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PERFORATING TYPHOID ULCER.[1]

REPORT OF A CASE

BY

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I regret that Dr. Johnston has had an opportunity of presenting this specimen before the Society. It is from the patient referred to as doing well, in the clinical lecture which I delivered at the Montreal General Hospital, and which was published in the *British Medical Journal.*

The patient, E. N., aged 28 years, was admitted to the Montreal General Hospital under the care of Dr. Finley. According to the man's own statement he had been ill only three or four days before admission. His temperature was very high, reaching 104° F. and 104.5° each day. Baths lowered the temperature but in a couple of hours it would again reach the point recorded before the bath was given. The perforation occurred on the seventh day after admission to hospital and so far as could be learned, on the tenth day of his illness. The pain at the time of perforation occurred suddenly but was not severe. It was relieved by hot fomentations. The point of greatest tenderness was in the region of the right iliac fossa, and rapidly spread over the abdomen. The temperature was not lowered more than two degrees and the pulse not markedly accelerated.

I operated eighteen hours after the perforation had occurred. The perforation was found without difficulty or delay. It was only partially closed by the adhesion of a tag of omentum, the abdomen contained gas emitting a fæcal odour, and yellowish fæcal looking

[1] Read before the Montreal Medico-Chirurgical Society, December 9th, 1896.

fluid and serum and sero-purulent liquid. The opening in the ileum was closed by a double row of Lembert sutures and the abdomen washed out with hot sterilised normal saline solution, Free drainage was provided by strips of iodoform gauze introduced in all directions between the coils of intestines and a large glass open ended drainage tube passed down to the bottom of the pelvis.

The progress of the case during the three weeks following the closure of the perforation was, on the whole, very satisfactory. The clinical aspect of the case was that of a severe typhoid. The course of the disease did not seem to be altered by the operation.

On the 24th day after operation a second perforation of the ileum occurred. The perforation could be seen through the abdominal incision. The almost complete absence of reparative power was very noticeable. When the stitches uniting the edges of the abdominal incision were removed, the incision gaped open to almost its full extent. This misfortune was good-fortune in this respect, that it enabled one to see the second perforation as soon as it occurred and to provide free exit for all matter running out from the bowel.

Four days later a third perforation occurred, together with a very considerable loss of blood. This last opening could also be seen. From this time the patient began to lose ground, and he died on the fortieth day after the operation for closure of the first perforation.

At the autopsy performed by Dr. Wyatt Johnston, the site of the first perforation was found. The closure was complete and there had evidently been no further leakage from that point. The fæcal matters escaping from the subsequent perforations had lighted up a septic peritonitis in the lower abdominal zone, and although the greatest care had been taken during life to keep the pelvic cavity clean, a certain amount of fæcal matter had found its way into Douglas pouch. There was found also a small abscess in the mesentery, Typhoid ulcerations were still present in the lower ileum and colon, showing the long continuance and severity of the original poison. Although this case must go on record as another failure in attempting to treat successfully by operation, a typhoid perforation, yet I think it may be fairly claimed that, had the second and third perforations not occurred, this patient would in all probability have recovered. When a patient makes satisfactory progress for four weeks after an operation for the closure of a typhoid perforation, the surgical treatment of the condition for which it was undertaken can hardly be called a failure. On the contrary, I feel more encouraged to try again. The statistics show that, including some cases where the diagnosis was doubtful there have been 30 operations for the

closure of typhoid perforations, with six recoveries; but if only those cases are included in which there was no doubt as to the diagnosis, and counting only early laparotomies we have 23 operations with three recoveries. A debatable question is: Is typhoid perforation always fatal if left alone or treated medically? And this gives rise to another question, May we sometimes have a localized peritonitis due to infection of the peritoneum at the base of a typhoid ulcer without the occurrence of actual perforation?

Certain it is that recovery sometimes does follow the occurrence of symptoms which are thought by different observers to indicate perforation. In some of these cases, the symptoms of perforation are followed by abscess and five cases are reported of recovery following the incision and evacuation of localized collections of pus, weeks after symptoms of perforation had been noted. What about recovery following after signs of typhoid perforation and without the formation of abscess? Judging from what we have learned concerning a somewhat similar condition, appendicitis, it seems reasonable to conclude that typhoid ulcers may cause inflammation of the peritoneum covering their base, without perforation, or when adhesions to adjacent tissues occur early, an abscess may result from a small perforation, without the setting up of a general septic peritonitis. This would be more likely to occur in typhoid ulceration of the appendix vermiformis, than of the ileum, on account of its constant changing of position during peristalsis.

