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A CASE OF EXTRA-UTERINE FŒTATION.* OPERATION AND REMOVAL AT THIRTEEN MONTHS.

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G. T. Railway, Etc.

Mr. President and Fellows,—Originally, I intended merely to exhibit this specimen and make a short report of the case; but on looking back over the past ten years, I can now see many cases that have gone “the way of all flesh” undiagnosed, consequently puzzling and most vexatious, causing unhappiness, for the time at least, to myself and no doubt to some of the friends of my patients. And having had the subject brought most forcibly before my mind recently by two cases—one where the post-mortem showed a ruptured tubal pregnancy to be the cause of death, and the other where a suspected tubal pregnancy led to operation when the condition present proved to be one of pyosalpinx and an enlarged ovary—I determined on dilating more fully on the subject.

I find, on reviewing the writings of the best authors on this subject, that many prominent men differ in their opinions, and very unflattering epithets have been used, even by the first men in the profession, over such differences. “*Extra Uterine Gestation*,” “*Ectopic or Ectopian Gestation*,” is the development of the impregnated ovum outside its normal locality. To trace out the pathological conditions existing one must of necessity

* Read before the Medico-Chirurgical Society of Montreal.

refer to histology and physiology. The functions of the tubes, it is generally agreed, are to transmit the ovum from the ovary to the uterus, and permit the passage of spermatozoa from the uterus in the direction of the ovary. The ciliated epithelium lining the tube and the peristaltic action of its walls aid in this matter. In regard to this, Michael Foster, in his "Text-Book on Physiology," says "the spermatozoa find their way into the Fallopian tubes, and here in its upper part comes in contact with the ovaries. In some of the lower animals impregnation may take place at the ovary itself."

Lusk says "after coitus the spermatozoa make their way through the Fallopian tubes to the pelvic cavity, and *it is possible*, therefore, for the ovum to become impregnated at any time on the way from the ovary to the uterus." It is a well-known fact, and one not to be forgotten, that *spermatozoa* move by *inherent force* at a rate variously estimated. Henle says "they move an inch in seven and one-half minutes." Sims calculates that "they move their length in a second," nor are their movements easily interfered with, for Robin states "they push out of their way epithelial cells or crystals ten times their size."

The inherent power of the spermatozoa is made manifest in those cases where women have become pregnant with an almost imperforate hymen, or with atresia vaginæ so nearly complete that there was only a small fistulous tract leading to the uterus, or in that remarkable case where the spermatozoa reached the uterus through the bladder, having to pass through the urine. Kœberle reports a case "where the uterus had been amputated two years before for fibroid tumour, but a fistula was present in the cicatrix of the cervix through which spermatozoa passed into the abdominal cavity and pregnancy resulted. That when one tube being closed, the ovum may become impregnated by spermatozoa from the other tube is shown by the experiments of Leopold. He tied the right Fallopian tube in rabbits in two places and excised a portion of the tube between the ligatures, the left ovary was carefully removed and the abdominal wound closed. After recovery the rabbits were put to the male. In two such cases pregnancy resulted."—(*Arch. f. Gynæc.*, vol. xvi., page 24.

That the spermatozoa *may* and *do* find their way into the abdominal cavity Bischoff has proven beyond a doubt; both he and Parry have seen them on the ovaries. Of this Leishman says "the ovum, as has been shown, is developed within the ovary in the Graafian vesicle; while yet it occupies that position, even before rupture of the vesicle has taken place, impregnation may occur.

Parry, in his work on "Extra-Uterine Pregnancy," does not think it difficult to conceive of the rupturing of the Graafian follicle and the ovum remaining, and thus affording a better opportunity for the spermatozoa fecundating the egg in its very shell. He says, "When we remember the process by which the ovum escapes from the Fallopian tubes it may occasion no surprise that it should be sometimes retained even after rupture of the vesicle of De Graafe has occurred."

Regarding the functions of the tubes and ovaries, Mr. Tait has proven conclusively that ovulation *can and does take place before, during, or even after* menstruation ceases, and that the change at puberty of greatest importance is in the functional movement of these accessory organs—that is, the "grasping," so to speak, of the ovary by the fimbriated extremity of the tube at only stated times or during the menstrual epoch. Ovulation and menstruation are not always coincident; the passage of an ovum does not always take place, though the fimbriated extremity is grasping the ovary, since it frequently happens that at such times no ripe ovisac present. If, then, as has been shown, ovulation continues inter-menstrually when the tubes are quiescent, the question arises, What becomes of the ovum when the sac ruptures? There is only one place it can go, and that is into the peritoneal cavity, where it perishes and is absorbed.

Mr. Tait, in his work on "Diseases of the Ovaries," says, "I believe that the ovum falls into, and perishes in, the peritoneal cavity in by far the greater number of cases, and that the passage of it into the uterus occurs in only a small percentage."

The ovule is short-lived, and if not vivified in the tube by contact with the male element degenerative changes will destroy its vitality before it reaches the uterus. Charpentier and other recognized observers claim that after it passes the outer third of

the tube it is covered by a layer of albumen which the spermatozoa cannot pierce. Many other facts could be given to prove that impregnation does not occur in the uterus.

Regarding other than normal pregnancy, Tait's amended classification is probably the best yet devised, as given in the *Lancet*, Sept. 1st, 1888. He divides the different forms of gestation into

I. *Ovarian*—not yet proved, though possible.

II. *Tubal*.—In free part of tube, and is contained in tube up to 14th week, at or before which time primary rupture occurs, and then the process of gestation is directed

Either into abdominal or intra-peritoneal gestation, uniformly fatal either from hemorrhage or suppuration of ruptured sac and peritonitis ;

Or into broad ligament extra-peritoneal gestation ; when it may develop in broad ligament to full term and be removed at viable period as a living child ;

Or may die and be absorbed as extra-peritoneal hæmatocele ;

Or may die and the suppurating sac discharged at or near the umbilicus, or through the umbilicus, or through the bladder, vagina or intestinal tract ;

Or may remain quiescent as a lithopædian ;

Or may become abdominal intra-peritoneal by secondary rupture.

III. *Tubo-uterine or Interstitial*.—Is contained in that part of the tube embraced by the uterine tissue, and so far as known is uniformly fatal by intra-peritoneal rupture before the 5th month.

Of these, by far the most common form is the tubal. All agree that the majority of cases are primarily tubal.

Causes—Are stricture of the tube due to lessening of its calibre by old inflammation or by contraction of lymph thrown out by pelvic peritonitis and flexions of the tubes.

Tait gives us "desquamative salpingitis" as a cause ; here, catarrh of the mucous membrane leads to loss of cilia and allows of the implantation of the impregnated ovum on the surface of the denuded tube.

Lusk gives as a cause "dilatations with hernial pouches due

to protrusions of mucous membranes through the separate bundles of muscle fibres of the tube.”

The Diagnosis.—Cases proved by abdominal section or post-mortem show that diagnoses have been made before rupture, but it is rarely done, and in any case can only be presumptive, because the same symptoms are present in cases of “retroflexed gravid uterus,” in “ovarian cyst,” “uterine fibroid,” “hemato-salpinx,” or pregnancy in the rudimentary horn of a bicornate uterus. All these conditions, at different times, have been diagnosed as extra-uterine pregnancy.

Want of diagnostic skill may by some be assigned as the cause of mistaken diagnosis. Such cannot be charged against Dr. Mann of Buffalo. Yet Dr. Mann diagnosed a case as one of extra-uterine pregnancy, and, as he supposed, killed the embryo by electricity. That same case, a short time afterwards, fell into the hands of Dr. Wylie of New York, who operated and found a large purulent sac containing a pint or more of fluid, but nowhere any trace of an extra-uterine pregnancy ever having been present.

Dr. Mundé diagnosed a case as one of extra-uterine pregnancy and operated, only to find a normal pregnancy in the rudimentary horn of a bicornate uterus. This mistake in diagnosis would surely not be attributed to want of diagnostic skill on Dr. Mundé's part.

From the nature of things, most cases rarely come under observation before the period of rupture, because there are seldom symptoms, or, if any, not alarming enough to lead the patient to seek medical aid.

The symptoms of the period prior to rupture are indefinite and indistinct, as best given by Dr. Joseph Price, are :

I. As partial or complete cessation of menstruation for one or more periods, generally accompanied by other rational symptoms of pregnancy, though occasionally all these are wanting.

II. Pain which is peculiar, being generally severe, paroxysmal and long continued ; a *sickening* pelvic pain which is neither cramp-like nor colicky, though it is often described by these terms ; these pains, probably caused by distension of the tube, are apt to subside for a time, only to recur again.

III. The appearance of uterine hemorrhage, which is again peculiar, in that it is usually irregular both as to time and quantity, generally lighter in colour than the normal discharge, and contains shreds of tissue which are portions of decidua vera.

Physical examination further shows the uterus slightly enlarged, cervix soft and patulous, and to either side and slightly behind is found a painful mass.

Histories are not to be relied upon in making a diagnosis in extra-uterine pregnancy before rupture. It is only after repeated examination and watching the enlargement of the tumour that we can even make a presumptive diagnosis. There is one point, however, in the history of most cases that should be of some assistance—that is, there has been a long period of sterility either with no former pregnancy or following one or more confinements. Parry says, “Women who have become pregnant with the child outside the uterine cavity frequently show a previous inaptitude for conception. If the woman has borne children a period of sterility frequently precedes the extra-uterine pregnancy.” This was the case with my patient; she had already borne five children, and then did not become pregnant for nearly ten years; during which time she suffered with continuous pelvic trouble.

Now, a *diagnosis of extra-uterine pregnancy* having been made, how are we to treat the case for the best interests of the patient? If diagnosis be correct, and the tumour left undisturbed, it will continue developing until about 12th week, when rupture takes place, which in the majority of cases means death to the mother, unless relieved by operation. Of 149 cases of intra-peritoneal rupture reported by Parry, 145 proved fatal.

Reading the mass of literature on this subject which has appeared within the past few years, it is plainly seen that the only scientific and certain treatment is by abdominal section and extirpation of sac and contents. I am aware that this view is disputed by the advocates of electricity, among whom may be numbered men who are not lacking in experience, diagnostic skill, or sound judgment. In the hands of competent men the removal of these sacs should be neither more difficult nor dangerous than that of a “cystic ovary” or “pus tube.”

The method of treatment by electricity has objections.

There is no certainty that the foetus will be killed and the growth stopped. Tuttle reports a case where the faradic current was passed through the mass for ten days without reducing size of tumour. In this case the thorough and intelligent use of electricity for the purpose of destroying the embryo was followed by no evident amelioration of symptoms nor interruption in growth of tumour, but, on the contrary, continued to grow worse.

The treatment is not without danger. Brothers cites four cases which had presented alarming symptoms during or after the application of electricity. Baldy of Philadelphia had a case where severe peritonitis followed a single application.

It is slow in its action, and while waiting for its effects other accidents may happen, as tubal pregnancy frequently ruptures before the 13th week.

It almost invariably leaves the patient with dangerous after conditions, even in cases reputed as cured. The sac and contents not infrequently had to be removed later by laparotomy. Tuttle reports the case of a foetus passed by rectum after electrical treatment. Hanks reports cases in which, after electricity, the foetus passed by the bladder, rectum and uterus. Thus it appears as an unscientific and wholly unsurgical procedure; and even though the embryo be destroyed, it does not give the patient immunity from subsequent dangers.

All tubal pregnancies must rupture, and this event may take place from the 8th to 14th week; the tension caused by the growth of the gestation brings on a spasm of the muscular walls, causing a separation of a portion of the placenta and allows of bleeding; part of the blood passes through the uterus, the rest remaining increases distension. This process repeated, in the end causes rupture, which may take two directions—intra-peritoneal, *the fatal form*; or into the broad ligament, *the extra-peritoneal form*.

In the "intra-peritoneal form" there are two cardinal symptoms—shock and hemorrhage; there is collapse, shown by cold, clammy skin, intense pallor, vomiting, etc., death often ensuing in a few hours. The patient may recover from the

shock, only to be attacked again within a few days, when from repeated hemorrhages death ensues unless surgical steps interfere. In the diagnosis of this form we must not expect to find a definite tumour, for the blood is unlimited by any membrane; it can be felt as a soft bag bulging into the vagina. No tumour can be detected above the rim of the pelvis.

In the "extra-peritoneal" variety the symptoms are not marked, the shock slight, pain is not so severe, and power is soon regained; there is, however, more bearing-down sensations, difficulty of micturition, and defæcation is increased. If examination be made at once, a boggy condition of the pelvis is encountered; if examined after a few days, the distension will have disappeared from the spreading of the effused blood into the connective tissue of the pelvis.

About three-fourths of all "extra-uterine gestation" die, and more than half die shortly after rupture. The condition is one of concealed hemorrhage from the rent in the tube, the blood vessels keep pouring blood into the peritoneal cavity, here it is diluted by peritoneal lymph and thus prevented from clotting; there is nothing to check the hemorrhage, which continues until the patient is exhausted, or temporarily stopped by nature's means—fainting. In treatment, the same principle applies here as in other parts of the body—surgical; the hemorrhage demands that you cut down and tie the bleeding point.

The "extra-peritoneal form" should be treated as a simple hæmatocele; if possible, it should be left alone or such palliative and sedative treatment adopted as pelvic pain, obstructed defæcation or obstructed micturition may call for. The only dangers the woman is subjected to during this period are from secondary rupture into the peritoneal cavity, from inflammation and suppuration in the sac, and when the foetus having died, Nature trying to eliminate the foetus by fistulous openings in various directions.

When secondary rupture has taken place into the peritoneum the abdomen should be opened and blood removed, then sac incised, contents scooped out (foetus may be present or may have been absorbed); any hemorrhage still going on in the sac stopped;

the edges of the sac should be brought into the incision, which should be closed except at its lower part, where a drainage-tube should be inserted. If a definite placenta be present it should not be touched, as great hemorrhage is likely to take place from its site, and there is no efficient means of arresting this hemorrhage. So in the treatment of "extra-uterine pregnancy," between the primary rupture and the viable period, there are only two alternatives worthy of consideration, namely, *expectancy* and *laparotomy*; and as with the present method of treating the placenta the operation at full period is not more dangerous. I would say give the child a chance and enjoin on the mother precautions as to avoidance of exertions likely to produce secondary rupture or death of the fœtus. At full time we may operate during the false labour, or allow the child to die, and operate when circulation through placenta has ceased.

In coming to a decision, too much reliance should not be placed in the older statistics, for the majority of cases operated on before the days of antisepticism died through lack of cleanliness of the peritoneal cavity. The peritoneal cavity being a gigantic lymph sac, poisonous matters might as well be injected into a vein as left there.

In the primary operation, great success was obtained by Veit of Berlin and Mr. Tait. Veit reports seven successful cases; Tait, out of five cases, saved three mothers and all the children. This, combined with our better means of dealing with all the conditions within the abdomen, to my mind makes this the proper treatment. On account of the rearrangement of the peritoneum we should make the incision well to the side of the middle line to which the gestation is. When the sac is opened the fœtus should be carefully lifted out by the feet. Tait then squeezes all blood out of placenta, ties the cord close to it, and cuts it off. The sac is then cleansed of all blood, membranes, etc., filled with water, and stitched tightly around drainage-tube, through which the water is drawn off and then opening closed. When it is possible to tie a big pedicle round attachment of the placenta to the tube and broad ligaments, which contains most of the blood vessels to the placenta, this should be done and the placenta removed; bleeding can be stopped by perchloride of iron.

When the case is seen after death of the child, the operation should be deferred until absorption of the amnion and placenta circulation has ceased. This period is variable. Schröder found in one case obliteration of the vessels three weeks after death of foetus, while De Paul lost his patient from placental hemorrhage four months after death of foetus.

CASE REPORT.

Mrs P., aged 36, a well-developed woman of medium stature, began to menstruate at 14 years. Menstruation was always accompanied by considerable pain; flow usually free and lasting about four days. Married at 17, and had five children; no miscarriages. Last child was born February 1879. During these nine and a half years she had been regular every month; no more pain than usual; no leucorrhœa. She always complained of pain on left side, and was tender on pressure. In September, 1888, her menses ceased. She did not think she was pregnant; thought she had taken cold. About the twelfth week after, on getting out of bed in the morning, was seized with a sharp pain in the hypogastric and left inguinal region. This pain was of a colicky nature, and extended down the thigh, and so severe in its nature that patient fainted away. On recovering, pain continued to increase in severity. During this time there was a discharge from the vagina, pale pink in colour, as though water and blood mixed. No membranes or shreds. She remained in bed for about eight weeks, during which time her physician treated her for severe grinding pains, which he told her was due to inflammation of the womb. These pains were continuous. Turpentine stupes and mustard *ad lib.* had no effect. It was not until she was out of bed, about the fifth month, that she noticed any enlargement of the abdomen. At this time a small lump was detected low down in the left of hypogastrium. This gradually kept getting larger. About the seventh month only did she begin to feel movements of the foetus. Pain still continued getting more and more severe, described as though tearing in side of body. She could not lie down on account of this pain. As she approached full time, pain was so severe that it required hypodermic injections of

morphia to obtain relief. About the ninth month, and after two rapidly-repeated injections of morphia, she felt a quivering sensation in the abdomen and afterwards all movements ceased. Pain also ceased, and none until nine days after, when she began to have severe pains resembling labour pains. They continued from 1 P.M. until about 10 P.M., when they gradually left. Her physician gave her ergot and in other ways tried to awake labour pains in order to complete delivery. Nothing being accomplished, outside medical advice was sought, but no diagnosis of the actual condition was made. I was sent for about four days later, and after dilating the os found an empty uterus. The history of the case, the position and condition of uterus rendered the diagnosis comparatively easy. The child was then dead, so nothing was to be gained by an immediate operation.

Now this was a most typical case. 1st, The time from last pregnancy. 2nd, Pain and tenderness in left side; probably salpingitis. 3rd, Rupture and course of pregnancy.

