by syphilographers of large experience; and also includes answers to a series of questions by eminent specialists. All the articles are clear and concise, and give the most recent and exact information on the different phases of the subject. Besides this, there are chapters devoted to syphilis of special organs. The workmanship on the book is excellent and we can heartily recommend it, as being one of the most up-to-date work on the subject.

## BIOGRAPHICAL CLINICS :

*Origin of the Ill Health of De Quincy, Carlyle, Darwin, Huxley, and Browning, by George M. Gould.*

**T**HE above is the title of a book to be issued by Messrs. P. Blakeston's Son & Co., at an early date. The work will be a very interesting and instructive one. The distinguished author takes the view that the ill health of these writers was due to eye strain. He makes out a strong case.

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## A REFERENCE HAND-BOOK OF THE MEDICAL SCIENCES.

Embracing the entire range of Scientific and Practical Medicine and Allied Science by various writers. A new edition completely revised and rewritten. Edited by Albert H. Buck, M.D., New York City, Vol. 1. Illustrated by numerous chromolithographs and four hundred and ninety-eight half-tone and wood engravings. New York: William Wood and Company.

**T**O all who are acquainted with the former edition of the Reference Hand-Book of the Medical Sciences, the present edition will need but little introduction. A perusal of volume one of the second edition convinces one that it would be well nigh impossible to imagine in what way it could have been improved. We have here a large volume, 9 inches by 11½ inches, and consisting of 800 double column printed pages. The entire make-up of the book is an expression of all that is ideal in the book making art, including binding, paper, type and illustrations. With regard to the colored plates, they may well be called superb. The half-tone and wood engravings are in every respect of a very superior character. Excellent, however, as these features of the volume are, it is not until the reading matter is examined that the real value of the volume becomes apparent. The articles are of a very high standard of merit; and are regulated in length with great care, from the stand-point of the subject discussed. The literary and scientific qualities of the articles are all that could be desired. The first volume gives a list of contributors making up four pages. The articles are arranged alphabetically, and cover A and B. For readiness of reference and reliability of matter, it may be safely said that there is no other single work equal to the Reference Hand-Book of Medical Sciences.

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## MISCELLANEOUS.

### THE USES OF ANTIPHLOGISTINE.

**D**R. C. C. PARTRIDGE, writing in *American Surgery and Gynecology*, for October, 1902, speaks highly of the value of antiphlogistine in a case where there were puerperal septicaemia, double pneumonia and an abscess of the thigh. Antistreptococcic serum and saline solutions were used. The antiphlogistine was applied over the lungs, the hip, and the lumbar and sciatic nerves. The abdomen became distended, and it was applied here also. The patient got well.

### GUDE'S PEPTO-MANGAN IN ANÆMIA.

**D**R. ENRIQUE Diago, Havana, Superintendent of Hospital, No. 1, Havana, Cuba, in *Progreso Medico* for April, 1902, recommend Gude's Pepto-Mangan for anæmia. Along with Dr. José F. Benetez, chief of the Laboratory, he has made some careful investigations on the improvement of the blood under the administration of the Pepto-Mangan. The quality of the blood, especially the number of red corpuscles increased with marked rapidity.

### ERGOAPIOL.

**E**RGOAPIAL (Smith) is a compound of ergot and the active principle of opium petroselinum, and other valuable drugs. It is highly recommended for amenorrhœa, dysmenorrhœa, delayed menstruation, foetid and scanty menstruation. M. A. Auerbach, M. D., and W. A. Weightman, M. D., speak in the highest terms of this combination in the above conditions. It has proven of much value, after confinement, to bring about complete involution. One capsule should be given every four hours, with some milk or water. It is non-toxic and does not cause digestive derangements.

### NATURAL CARLSBAD SALTS.

**T**HESE natural Carlsbad salts, which bear the trade mark and signature of "Karlsbader Mineral wasser versendung Löbel Schottlander," consist of the genuine saline constituents of the Sprudel springs at Carlsbad. They thus differ from certain other salts, which, though passing under the name of Carlsbad are really combinations of the similar salts, but derived from quite a different source. With the exception that the earthy carbonates have been removed, the dried Carlsbad salts when re-dissolved in water present exactly the same chemical combination as occurs in the Sprudel spring. It is unnecessary to enter into the therapeutic properties of these salts; but in all cases in which a "cure" at Carlsbad is indicated, the taking of these salts at home offers a good substitute for the use of the waters. The Natural Carlsbad Salts

are prepared in crystalline and in powder form. The dose is one teaspoonful taken either in hot or cold water the first thing in the morning.—*Ingram and Royle, London England.*

#### RELATIVE VALUE OF MALT EXTRACTS.

CHEMICAL analysis has shown that wheat and oats contain much larger proportions of albuminoids and nitrogenous elements than barley. Gluten, which is found very abundantly in wheat, is the most nutritious element obtained from the cereals, and the only vegetable substance that will support life indefinitely. Wheat contains from 15 to 35 per cent of gluten. Its proportion in other grains is insignificant (see *Flints Physiology of Man*) The nitrigenised principles of wheat and oats *when malted* are more soluble than they are in barley, and therefore dairymen will pay for the refuse grains from malted barley whereas they will not accept the refuse grains from malted wheat and oats as a gift.

It is for these reasons that "Maltine" (malted wheat, oats and barley) contains so much larger proportions of constructive nutritive properties than the best extracts prepared from barley alone. The reason "Maltine" contains so much larger proportions of the digestive principle, diastase, than the ordinary extracts is because the gluten and cerealine in the malted and wheat have sufficient power to convert all the starch of the three cereals into sugar leaving the unemployed diastase of the wheat oats and barley in the Maltine. Gluten and cerealine act as powerful ferments, transforming starch first into dextrine, and then into sugar (see *Flints Physiology of Man and Watts' Dictionary of Chemistry*)

Baron Von Liebig said: "wheat and oats stand first among our list of cereals in combining all the elements in proportions necessary to support animal life. They are especially rich in muscular and fat producing elements."

Prof. Austin Flint, Jun., held that "wheat must be considered as by far the most nutritious of all grains."

Prof. Thos. King Chambers, F.R.C.P. Lond., stated that "barley and rye are inferior in nutritive power to any of the other cereals."

John Attfield, F.C.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, remarks that "maltine contains unimpaired, and in a highly concentrated form, the whole of the valuable soluble materials which it is possible to extract from either malted wheat, malted oats, or malted barley."

"It is unrivalled as a natural solvent of bread, pastry, and all other farinaceous food, and is, therefore, an invaluable aid to sound and healthy digestion. No better preparation of malt has ever yet been manufactured,"