Again geographical, position may determine the subsequent course of events, as for instance, in the case of a typhoid perforation of the colon, the infection might be extra peritoneal, and abscess would then be the natural sequel.

What then is the duty of the physician and surgeon when called to deal with symptoms of typhoid perforation. I think unquestionably more lives will be saved by operation than by any other method of treatment. If it is found that the condition is localized, so much the better for the patient. If intestinal contents are escaping into the general peritoneal cavity, then certainly, closure of the opening and cleansing of the peritoneal cavity give the patient the only possible chance of recovery. Only when the symptoms point to a perforation of the colon would one be justified in advising delay.

The operation should not be performed while the patient is in a condition of shock, but the sooner after the reaction is established the better.

I believe that once the diagnosis is made, a hypodermic injection of morphia is good treatment. It lessens the pain, quiets the nervous

system, and most important of all, it arrests peristalsis and by so doing limits the spreading about of the septic fæcal matter. One must, however, not be misled by the apparently comfortable condition of the patient, due to the morphia and be persuaded to delay operation.

The perforation is best closed by a double row of Lembert sutures. The abdominal cavity must be thoroughly cleansed. This is best accomplished by irrigation, using a soft rubber tube which can be carried into either loin or into the pelvis, the return flow washing out the septic matter. Any attempt to wash out the peritoneal cavity with a pitcher will result in miserable failure. The stream from the pitcher will not enter far enough to accomplish the object desired.

Sterilized normal saline solution ($\frac{6}{10}$ of one per cent.) seems to answer very well. It cleanses as well as any fluid, and is non-irritating and does not injure the epithelial coverings of the peritoneum. It is important that this should remain functionally active. Thorough drainage should be established from either loin and from among the intestines. This is well accomplished by introducing strips of iodoform gauze, and a large rubber or glass tube long enough to reach the bottom of Douglas pouch, surrounded by strips of iodoform gauze is very efficient.

The dressings need to be very frequently changed during the first 24 or 48 hours, and for this purpose a nurse who fully appreciates the principles of antiseptic surgery and can be trusted to carry them out in every detail is essential. Although the results so far are anything but satisfactory, the surgical treatment of this condition is based on sound principles and it is to be hoped that better results will be obtained in the future than have been in the past.

A CASE OF UMBILICAL FISTULA WITH PROLAPSE OF THE INTESTINE.

BY

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The following case illustrates the necessity for careful inspection of the umbilical structures of the new-born.

F. R., the third child of the household, was born on the evening of October, 28th, 1896, the mother's labour being devoid of unpleasant event or complication. The future F. was a well-nourished boy of six and a half pounds and free from any gross malformations or deformities. The funis was somewhat excessive in size, the unusual dimensions not being confined to the fœtal insertion and its vicinity, but general, embracing the entire length of the cord. After removing considerable Wharton's jelly without traction on the umbilicus or abdominal wall, or injury thereto, the structure was not of phenomenal proportions. Examination showing the presence of no viscus, I doubted the occurrence of *hernia funiculi umbilicalis*, nor had I reason subsequently to believe there was hernia into the umbilical cord. Neither was I, after careful inspection, thoroughly convinced that there was arrested development of the abdominal wall. The funic and placental course and distribution of the vessels were not such as to confer the property of a velamentous insertion. Some of the foregoing declarations may at first seem incompatible with that which follows, but such was the case as it appeared to me after careful consideration of the conditions obtaining, a due sense of the probability of there being some grave departure from the normal rescuing the examination from negligence in the exercise of cautious investigation.

The cord received the customary dry aseptic treatment after ligation and division. The nurse, a woman of considerable experience in the puerperal chamber, shortly directed my attention to the fact that the navel-string was not undergoing the usual process of dessiccation and that the dressings were always moist. Inspection disclosed an unsatisfactory condition of the cord, with considerable suppuration at the cutaneous junction. Under careful cleansing and strict antiseptic treatment, the condition speedily improved and the remnant was detached on the eleventh day. The umbilical cicatrix itself *appeared* normal to the eye, and although the use of the probe as a crucial test was not made, belief in the absence of any orifice at this point was

accepted in view of there being no demonstration of its presence. To the left was a narrow crescent of reddish tinge, presenting no evidence of communication with the abdominal cavity and affording the appearance of a healthy sore with every intention of speedy obliteration by granulation. Slight infection had been manifested by the occurrence of mild jaundice which quickly subsided without prejudicing the boy's continued nourishment and growth.