I suggested her removal to the hospital and there prepare her for the removal of foetus. She did not give consent and I withdrew. I took a trip out to the Indian Territory, and remained away two months. On my return I found my patient in the hospital awaiting operation. She had become greatly emaciated, suffered severely from night-sweats, and other symptoms of blood poisoning. She was well on in the thirteenth month when I operated. Assisted by my brother, Dr. Matthew C. McGannon, I opened the abdomen and stitched the sac to the edges of the wound, then opened the sac and removed 12 qts. of yellowish, milky-looking fluid, and then the foetus, which had become attached in several places to the side of the sac, bands having been thrown around the legs and arm, one so strong that I had to remove the arm at the shoulder and carefully dissect off the adhesion. The placenta I found detached and lying loose in the bottom of the cavity. I washed out the sac with warm water until nothing was left. My patient had ceased to breathe, but the hot water quickly dashed into the sac revived her, and by the continued efforts of my assistant she rallied. Drainage-tubes were left in the wound, and the sac was daily washed. No bad symptoms followed and she made a rapid recovery. Is now a strong, fat and healthy woman.

THE NATURE OF CEREBRAL PRESSURE AND THE PRINCIPLES OF TREATMENT OF THE SO-CALLED BRAIN PRESSURE SYMPTOMS. BY PROFESSOR ADAMKIEWICZ.

TRANSLATED BY J. W. STIRLING, M.B., &c.

The old theory of brain pressure was based upon the idea that the cerebral nerve tissue was incompressible, and that there was an increased tension of the cerebro spinal fluid arising from its displacement by an intracranial growth. This increase of pressure would occlude the cerebral capillaries, causing cerebral anæmia. The abnormal cerebral symptoms therefrom arising were embraced in the term "brain pressure symptoms."

Adamkiewicz, by the following experiment, has proved that the brain tissue is compressible. He inserted a piece of laminaria between the dura mater and the brain of an animal. This became imbedded in the brain tissue as in soft mass, and on its removal left a depression in the brain corresponding to its form and size. The microscope showed the nerve elements to be evidently diminished in size and crowded together.

The mechanical explanation is as follows:—

The skull is composed of porous bones perforated by many small canals, through which the cerebral fluids are in free communication with the lymph and blood-vessels of the rest of the body. Every foreign body or growth inside the skull will thus form a cavity of sufficient size for itself, expressing an amount of fluid from the compressed brain tissue corresponding in volume to its own size, this fluid being forced into and escaping by the blood and lymph vessels from the cranium. There is no increase of tension of the cerebro-spinal fluid.

He proved in the foregoing experiment, by using the graphic method, that during the swelling of the laminaria there was no alteration of the pressure in the jugular or carotid.

Intracranial growths hence do not alter the normal blood current in the brain. At the moment of pressure the liquor cerebri, instead of compressing the capillaries, re-enters the blood-vessels or leaves the skull by some similar way.

It behaves thus as any ordinary transudation from the blood, being only poured out in a quantity corresponding to the space existing between the skull and brain.

It is, on the one hand, controlled by the blood pressure, and, on the other hand, can never exert any positive influence on the blood, nor set up an increased tension of itself.

Hence the liquor cerebri can never cause cerebral anæmia, but the contrary.

The congestive hyperæmia due to backward pressure of the blood increases the secretion of the liquor cerebri, and this can set up an increased tension of the same in the skull.

An intracranial growth can not cause cerebral anæmia.

If in the experiment with the laminaria, while it was swelling, one injected a solution of coloured lime into the carotid of the animal and afterwards examined the brain microscopically, one would find, especially at the spot compressed by the laminaria, that the vessels were dilated.

The cerebral vessels are hence not occluded by an intracranial growth, but are dilated and increased.

The cerebral pressure symptoms are not the result of increased intracranial tension, but the general expression of the irritation and paralysis of the otherwise altered brain substance.

For example, the same symptoms can be caused by hammering the skull of an animal, or stimulating the cerebral cortex by electricity, or by slowly withdrawing the blood from the brain, or injecting some irritating fluid into the carotid.

The resulting symptoms were invariably nystagmus, disturbance of respiration, slowing of pulse, convulsions, and finally, if irritation continued, coma and death.

Now, since the physiological liquor cerebri does not give rise to brain pressure symptoms, yet it is possible that the ex- and trans-udations occurring inside the skull under pathological conditions can attain an unusual degree of pressure, and give rise to the phenomena attributed to brain pressure.

Now it was desirable to ascertain whether, upon the injection of fluid into the cranial cavity, there corresponded to every artificial increase of pressure a special morbid symptom; and further,

whether death occurred whenever the tension of the injected fluid equalled the carotid pressure, and accordingly closed the capillaries, stopping all inflow of arterial blood to the brain. Adamkiewicz performed a series of experiments with a specially constructed apparatus for this purpose. The fluid used was an 0.6 per cent. solution of salt heated to 30°C.

In some experiments atmospheric air was used instead.

It was found that if one of the so-called brain pressure symptoms appeared on using a certain force, that the rest of them followed very completely or were very easily induced, even if the injection pressure were very slightly raised.

Hence Adamkiewicz holds, that the separate brain pressure symptoms were equivalent to one another, and that the absolute force with which the fluid is driven into the cranial cavity forms no exact criterion as to the symptoms likely to be elicited.

No exact relation as to the dependence of the results upon the pressure can be proved.

Hence the so-called brain pressure symptoms have nothing to do with the exciting pressure—*i.e.*, with the pressure as a purely physical action.

The arterial curve corresponds exactly with the infusion phenomena, but, on the other hand, there exists no comparative relation between the arterial and infusion pressure.

The form of the arterial curve does not correspond to the simple pressure curve observed when there is a hindrance to the outflow of blood in the capillary area.

The latter curves are rectilinear and proportional in size to the obstruction in the capillary area.

Thus the injections into the cranial cavity do not act mechanically by capillary compression, and hence do not possess the power of mechanically causing cerebral anæmia.

The venous curve, on the other hand, mounts gradually at first, and then, without anything interfering in the continuity of the infusion into the cranial cavity, the curve suddenly rises very steeply to a certain height, whence it continuously sinks until the animal experimented on dies.

The passage of the infusion fluid out of the skull into the veins

of the neck and its lethal result proves that fluid within the skull kills as soon as it equals in pressure the low pressure of the intracranial sinuses, this being not more than 6–8 mm. of Hg. inside the skull.

The capillaries always have a higher vascular pressure than the veins, because the vascular pressure from the beginning of the aorta to the right side of the heart gradually sinks.

Thus the idea that in the cranial cavity there could be pressures occluding the capillaries before affecting the veins is, from a physiological standpoint, paradoxical.

That the pressure of the infusion fluid, which acts locally, does not in the slightest compress the capillaries is proved by injecting some carmine lime into the carotid of the animal being experimented on, then harden the brain and examine microscopically.

In regard to the mechanism of the infusion, the venous curve shows that the pressure with which the fluid is forced into the cranial cavity is not an index of the tension the fluid attains inside the skull, but only shows us the force which is necessary to drive the fluid on into the veins, and which in the most favourable cases causes a tension which equals the low pressure of 5–8 mm. of Hg., being that of the intracranial veins.

It can thus be easily understood how that after the most powerful injections into the cranial cavity the brain is not found to be flattened, since as soon as the pressure reaches that of 6–8 mm. of Hg. the animal dies.

To discover the path of the fluid so injected, Adamkiewicz added a solution of Berlin blue to the salt solution. The colouring matter was found under the pia mater in the subarachnoid space, showing a special tendency to collect at the base of the brain and medulla oblongata. The fluid, immediately after its entry within the skull, reached the veins, and since it was later found in the subarachnoid space, the course is easily understood which the fluid took and how the brain œdema arises. The infusion sets this up when it surpasses or only attains the low venous pressure of 5–8 mm. of Hg.

Since, now, œdema of the brain is the only morbid change

found in these cases, and since the so-called brain pressure symptoms are purely the expression of disturbed cerebral functions, it must be conceded that the phenomena formerly called brain pressure symptoms are set up by, among other causes, œdema of the brain.

Each symptom is nothing else than a cerebral irritative or paralytic phenomenon.

In œdema of the brain, the symptoms arise from the contact of the pathological œdematous fluid with the cerebral tissue. Thus one perceives why the irritative phenomena set up by the infusions into the cranial cavity vary so easily, and why each of them are equivalent to one another.

In order to demonstrate how easily the fluid passes from the skull space into the veins, Adamkiewicz used injections of atmospheric air. At the beginning the manometer, as in fluid infusions, rose gradually, then very suddenly and with headlong force it rushed up, the animal forthwith dying with convulsions and respiratory disturbances. The manometer remained at this height, never falling.

The section demonstrated, besides accumulations of air in the veins of the neck, in the innominates, and in the right side of the heart, great venous congestion of all the abdominal organs, lack of blood in the pulmonary artery area, and as a result thereof in the arterial system generally. The general anæmia affected also the brain, and through the interrupted blood flow to the brain gave rise to the so-called brain-pressure symptoms.

Most important was the proof that between the cranium and heart a very free communication existed, and that this communication allowed the free entrance of any intracranial matter into the right side of the heart, the pulmonary system through these capillaries into the aortic system, and by backward pressure even into the inferior vena cava, etc.; and that this occurred so soon as the low pressure of the intracranial veins was only slightly overstepped.

The experiments on animals prove the possibility of an "embolisirung" of the heart from the brain, which is not impossible among human beings.

Concerning the origin and regulating of the cerebro spinal fluid, the experiments show that it is a transudation from the cerebral capillaries, and corresponding to its source must have a slight positive pressure of 5–8 mm. Hg.

Transuding under the influence of the ruling pressure in the capillaries, it reaches the perivascular space.

Fresh formation of the fluid causes a corresponding outflow in the intracranial veins and thence into the right side of the heart.

The driving and regulating forces which send the fluid from the capillaries into the veins must be the physiological differences between capillary and venous blood pressure.

A disturbance of the normal variations of these differences can only result from the venous side ; when the pressure in the veins rises and more nearly approaches that of the capillaries, the source of the liquor. Through this the natural outflow becomes less, and a choking up of the liquor cerebri results.

To this cause may be reckoned everything which disturbs or hinders the outflow of venous blood from the superior veins into the right heart.

Every blockage of the outflow of the liquor, unless very transitory, must give rise to symptoms arising from imperfect nutrition of the brain, viz., nystagmus, convulsions, etc.

The old teaching about brain pressure connected two entirely different pathological conditions of the brain : 1st, The intracranial action of a growth occupying and limiting the skull space. 2nd, The pathological action of fluid occupying completely the space between the skull and brain. The former compress the brain, and one may distinguish three grades of action of this compression. The first grade embraces the compression which the brain can stand without any functional disturbance. In the third grade the pressure destroys the brain tissue. The second lies between these two and gives rise to a series of functional disturbances.

This last is pathologically the most important. If this grade acts on the motor area contra-lateral attacks of hemiclonus appear, then spastic phenomena, and finally, hemiplegia and disturbances of the motor innervation of the eye and of the nutrition

of the bulb, but never optic neuritis. All these disappear on removal of the pressure.

Therapeutically the removal of compressing growth is indicated.

In the second group before mentioned of accumulation of fluid between brain and skull, it is not, as formerly supposed, a case of increased tension, but the abnormal fluid arises through congestion in the lateral ventricles or from overflow of the intracranial veins, both leading to œdema of the brain. Here only venesection can assist, not as formerly supposed and tried, trepanning to let out the fluid.

A CASE OF HYPERTROPHIC CIRRHOSIS OF THE LIVER AND SPLEEN OF NEARLY THREE YEARS' STANDING ;—

PERSISTENT JAUNDICE—REPEATED ATTACKS OF ERYSIPELATOUS
INFLAMMATION OF THE SKIN—BILATERAL HERPES ZOSTER
—FACIAL AND CERVICO-BRACHIAL NEURALGIA—PNEU-
MONIA—POLYARTHRITIS—MULTIPLE NEURITIS—ALBUMI-
NURIA—CHYLURIA—ACUTE MILIARY TUBERCULOSIS—
DEATH.

BY JAMES STEWART, M.D.,
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The following case of hypertrophic cirrhosis of the liver was the subject of a clinical lecture delivered by the late Richard L. MacDonnell in the Montreal General Hospital in February, 1891, and published in the first number of the *International Clinics*. The case presents so many features of clinical interest that a record of the main events in the subsequent course, together with an account of the post-mortem, will prove of interest to many. The post-mortem, it will be seen, confirms entirely the diagnosis arrived at by Dr. MacDonnell. The remarkable series of complications from the early and repeated erysipelalous inflammations to the final acute miliary tuberculosis show in a very unmistakable way the profound changes induced by the disturbance of the hepatic metabolism.

The following is an abstract of Dr. MacDonnell's clinic on the case—a good example of a diagnosis arrived at by exclusion :

“ This patient, whose case we shall study together to-day, is to

many of you no stranger. During the last eighteen months he has on several occasions been the subject of clinical instruction in this hospital.

I need scarcely call your attention to the striking features of the case, which you must perceive at once,—the deep yellow colour of the conjunctiva and the skin, the extreme degree of emaciation, and the marked distention of the upper half of the abdomen and lower half of the chest. We shall review his history, discuss the clinical events, and consider the question of diagnosis. From the voluminous notes of his case on record in the hospital books, the following report is condensed :

A. J., aged 41, labourer, admitted to the Montreal General Hospital November 28, 1890. He had just recovered from an attack of erysipelas, for which he was under treatment in the infectious ward of the hospital. He had always enjoyed good health up to the commencement of the present illness, and had never been confined to his bed except on one occasion, some twelve years ago, when he was said to have had ague. History of syphilis is entirely denied, though he acknowledges having been very intemperate in the use of spirits when he was younger. Latterly his habits have been steady and regular. The present illness began in July, 1889, when he noticed that the urine became of a dark colour, and later the white of the eyes became yellow, but he did not notice any change in the colour of the skin until some weeks afterwards. Two months later he began to suffer from pain in the epigastric and right hypochondriac regions, which was of a dull character and was increased by movement and deep inspiration. At this time, too, he began to perceive that the abdomen was increasing in size, and he suffered from a violent cough, which, when severe, caused vomiting, the ejected matters being of a greenish-yellow tinge. For many years he has been subject to hemorrhoids. During the greater part of last winter he was a patient in my wards in this hospital.

On his first admission, November 19, 1889 (just a year ago), he was weak and emaciated (he said that he had lost thirty-seven pounds in the previous six months) and had intense jaundice of the entire surface. He complained of very severe pain in the right hypochondriac region and the epigastrium. The

abdomen was enlarged and tense, particularly above, measuring at its widest part thirty-seven inches. The superficial veins were seen with unusual distinctness through the thin integument, but they were not distended. The liver was enlarged, and measured seven and one-half inches in the right mammary line and seven and three-fourths inches in the right axillary line. Its surface on palpation was quite smooth, and its margins were sharp and well defined. There was no ascites. The spleen was also greatly enlarged. Dulness on percussion extended from the seventh rib to a line two inches below the costal margin in the left axillary line. The areas of hepatic and splenic dulness united in the middle line, so that the upper half of the abdomen was dull on percussion from side to side. Occasionally a small space with tympanitic percussion (stomach?) was found between the splenic and the hepatic dulness. The tongue was coated. The bowels were costive, but the stools were not clay-coloured nor were they offensive. The urine contained neither albumen nor sugar, but reacted to the tests for bile-pigment. Pulse 88. Cardiac and respiratory signs negative; no dropsy.

The important question at this time last year was that of diagnosis, and I gave then reasons for believing the patient to be suffering from cancer of the liver. Time has proved that diagnosis wrong, but, inasmuch as it is only by studying our mistakes that we can ever hope to attain accuracy, I shall show you the weak places in the chain of evidence in favour of the existence of cancer of the liver.

From the circumstances of the case, to which allusion will be made later on, the choice rested between cancer or biliary cirrhosis (enlargement of the liver with jaundice), and I decided in favour of the former. These were my reasons:

1st. The enlargement of the liver was great and very rapid. The patient had been ill but four months all told, and during that short time the liver assumed these large proportions.

2nd. The liver felt hard and resisting throughout. True, it was not irregular in outline or nodular; but we had just held an autopsy on one of my patients in Ward 11 who died of cancer of the liver, in whom the organ was enlarged and uniformly regular in its outline, and no nodules could be detected during

life. They were embedded in the surface of the organ, and did not project to a degree sufficient to enable us to feel them through the abdominal wall.

3rd. Severe pain in the right hypochondrium was an urgent and early symptom.

4th. Jaundice was early, deep, and persistent. I remember quoting to the class the dictum of Murchison, "The coexistence of enlargement of the liver with persistent jaundice ought always to raise the suspicion of cancer."

5th. The enlargement of the spleen I found difficult to reconcile with my diagnosis, but I got over the difficulty by attributing it to the previous ague. Enlargement of the spleen is rare in connection with cancerous liver. In the case of cancer of the liver already alluded to the spleen was of normal size.

6th. The general symptoms misled me also. The rapidity with which emaciation had set in, and the extent to which it had progressed in the few months of his illness, had a great influence upon my judgment.

The weight of evidence thus adduced out-balanced other considerations: although biliary cirrhosis was well thought over and the alcoholic history taken into consideration, the claims of malignant disease were too potent, and the presumption of biliary cirrhosis was cast aside.

The patient remained in hospital until February 8, 1890, and his condition underwent improvement, though the physical signs remained unchanged. At this time hæmatemesis very frequently occurred, and on several occasions there was severe bleeding from the nose. Pain was constantly complained of, its seat being in the right hypochondrium, so that hypodermic injections of morphine were frequently administered. In January, 1890, a small quantity of blood was from time to time coughed up. There were no physical signs in the lungs. Early in the morning of January 26, 1890, he had a convulsive seizure, the exact nature of which could not be ascertained, followed by rapid rise of temperature, and pain in the left ear. These symptoms were followed by evidence of the onset of erysipelas of the head, and he passed through a most severe attack of that disease, but made a very good recovery, and regained the ground he had lost.