On the evening of November 19th, a message was sent to my house requesting my presence at the cradleside of F., who was then 22 days old. Upon my arrival at 8.30, the mother informed me there was nothing unusual observed about the child's navel in the morning, the dressings had never shown fæcal contents, there had been no evidence of pain on the part of the infant, the bowels had moved without extraneous solicitation, there had been no ejection of the contents of the stomach aside from the easy regurgitation incident to overfeeding. Whilst changing the diaper during the day she observed the clothing to be damp, and eventually stripping the babe to discover the cause, "a red bleeding lump was found on the belly." Examination revealed the presence of a livid mass on the external abdominal wall, which was blood-stained. My first impression was that there had been no recession of the viscera whose normal home is the right iliac fossa and its neighbourhood, the proportions, contour and physical characters of the presenting object leading me to think that the vermiform appendix, cæcum and part of the ileum had escaped from the abdominal cavity at the site of the umbilicus. The protuding viscus was barren of sac or integumentary covering and had been freely manipulated by hands innocent of attempt at sterilization, on the part of those ignorant, of course, of the impropriety of this method of appeasing their curiosity. Being at the moment unprepared for the contingency confronting me, the bowel was carefully cleansed and enveloped in gauze moistened with euthymol, this constituting the only measure available at the time. The parents were directed to lose no time in conveying the child to St. Vincent de Paul's Hospital, a proposed arrangement to the execution of which they consented without the necessity of argument on my part. On the arrival of the little patient, I had, in conjunction with my friend, Dr. R. A. Bowie, preliminaries completed for more intelligently dealing with the case, the usual preparations for an aseptic operation having been made. On removing the temporary dressing it was observed that within one and one half hour the prolapsed intestine had increased one hundred *per cent.* in volume. The abdominal wall having been aspticised, the visceral protrusion rendered surgically clean, the operation field and

surroundings properly protected and isolated from unsterile contact, the armamentarium, and hands and arms of participants sterilised, &c., a more leisurely examination was conducted before attempting taxis in the event of conditions requiring previous rectification, the boy having been submitted to chloroform narcosis. Investigation demonstrated prolapse of invaginated intestine in the vicinity of the umbilicus. The intussusception was both ascending and descending, the gut above and the gut below being received into and ensheathed by the distended mass which had the appearance previously mentioned. It was found that the umbilicus was intimately adherent to the gut throughout two-thirds of its extent and that the viscus had not escaped through the navel, but at the point indicated by the above-mentioned narrow red crescent, which was situate to the left of the omphalic cicatrix. There had at no time been a flow of fæces at this point, nor had the contents of the bowel ever discharged through the navel, but a moment's use of the probe disclosed a communication between the umbilicus and the intestinal canal. It is unnecessary to explain that the umbilico-intestinal fistula represented the vitelline duct, which connects the vitelline vesicle with the alimentary canal in the fœtus, and which is normally obliterated about the end of the second month of ante-natel life; in this child the process had failed to occur and the *ductus omphalo-entericus* remained an open canal. The diversion of the fæcal current from the canal may be explained by the apposition of the lateral aspects of the umbilical cicatrix, the geniculation of the adherent gut and the fact that the baby's life was singularly free from the perturbating influences which induce increased abdominal pressure. The avenue of escape for the prolapsed gut was afforded by the narrow crescent, which really marked a point of arrested development of the abdominal wall.

The exercise of patience and careful effort enabled us to liberate the intussusceptus from the grasp of the intussuscipiens at either end without serious damage to the entering, returning or receiving layer of gut, the soft adhesions at the point of contact between the superior and the inferior segment of invaginated intestine within the ensheathing bowel being easily disposed of. The reduced gut was eight inches in length, and after release from constriction and under the influence of hot sterilised normal-salt solution soon presented an appearance justifying our confidence in its continued vitality. The umbilicus was carefully dissected from the intestine and the already inaugurated procedure of omphalectomy completed. The abdominal cavity being still shut off by the proper disposition of hot moist aseptic gauze, the extra-peritoneal segment of intestine was again treated

in a manner to insure its asepticity, its lumen being previously emptied and cleansed. Hydrogen peroxide was then introduced in either direction through the opening left by the unclosed omphalo-enteric duct for the double purpose of demonstrating the patency of the intestinal canal and for securing cleanliness of parts to be involved in further procedures. (The hydrogen peroxide also serves as a ready test for the security of the stitch line when compression is removed from the gut). The bowel was again irrigated with hot normal-salt solution, my associate maintaining closure of the gut by digital compression at the proper distance on either side of the orifice. The opening was closed by Lembert sutures of sterilised horse hair, a material which for two years we have used in enterorrhaphy to the exclusion of all else, and with the happiest results. The mesentery was held up against the light, and by the exercise of alternate pressure and relaxation on its vessels, the integrity of the circulation in this important structure was shown. Again cleansing the extruded parts, the opening in the abdominal wall was incised in an upward and a downward direction and the repaired bowel was returned to the peritoneal cavity. The latter was washed out with 15-vol. solution of hydrogen peroxide (something experience has taught us *not* to hesitate to do) the margins of the defect in the abdominal wall were freshened and incisions united with through-and-through silkworm-gut sutures, without drainage. The usual aseptic dressing was applied, the baby rolled in a hot blanket and put to bed, having borne the operation well and suffering no after-shock.

Nov. 20.—No movement of the bowels; no urination; no evidence of pain; no rigidity; vomiting not in excess of expectations and not of a character to excite anxiety.

Nov. 21.—A.M.—Patient passed the night in comfort, volunteering no obtrusive manifestation of dissatisfaction with the situation. Spontaneous urination and defæcation reported by nurse. Vomiting subsiding; no tympanites; no rigidity; pulse and temperature undisturbed; *facies* normal and composed.

P.M.—Two copious movements; free diuresis; vomits only after the breast; general condition satisfactory.

Nov. 22.—Bowels have moved twice. Progressing favourably.

Nov. 23.—No unfavourable symptoms. Abundant evacuations.

The stereotyped phrase, "the recovery was uneventful," applies to the further progress of the case. The dressings were changed on the 26th, when the wound was found healed throughout. On the twenty-second day the sutures were removed and the patient, although destitute of a navel, continues to grow at a rate which promises development into a sturdy youth.

SOME POINTS IN THE TREATMENT OF POTTS' DISEASE.

BY

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The points which one must consider in treating Potts' disease of the spine are: first, its tuberculous nature, demanding attention to the general health, requiring supporting agents and such remedies as are used in tuberculous affections of other parts of the body, such as Cod Liver Oil, Iron, etc.; and secondly, its local treatment directed to the bones and soft parts forming the spine itself. One should be familar with the construction of the spine, and especially its physiology, to early diagnose this affection, when best results can be obtained. The causes and extent of deformity and complications should also be known in order to forestall their occurrence.

The spine is a column which must maintain the body erect, and yet must be flexible to accommodate the body to the different positions desired; it maintains its equilibrium in a healthy state through force of gravity. When a part of it becomes diseased, its function is interfered with, and the functions of other parts in relation to it are also altered. It is necessary, therefore, to consider the alterations which take place in the spine, in the progress of this disease; the ulceration or destruction beginning in the anterior portion of the body of the vertebra or the intervertebral substance, or both, and extending posteriorly, though but rarely affecting the arches or transverse processes, and resulting in a collapse of the column after excavation of the diseased part, and the falling forwards of the spine above the point of disease, because of the loss of substance and weakening of the part. This is increased by the weight of the trunk and head and shoulders, above the area of disease. Thus, to prevent deformity should be one of our main objects, and at the same time to relieve pain and discomfort, which is usually due to pressure upon the nerves at their emergence from the intervertebral foraminæ, either through distortion of their canals or by inflammatory products deposited about them.

As in tuberculous disease of other parts, our first endeavor is to secure rest; to restrain motion by fixation, and to protect the parts from injury, by supporting the superincumbent weight of the body, thus removing the cause of injury, which is usually the increased

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pressure upon an already diseased part, as well as the jars the spine has to be submit to in ordinary locomotion. The course of the disease is a long one and will tax the patience of both patient and surgeon. but the results that can be obtained by thorough treatment are so strikingly successful in the large majority of cases, that it is demanded of one, to follow them up closely and properly to look after them. Treatment also will depend upon the condition in life of the patient, his surroundings, and his general health, whether the constitutional or the local symptoms are more grave.