By this time the diagnosis of cancer of the liver was abandoned, as excluded by time. Cancer of the liver does not last long, and a patient who remains nearly four months in hospital without getting worse cannot be considered the subject of it.

He left the hospital of his own accord. His next stay here was from the 9th of June to the 21st of July last. There was no change in his condition. He measured around the abdomen at the umbilicus thirty-five inches, and the girth of his abdomen at its greatest width was thirty-seven and a half inches.

The region of hepatic dulness began one and a half inches below the right nipple and extended downward seven and a half inches. In the axilla the liver reached as high as the seventh rib, and dulness extended downward nine and a half inches. The lower margin of the liver crossed the abdomen one and three-quarters inches above the umbilicus. Splenic dulness was found anteriorly as far as the nipple line, while vertically it extended from the seventh rib in the axilla to the crest of the ilium, nine and a half inches.

In the right lumbar region a mass was felt like a continuation of the liver down the right side of the body to the crest of the ilium. It was dull on percussion, and not tender. The heart had undergone some displacement upward: the apex beat at the left nipple. The expansion of the chest was limited to one inch. A few crepitating râles were heard at both bases.

There was no bile found in the urine.

A purpuric rash appeared above the right ankle, which was accompanied with considerable swelling of the leg. This was in the end of June, and after this swelling had subsided he began to complain of a burning pain under the right arm, which was soon followed by the appearance of a crop of small vesicles, which very neatly mapped out the cutaneous distribution of the intercosto-humeral nerve. The left axilla was also attacked, but not so severely.

When he had recovered from this very painful attack of herpes, he began to complain of pain on the inner side of both thighs, and a herpetic eruption made its appearance on the inside of the thighs and the scrotum, mapping out in this case the ilio-inguinal nerve. He was discharged July last.

The physical signs are now (November 28, 1890) practically the same. Since July he has been able to earn his living as a night watchman, but about ten days ago he had a severe attack of erysipelas in the right leg, for which he was admitted to the infectious wards, and on recovery came back to his old quarters in Ward 11. I notice to-day, however, one new symptom,—namely, about the right hypochondrium there is extreme sensitiveness to pressure, which appears to be superficial and is of recent origin. I think it is neuralgic, and a condition analogous to the herpes zoster from which he suffered last summer. In addition to this superficially diffuse pain, which is so severe that it would be cruel to touch the parts more than is absolutely necessary, there is also a deep-seated pain elicited by pressure at the lower margin of hepatic dulness near the nipple-line. This I found on the day of his admission, but, for the reason stated, I cannot demonstrate it now.

Let us consider now the diagnosis as it stands. The main symptoms are persistent and deep jaundice and enlarged liver.

The causes of enlarged liver are—1, fatty degeneration; 2, cancer; 3, cirrhosis (either syphilitic or alcoholic); 4, abscess; 5, leukæmia; 6, sarcoma; 7, amyloid degeneration; 8, hydatid disease.

The period of time during which the patient has been under our observation enables us to exclude cancer and sarcoma.

Abscess is usually accompanied with enlargement of the liver, with pain, and with jaundice, and the spleen is not infrequently enlarged too, but the constitutional symptoms are those of pyæmia, with rigors, sweats, and high fever, and the course of the disease is very rapid. There is a slower form of hepatic abscess which is met with in those who have lived in the tropics, but our patient has never lived out of Canada. Other symptoms accompany the enlargement of the liver due to leukæmia.

This resembles the fatty liver in size, in the uniformity of the enlargement, and in the absence of ascites; but pain and jaundice are not symptoms of fatty liver, and it is the most painless of all the enlarged livers. Fatty liver, moreover, is usually unaccompanied by constitutional symptoms, and if present they are few, not characteristic, and belong to the other organs affected.

The spleen is not enlarged when the liver is fattily degenerated. There is not enough portal obstruction to cause enlargement from vascular engorgement, and the spleen itself does not become fatty.

Is it a hydatid liver? Hydatids are extremely rare in this country, though the Icelandic immigrants in Manitoba are said to be subject to the disease; but it would be unsafe to exclude hydatid disease simply because it is a rare affection. The clinical characters of hydatids are not present in this case. The enlargement is uniform, not irregular. Nor is the spleen enlarged, nor does jaundice occur except as an incidental circumstance. Hydatid tumours usually produce no constitutional symptoms.

Is it a waxy liver? Some of you will remember the remarkable case of waxy liver which I showed to you in Ward 24 a few days ago, and you will remember that the patient had every appearance of good health. You may remember that I pointed out to you that the form of the body of the patient was in no way altered by the enormously enlarged organ it contained. The absence of constitutional symptoms or, in fact, of any symptom at all was remarkable. The woman had never suffered from any digestive disturbance, nor from vomiting of blood, nor from diarrhoea, melæna, piles, ascites, or jaundice, and a distinct cause existed in the presence of a purulent uterine discharge. The characteristics of the liver itself were entirely different from those which we observe in this case. Although its size was enormous, measuring thirteen and a half inches in the right mammary line, pain and tenderness on palpation were entirely absent and the growth of the organ had been slow and imperceptible. The history of that woman's case illustrates the difference between a waxy liver and the kind of liver we have to deal with in this patient.

We are forced now, by having excluded the other causes of enlargement, to regard this case as one of cirrhosis with permanent enlargement and jaundice. The points in favour of such a diagnosis are—1, age; 2, alcoholic history; 3, early history of digestive disturbance, vomiting, etc.; 4, early symptoms of portal obstruction, gastric catarrh, and hæmatemesis. Hemorrhages from other parts have been constantly occurring,—bleed-

ings from the nose, hæmoptysis, and subcutaneous extravasations, and these are common in cirrhosis, and are probably due to a deteriorated state of the blood present in that disease. Last year I exhibited before the class a patient with cirrhosis of the liver in whom there were present extensive extravasations of blood on the inner side of the thighs. The diagnosis in that case was verified by autopsy, and there was found also what is not uncommon in connection with cirrhosis, tubercular inflammation of the peritoneum. 5 The enlargement of the spleen greatly favours the diagnosis of cirrhosis. 6. The absence of ascites may be the result of the other escapes of blood, and may be accounted for, too, by the large size of the spleen, which may possibly be a kind of vascular diverticulum for an overloaded portal system. There is a special form of cirrhosis, however, known as "hypertrophic cirrhosis with jaundice," in which the liver remains large throughout. In ordinary cirrhosis, jaundice is either absent or present in a slight degree, while ascites is in almost every case a leading symptom. In this biliary cirrhosis the reverse holds good. Jaundice is persistently present, and ascites is absent, or, if it be present, it does not appear until a very late period of the disease.

I am therefore of opinion that the most reasonable diagnosis we can entertain is that of hypertrophic cirrhosis with jaundice.

Before we leave I would call your attention to a few points of interest.

The occurrence of erysipelas in cases of chronic visceral disease is not uncommon. You remember that he has had two attacks of the disease since he came under our notice. Patients suffering from affections of the liver and kidney are specially liable to erysipelas. Last winter we had in the hospital a medical student who was the subject of acute Bright's disease complicated with an attack of erysipelas of the face, and one of the cases of chronic Bright's disease which I demonstrated to the class last winter dated from an attack of erysipelas. The occurrence of herpes in connection with jaundice has been noticed by medical writers. In jaundice other skin-affections as well as herpes are not at all uncommon, notably urticaria, and most jaundiced patients complain of itchiness of the skin. The herpes in this

case is interesting for two reasons: first, on account of the nerve-areas which it occupied,—namely, the intercosto-humeral and the ilio-inguinal,—and, secondly, on account of its affecting both sides of the chest, which is very uncommon.”

The subsequent history of this case is as follows: On the 6th of April ('91) and two following days he suffered from a sharp attack of trifacial neuralgia of the right side, confined chiefly to the first and second divisions of the nerve. On the 9th of April he complained of pain in the right axillary region, the pulse and respirations being quick. On the 10th there was physical evidence of consolidation of the lower lobe of the right lung (pneumonia). He slowly recovered from this, but during convalescence was greatly troubled with pain in the right shoulder and right side of the face. During the entire period of the pneumonia, and for some weeks afterwards, he suffered severely from an arthritis of several of the larger and smaller joints. The right elbow, the left knee, the first metatarsophalangeal joint of the right foot were red, swollen and extremely tender. For a few days the right knee showed symptoms of a lighter degree of arthritis. On the 15th of June it is noted that there was complete paralysis of the left arm and slightly of the right. He complained of severe spontaneous pain along the course of the main neural trunks in both upper extremities. The skin was anaesthetic, but pressure of the deep structure was painful. These symptoms clearly indicate neuritis of the nerves of the upper extremities. In the course of two weeks it had almost completely disappeared, the patient regaining the lost power. During the months of July and August there was a return of the joint inflammation, the knees and ankles being most affected. The severity of the pain necessitated the constant use of morphine. During the month of September there was œdema of the lower extremities, coupled with a diffuse erythema of the skin. During the first ten days of October he was troubled with diarrhœa, abdominal pain and fever. On the 13th and 14th of October all the urine passed was chylous. From this time up to his death, which occurred on the 28th of October, he was in a stuporous state.

Post-mortem, performed by Dr. Laflaur.—Body of a middle-aged man, 5 feet 10½ in. Muscles wasted; much emaciated; intense jaundice of skin and mucous membrane; post-mortem lividity and rigor mortis present; old scar on inferior surface of prepuce, near margin. Head: bile staining of dura; brain normal. Thorax: both pleuræ free from adhesions; pericardial cavity contains two ounces of dark-yellow fluid; pericardium smooth. Heart: all the cavities contain soft fibrinous clot and fluid blood; tricuspid valve admits four fingers, mitral two; endocardium bile-stained; valve segments everywhere normal; heart-muscle of a deep brownish colour; average thickness of wall of left ventricle $\frac{5}{8}$ in., of right ventricle $\frac{3}{4}$ in.; base of aorta quite smooth. Lungs: very heavy and firm; a fine, granular feeling on surface of pleuræ; on section, both lungs contain very little air and are hyperæmic; throughout both lungs, except at extreme apices, is a firm consolidation, which is seen to be due to the studding of the whole parenchyma, with nodules of a grayish colour averaging 1 to 2 mm. in diameter; the parenchyma between these is of a bright red colour in the upper lobes and of a darker red in the lower lobes; the bronchial mucosa is reddened and is covered with a viscid, frothy, reddish mucus. Mucous membrane of trachea reddened; bronchial glands somewhat swollen; no caseous or calcified bronchial glands. Abdomen: amount of subcutaneous fat small; peritoneum smooth and bile-stained, contains 20 ounces of brownish, slightly turbid fluid; tough adhesions between surface of liver and diaphragm. Spleen very much enlarged and hard; capsule tense and thickened in places; a few very small, grayish, translucent bodies on the surface (miliary tubercles); on section, parenchyma is found light red, rather soft, and contains throughout an innumerable number of very minute grayish or grayish-yellow bodies looking like sago grains; a few of these are larger than the rest, have a distinctly yellow colour, and are friable. Kidneys large; capsules strip easily; on surface are seen numerous small, grayish-yellow bodies surrounded by a narrow zone of hyperæmia; on section, cortex and pyramids are hyperæmic, and in both these are seen irregularly distributed a number of bodies similar to those on surface (miliary tubercles). Adrenals

normal. Gall-bladder distended on pressure ; a light yellow-brown bile exudes from papilla. Duodenum and stomach show passive hyperæmia, and there is an excess of mucus. Intestines contain light yellow fæces ; intestinal veins distended. Liver projects below costal margin in right mammary line ; surface slightly roughened ; anterior border rounded ; general colour of liver a dull yellow ; on section, is very firm and has an elastic feel ; the cut surface is generally smooth and of a dull yellow colour ; in a few places small islands of a brownish-yellow colour are seen raised above the surrounding surface, and it is only in these situations that the lobules can be made out ; there is no special thickening about the portal sheaths ; portal and splenic veins moderately dilated. Bladder, rectum and testicles normal.

Addenda.—Sections of the liver show that there was a general cirrhosis of the organ ; the outline of the lobules was everywhere obliterated. The new formation of connective tissue extended throughout the whole of the lobules, passing between groups of hepatic cells and also between individual cells, isolating them one from another. Besides fully formed connective tissue there were, here and there, collections of small-celled granulation tissue, staining deeply with hæmatoxylin. The hepatic cells themselves were atrophied. Many showed fatty degeneration, and they were stained very faintly by reagents. Definite miliary tubercles were observed scattered through the sections, a few containing giant cells, and being necrotic at their centres. Others appeared simply as small circumscribed masses of lymphoid cells. Around the portal vessels there was a more diffuse infiltration, also composed of small lymphoid cells. Here and there in the portal sheaths, which were not especially thickened, there appeared to be a new formation of bile ducts. The sections were not examined for tubercle bacilli.

Liver weighed 3200 grammes.

Spleen weighed 2080 grammes.

Prof. Ruttan made the following analysis of two samples of chylous urine passed Oct. 13th and 14th, 1891 :—

SAMPLE I.—OCT. 13TH.

The reaction of the urine was acid, colour milky, opaque, with shade of yellow ; no sediment ; specific gravity 1026. Triplicate analysis of urine gave the following results :—

	First.	Second.	Third.	Average.
Water	92.75 p.c.	92.74 p.c.	92.73 p.c.	92.74 p.c.
Total Solids at 100° C.	7.25 "	7.26 "	7.27 "	7.26 "
Fat	1.66 "	1.65 "	1.64 "	1.64 "
Solids other than Fat	5.59 "	5.61 "	5.63 "	5.61 "
Albumen	0.36 "	0.37 "	0.36 "	0.36 "
Urea	1.45 "	1.43 "	1.45 "	1.44 "
Fibrin	None.			
Blood and Blood-pigments	None.			
Chlorides (as Sodium Chlorides)	2.11 per cent.			
Sulphates (as Sulphuric Acid)	0.25 "			
Phosphates (as Phosphoric Acid)	0.28 "			
Uric Acid	0.006			

SAMPLE II—(PARTIAL ANALYSIS).—OCT. 14TH.

Water	92.97 per cent.
Total Solids at 100° C.	7.03 "
Fat	1.32 "
Solids other than Fat	5.71 "
Albumen42 "
Urea	1.39 "
Specific Gravity	1028

The urine was less opaque than on the 13th, but still chylous.

Prof. Ruttan says :—

“The remarkable points about this urine are the absence of blood, the absence of fibrin and coagula, and the high percentage of albumen. The albuminuria persisted after the fat disappeared from the urine, and was also observed before the attack of chyluria. The analysis did not indicate the presence of any abnormal constituent except albumen and fat. The fat, microscopically, was very finely divided, and floated in a creamy layer when the urine was allowed to stand. Post-mortem, nothing

was found to explain this sudden appearance of fat in the urine and its equally sudden disappearance. Chemically, the urine may be described as an albuminous urine carrying finely emulsified fats."

Retrospect Department.

QUARTERLY RETROSPECT OF SURGERY.

BY FRANCIS J. SHEPHERD, M.D., C.M., M.R.C.S., ENG.

Surgeon to the Montreal General Hospital; Professor of Anatomy and Lecturer on Operative Surgery, McGill University.

SURGERY OF THE LIVER.—*Treatment of Hepatic Abscess.*—Dr. Neil MacLeod of Shanghai advocates an operation for abscess of the liver which he says offers the following advantages (*Brit. Med. Jour.*, Dec. 26, 1891): (1) Before emptying the abscess we have a means of estimating the size and position of the cavity and so determining the best site for opening and drainage. (2) There is no hemorrhage. (3) Certainty of free drainage and better fixation of the liver than by a rubber drainage tube. (4) No necessity for excision of a portion of a rib, and (5) rapid, certain, easy introduction of the tube in any position both at time of operation and at subsequent dressings.

Operation.—Instruments, skin, etc., being rendered aseptic, an aspirating trocar and cannula are passed preferably at a point chosen where dulness is absolute, and where there may have been stitch-like pain felt or friction heard. If in a case there has been no such pain or friction, the first step in the operation might be abdominal incision to search for adhesions or to examine by sight the liver surface for evidence of multiple abscesses, if these be suspected. If pus be found on aspiration, a knitting-needle is then introduced through the cannula into the abscess and tilted forwards, upwards, backwards and downwards, and measurements made of how far the needle can be passed in these various directions, will determine if the point of exploration be fairly opposite the centre of the cavity. If it be otherwise, another point is chosen from the data thus afforded, and the process is repeated. When a satisfactory point is thus obtained, a large trocar and cannula is introduced, the trocar is replaced by a director, and

the cannula withdrawn. A single vertical incision about an inch in length is then made through the superficial structures, a Lister's drainage forceps passed down the groove of the director into the abscess, and its blades opened and then withdrawn. Through the opening thus made the drainage tube, with the guiding tube in its interior, is slipped into the abscess on the director, which is then withdrawn along with the guiding tube. The tube is kept in place with a safety pin. After the pus has ceased to flow, a dressing is applied. The drainage-tube used is nickel-plated and oval in shape to fit in between the ribs of different diameters and lengths, and the guiding tube is longer than the drainage tube and has a conical end; it is made to fit accurately the drainage tube, and open enough to slip over the previously introduced grooved director, as the director fits into the cannula. Dr. MacLeod scouts at the idea of sewing the liver to the abdominal wound in cases of acute hepatic abscess. A number of cases are cited, treated by Dr. MacLeod's method with the best results. He believes every case of liver abscess, if opened early, kept aseptic, and drained thoroughly, should recover.