Most cases are brought to us in a stage of commencing deformity; the subjective symptoms that precede this condition such as pain, muscular stiffness, peculiarity of gait or attitude do not determine much in the eyes of the laity; colic, growing pains, lumbago, effects of a bad cold, rheumatism are their diagnoses, and it is expected these troubles will pass off, and not until a knuckle is formed, and is observed (and this may be a considerable time afterward) is relief sought. Treatment directed to the prevention of deformity is more important in youth, as these patients lives are rarely sacrificed if support and protection is afforded them. In adults the general health is the more important feature. The degree of deformity is usually looked upon as the indication for treatment, and not the preservation of life or avoidance of the dangers which may arise from severe deformity displacing and compressing vital organs.

The location of the disease will usually determine the amount of deformity. In 200 cases at the Hospital for ruptured and crippled, New York, 7 per cent. only were without angular deformity or right angled deformity as Whitman terms it. Where the greater curves normally are, the deformity is apt to be more marked. Compensatory curves are formed in the opposite direction to maintain the figure erect (illustration). Local treatment, therefore, must be devoted to preventing this condition (of deformity), as well as relieving pain and fixing the spine, keeping it at rest, so that the efforts to repair, which are present in these cases of osteitis, may be aided.

In the cervical region the usual deformity is the bending forward of the head or chin upon the chest, the collapse of the vertebræ and angular curvature being concealed by the overhanging occiput and thick neck muscles, usually in a state of spasm. Early diagnosis is possible here, from the acuteness and prominence of symptoms, fixity, wry neck, etc. In the upper and mid-dorsal regions the deformity is usually great, unless means are taken to prevent it—to keep the upper part of the body from bending forward, to restrain unnecessary movements of the arms and shoulders; this is well done by Whit-

man's cup attachment to the Taylor brace, or by Taylor's chest piece, which not only controls this feature but also keeps the chest from callapsing and prevents falling together of the shoulders. In mid-spine, buckling like a closing knife will take place unless prevented, and the typical hump back be produced—head down between the squared and apparently elevated shoulders, dwarfing and marked deformity of back and anterior chest wall. In the lower spine, on account of its construction, deformity is not so marked. The bodies of the vertebræ being large and only a part, as a rule, being diseased, they support themselves unless the disease is very extensive, when great deformity is possible. In this situation we have the more unfavourable symptoms of psoas contraction and abscess to deal with; these however may disappear altogether with absolute rest and traction.

Rest and fixation fulfil all the mechanical requirements of treatment. Schapps says that physiological rest is only possible in the recumbent position and that this position should be maintained in acute disease, with or without traction to modify the pressure of the vertebral bodies—later in the course of the disease, he uses his own brace. Recumbency is incomplete in itself, when the body is changed to the erect position a brace will be necessary for complete cure. In recumbency the superincumbent weight is removed. The spine is not called upon to support the body and it is not exposed to jars and overfatigue. Potts, who first wrote of this disease, which has been named after him, in 1771, was opposed to all mechanical treatment, that is the mechanical treatment of that time, which proposed to force the bones apart when anchylosed, and to prevent the spine segments coming together when the intervening bodies were excavated and destroyed. He favored recumbency and counter irritation only. Bonnet also early recognised the futility and bad practice of pulling the bones asunder and devised his wire cuirass to assist recumbency. The value of recumbent treatment is indicated in cervical cases for the relief of pain and discomfort, because the head can be fixed, thus lessening the danger of abscess, preventing dislocation and deformity, and checking the disease before the function of the part is gone. In upper dorsal cases, because deformity in this region is difficult to control and the attitude may be faulty. In middle dorsal to relieve the grunting respiration and faulty attitude, pain and weakness—and in the lumbar region, where psoas contraction makes the erect position difficult or impossible to maintain. Recumbency is therefore necessary for best results. The method ordinarily in use at the Montreal General Hospital, is the procuring

of a firm wire bed, with a thick mattress that will not sag, then a steel frame, first devised by Bradford of Boston, I believe, light and rigid and large enough to extend beyond the contour of the body. This is covered with canvas laced tightly on, in two parts, with a space between, to allow the ordinary functions of nature to be carried out without disturbing the patient's position, and to support the weight of the body when the frame is shifted or moved. The patient is laid upon this and kept quiet and in the same position by shoulder straps which come up through the axilla and over the shoulder and are secured to the frame; a pelvic band also is useful for children. The frame and all is lifted, and the bed pan placed in under when required; the patient can be moved from one bed to another, or one room to another and even outside when desired, upon a rolling chair or wagon, without disturbing the spine. For cervical disease, a head extension, in the form of a horseshoe is made, and this is also covered with canvas. Traction can be carried out by gravity or weights. Securing the head by a headstall and attaching it to an upright secured to the head piece and then raising the head of the bed, or by using a weight and pulley to the head and an attachment secured by a pelvic band at the foot of the apparatus (illustrated). Fixed jackets and braces can be worn with this apparatus if desired, and they often are advisable. Amongst the poor it is difficult to carry out recumbency properly—the materials might be procured, but constant watchfulness is necessary and it is difficult if not impossible for them to remain in bed if at all able to get about. We must therefore adopt some ambulatory method of treatment, something that will not confine the patient to the house, and make an invalid of him. We must fix the spine as well as possible, and so we resort to jackets and braces. The propped up waists of earlier times, high bodices, afterwards stays, and now corsets, first suggested the value of the jacket treatment—persons having this disease deriving so much comfort from the strapping up (fixation).

In 1815, LeVacher produced a strong corset of canvas, stiffened with steel ribs, and a jury mast very much like Sayre's of today. This was introduced to America by Gibson in 1824. In 1696, Von Nuck devised a suspension apparatus similar in principle to the Sayre's swing. In 1700, Heister produced an antero-posterior brace very similar to the Taylor brace, so that the use of modern apparatus is not recent.

In fixative apparatus, Phelps says, "The plaster of Paris jacket devised by Sayre of New York, is one of the best supports, to be used in Pott's disease, that the world has ever seen. While it has

many defects and demerits its good qualities will more than overbalance its bad, and because of this, and because its application is based upon accurate scientific principles I give it my most hearty indorsement."

Proper application and rapid setting of the plaster is necessary. The best material to use is a starch sized crinoline or muslin, cut in five yard lengths, and three to four inches wide. In this plaster is rubbed or the crinoline is drawn through a box containing plaster of Paris (White's dental is the best) and rolled loosely. A small woven shirt of cotton or wool is drawn upon the patient. (stockinette is also used), drawn tight and secured, that no wrinkles may be present, and all bony prominences, be they spines or deformities, are padded. For this purpose I use now this thick felt, it is soft, slightly compressible and highly absorbent of perspiration. If the spines are not prominent one strip laid along the top of them is all that is necessary. If there is a prominent knuckle, then the padding had better be built up in such a manner that the transverse processes take the pressure, and a space is left between for the spinous processes. The edges of the felt will be exposed so that all may be secured by the plaster. Now, the patient is suspended in a Sayre's swing or suspension apparatus until the weight above the point of disease is removed and extension of the spine effected. The patient's heels may just be raised from the stool or he may be raised until a sense of comfort and freedom of pain is produced. Then the jacket can be applied. The patient steadies himself by holding a pair of straps from the cross bar. The axillary straps are not important and may be left off, as the shoulder is quite movable and no fixation is secured through them. Dinner pads are not often necessary.

The plaster bandages, after being well soaked in water to which a small quantity of salt has been added, being left at the bottom of the pail until all the bubbling has stopped, are squeezed free of superfluous water, and applied layer upon layer, from below upwards. The jacket, to be of greatest usefulness, must be solid at the fulcrum, which will be at the back in the region of the deformity, in most cases in which jackets are applied, and brought up as high as possible in front to the emergence of the neck, and at the bottom to just below the anterior superior spines, but high enough to escape the genitalia. It should be worked in, while soft along the iliac crests, as it is these that really support the jacket from below. This gives one the greatest leverage obtainable through length of front, besides best fixation for the chests for it is accurately fitted over as great an area as possible. An ordinary sharp pruning knife is the best thing to cut out or trim

a jacket with. Secure freedom for the arms and do not limit the thigh motion. Then you will have a jacket that fits and is comfortable. It is not necessary or advisable to use dry plaster in addition, or polish a jacket. It interferes with ventilation. A jacket of ordinary bandages, that is bandages holding a fair amount of plaster wet to a creamy consistency and well rubbed together, makes a lighter, stiffer and more porous affair than one upon which dry plaster is applied. The long shirt can be brought up over the jacket and stitched above to keep it clean. If a corset is desired this jacket can be split down the front with a knife, removed carefully, bandaged, dried and leather with lacing hooks attached. The solid jackets are better in dispensary work than corsets as they cannot be removed by curious parents and friends, and the support desired be interfered with by faulty reapplication. For young children the hammock method is necessary for application of a jacket. There are several devices but that which I use is simply taking a strip of cotton, one-half the body in width, swing between two chairs, made tense and torn down to accomodate arms and head, the persons seated upon the chairs making gentle extension by head and heels of the patient, lying prone in the swing. The bandages are run on over everything.