Dr. Patrick Manson (*Brit. Med. Jour.*, Jan. 23, 1892) gives an elaborate method for evacuating pus in abscess of liver. The principle is draining by a siphon arrangement, the abscess being perforated by a trocar and cannula, the trocar withdrawn, and a rubber tube fitted over the end, which drains into a wide-mouthed bottle. The method and apparatus, however, is so complicated that it is never destined to replace simpler methods already in use.

Surgery of the Gall-Bladder.—Dr. Robert Abbé reported to the New York Surgical Society, Oct. 14, 1891, four very interesting cases of gall-bladder surgery (*N. Y. Med. Journal*, Jan. 30, 1892), in two of which he removed the gall bladder; in one he performed cholecystotomy and immediate suture of the gall-bladder. All recovered perfectly. In one case the gall-bladder was so thick that it resembled malignant disease, and its true nature was not discovered until some time afterwards, when it disappeared rapidly as the patient recovered her health. A fistulous opening remained, which closed after removal of a small

gall-stone. The last case reported is an interesting one. A man, profoundly jaundiced and suffering from hectic fever, had been under medical care in St. Luke's Hospital for some time. His liver was enlarged to three inches below the ribs, and a considerable tumour of the gall-bladder was perceptible. He had never had an initial attack of colic. Operation was undertaken and a suppurating gall-bladder was found and relieved by operation. No stone or malignant disease was found. The probability of stricture or other obstruction at the duodenal end of the common duct led Dr. Abbé to make an incision into the duodenum, and through this incision a most careful search was made for the opening of the common bile duct, but without avail, so the incision was closed by continuous Lembert sutures and the gall-bladder drained. The man lived a week, and at the autopsy a small, soft, malignant growth was found attached to the wall of the duct at its lower end, and this acted as a valvular stricture. There were also large secondary deposits in the liver.

In the discussion which followed the reading of this paper, Dr. McBurney mentioned a case in which a stone was lodged in the common duct behind the head of the pancreas, the gall-bladder had entirely disappeared. It being impossible to incise the duct through the pancreas, he opened the duodenum by a vertical incision, found the intestinal opening of the duct, split it up for about an inch, removed the stone, then closed the intestinal wound. The patient made an excellent recovery, and is now completely well.

Dr. Jos. M. Price (*Med. and Surg. Reporter*, Dec. 12, '91), in a paper read before the Philadelphia County Medical Society, mentioned some interesting cases. In one there was obstinate obstruction of the bowels, due, it was found on operation, to the pressure of a greatly distended gall-bladder on the transverse colon. The gall-bladder contained three gall-stones, which were removed. In this case time, no doubt, would have caused adhesive inflammation between the gall-bladder and the colon, and through an ulceration the gall-stones might have escaped. There are numerous cases on record where these escaped gall-stones have caused obstruction in the intestines and consequent death.

Riedel thinks (*Centralblatt f. Chirurgie*, No. 21, 1891) that

attacks of pain and digestive disturbances often depend on old adhesions, bands, etc., on and about the gall-bladder. In 36 abdominal sections for diseases of the gall-bladder and gall-ducts he has found no fewer than 15 cases of adhesions, of which nine existed between these organs and the omentum, four with the bowel, and two with the abdominal wall. He does not think these adhesions are necessarily connected with severe inflammatory processes, but may be produced by a catarrh of the gall-bladder with or without the existence of calculi. He advocates a more frequent employment of laparotomy in cases of obscure abdominal disease, believing that many of them are due to bands and adhesions, and that relief can often be obtained out of all proportion to the apparent cause by relieving these attachments. The writer had lately a case in point where there was a chronic interstitial inflammation of the lacing lobe of the liver in the female, attended by severe pain, some elevation of temperature, and other constitutional symptoms. An exploratory operation discovered a piece of omentum attached to the upper surface of the liver. This was separated, and as nothing else could be found, the wound was closed. After the operation the pain was all relieved, and the patient has ever since had a normal temperature and is now doing her daily work as a nurse in a general hospital.


Dr. W. H. White reports (*Brit. Med. Jour.*, Jan. 30, 1892) cases of jaundice due to aneurysm of the hepatic artery and to movable kidney. In the latter case the patient had a movable kidney which could be felt below the liver. During the period the kidney was movable the patient had frequent attacks of jaundice and bile in urine. After operation for fixation of the kidney the attacks of jaundice ceased and urine never contained bile.

The writer operated in a case last summer where a globular tumour could be felt below the liver in neighbourhood of gall-bladder. There were frequent attacks of severe pain and a history of jaundice. Exploratory operation revealed a floating kidney and a healthy gall-bladder. The operation succeeded in relieving all the symptoms, however.

Mr. Thos. Chavasse, in a lecture recently published (*Lancet*, March 12th, 1892), describes a successful case of *Cholecystocolotomy*. The patient, a painter by trade, was aged 47, and underwent the operation of cholecystotomy on March 25th, 1891. A number of gall-stones were removed from the gall-bladder and one from the common duct. The wound healed well, but a small sinus was left at the lower end of the incision. The sinus persisting, and discharging large quantities of bile, an eczematous condition of the skin resulted, and so much discomfort was caused that the patient could not perform his work and came back to hospital requesting further relief. The man, although bile had been escaping for several months through the fistula, was in good health, well nourished, and had a good appetite. His stools were regular, but colourless, and very offensive. On Oct. 24th an operation was undertaken to close the fistula. An abdominal incision was made and the gall-bladder separated freely from its adhesions. The common bile duct could be felt like a thickened cord, but no stone could be detected. As the bile-duct was probably occluded, the result of inflammatory changes, it was decided to connect the gall-bladder with the intestines, so an anastomosis by means of Sem's plates was established between the hepatic flexure of the colon and the gall-bladder: the old fistula in the gall-bladder was then freshened and closed with continuous catgut sutures, the abdominal wound sutured, and a glass drainage-tube introduced at its lower end. A faecal fistula resulted for some time, through which faeces and bile were discharged, but this became smaller and smaller, and by the end of November had closed entirely and the patient has since been in perfect health.

Hydatid Cysts of the Liver.—Maynard (*Languedoc Médical*, No. 6, 1891) reviews the different methods of treatment of hydatid cysts. He advises, in old cases, incision and excision of the cysts by laparotomy in preference to the old method of tapping. He prefers the median incision. All the vesicles should be removed and the cavity flushed out. The biliary oozing and filtration from the wound is lessened by the use of astringent lotions.

Intestinal Anastomosis.—Dr. Robt. Abbé, at the meeting of the surgical section of the New York Academy of Medicine, read a paper on his recent experiences with intestinal anastomosis (*N. Y. Med. Jour.*, Jan. 30, 1892). He comes to the conclusion that all plates devised for this operation, whatever their construction or substance, were objectionable for one reason or another, and, after considerable experience, he was of opinion that better results could be obtained without them, the intestinal openings being carefully apposed and secured to each other by sutures, and a double row of sutures being passed entirely around the portions which were brought in contact with each other. The intestinal openings should be four inches long; they might contract to half this length in six months, but they would be less likely to contract unduly if sutures alone were used than if dependence were placed on intestinal plates. He was not satisfied that experiments in anastomosis in dogs could be depended upon as analogous to the work which was required upon human intestines.

Dr. Abbé's method of operating for lateral anastomosis is as follows (*N. Y. Medical Journal*, April 2, 1892): "Bring the two surfaces that it is proposed to unite well up in the wound and surround them by small compresses of gauze, towels or flat sponges wrung out of hot water. Have at hand half a dozen fine cambric needles threaded with ordinary finest black embroidery silk which has been well boiled and kept in alcohol. Cut in lengths of not more than 24 inches, and tie with a single knot at the eye of the needle with one end out to within two inches. Apply two parallel rows of continuous Lembert's sutures a quarter of an inch apart and an inch longer than the proposed cut. Leave each thread with needle attached at the end of its row. Now open the bowel by scissors, cutting a quarter of an inch from the sutures, both rows of which are to remain on one side of the cut; make the bowel opening four inches long. Apply clamps temporarily to several bleeding points, pinching the entire thickness of the cut edge without hesitation. Apply no ligatures. Treat the apposing bowel in the same manner. The clamps remaining *in situ*, the parts are quickly rinsed with water.  Another silk suture is now started at one corner of the

openings and unites by a quick over-hand suture the two cut edges lying next the first rows of sutures. The needle pierces both mucous and serous coats, and this secures the bleeding vessels, from which the clamps are removed as the needle reaches them. This suturing is then continued around each free edge in turns, and all bleeding points are thus secured more rapidly than by ligature. The serous surfaces around these button-holes are then rapidly secured by a continuation of the sutures first applied, the same threads being used, the one nearest the cut edge first. The united parts are again rinsed with water and dropped back into the abdomen." This description, which appears to be somewhat complicated, is made plain by the excellent illustrations with which the article is furnished.

Operative Treatment for Dilatation of the Stomach.—Bircher, who has devised an operation for the cure of this affection, describes his operation as follows, giving illustrative cases. (*Correspondenzblatt für Schweizer Aertze*, Jahr. xxi, No. 23.) He says the operation is more applicable to atrophic dilatation than hypertrophic: "An incision 15 cm. long is made parallel with the border of the ribs on the left side, the stomach drawn out, a fold made in it large enough to reduce it to normal size, the greater curvature being sutured nearly on a line with the lesser. The fold is sewed throughout its entire length with silk sutures, the fold hanging within the stomach from its upper inner surface throughout its entire length, thus reducing the size of the stomach by raising its lower border and making it possible for it to entirely empty itself; in this way the mechanical pressure which before prevented complete cure is removed. Where the stomach is very long, the fold is made at right angles to its long axis. Bircher believes the operation to be harmless and effective, because it puts the stomach in a mechanical condition to be cured by other treatment. The serous covering only is sutured, and silk should be used. Four cases are related treated by this method; all recovered."—(Quoted in *American Jour. of Med. Sciences*, March, 1892.)

Radical Cure of Reducible Hernia in the Female.—Lucas-Championnière (*Rev. de Chir.*, Dec. 1891) advocates the more frequent performance of operations for the cure of reducible

hernia in women. Hernia is more painful, and the wearing of a truss is more inconvenient than in men. He says reducible hernia in every young and healthy female subject ought to be operated on without exception in order that the accidents of hernia may be prevented and the patient be enabled to avoid the inconvenience of wearing a truss. The author has operated on 39 cases without a single bad result; of these 11 were umbilical, 11 crural, and the remaining 17 inguinal. The last named is always the most painful in women, and always connected more or less directly with the uterine appendages by means of the round ligament, which forms part of the wall of the sac. The author removes this structure together with the sac, so as to secure complete closure of the orifice. The most difficult hernia to deal with is crural. [We question the wisdom of operating in every case of hernia in women, and cannot see why the rules regarding the treatment of hernia in women should differ from those followed in men; 39 cases is too small a number from which to draw such sweeping conclusions.]

Alcohol Injections in Hernia.—Hink reports (*Wien. Med. Blatter*, No. 48, 1891) 14 cases of reducible inguinal hernia under the care of Prof. Weinlechner, which were treated by repeated injections of alcohol. This method of injection, first recommended by Schwalbe, causes chronic inflammation of the surrounding soft parts and consequent induration. By frequently repeated injections of alcohol and distilled water, the proportion of the former increasing with the duration of the treatment from 20 to 70 per cent., inflammatory action is set up about the neck of the sac which is followed by adhesions and retraction of the soft parts. In this way a radical cure is effected. The injections have to be repeated very frequently; in one case the treatment lasted seven months and 109 injections were given. In all but two cases the results were satisfactory, but all the observations were made before the patients left hospital. In one case injection was followed by alarming hemorrhage, and in others by inflammation of the epididymis and suppuration.

Treatment of hernia by injection has been extensively practised on this side of the Atlantic by Heaton and others, and the injection used was the fluid extract of oak bark. The method

has been investigated by Bull of New York, and the conclusion come to was that it was only suited to small reducible herniæ, and that it was by no means a lasting cure ; also, it was not without danger.

Excision of the Ileo-Cæcal Valve for Carcinoma — Sir Wm. MacCormac (*Lancet*, Feb. 6th, 1892) reports a case operated on in St. Thomas's Hospital for malignant disease of the ileo-cæcal valve. The patient was a blacksmith, aged 36 ; suffered from attacks of severe pain, with diarrhœa and discharge of blood from the rectum. A lump could be felt in the right inguinal region, which was tender on pressure. In last four months patient had lost 14 pounds. The abdomen was opened by Mr. Sydney Jones and a papillomatous growth of the ileo-cæcal valve found, which was subsequently examined and pronounced to be carcinoma. The cæcum with adjoining parts of large and small intestines were resected, and a V-shaped piece of mesentery and the upper ends of intestine were attached to the abdominal wound to form an artificial anus. The man rallied well from the operation, but owing to the great annoyance of the fæcal discharge it was decided to restore the lumen of the bowel. This was done by Sir Wm. MacCormac. The two ends of the intestines were freed and Senn's rubber ring used to invaginate the small intestine with the large, but this did not succeed very well, so Lembert's sutures were used. The patient did very well, but on the sixth day there was fæces on the dressing and a fistula remained, which was subsequently closed by a plastic operation. Eight months after operation the man was doing his daily work as a blacksmith without any inconvenience or sign of return.

Suggestion for Treatment of Irreducible Intussusception of the Bowels.—Mr. Arthur Barker recommends the following operation in cases of irreducible intussusception of the bowels. (*Lancet*, Jan. 9th, 1892.) Given a case of intussusceptum which cannot be reached from below, and which, on opening the abdomen, is found to be so tightly strangulated that reduction, even if feasible, could only end in disaster, then instead of forming an artificial anus on the one hand, or resecting the whole mass of damaged bowel directly and suturing the divided ends, Mr. Barker proceeds as follows : “ At the point at which the intus-

suscipiens receives the intussusceptum, the two portions of the bowel are at once united by continuous circular suture of fine silk, taking up the serous and muscular coats of each and carried on to the mesentery. A longitudinal incision is then made for about two inches through all the coats of the intussuscipiens on its free margin. This gives access to the sausage-like intussusceptum. The latter is then drawn out through this incision and is cut across close to its upper end; or if too long to be first drawn out, it may be cut across *in situ*. A few stout silk sutures are, however, passed through all the walls of the stump as the mass is gradually cut off, and are tied tightly so as to keep the serous surfaces in contact and control all bleeding from vessels entering it at its mesenteric attachment. The stump is now cleansed, dried and dusted with iodoform, and allowed to drop back through the incision into the lumen of the intussuscipiens. The longitudinal incision in the latter is closed by a continuous suture from end to end." Mr. Barker reports two cases thus operated upon, in both of which the operation was practically extra-peritoneal. Both cases resulted fatally, but this was due, not to the failure of the operation, but to the fact that it was undertaken too late, and the general condition of the patients was such that operation was of no avail.

Perforation of Gastric Ulcer and its Treatment by Abdominal Section.—Mr. Gilbert Barling reports (*British Medical Journal*, Jan. 9th, 1892) the case of a girl, aged 20, who was admitted to hospital suffering from an acute attack of abdominal pain, which had lasted two days. Had before been under treatment for gastric ulcer. The morning after admission she was in a collapsed condition, abdomen slightly distended and tympanic, and very tender; abdominal muscles rigid; pulse 126. That evening she began to vomit green bilious fluid and became more collapsed. Next morning all these symptoms were exaggerated, and she was evidently suffering from peritonitis, so abdominal section was decided on. The abdomen was opened above the umbilicus, and the lower margin of stomach and upper portion of the transverse colon exposed; a further examination discovered a collection of semi-purulent fluid between the right lobe of the liver and the stomach. This being cleared away an

ulcer with indurated margins was felt about the middle of the anterior surface of the stomach. With difficulty the stomach was drawn down and the perforation exposed; it was found to be circular, and about half an inch in diameter. The opening was closed with five Lembert's silk sutures; the abdominal cavity was then flushed out with hot water, a drainage tube introduced between liver and stomach, and the wound closed. The peritonitis continued, however, and the patient died thirty hours after operation. At the autopsy there was general peritonitis, and a second ulcer, almost perforating, was found on the posterior wall of the stomach. Mr. Barling advocates early operation in these cases, and thinks success will follow. Where a widely spread peritonitis exists, he recommends a second opening immediately above the pubis for purposes of drainage.

Maydl's Method of Performing Sigmoidostomy.—This method is described by Mr. F. Marsh of Birmingham (*Brit. Med. Jour.*, Feb. 6th, 1892). The sigmoid flexure is drawn out until the meso-colon is seen; a rigid rod (preferably of glass) is then pushed through this and rests on the abdominal walls; the sides of the bowel are then sutured to each other below the rod. If it be necessary to complete the operation at once, the bowel is sutured to the edges of the wound and a transverse opening made. If there is no necessity to complete it in one stage, the bowel is not sutured to the edges of the wound, but simply left from four to six days, and then opened with a thermo-cautery and the edges of the mucous membrane sutured to the skin.

Reclus (*Bull. et Mém. de la Soc. de Chirurgie de Paris*, Feb. 1890) has a modification of this method; he simply passes a rigid aseptic rod through the mesocolon, omits all sutures, opens the bowel about the fourth day, and about the tenth day removes superfluous bowel with thermo-cautery.

Mr. Marsh makes a two-inch incision through the abdominal wall instead of a two and a half inch one; he uses a glass rod with flat ends. He opens the bowel on the third day with a transverse incision by means of the thermo-cautery, and at the end of a week removes superfluous bowel with the thermo-cautery and burns through the remaining circumference of the bowel over the glass rod, so that the latter may be lifted out. A double-

barrelled opening is thus left, the openings diverging instead of converging, so that it is impossible for any fæces to pass onwards. This is a great simplification of the old inguinal colotomy, and one which gives a much better artificial anus, because it is situated in muscular tissue and provides a perfect spur, which prevents fæces getting into the lower bowel.

In an address on the *Surgery of the Tongue*, read before the Liverpool Medical Institution, Mr. Jonathan Hutchinson (*Brit. Med. Jour.*, Dec. 5th and 12th, 1891) says that from the date of the introduction of the *écraseur* to the present time we have to record steady progress in reference to operations on the tongue, and experience has proved that it is by no means necessary to excise the whole organ where the disease is confined to only one part, for wide infiltration of adjacent tissues is not common; on the other hand, however, infection of more or less distant lymphatic glands may be produced by ulcers of insignificant size and of the briefest duration. We now know that the risk of gland infection begins almost from the very day the sore assumes suspicious features. In Mr. Hutchinson's whole experience of tongue surgery he has had four cases only where the disease returned in the tongue itself. In three-fourths of his cases the disease recurred in the lymphatic glands, and in very few cases where the glands are enlarged will the surgeon be able to operate upon them with much chance of success; and although Mr. H. removed the glands in every case where enlarged, in very few cases has it been followed by protracted immunity. The glands chiefly affected are those of the floor of the mouth and under the anterior edge of the steno-mastoid muscle. The worst position for a gland to enlarge is in the back of the neck, behind the mastoid process and upper part of the steno-mastoid muscle. Mr. Hutchinson still holds to the *écraseur* in excising the tongue, and says it is better than any other method of removing that organ. The wounds made by the *écraseur* heal well and do not poison the lungs. He has given up the chain and uses an ordinary screw *écraseur* armed with a loop of well tempered wire. He works the instrument very slowly, and rarely has any hemorrhage; he prefers, however, to tie the linguals after division. The after-treatment is

simple ; a tube is used for feeding, and is placed well back in the throat. The patient is encouraged to leave his bed on the day after operation, and is made to rinse his mouth out frequently with a mixture of a tablespoonful of spirits in a tumbler of water. In all Mr. Hutchinson's experience in private practice he has only lost one case after excision of the tongue, and this he attributes to the fact that he has operated very early in his cases, many having been sent him for supposed syphilitic disease. And one cause of his great success he thinks is due to the fact that all his operations with the *écraseur* are bloodless. Many of those who are the subjects of cancer of the tongue are old and debilitated, to whom any material loss of blood is a matter of serious moment. The author holds that it is the hemorrhage at the time of operation and not the condition of the wound subsequently which is the source of danger. Mr. H. has come to regard excision of the tongue as a procedure which does not involve any risk to life.

Insidious Marrow Lesions of Mammary Carcinoma.—In an interesting article Dr. Herbert Snow (*Brit. Medical Journal*, March 12th, 1892.) describes cases of mammary cancer followed by insidious lesions of the marrow of bones. These cases are characterized by wearing rheumatic pains in the muscles and bones, often disturbing the sleep at night. It differs from true rheumatism in not specially affecting the articulations, and it resembles it in being often alleviated by salicylates internally. The chief localities where pain is complained of are the loins, the shoulder, and upper arm down to the elbow on the same side as the disease and the adjoining scapula. With this the patient appears often to suffer from a general sense of debility and overwhelming lassitude, is often confined to bed, becomes sallow, and her health unmistakably deteriorates. The symptoms Dr. Snow has not observed in connection with any other form of malignant disease but breast cancer. He says that besides these subjective symptoms there are others that are objective, the most conspicuous of which is the "sternal symptom." At the junction of the manubrium with the gladiolus some exaggeration of the slight prominence there naturally existing is found ; this protuberance grows slowly but surely, and finally cannot be easily mis-

taken. There is no pain felt here, but occasionally there is tenderness on pressure. Again, the upper epiphysial end of the humerus on the same side as the affected breast feels thicker than its fellow, and is also tender on firm pressure. Deeply seated gnawing pain is nearly always present, and is remittent in character. The malignant affection is by no means limited to the bones mentioned, but eventually becomes more or less general throughout the whole osseous system. The severe back-ache is due to malignant cells in the lumbar vertebræ. The marrow of bone when extensively infiltrated becomes opaque, white, its ordinarily delicate adipose reticulum is replaced by tough fibrous-looking tissue, which shows the characteristic acini of scirrhus cancer. As a rule this marrow infection slowly and insidiously saps the springs of life in two ways—(a) by the facilities which it affords to the passage of cancer cells into the general circulation and then deposits in the viscera; (b) by its interference with the process of red corpuscle manufacture, which is the most important function of marrow. In a note to his paper Dr. Snow says that he is able to give a satisfactory explanation of the mechanism whereby the two physical signs referred to take their origin; in both the lymphatic system is the agency concerned. In a case of well marked sternal prominence he has found the degenerate thymus gland, full of cancerous acini, adherent to the bone, and thus producing direct infiltration; thus the greater part of the sternum may be decalcified. The humerus becomes infected by the regurgitation of lymph currents secondary to the block following carcinoma deposit in the subclavian and deep axillary glands.

Surgery of the Spine.—Dr. J. W. White, in speaking on the above subject (*Therapeutic Gazette*, Oct., 1891), says that in spina bifida, injection of the sac offers the best prospect of ultimate recovery with least immediate danger. In Potts' disease of the spine, the paralysis is not usually due to transverse myelitis, hopeless degeneration, or the pressure of carious and diseased bone, but is the result in most cases of external pachymeningitis. In cases in which ordinary treatment has failed, or in those in which the disease is progressing to an unfavourable termination, resection is justifiable. Every case of local spinal lesion thought

to be a tumour, and not distinctly malignant and generalized disease, should be regarded as amenable to operative treatment, no matter how marked or how long continued the symptoms of pressure may have been. The results of recent operative interference in well selected cases of fracture of the spine are encouraging, and should lead to more frequent employment of resection of the posterior arches and laminae: (*a*) In all cases in which depression of those portions, either from fracture or dislocation, is obvious; (*b*) in some cases in which after fracture rapidly progressive degenerative changes manifest themselves; (*c*) in all cases in which there is compression of the cauda equina from any cause, whether from anterior or posterior fracture or from cicatricial tissue; (*d*) in the presence of characteristic symptoms of spinal hæmorrhage, whether within or without the membranes. An operation is contraindicated by a history of such severe crushing forces as would be likely to cause disorganization of the cord.

Trephining the Spinal Column in Gunshot Wound of the Spinal Canal.—At a meeting of the Paris Surgical Society, Nov. 18, 1891, M. Nicaise, on behalf of M. Vincent of Algiers, presented a communication (*La Sem. Méd.*, Nov. 25, 1891) on gunshot wounds of the spinal cord and the treatment of them by trephining. He classifies the lesions as follows: (1) Simple compression of the cord by effused blood or fragments of projectile. (2) Contusion or laceration of the cord caused by the bullet. (3) Lodgment of the bullet in the vertebral column with or without projection into the canal. M. Vincent advocates operative interference in such cases, and reports eight cases with five cures and three deaths. He considers the cases that come under the first section most favourable for operation, and relates in illustration the case of a man, æt. 31, who was struck by a bullet in the lumbar region. Two days later there were signs of marked compression of the cord. M. Vincent cut down and found a fractured lamina; he trephined, and introducing his finger into the canal, found the cord free from compression. The bullet could not be found, so the wound was closed. There were symptoms of meningo-myelitis, but they quickly passed off, and in three weeks the man was able to walk. The two follow-

ing cases were also narrated: (1) A lad, æt. 18, was struck by a revolver bullet in the dorsal region; this was followed by symptoms of bruising of the cord. The spinal cord was trephined on the third day and the bullet extracted. Death occurred eight days later, when it was found that the cord had been completely crushed. (2) A man, æt. 37, was shot in the back on a level with the 10th dorsal vertebra; complete paraplegia followed. The bullet, with a splinter of bone, was removed. After a period of improvement the patient died on the 94th day.

Trephining for Fractured Spine.—Andry of Lyons reports (*Lyon Méd.*, Nov. 1st, 1891) a case of fracture of the cervical portion of the spine, in which the posterior arches of the 5th and 6th vertebræ were removed with a fatal result. There was no displacement of the fragments, and the fracture was subperiosteal. After removing the whole of the arch of the 5th vertebra, the cord was found to be violently compressed between the upper edge of the posterior arch of the 6th vertebra and a displaced fragment of the fractured body of the 5th. This compression was relieved by removing the posterior arch of the 6th vertebra. The dura mater was not incised. The operation lasted an hour and the patient took chloroform. The patient died twelve hours after, and at the post-mortem the compressed portion of the spinal cord was almost converted into a blood-stained semi-fluid mass, only a small portion of the posterior column at this level remaining intact.

Successful Treatment of Suppurative Phlebitis of the Internal Jugular and Lateral Sinus.—Parker has recorded a case (*Liverpool Med.-Chir. Jour.*, No. 22) of a man, 25 years old, who for eleven years following an injury in the region of the left ear presented symptoms of suppurative otitis media with perforation of the membrana tympani. Symptoms of suppurative phlebitis of the left lateral sinus and internal jugular vein, with double optic neuritis, developing, an incision was made in the mastoid and infra-auricular regions, and the mastoid process was opened. A clot was found in the facial and jugular veins, extending into the lateral sinus, which was occupied by greenish purulent lymph. Ligatures were applied to the veins on either side of the thrombi and the intervening portions excised. The

lateral sinus was partially scraped. Hemorrhage was controlled by a plug of antiseptic wax. The symptoms disappeared for two days after the operation, then the temperature rose to 103°. The wax plug with some accumulated pus was removed from the sinus, and the mastoid cells were irrigated. For nearly a week the temperature continued to oscillate between high figures, but finally subsided, and the case ultimately progressed to a favourable termination.—(Quoted in *Medical News*, Feb. 27, '92.)

New Operations on the Prostate and Bladder.—Kuster (*Archiv für Klin. Chir.*, Bd. I, 42) discusses the operation of lateral prostatectomy and total extirpation of prostate and bladder. Lateral prostatectomy was first recommended by Prof. Dittel; he held that the lateral lobes were the ones usually involved, and advised exposing the prostate by a perineal incision to the left of the anus and excision of as much as possible. The author performed this operation on a man, aged 64, with enlarged prostate. Two pieces the size of chesnuts were removed, the urethra not being wounded. Tamponing with iodoform gauze with secondary suture two days later. This case voided his urine without trouble and was completely cured. Other less favourable cases are reported. Küster thinks the operation less dangerous than suprapubic cystotomy for removal of portions of prostate, and says the conditions are either relieved or the patient cured.

Küster also reports a case of total extirpation of bladder and prostate in a man, aged 53, with carcinoma. The upper edge of the symphysis pubis was chiselled off and the bladder opened above pubis for inspection of growth; it was then sewed up and a perineal incision made. The bladder was then freed, and afterwards the ureters secured and inserted into an opening made in the rectum. The wound was packed with iodoform gauze. The operation took two hours and the patient rallied, but died five days later of intercurrent pneumonia.

Stein, who has collected cases of this kind, reports three operations for malignant growths, in which the bladder and prostate were extirpated; two died soon after operation, and one lived nine months.—(Quoted in *Univ. Med. Mag.*, March, '93.)

Reviews and Notices of Books.

The Principles and Practice of Medicine. Designed for the use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D., F.R.C.P. Lond., Professor of Medicine in the Johns Hopkins University and Physician-in-Chief to the Johns Hopkins Hospital, &c. &c. New York: D. Appleton & Co. Canada Agency: 170 Yonge Street, Toronto, Ont.

Text-books of Practice of Medicine appear to follow each other pretty rapidly, but certainly none too rapidly, if we consider the rate at which medical science is progressing. The advanced book of five years ago is already obsolete, and contains, perhaps, only a bare allusion to some subject which now has been thoroughly worked out and has assumed a prominent place in medical teaching. This being the case, it is of importance that those whose experience and whose opportunities fit them for the task should with sufficient frequency put together their views on modern medicine generally and give them to us in a work like the present.

The author needs no introduction to the Canadian profession. From his earliest professional days he was always found busy in scientific medical work, and our records are full of communications from him, both monographs and papers to societies. His keen and earnest pathological work in this city is well known, and how well this has served him will be remarked from the frequent references to cases occurring in the Montreal General Hospital.

We have gone carefully through a number of the important sections of the book, and the conclusion we have come to is that it is a model of its kind. Dr. Osler possesses the rare gift of taking in a large subject, assimilating it, and then giving back the result in a well-digested form, in clear, concise language. This is what gives the book its value. Great subjects are handled in a masterly manner, the results of our present knowledge are presented in a fair, firm, and judicial, but not dogmatic manner. Every part bears the impress of careful and thoughtful preparation, and equally exhibits views of the most modern school. There is no slavish following of previous authori-

ties, but, on the contrary, the individuality of the author is plainly visible throughout, whilst at the same time frequent references give credit to fellow-workers in all departments. Illustrations are few, but are not missed. What is much more important, the author's very large and exceptionable experience enables him to quote everywhere illustrative cases from his private and public records, which are of great value.

We have had great pleasure in examining Professor Osler's "magnum opus," which has quite come up to our great expectations of it, and we cannot too highly recommend it to our friends—doctors and students alike.

The Dog in Health and in Disease: Including his Origin, History, Varieties, Breeding, Education and General Management in Health, and his Treatment in Disease. By WELLEY MILLS, M.A., M.D., D.V.S., &c., Professor of Physiology in the Faculty of Human Medicine and in the Faculty of Comparative Medicine and Veterinary Science, McGill University, Montreal; Lecturer on Cynology in the latter Faculty; author of *Animal Physiology, Comparative Physiology, &c.* With 38 full-page cuts, one coloured plate, and numerous other illustrations. New York: D. Appleton & Co. Montreal: Wm. Drysdale & Co. 1892.

Professor Mills' work on the dog is likely to become a classic volume, not only with veterinary surgeons, but with all those who are fond of dogs. The treatise is one which entirely differs from any that has hitherto appeared. It is, first of all, the production of a writer who has distinguished himself as a physiologist, and who brings this knowledge to bear in his descriptions of the dog, his diseases and their treatment. All previous works on the dog with which we are acquainted are the work of the so-called practical men—a very misleading title not only in this connection, but in all directions relating to disease and its treatment. As specialism has not as yet gained a foothold in comparative medicine, the diseases of the dog are treated by veterinary surgeons whose training has been almost entirely directed to the horse and other herbivora. The same general principles no doubt applies to all animals from man downwards, but a per-

usal of Prof. Mills' work will prove to any one how necessary it is to study the individual animal in health before we can thoroughly understand his state in disease.

About one half of the volume is taken up with a description of the varieties, breeding, education and general management of the dog, the remainder being devoted to his diseases and their treatment. In this latter part the author brings to bear his general physiological and pathological knowledge as well as an intimate acquaintance with the diseases of the animal, a knowledge acquired by conducting the free dog clinic of the Veterinary Faculty. The volume is profusely and beautifully illustrated, and reflects great credit on the enterprising publishers.

Transactions of the American Ophthalmological Society. Twenty-seventh Annual Meeting, Washington, 1891. Hartford: Published by the Society.

The twenty-seventh report of the American Ophthalmological Society is to hand, and contains material of much interest both to the specialist and general practitioner. After obituary notices of Dr. Abram Dubois of New York city and Dr. G. R. Cutter of Brooklyn, the papers submitted to the Society at their annual meeting are detailed.

Dr. Hasket Derby of Boston deals with macular changes as influencing the prognosis in advancing myopia, and advances the already known supposition that detachment of the retina in these cases is very unusual, the inflammatory changes as it were binding the retina to the choroid and likely preventing detachment. He considers the prognosis of central vision very bad, no treatment tending to improve it.

De Schweinitz of Philadelphia recounts some very interesting experiments on dogs to determine the lesion in quinine blindness. He found that the hypodermic injection of one to four grains to the pound weight of the dog produced blindness in three to fourteen hours. Quin. bimum. carbamidat. was more rapid and certain in its action than the bisulphate. The results showed that the prolonged action of quinine produced atrophy of the

optic nerve ; also, that thrombosis of the vessels of the optic nerve occurs. Lastly, that any degeneration of the brain cells is due to the hardening process in the microscopical preparation. As to the microscopical changes, there is thickening, likely an endovasculitis of the walls of the central vessels of the nerve ; also, organization of a clot, the result of thrombosis ; widening of the infundibulum of the vessels, the result of constriction of the surrounding nerve tissue, presenting an appearance not unlike glaucomatous cupping ; and finally, practically complete atrophy of the visual path, including the optic nerve, chiasm and tract as far as they could be traced. The action of quinine would then appear likely to be upon the vaso-motor centres, primarily producing constriction of the vessels ; finally changes in the vessel walls themselves occur, likely of the nature of an endovasculitis ; thrombosis may occur, and the result of all these is an extensive atrophy of the visual tract.

Dr. Charles Stedman Bull of New York gives the results of five cases in which he followed out Schœler's treatment for the cure of detached retina, viz., the intraocular injection of tincture of iodine. None of the results were satisfactory,—a temporary improvement occurring in some, to be followed by a relapse, in others fresh fibrous bands were formed in the vitreous, and in two panophthalmitis was set up.

Dr. Bull also reports a case of tumour of the anterior part of the brain, attended with the usual general symptoms of a gross cerebral lesion and hemianæsthesia. The description of the latter symptom is so imperfect, and the account of the post-mortem so meagre, that the case is practically worthless as an aid in determining the cortical centres for tactile sensation.

De Schweinitz follows with a case of neuroma of the right upper eyelid's temporal region, and mentions the six most important cases recorded of this disease. The last author also brought up a case of coloboma of the iris, polycoria and primary glaucoma. The eye came to section and the following lesions were found : round-celled infiltration of the anterior part of the cornea ; avulsion of the iris at its extreme root ; atrophy of the ciliary body ; and intimate adhesion of the most anterior ciliary processes to the posterior surface of the cornea at its periphery,

in the region of the ligamentum pectinatum. This bears out Collins' idea that examples of partial and even complete aniridia form no exception to the rule that development of glaucoma is associated with blocking of the filtration area of the cornea.

Holt and St. John record some interesting cases of extraction of foreign bodies from the vitreous and eye-ball. One by St. John is especially interesting, in that he extracted a piece of wire 12 mm. long which had perforated the cornea, iris and lens four weeks before the patient came for treatment, and which had eluded the eye of the family physician who was called in at the time of the accident.

Webster of New York gives a very interesting synopsis of one hundred and thirty-six cases of cataract extraction—twenty cases done according to Graefe's method with 75 per cent. successes, and one hundred and sixteen of simple extraction with 91 per cent. successes.

Knapp dwells on the occurrence, prevention and management of prolapse of the iris. He holds that the excision of the prolapse leaves shreds in the wound which form a path along which microbes may travel. He, in an *ex cathedrâ* manner, formulates a set of rules already well known and followed by most oculists. As for the treatment of prolapse when it does occur, he never excises immediately after the second day, but leaves it alone for several weeks, and then, if it does not show a tendency to diminution, but rather to increase or to form a cystic enlargement, he abscises it. In the intervening period Knapp considers operative treatment is very likely to be followed by purulent iritis.

Lippincott of Pittsburg recounts a very interesting series of one hundred cases of cataract extraction in which he practised routine syringing out of cortical matter, only withholding it where vitreous presented. He used a solution of boracic acid two to four grains to the ounce. The losses occurring during the period of performance of the one hundred cases reported amounted to 3 per cent. The vision obtained showed 92 per cent. success.

Dr. Buller read a paper on Glaucoma after Cataract Extraction, illustrating it by three cases. In two he considered that the dense capsule which had been divided rested in contact with

the corresponding filtration region, blocking it, setting up glaucoma, supporting this theory by Collins' observations on the subject published in 1890, in which Collins describes this condition as an almost constant pathological state in eyes which have perished from glaucoma after cataract extraction. In none of Dr. Buller's cases were there adhesions between the capsule and the iris. In the third case he regarded the glaucoma as an irritative condition brought on by over use of the eyes before the filtration region of the eye had recovered from the disturbance which a wound in the immediate vicinity, but not to any extent, through the canal of Schlemm, might readily create.

A highly suggestive article is submitted by Theobald of Baltimore on subnormal accommodative power in young persons a not infrequent cause of asthenopia, in which he holds that it is false to refer so many cases of asthenopia to errors of refraction or deficiencies of the extrinsic muscles of the eye. He details a method of diagnosing this accommodative insufficiency and gives the rule. "Whatever the muscular balance may be in the distance, the vertical diplopia test at 20' ought to show a difference in favour of the internal recti muscles as compared with the test at 13" of at least 3° , oftener of as much as 4° or 5° . When this is not the case, there is subnormal accommodative power. Having discovered the existence of accommodative weakness, Theobald treats it as follows: He ascertains by trial the weakest convex spherical glass which will give at 13" the minimum amount of what he considers normal exophoria (say from 2° to 3°) and prescribes this for systematic use in near vision, if necessary decentering the glasses.

Gruening describes his treatment of constant concomitant divergent strabismus. He divides the externi and passes a thread through the conjunctiva, over both internal recti, in a line with the horizontal meridian of the cornea, and tied over a pledget of cotton wool on the bridge of the nose; this is left for twenty-four hours.

Callan reports two cases of fracture through the orbital foramen, causing optic atrophy.

Heyl's paper on the calibre of the retinal vessels after traumatic injury to the convexity of the brain is well worth perusal.

It is illustrated by twelve cases, and the conclusions he arrives at are as follows :—

1. The observations made in cases presenting the phenomena of delirium or the initial stage to it. In these, the most evident change observed was a rounded condition of the retinal veins; turbid appearance of vessel; very slight variation in diameter, at first a slight increase then a decrease back to normal diameter or little less; the retinal arteries showing a decided decrease in calibre, preceded in the most typical case by a slight dilatation.

2. In the cases presenting the phenomena of sopor alternans, no persistent type was recognizable.

Swan Burnett contributes an article on Heterophoria and its relation to Asthenopia, Headache and other nervous symptoms. He favours the operative treatment rather than prismatic.

The last paper is by Wilson of Bridgeport, on the use of Vaseline in Gonorrhœal Conjunctivitis.

Consumption: How to Prevent it and How to Live with it. By N. S. DAVIS, Jr., A.M., M.D. Philadelphia and London: N. S. Davis. 1891. .

This little book has grown from a series of hygienic rules which the author has found useful in his practice. Although written in a popular style, it contains many valuable hints on the subject under consideration. The author lays much stress on the prevention of phthisis, in those predisposed to the disease, by the use of fresh air, exercise, and suitable food. The necessity for the destruction of the sputa and the hygienic management of consumption are carefully explained, and form an excellent exposition of the views which are most usually held. A knowledge of such an important subject cannot be too widely disseminated, and we hope the book may have a large circulation.

A Manual of Chemistry. By W. SIMON, Ph.D., M.D. Third edition. Philadelphia: Lea Brothers & Co. 1891.

That a third edition of Prof. Simon's manual should have been demanded is in itself an evidence that it possesses merits greater than those of the student's manuals on chemistry that crowd the shelves of our book stalls. The book is well written, the theory

is clearly expressed, and all experiments carefully described and the shoals and quicksands that prove dangerous to most beginners in experimental chemistry are well mapped out. There is about the whole book an atmosphere that suggests to the reader that the author is not only a chemist, but an experienced teacher of chemistry. The difficulty of conveying distinct ideas of tints and colours is one that every teacher has experienced. The author, to overcome this difficulty, has introduced a feature which seems to be peculiar to his book, viz, a series of colored plates illustrating the different colours and shades of colour of precipitates, solutions, etc., obtained in the usual processes of testing for poisons, acids and metals. Many of these tints are exaggerated and many not typical of the particular substance that is represented, but all are sufficiently near to remind the practical student of what he has seen in the laboratory, and to give to one reading the subject for the first time a much clearer idea of the products of reactions than could be conveyed by words alone. The book is intended chiefly for medical and pharmacy students, and quite properly the author has dwelt more at length on those organic and inorganic compounds which are of therapeutic or physiological interest. Both in theory and in facts the subject matter is well abreast of the time.

Physical Diagnosis. A Guide to Methods of Clinical Investigation. By G. A. GIBSON, M.D., etc., and W. M. RUSSELL, M.D. New York: D. Appleton & Co. Montreal: W. Foster Brown & Co. 1891.

This little book deals chiefly with the objective signs of disease, and as such will prove a useful guide to the student. The difficulty of compressing a wide subject into a small work must always prove a matter of difficulty. The task of selection has, however, been judiciously performed, so far as the abdominal and thoracic organs are concerned, and the methods of investigation are well treated. The section devoted to the examination of the eye, although dealing largely with refraction and the ophthalmoscope, makes no reference either to paralysis of the ocular vessels or to the significance of optic neuritis. The hæmoglobinometer of Gowers is described, whilst the much more

convenient instrument of Feischl is not alluded to. Among the micro-parasites of the blood the plasmodium of malaria is not described. Although we have alluded to a few of the important omissions, we can cordially recommend the book as a clear and reliable guide in many of the subjects treated, and it will prove a useful work for junior students commencing the study of physical signs.

First Lines in Midwifery. By G. ERNEST HERMANN, M.B., F.R.C.P. Philadelphia; Lea Brothers & Co. 1892.

This little book is intended as "a guide to attendance on natural labour for medical students and midwives." It is very well as far as it goes, but is altogether too short and elementary for students; it may probably be found serviceable as a handbook for midwives. The illustrations are unusually good, several being reduced from Farabœuf and Vernier's new book.

Lehrbuch der Hebammenkunst. Von DR. BERNHARD SIGMUND SCHULTZE, Jena. Zehnte Auflage. Leipzig, Wilhelm Engelmann. 1891.

The ninth edition of Dr. Schultze's manual for midwives has been exhausted in two years, necessitating a new edition. It is the standard text-book in Germany, and is clear and practical in all its details. As no changes of importance have been made since it was reviewed in this JOURNAL, it is needless now to add any further remarks. Professor Schultze is perhaps best known in this country as the author of the large obstetric diagrams used for teaching purposes in our hospitals and colleges.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, March 4th, 1892.

F. BULLER, M.D., PRESIDENT, IN THE CHAIR.

Resection of the Intestines for Fibrous Stricture following Strangulated Femoral Hernia.—DR. SHEPHERD exhibited a woman, aged 53, on whom he had performed this operation in December last, and at present the patient is in good health, having a perfectly normal condition of the bowels. The history of the case was given shortly as follows: Patient was brought to the Montreal General Hospital on 5th August, 1891, for strangulated femoral hernia, which was relieved by operation; the bowel, looking suspicious, was returned with some misgivings, and was retained immediately within the femoral ring. The patient did well, but after a couple of weeks the wound reopened and some sloughy tissue came away; after this she rapidly improved and left the hospital on Sept. 12, with a small sinus still persisting. She was seen again in October, and at that time was suffering from marked symptoms of chronic obstruction. There was pain and tenderness over the whole abdomen, which was much distended and tympanitic, and there was frequent vomiting. This was soon succeeded by a severe diarrhœa, which was accompanied by the passage of a large amount of flatus. The distension, tenderness and discomfort soon subsided, only to be succeeded in a few days by a similar condition of affairs. At the site of the operation wound there seemed to be a large mass of cicatricial tissue, and pressure here caused pain. She said that the obstruction was always felt to be at this point. Exploratory operation was suggested, and she was told to return to hospital if her condition did not improve. She was readmitted to hospital on December 17th, 1891, for operation.

Operation.—An incision was first made in the linea alba and the seat of obstruction explored. The bowel was found embedded in cicatricial tissue at site of old operation, and whilst endeavouring to separate it, it was torn. A second incision was now made in the right semilunar line so as to see better the attached intestine. It was found that the whole an-

terior wall of the small bowel at this point was a mass of cicatricial tissue, and that the lumen of the bowel was not greater in diameter than a lead-pencil. It was immediately decided to resect the bowel, so the attached portion was separated and the strictured part was cut out, altogether about three inches of bowel were removed with the attached mesentery. The two ends were now brought together in the usual way, the upper end of the bowel being much larger the lower end was with some difficulty approximated to it. Two rows of fine interrupted silk sutures were used, an inner row passing through the muscular and mucous coats, and an outer row passing through the external coat after the method of Lembert. After dropping back the united intestine, both abdominal wounds were closed with silkworm gut sutures and a rubber drainage tube inserted into the lower angle of the lateral incision. This reached the point where the bowel had been involved in the cicatricial tissue, and which was freely oozing. The wound was dressed with iodoform gauze and absorbent cotton. The patient did well for some days, and on the fourth day after operation (21st) passed a well formed stool. On the 23rd of December she complained of chilliness, pains in her limbs, and soon there was high fever and a bronchitic cough, which developed into a severe attack of bronchitis. She had for many years been subject to asthma, and had had frequent attacks of bronchitis. All this time there were no symptoms referable to the abdomen, though her general condition gave rise to alarm. Under active treatment she gradually improved. The severe cough caused much pain in the abdominal wounds, and frequently disturbed the dressings, so that a small abscess formed in connection with the central wound; this was in the walls of the abdomen only, and as soon as opened healed rapidly. Towards the end of January patient was going about the ward; the abdominal wounds were completely healed and bowels quite regular. Later on she developed a middle ear abscess; this, I have no doubt, followed the bronchial attack, which was evidently a form of the prevalent influenza. She left hospital with the ear trouble quite well on February 16th, and her general condition has improved ever since.

Dr. Shepherd also stated that Dr. Boone of Presque Isle, Maine, a graduate of McGill of 1887, wished him to report a successful case of resection of the intestines in a case of stran-

gulated inguinal hernia. The case occurred in a man who had extroversion of the bladder with double inguinal hernia. The right side became strangulated, and operation for relief was immediately performed by Dr. Boone. The bowel was found to be gangrenous, so nine inches were excised. The patient did well, and is now alive and in good health. The operation was performed in April, 1890.

Spina Bifida.—DR. JAMES BELL showed a child on whom he had operated for this condition, and gave the following history of the case :—

The child, a female, when first seen at 15 months of age, had a tumour about the size of a cocoanut situated over the sacrum and attached by a broad, short pedicle about two inches in diameter. It was covered with normal skin, was translucent, and, according to the mother's statement, was growing rapidly, out of proportion to the growth of the child. It was described as of about the size of a hen's egg at birth, and covered with thin, reddish skin. No increase of tension was observable when the child cried. Two months later, Jan. 29th (the conditions being as already described), the tumour was excised. An incision was first made longitudinally and well to the side to avoid any nerve elements which might possibly be attached to the sac. The fluid, clear and colourless, escaped, and the interior of the sac was examined. It contained no nerve elements, and there was no communication with the spinal canal, although the arches of the last lumbar and upper sacral vertebræ were absent; and on subsequent examination the tissues of the sac were found to correspond in structure with the membranes of the cord. The tumour was excised by elliptical incisions, the edges brought together with catgut sutures, with a few strands of catgut at the lower angle for drainage. Primary union took place throughout, and the child was discharged from hospital on the 19th day after operation.

Dr. Bell stated that he brought the case before the Society mainly for the reason that spina bifida seemed to be considered by physicians generally as a condition not amenable to surgical treatment. This view was no doubt based upon the fact that under old surgical methods the mortality was very great, and

after excision the patient almost invariably died within a few days from septic meningitis. Hence the tendency to leave these cases to nature, although it is a generally accepted fact that only a very small proportion of these patients live to reach adult life, and in a still much smaller proportion the tumour undergoes spontaneous cure. Hence, also, the treatment by ligature and injection. Dr. Bell considered excision the ideal operation, and thought that success or failure depended largely, if not altogether, upon asepsis, and quoted from recent authors in support of this statement. The case in point was one of those (sometimes called false spina bifida) in which any method of treatment would succeed, and in case of rupture or suppuration spontaneous cure would result.

Uterine Polypus.—DR. LAPHORN SMITH exhibited the specimen, which he had removed last summer from a patient sent to him by Dr. DeMoupiéd, who had been treating her for some time for profuse menstruation. Being single, and 35 years of age, it was several months before she could be urged to submit to an examination. The vagina was found filled with a solid fibroid tumour, the pedicle of which extended up into the uterus as far as the finger could reach. When Dr. Smith first saw her she was in a state of profound anæmia. The fibrous pedicle was snipped off easily from its insertion to the cervix, about the level of the internal os, and no hemorrhage followed. The patient made a rapid recovery, being able to walk about at the end of two weeks. She was then put on Blaud's pills, with very great benefit. Dr. Smith pointed out the necessity of insisting upon a local examination in every case of profuse hemorrhage from the uterus which is not arrested by a few weeks treatment with ferruginous tonics.

Pelvic Hæmatocele possibly due to Extra-uterine Fœtation.—DR. LAPHORN SMITH reported this case, which occurred in the practice of Dr. René Decotret. Madam G., aged 27, married seven years, and mother of one child four years old, consulted Dr. Decotret about a month ago for metrorrhagia, which had lasted five weeks. She had begun to menstruate at 15, and had always been regular until May 1891, when her periods came on twice in a month and lasted eight or nine days, suffering at

the same time from constant headache, leucorrhœa, constipation, and frequent micturition. In November she missed a period, and since then her breasts have been tender; the metrorrhagia began in December, and was accompanied by severe pain in the abdomen, loins and perineum. Dr. Decotret found a badly lacerated cervix and the uterus pushed over to the left side by a swelling in the right lateral fornix. Dr. Smith was called in consultation and found the above conditions, and diagnosed disease of the tube and ovary of the right side, strongly urging their removal. Consent was given, and two days later Dr. Decotret, assisted by Dr. Smith, performed abdominal section. On passing his finger into the abdominal incision the operator came on a soft tumour the size of an orange, through the walls of which he easily entered, and at once there appeared at the incision about half a pint of tarry fluid. This was sponged out and a handful of clots torn away. The ovary was then brought up and found to be cystic, the tubes were enlarged to the size of the thumb for a distance of two inches from the fimbriated extremity; the tube and ovary were removed, the cavity flushed with hot water at 110° , a drainage tube inserted, and the wound closed with silkworm gut. The tube was removed on the third day. The temperature has been $98\frac{1}{2}^{\circ}$ ever since, with the exception of the third night, when it reached 101° for a few hours only. There has been total absence of pain; but one hypodermic of morphia was given after the operation to weaken the heart and so diminish oozing. The bowels were moved next day with Rochelle salts, and on the twelfth day the patient was practically well and on full diet. The operation was performed in a little tenement house, with none of the conveniences of a modern hospital, and by a surgeon who had never performed the operation before. The specimen was a beautiful one; the tube could be distinguished in its whole extent, about five inches in length. About an inch from the uterus it suddenly ceased to have its thick whip-cord appearance, and becoming distended to the size of the thumb for about three inches with a solid clot, and its walls being stretched out to the thinness of tissue paper. The remaining inch with the fimbriated extremity on the end of it was not distended very much, but contained a little dark blood.

The fimbriæ were buried in a large blood-clot which filled the peritoneal cul-de-sac, and in which the ovary was imbedded. The layers of the broad ligament were separated by a layer of blood-clot half an inch thick. The appearances were just such as we would expect to find in a case of extra-uterine foetation which had ruptured, at the twelfth week, into the broad ligament, some of the blood escaping into the peritoneal cavity through the fimbriated extremity. Against this view, however, we have the report of Dr. Bruère, who, after a careful examination, states that no chorionic villi or decidual cells had been found. Unless we are willing to admit that these tissues can undergo fatty degeneration and be absorbed in about a month, we must fall back upon the opinion which Dr. Bruère holds, that this is a case of hæmato-salpinx; in other words, that the mucous membrane lining the tube became so congested that it began to pour out venous blood faster than it could escape into the uterus, and that the rest of the blood ran into the peritoneal cavity, where it produced just enough local peritonitis to throw out a wall or limiting membrane of exudation.

DR. WM. GARDNER said that in a large proportion of cases such as the second we would expect to find chorionic villi if not a foetus, but we cannot gainsay the pathologist's report. He had met with a somewhat similar case. A French-woman, mother of seven children, had lost blood for thirty-eight days, and during the last two weeks had three violent paroxysms of pain. A mass was discovered on one side of the uterus. On opening the abdomen a quart of blood was found in the cavity, and had evidently recently escaped; the left fallopian tube was removed. The outer extremity was very much more trumpet-shaped than normal, being large enough to admit the thumb; on opening it, it was full of recent clot. Though very weak, she rallied and left the hospital in three weeks. He emphasized the fact that a patient should not be allowed to go on to an exsanguine condition before operative interference. He had removed a number of polypi, some so large as to completely fill the pelvis, and had to be removed in wedge-shaped pieces. He had never been troubled with hemorrhage after their removal. He had lost one

case of enormous polypus; inversion took place during its removal, the uterus was returned, but the patient never recovered.

Small Ovarian Cyst with Papillomata.—DR. WM. GARDNER exhibited the specimen, which he had removed from a woman whose only symptom had been severe vesical irritation some two months ago; this irritation suddenly ceased and a lump was detected. He thought that while the tumour rested in the pelvis it kept up an irritation of the bladder, but on slipping up out of the pelvis the symptoms ceased. It was an unilocular cyst filled with papillomata, and presented no difficulty in removal. This condition furnished an argument for early operation while the cyst remains whole and has a convenient pedicle, for if it should burst and the papillomata become scattered about and grow into masses all over the peritoneum, the prognosis is of the worst. He had removed a number of similar papillomatous cysts without any recurrence.

Bacillus of Diphtheria.—DR. MCCONNELL exhibited two tube cultures on solidified hydrocele fluid of Löffler's bacillus. They grow in from 18 to 24 hours, and as no other bacillus will form a layer so rapidly we have a means by which we are able to make an absolute diagnosis. The first culture had been taken from a patch on the throat of a child who had suffered with patches on its throat time and again, but which were lightly regarded; the tube was inoculated, and within 18 hours a copious growth could be seen. He thought that many of these transient cases in which there was headache and sore throat with membranous formations were really diphtheria, caused by an attenuated form of the bacillus, which is exceedingly variable in its degree of virulence. The second tube was made from a culture nine months old. To test the activity of these old bacilli he inoculated a tube and found that they grew even more rapidly than in the culture from the child's throat. This is a practical point, for it shows that the disease may linger about a house for a long time, especially if the bacilli become attached to organic matter, and suggests thorough disinfection. The great rapidity of the growth of these organisms suggests that the application of some anti-septic to the throat should be made very frequently. It is his rule to order the throat to be sprayed every forty minutes, and

to give the iron mixture, with sulphurous and boric acids and half glycerine, between each application, in small doses so as not to irritate the stomach. He thought that the usual iron mixture owes its beneficial effects almost entirely to its local antiseptic action. Only when the secretions from the throat fall upon carpets or bedding and the like and become dry can the poison be distributed about in the air. Once the bacilli start to grow in sewers, the heat and moisture greatly favours their propagation, and he thought that it would be impossible to get rid of them.

DR. DECOW thought that it was well to treat all cases of sore throat in children as diphtheria, for we know that the sooner we commence treatment the better.

The PRESIDENT asked where the patches were located in the child, and if it was not peculiar to have repeated attacks of diphtheria within so short a time.

DR. F. W. CAMPBELL cited the case of a family in which three members were attacked simultaneously by diphtheria, and the evidence pointed out conclusively that the infection arose from the sewers. He agreed that once the poison got into the sewers it would be impossible to get it out, and he thought that it could be conveyed through the air.

DR. McCONNELL said, in reply, that the danger of conveyance of the poison by air would be reduced to a minimum so long as it was kept moist. All rags used for cleansing the mouth and nose should be immediately burned. The germs are easily destroyed by a temperature below the boiling point of water.

The Late Dr. J. J. Dugdale.—The following resolution of regret was proposed by Dr. F. W. Campbell, seconded by Dr. McConnell, and carried: "That this Society wishes to express its deep regret at the death of Dr. J. J. Dugdale, one of its members, and begs to convey to his relatives deep and heart-felt sympathy."

Stated Meeting, March 18th, 1892.

F. BULLER, M.D., PRESIDENT, IN THE CHAIR

General Tuberculosis in a Child Seven Months Old—DR. LAFLEUR exhibited the organs of a child who had died suddenly.

A caseous mass was found at the bifurcation of the trachea; the lungs were hyperæmic, over-distended with air, and contained a few scattered miliary tubercles, especially at the roots. A caseous tubercular nodule situated in the lingula of the left lung was the only one observed in the lungs. The spleen contained miliary tubercles, some beginning to caseate; the same condition was present in the cortex of the kidneys. In the ileum, just above the fold of the ileo-cæcal valve, there was a ragged ulcer with thickened edges; it was probably tubercular, though no tubercles were found about its edges or base. The lesions are typical and originated in the tubercular focus in the bronchial glands. The case was of interest on account of the age of the child. It has been asserted by some that tuberculosis is unknown in infants under one year, but Landouzy and other French pathologists have shown that it may be present in sucklings, while in America Emmet Holt has demonstrated the same fact. In this case the lesions hardly appeared sufficient to cause death, but the trachea and bronchi were filled with a material identical with that found in the stomach, so that the child had probably been choked by drawing regurgitated food into the trachea. The family history was unknown.

Cancer of the Ovary and Peritoneum.—DR. LAFLEUR exhibited sections of this condition under the microscope. At the autopsy the abdomen was found distended; on section the walls were thin and the cavity contained three gallons of dirty brown, turbid fluid. The peritoneum was much thickened generally, and cancerous deposits were found on both the visceral and parietal layers. The omentum showed the usual changes; it was drawn up like a cord about the transverse colon and quite unlike omental structure. There were no metastatic deposits in the liver, kidneys or spleen. Histologically the growth consists of fibrous stroma and alveoli containing small round and oval cells with nuclei about one-half the size of the cell and which stain deeply. The chronicity of the case was shown by the amount of fibrous tissue, all the pelvic viscera being bound together so that they had to be removed as a whole, forming a conical cast of the pelvis. In the right ovary there were areas

of fatty degeneration and liquifaction, many of the cysts being filled with a grumous fluid.

DR. FINLEY gave the following history of the case: A woman, aged 55, a total abstainer. Towards the end of 1890 she began to feel unfit for much active exertion and was easily tired. He first saw her on July 22nd, 1891, when she complained greatly of eructations of gas and swelling of the abdomen; she had lost some flesh and was somewhat pale and thin. On August 18th there was a large amount of fluid in the abdomen with very distinct fluctuation and dulness in front and in the flanks, with a tympanitic note in the epigastrium as if fluid was beneath the great omentum. At this time there was also a good deal of vomiting, and the temperature ranged from 100° to 102° . Early in September the cancerous cachexia became very distinct, and the face showed the peculiar drawn expression so characteristic of severe abdominal disease. In December the distension of the abdomen was extreme; the superficial veins were much distended; pigmentation of the skin and œdema of the legs. Some thirteen quarts of fluid of a port-wine colour were drawn off, sp. gr. 1020, and containing large numbers of red blood corpuscles and clumps of cells of a large size, probably cancerous. After tapping, the great omentum could be felt as a distinct bar across the upper part of the abdomen. During the last eight weeks of her life she took absolutely no food, and only small quantities of ice and water, which she would regurgitate. A few small subcutaneous hemorrhages developed before death, and occasional coffee-ground vomiting. There was no jaundice, and the only pain felt was in the back and was never severe. The emaciation was most profound, due to the eight weeks fast. The mind remained clear to the last. It was at first doubtful whether the disease was cancerous or tubercular peritonitis. The patient's mother and sister died of tuberculosis, but as soon as the cachexia developed the diagnosis became certain. No pelvic examination had been made, as there were no symptoms pointing to disease of the pelvic viscera. The duration was probably about fifteen months, and the onset very insidious.

Branched Kidney Calculus.—DR. JAMES BELL exhibited the

specimen, which was removed from the right kidney of a man, aged 36 years, who gave the following history. The first symptoms were noticed about Christmas 1890, and consisted of sharp pain about the right loin, which persisted for about ten days and then disappeared; in about a week it returned and was followed by swelling, which was noticed in the right hypochondrium. After free purgation the swelling disappeared, but he has suffered from vomiting and dyspeptic symptoms ever since. On admission to hospital on Feb. 3rd, 1892, the patient had a distinct painful swelling in the right hypochondrium; he had also suffered from vomiting, pain and discomfort about the tumour, which was always greater when he was constipated, and was always relieved by a saline purge. After a few days' observation the tumour suddenly became much reduced in size, and coincidentally there appeared in the urine a large quantity of pus. The urine had always contained some pus, but as the patient suffered from a tight old stricture five and a half inches from the meatus, its origin had been considered doubtful. For some days the flow of pus continued and the tumour became reduced in size until it could be distinctly felt to be the kidney. No blood had ever been observed in the urine. The question arose as to whether the kidney should be operated upon at once or the stricture first treated. The latter course was decided upon, and on the 24th of February the patient was anæsthetized and the stricture cut internally on the roof of the urethra, followed by dilatation up to 30 (French), and a drainage-tube through the membranous urethra. Troublesome hemorrhage followed, but was controlled without much difficulty, and the operation was promptly recovered from. Two weeks later the kidney was opened by lumbar incision and the stone removed from the upper and posterior part of the organ. The patient has made satisfactory progress since operation, but the urine still contains a small quantity of pus, and pain is complained of at times along the course of the ureter and just over the brim of the pelvis.

Retro-Pharyngeal Tumour.—DR. JAMES BELL gave the following report: L. H., aged 12, admitted to General Hospital 9th March, 1892, complaining of a lump on right side of neck. This was first noticed on the 11th April, 1891, and was then

about the size of a hen's egg. There was no pain. No history of toothache, earache or sore throat having preceded it. It has increased very slowly in size, but more rapidly, she thinks, during the last few weeks. It has never been painful, neither has there been any difficulty in swallowing. Personal and family histories negative. On the 10th March an incision was made behind and below the angle of the jaw to avoid the branches of the facial nerve. The tumour shelled out with the greatest ease, and, with the aid of the finger of an assistant in the pharynx, was delivered without any trouble. Recovery was uninterrupted. These tumours, which are comparatively rare, are typically illustrated in this case.

DR. LAFLEUR exhibited the tumour for Dr. Bell. It was spherical, with irregular surface and a distinct capsule. On section, it is seen to be of a greyish-pink colour, and is not entirely solid, there being one large distinct cavity full of fluid, and several smaller ones filled with sago-like material. The cells are very small and oval, with large nuclei. In places where the tumour has degenerated the basis can be made out better; the stroma is very delicate, reticulated and branching. The tumour more closely resembles a lympho-sarcoma than anything else, but as the tumour had a definite capsule, and was so independent of the surrounding tissues, it is very doubtful if it will recur.

Acute General Peritonitis following Rupture of an Ovarian Cyst; Operation; Recovery.—DR. BELL gave the following clinical report:—

A. F., a widow, aged 35, was admitted to hospital on the 1st of March with symptoms of acute general peritonitis. She had complained of abdominal pain for nearly two weeks, and had been confined to her bed, very ill, for four days. She had always menstruated regularly, had never been pregnant, and menstruated last about two weeks before admission. The abdomen was considerably distended, very tense, hard and tender on pressure, with an indistinct fulness in the left hypogastrium which gave a dull note on percussion. Patient lay with her knees drawn up, and complained of constant severe pain, with spasmodic exacerbations. Pulse 120; temperature 102°F. Bowels had moved several times since onset of illness. During the night the bowels

moved several times, and next day the fulness in the left hypogastrium had disappeared. Examination by rectum and vagina gave no definite results. On the 4th of March, the patient's condition being desperate, the abdomen was opened in the median line below the umbilicus. As soon as the peritoneal cavity was opened a copious flow of dark, olive-coloured fluid escaped. The intestines were covered with lymph and matted together, so that the coils of small intestine had to be carefully separated to allow the hand to reach the pelvis. The appendix, greatly swollen and covered with lymph, was separated from its attachments, ligatured, and removed. On examination, however, it was found to be quite normal within, and only swollen from the general inflammatory process within the abdomen. On reaching the pelvis a collapsed cyst with a large rent was felt, which, with about a pint of grumous, semi-decomposed blood-clot, filled the cavity of the pelvis. The blood-clot was removed, and the cyst, which was adherent everywhere and involved both ovaries, was separated from its attachments. The right Fallopian tube, first ligatured and removed, was normal, with the exception of a little swelling. The left tube was greatly swollen, and its fimbriated extremity, red and pointing, resembled a lobster's claw. The pelvis was freely irrigated with warm boiled water, and the wound closed as rapidly as possible, with a glass drain in the lower angle, as the patient's condition was extremely critical. She rallied somewhat slowly from the operation, but has since progressed most favourably. The abdominal wound is now (two weeks after operation) closed, and with the exception of a little suppuration around the site of the drainage tube (extra peritoneal), and an abscess in the arm from the injection of brandy, ether, tr. digitalis, etc., at the time of operation, the patient's condition is excellent.

DR. LAFLEUR exhibited the specimens, the two ovaries had coalesced and become firmly adherent. The contents of the cysts were those usually seen. There were secondary changes in the walls of the tumour, areas of coagulation necrosis forming superficial sloughs. In some places the walls are distinctly vascular, while in others there is fatty degeneration. It is a typical ovarian cystoma, and beyond being double and adherent presents no special pathological interest.

The PRESIDENT said that this case forcibly illustrates the great advances made in abdominal surgery, and thought that Dr. Bell should be congratulated on his bold treatment of a desperate case.

DR. LAFLEUR said that the virulence of peritonitis depended upon the nature of the infection. It has been shown that the most virulent cases are those due to streptococci, whereas those cases in which the bacillus coli communis was found were more favourable.

Acute (Yellow?) Atrophy of the Liver.—Dr. McConnell read the following report:—Mrs. G., aged 51, widow: has had five children, is about medium height, inclined to corpulency, weighing about 200 pounds, has usually enjoyed good health with the exception of occasional attacks of biliousness or indigestion and symptoms referable to hepatic derangement, these attacks have occurred off and on for the last 22 years, never had jaundice, has never used alcohol, and there is no history of syphilis. Had la grippe during the second week of last month and had a relapse about first of February. I saw her for the first time on the 13th of February, 1890. She complained of loss of appetite, nausea, headache, constipation and pain in the region of the liver, on percussion the liver dulness extended 3 inches in front, no stigmata on the face. About the 20th a slight icteroid hue of the skin was observed which became well marked jaundice by the 25th, with increased headache and a burning, pricking sensation in the skin, no pain complained of, bowels moved by purgatives.

March 7th—Jaundice more marked, the skin having a bronzed appearance and the conjunctivæ deeply tinged, an epistaxis had occurred the day previous, little tenderness over the liver—vertical dulness being only two inches. During the last three days, and five or six times daily, a rushing sound in the ears has been felt, followed by temporary deafness. Tongue is heavily coated in the centre, clean and smooth at the edges, hands and feet slightly œdematous; urine scanty and high coloured, sp. gr. 1019, no albumen or sugar, loaded with bile pigment; skin dry, and temperature rises in the evening.

March 17—Hue of skin the same, but less itching, no œdema, headache for three or four hours daily and vomiting

of a bitter, sour, yellowish liquid two or three times a day. No pain in the region of the liver, but a fulness complained of. food does not digest, but is vomited up sometimes twelve hours after; stools have the appearance of white marbles; temperature in a.m. $98\frac{1}{2}^{\circ}$.

March 28—Headache, almost constant dizziness and deafness complained of; pains in calves of legs and thighs; to-day complained of pain in the liver region and under the right scapula, which was very severe in the afternoon, but suddenly abated and was followed by an attack of diarrhœa.

April 1st—Diarrhœa has continued, stools liquid and bright yellow, complains of acute pain in the region of the gall bladder, had one attack of excruciating pain lasting three minutes, severe headache, jaundice less marked.

April 5th—Diarrhœa still continues, stools liquid, saffron yellow and not offensive, colicky pains complained of in the abdomen. The treatment has been chiefly symptomatic, sprudel salts and phosphate of soda; mustard applications in the beginning until diarrhœa set in.

11th—Somewhat better, diarrhœa kept in check by an occasional camphor and opium pill, hæmorrhoids have caused some distress.

17th—Condition much the same, diarrhœa with yellow stools continues and headache more or less constantly present.

May 17th.—Patient has continued much in the same condition, but during the last three weeks fluid has accumulated in the peritoneal cavity, complains of more or less constant pain in the abdomen, during the last three days vomiting has been frequent, urine loaded with bile pigment, sp. gr. ranging between 1012 and 1026 and containing abundant deposits of leucin, but I was not able to detect tyrosin; no albumen.

May 20th—Urine suppressed to-day and abdomen much distended with ascitic fluid and gas; pulse 130.; respiration 40; temp. 97° ; pupils widely dilated; she is in a condition of stupor, tossing about, profound coma supervened, death occurring about midnight.

Autopsy seventeen hours after death.—Rigor mortis present post-mortem, discoloration on back and shoulders well marked, skin generally has an icteroid hue, not much emaciation, $2\frac{1}{2}$ inches of fat on abdomen, about four gallons of ascitic fluid

removed from the abdomen, stomach distended with gas, but normal in appearance. Liver weighed 38 ounces, averaging $1\frac{3}{4}$ inches in thickness, rather firm in consistence, although very flaccid as a whole, bile-stained, yellowish brown in colour thickly mottled with small whitish spots which are raised above the surface, gall-bladder contained about two ounces of fluid, bile is easily forced through the cystic and common ducts into the duodenum. Spleen weighed $6\frac{1}{2}$ ounces, dark violet in colour; kidneys normal in appearance, slightly congested, capsule not adherent. Microscopical examination of the liver shows marked hyperplasia of the connective tissue, much of it apparently freshly formed, vessels and bile ducts have been formed in it, the lobular arrangement of the cells is completely obliterated, the cells much atrophied and in some places have undergone fatty degeneration, in others only the detritus of broken down cells remain, in some cells bile pigment is deposited, no crystals of hæmatoidin or bilirubin observed, few of the terminal interlobular branches of the portal can be seen. There are masses of liver cells apparently belonging to sound lobules surrounded by white fibrous tissue, besides these masses there are those where only a few atrophied cells are found also surrounded by connective tissue. Connective tissue is especially abundant in and around the portal space, the marked angularity of the cells is a striking feature in the sections, no ecchymoses were discovered; the nuclei in some of the cells take the stain.

I found this case interesting chiefly from the fact that I was not able to make a satisfactory diagnosis. After a few weeks observation a number of affections of the liver could be excluded, thus amyloid disease could not exist as no chronic suppurative process was present and the liver was diminished in size—it was not cancer from the absence of great pain and progressive enlargement, hydatids are also accompanied by enlargement, the pain and history is different from what is observed in contractions of the liver following local peritonitis. In the contraction following occlusion of the gall ducts by calculi there is a history of numerous attacks of hepatic colic followed by temporary jaundice, clayey stools and the *fièvre intermittente hépatique* of Charcot. No evidence of occlusion of the portal vein by thrombus, pressure or otherwise

was obtainable. The absence of fever, sweating, and rigors excluded all acute inflammatory affections. It seemed to become a question between interstitial hepatitis or sclerosis and acute yellow atrophy of the liver. Against the view that it is the former is the absence of a history of indulgence in alcoholic liquors or of metallic poisoning, the short duration of the attack, the persistent and high degree of jaundice and its occurrence at the onset of the attack, no enlargement of the organ preceded its atrophy, no particular emaciation of the patient, the late appearance of the ascites and its not being particularly distressing and the normal size of the spleen. In favour of the case being one of acute yellow atrophy there is the appearance of jaundice in the prodromal or early period of the disease and lessening during the later half—although this may be accounted for by the appearance of bile in the stools as if some slight obstruction, catarrhal or otherwise, in the ducts had been removed, and it is noticeable that from the date of this egress of bile diarrhoea set in, and continued, being kept up chiefly through the obstructed portal circulation in the liver. A polycholia existed for a time, in which the jaundice was diminished but slightly, although accompanied by copious bilious stools. The abundant deposits of leucin indicated a corresponding degree of lessened excretion of urea, the dilatation of the pupil during the last few weeks, toxæmic symptoms with elevation of temperature at the end, the termination in coma, and all occurring in a period of about three months are points in favor of a subacute form, of acute yellow atrophy, and the microscopical examination demonstrates atrophy of cells, and considerable development of connective tissue, a condition described as being sometimes present in this disease by Waldeyer. The age of the patient is very unusual for the occurrence of this disease and its extreme rarity necessitates care in the diagnosis, but from most points of view I think the evidence is in favour of this case being one of this rarely observed disease subacute in character. Among the functions of the liver are its antiseptic functions; poisonous substances from the gastro-intestinal tract are destroyed, or their action modified in the liver. Some have supposed acute yellow atrophy to be due to the action of bacteria, but most observers have failed to find them and have to fall back on the

supposition that some irritating ptomaine is the cause. Why not in this case explain the lesser degree of atrophy by supposing the morbid products to have been conveyed to the liver in such amounts that it was able to overcome it partially, death occurring from toxæmia before all the lobules had been completely destroyed.

DR. F. W. CAMPBELL understood the difficulty in diagnosis, but it would have been well to have dropped the term "acute," the course of three months is against it being acute yellow atrophy. He had met with cases, at post mortems, with distinct cirrhosis of the liver where there had never been a drop of alcoholic liquor taken. Some of the generally recognized symptoms of acute yellow atrophy were absent, there was no delirium and the headache not acute, though the history of diminution of liver dulness followed the usual course. He was sorry that Dr. McConnell had not gone more fully into the examination of the urine, nothing had been said of urea, uric acid or earthy phosphates which are much diminished or may be almost entirely absent. The position of the liver found at the autopsy had not been described, whether the disappearance of dulness is due to the liver falling back behind the intestines. He thought that he would prefer to consider the case one of cirrhosis.

DR. DECOW said that the most prominent symptoms of acute yellow atrophy were not present, namely, the tendency to hæmorrhage, profound cerebral disturbance, changes in the urine and rapidly fatal termination. Exclusion of alcohol has nothing to do with it. Some authorities held that it may be due to mental disturbance. He had seen a case under the care of Dr. Bristowe in London, a child a few years old, where the hæmorrhages were the earliest symptoms.

DR. LAFLEUR asked Dr. McConnell if he thought he saw the patient at the beginning of her illness. He may not have seen her during the time of the original enlargement, but only after atrophy had commenced. He had frequently found cirrhosis at autopsies, though never suspected, death being due to some intercurrent disease.

DR. FINLEY said that there were many cases of cirrhosis when alcohol had never been used. The ascites and long duration are points in favour of its being cirrhosis.

DR. McCONNELL said in reply that as far as he could learn there had been no previous symptoms except the bilious attacks for a number of years. Jaundice was the first symptom of her illness, the absence of hæmorrhages was a weak point in the diagnosis, but might depend on the subacute form of the malady. The fact of finding leucin is a proof that there is lessened urea. He thought it would be well to drop the term "acute."

Extra uterine foetation.—DR. E. A. MCGANNON of Brockville, read a paper on this subject which appears on page 721.

DR. ALLOWAY thought the history of the case a little short, he did not catch how long the foetus was in the abdominal cavity proper. He congratulated Dr. McGannon on the result of the case.

DR. MCGANNON said that the history was very definite, and he thought that there could be no question about the length of time, which was within a few days of thirteen months.

Selections.

Recent Progress in the Study of the Blood.—Advances in the medical sciences are so rapid and publications so numerous that occasional "stock-taking" becomes a necessity, lest the facts acquired be engulfed and hidden in the very mass of contributions that gave them forth. A review of recent progress in the knowledge of the diseases of the blood is at once a profitable and pleasant work, for in few branches of medicine will we find advances so far-reaching in the results already attained, so promising for the future. Some one has said that we owe as much to the maker of instruments of precision as to ourselves for the advance in modern science, and assuredly there is more than a grain of truth in this. Without the hemocytometer, the hemoglobinometer, and the microscope we should still remain in ignorance of many well-established principles, valuable in diagnosis and still more so in treatment. Without these aids we might find consolation in the words of a prominent therapist, who says: "How interesting to be able to count the corpuscles and measure the hemoglobin, but I see by the skin that this is anæmia, and my studies teach me that iron cures anæmia." Doubtless it is true that we may diagnosticate anæmia by the appearance of the skin, but aside from any thought of the fact, so well stated by Sansom, that "no disease is well treated

that is misunderstood," practical experience and scientific investigation have demonstrated that there are cases of anæmia and anæmia, often distinguishable, not by the hue of skin or the clinical history, but by the careful study of the blood, and by this alone. It has been sufficiently established that there are three classes of anæmia readily distinguishable by the condition of the blood: first, simple anæmia, in which the hemoglobin and the number of red corpuscles are correspondingly diminished; second, chlorosis, in which the hemoglobin is lessened far out of proportion to the diminution in the number of the red corpuscles; and, third, pernicious anæmia, with its proportionately overwhelming decrease of red corpuscles and the relatively increased richness in hemoglobin of the individual corpuscle. These may be taken as types, to one or the other of which all the various forms of secondary anæmias may be referred; and if future observation fails to confirm our present views (Laache) that iron is of especial value when the chlorotic character is assumed, and arsenic when the blood is especially poor in the number of its corpuscles, it has been proved beyond dispute that the examination of the blood for the determination of the type to which a case of anæmia belongs is of the utmost service in establishing the diagnosis, and therefore the prognosis and treatment.

It is to the point to cite cases, such as those reported by Mouisset of Lyons, cases of carcinoma of the stomach, in which the constantly increasing cachexia assumes the aspect of pernicious anæmia, but in which the blood is of decidedly chlorotic character. We recall the case of an old man with most profound anæmia, with increasing weakness, and pallor and slight fever at times, but without palpable tumour of the epigastric region, and without vomiting except from indiscretion in diet—in short, a picture of pernicious anæmia, and yet, by discovering a chlorotic condition of the blood, or at least a condition not approaching pernicious anæmia, we were enabled to diagnosticate malignant disease, and autopsy confirmed the diagnosis. So, too, there are occasional cases of tuberculosis, of malaria, of chlorosis, and other diseases—not a few of them curable—in which the outward manifestations mimic this grave blood-disease, and which are distinguishable from it only by examination of the blood itself. What, then, are we to say of him who sets aside such valuable aids for diagnosis, and tells us it is possible to see by the pallor that there is anæmia?

Another great group of cases to which attention must be directed, and the study of which has received renewed impetus of late, are those in which the leukocyte plays an important rôle. Since 1846, when Virchow first recognized leukæmia as a blood-

disease and set aside the faulty notions of the older pathologists about "suppuration of the blood" and "hemitis," observations have been steadily accumulating, but none compares in importance with those of Ehrlich on the nature of the white corpuscles in health and disease. In pointing out that our old conception of leukocytes as simple masses of protoplasm, with ameboid motions, was not comprehensive enough, and that there are various kinds of leukocytes widely different in nature and origin, and in offering a ready means of distinguishing these, Ehrlich has contributed knowledge that has already yielded rich results and that will accomplish much more. It would be far from the present purpose to review the work of Ehrlich, even briefly; but we may state that by peculiar methods of staining he has succeeded in establishing five varieties of leukocytes in normal blood and determining their relative proportions, and that he has found in the blood of leukæmia a greatly increased number of one of these forms, and, besides, a form such as is never found in conditions of health (myelocytes).

Such being the case, it will be readily seen that, aside from the high scientific value of the observations themselves, he has placed in our hands the means of distinguishing the various forms of leukocytosis from the cases of true leukæmia, since in the former the corpuscles present to a great degree the normal characteristics and relations. We would direct attention in particular to the varied forms of disease in children, so well detailed by Luzet, in which, besides enlargement of the spleen, there is also more or less marked leukocytosis. Among these may be named congenital syphilis, rickets, and that peculiar form of disease described by Jaksch as infantile pseudo-leukæmia—all resembling true leukæmia, but distinguishable, as Luzet and also Baginski have shown, by the colour-tests of Ehrlich. The resemblance of these diseases, and sometimes other diseases of childhood as well, to leukæmia, while usually not so close as to require special means of diagnosis, at times becomes so marked that the character of the leukocytes, as determined by Ehrlich's methods, alone serve to make the diagnosis. So, too, in cases of chronic malaria in adults, the enlarged spleen, the progressive anæmia and weakness, together with marked leukocytosis, present a complex of symptoms scarcely to be distinguished from leukæmia, except by the character of the leukocytes. The practical utility of these methods could receive no better illustration than the case of Toulmin and Thayer, one of leukæmia, in which, under treatment, the spleen diminished in size, the general symptoms abated, and the excess of leukocytes disappeared. In such a case it would be impossible to diagnosticate

leukæmia, except that, as was actually found, there still remained myelocytes and the proportions of the different forms characteristic of the disease. Subsequent relapse, with reappearance of the symptoms, confirmed the diagnosis. The value of these investigations cannot at the present time be rightly estimated, for we have yet much to learn of the extent to which they are applicable, but the few examples cited are sufficient to indicate the immense importance of continued study in this branch of pathology.

Still another line of research demands notice—the study of micro-organisms and foreign elements in the blood. It is noticeable how little bacteriology has accomplished in this direction, for though many micro-organisms have been found in the blood, there are few the detection of which serves any practical purposes; of these we may mention the malarial organism, the spirocheta of relapsing fever, and the bacillus of anthrax. Whatever the future may determine as to the nature of the malarial organism, or its exact relation to the disease as a cause, there can no longer be any dispute as to its value for diagnosis. We may call attention to the recent paper of Dock in connection with this subject. Examination of the blood for anthrax-bacilli may be of great interest in cases of intestinal anthrax consequent upon meat-infection, and may be the means of establishing the diagnosis.

In thus reviewing some of the practical points in the recent advances in the study of the blood, we hope that it is clear that a more general adoption of these means of investigating disease has become a necessity. We are well aware of the obstacles in the way of the introduction of such methods in private practice, but even in our hospitals they have been neglected, and here the scientific value of such work alone should have been sufficient to secure its introduction. We might enlarge greatly and extend our remarks to the researches into the nature and cause of the blood-diseases, chlorosis and pernicious anæmia in particular, or to the studies of the physiology of the blood-making organs, stimulated by the new methods of investigation furnished by Ehrlich, or the promising questions of antagonism between the fluids of the blood and micro-organisms, but the purpose here has been to direct attention only to the practical side of these questions, and to urge a more general practice of methods of study that must prove of the greatest value.—*Medical News*, ch 12, 1892.

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THE POST-INFLUENZAL MENTAL DISORDERS.

The influenzal poison, like that of all the common acute infectious diseases, is sometimes followed by various nervous disorders. There can be no doubt that influenza is one of the most, if not *the* most, prolific causes of functional and even organic affections of the nervous system. This is not strange when we consider the universality of its action. The three great influenzal epidemics of the past few years have sorely tried the nervous resisting power of countless thousands. It is safe to say that more people have been affected with influenza during this period than from all the other actual infectious diseases.

The influenzal poison, like alcohol, is especially apt to affect the highest cerebral centres and the terminal nerves. After both, we meet with either mental disorder or peripheral neuritis more frequently than from any other microbic or chemical poison.

In the current number of the *Journal of Mental Sciences* there is a review of Leledy's work on *La Grippe et l'Alienation Mentale*, where the part played by influenza in bringing about insanity is fully discussed. There is an agreement among those who have recently written on this subject that nearly every form of insanity may follow influenza. Melancholia appears to be more frequent than other forms. The mental symptoms may appear during the course of the influenza, or there may be an interval of a few weeks between the cause and the effect. Care should be taken not to connect, as is too frequently done, symptoms appearing long periods after an attack of influenza as a direct cause. In some cases the influenza appears to be the essential cause, while in others it

only acts as an excitant. Where there is an inheritance to insanity, the action of the poison is more marked and more durable. Dr. Leledy thinks, and his reviewer coincides with him, that in nearly all cases there is some other predisposing cause, or the influenza would not have been enough to upset the nervous balance.

The prognosis of influenzal insanity is looked upon as being more favourable than that of insanity from other causes. It, however, sometimes passes into chronicity or incurability.

Neurasthenia, with morbid fears, appears to be not an uncommon effect in persons on the verge of a nervous breakdown. These borderland cases furnish very troublesome patients, and if alcoholic or tainted with an insane heredity they may pass into actual insanity.

AMERICAN ACADEMY OF MEDICINE.

PRELIMINARY PROGRAMME.

The following topics are promised for discussion at the seventeenth annual meeting of the American Academy of Medicine, at the Cadillac Hotel, Detroit, Mich., on Saturday, June 4, and Monday, June 6, 1892:—

1. "Essentials and Non-essentials in Medical Education," the address of the retiring President, Dr. P. S. Conner of Cincinnati.

2. "The Value of the General Preparatory Training afforded by the College as compared with the Special Preparatory work suggested by the Medical School in the Preliminary Education of the Physician," a paper by Dr. T. F. Moses of Urbana, O.

3. "Does a Classical Course enable a Student to shorten the period of Professional Study," a paper by Dr. V. C. Vaughan of Ann Arbor, Mich.

4. "The Value of a Collegiate Degree as an evidence of Fitness for the Study of Medicine," a paper by Dr. L. H. Mettler of Chicago.

5. "The Value of Academical Training preparatory to the Study of Medicine," a symposium by Drs. H. B. Allyn of Philadelphia, W. D. Bidwell of Washington, and Elbert Wing of Chicago.

6. "The Newer Medical Education in the United States," a symposium by Drs. W. J. Herdman of Ann Arbor, Charles Jewett of Brooklyn, and Elbert Wing of Chicago.

7. A paper on some phases of the State Supervision of the Practice of Medicine, by Perry H. Millard of St. Paul.

Some other papers are partially promised, and the usual reports may be expected from the committees. Members of the profession are cordially invited to be present at the sessions of the Academy.

Medical Items.

—Dr. William Ewart, of St. George's Hospital, London, spent a few days in this city recently.

—The death of Dr. J. J. Dugdale of this city, although not unexpected, was a severe blow to his many friends. For many years Dr. Dugdale carried on a large general practice.

—The Royal Victoria Hospital, the princely gift of Lord Mount-Stephen and Sir Donald A. Smith, will soon be completed. Neither money, time or skill have been spared to make it, a most complete modern hospital.

—L. D. McIntosh, M.D., D.D.S., Vice-President McIntosh Battery and Optical Co., Chicago, died very suddenly on Tuesday, March 1st, at De Funiak Springs, Florida, where he had gone to lecture before the Florida Chatauqua on Microscopy and kindred subjects.

—We are pleased to hear that the first edition of Dr. Osler's Practice of Medicine was exhausted in a few days. Probably no work in general medicine has had such a rapid sale. It is to be hoped that every practitioner in Canada will either purchase or borrow it, and read it carefully after having done so. Such a reading will be beneficial to themselves and their patients.

—The following lines, composed by Miss Beatrice ———, aged 10, are evidence of a diagnostic skill to be envied by the most experienced:—

Oh! what do you think has happened
To our dear dolly here?
She's got the "High-ho-tiddley bumps,"
And the Grip too, my dear.

Her "pulse" is over ninety,
Her "breath" is very quick,
Her "temperature's" over a hundred,
I'm afraid she's very sick.

But I hope that our dear dolly
Will soon be well and strong,
And then my dear nurse B——n,
We will see you before long.