Jackets are also made of paper like that which is used in the manufacture of paper racing sculls, and pulp compressed, the same as is used for printers' matrices, such is that devised by Dr. Weigel, Rochester. Paper in strips laid on regularly, pine shavings and glue, a Russian method, the wood corset of Dr. Waltuck, Odessa; leather, rawhide, felt, brass, aluminium jackets are also used, the last, the suggestion of Dr. Phelps of New York. All these require to be made upon a cast of the body, which must be taken or made by the application of a plaster form or mould first, and then made from this by filling it with soft plaster of Paris. Much material may be economized by putting a block of wood in the middle of your cast.

Jackets certainly are the best means of treatment where lateral deviation is present. If this is not marked however, it disappears sometimes with the antero-posterior brace of Taylor. Where great deformity obtains the jacket is demanded. Howard Marsh and other English surgeons are very doubtful of the utility of the plaster jackets, and favour recumbency for long periods, eighteen months or longer, but advise the use of Cocking's poroplastic jacket as a good addition. They charge many disadvantages to the plaster jacket; the parts being beyond observation, the inability to watch accurately the course of treatment, the retention of perspiration, vermin breeding, retarding of growth and interference with respiration—the tendency

to loosening and lack of proper support, and even the suspension in applying them being dangerous. They maintain that instead of patients going down hill they actually improve in general health by recumbency and confinement, and prove it by many examples. Most of the objections to plaster of Paris Jackets can be gotten over by a little care and attention and if properly applied they fulfil almost all requirements, and are the readiest, cheapest and best means we have for dispensary practice at any rate.

Weir Mitchell, speaking of suspension, says it will slowly lessen the curve and that there is a replacement of tissues. That is more than the originator of the method of treatment even claimed for it (Sayre). Suspension will alter the physiological curves, but the diseased part is early held by muscular spasm in a state of rigidity, splinted as it were, and later by bony buttresses or inflammatory infiltration in a position of fixity—nature's fixation. Any disturbance of this would not be good treatment. Suspension no doubt relieves the intra-vertebral pressure, but is inefficient in itself, as it can be applied only part of the time. Plaster can be carried beyond the shoulders and up over the head if desired, will give support to three or four more vertebræ, but this casing is usually hot and uncomfortable. Sayre's head spring or jury mast, Taylor's chin support and Shaffer's chin support can all be attached to the ordinary jacket or a light brace and are much more comfortable. The Davis' head support is also used. These are necessary for high up disease, above the fourth, indeed the seventh dorsal. I hold Thomas' collar, Burrell's wire collar, the shaped wire with tin chin support, the croquet hoop are also used but are inefficient.

Below the fourth dorsal, the jacket or spinal brace or Taylor's antero-posterior brace is the best arrangement when it can be properly applied and kept in order; it must fit absolutely. Fayette Taylor claims the recession of deformity by this method in nine cases presented by him. This is the Taylor brace, (illustrated) two steel uprights, extending from the level of the spine of the scapula to the pelvic band, or as in Taylor's original brace, to an inverted U., arranged at the lower portion with pads upon the buttocks, and his original brace also had a posterior hinge in the uprights, at the level of the deformity. Pads of wood shaped or vulcanite are attached to the upright bars applied on either side of the spinous processes, taking in or supporting and fitting accurately the whole length of the deformity. Extensions are added above to go over the shoulders and carry the shoulder straps, or chest piece devised by Dr. Taylor, also, these triangularly shaped pads with an adjusting connection). An

apron to cover the whole front of the chest and secured to the brace by webbing and buckles to cross bars, etc., is attached to the brace, to stiffen and steady it.

Schapps provides an iron frame support to the front chest, connected by straps to the posterior bars.

Chance, of London, also has devised a good brace, and Dr. Knight, of New York, a light frame apparatus, with side uprights, not so efficient as the Taylor, but a very good canvalescent brace.

The plaster jacket provides general support for the trunk as a whole, solid at sides, front and back, but is less accurately adjustable than the brace. Again, I must impress upon you the necessity of braces being accurately fitted and their being perfectly rigid, not giving or bending with weight or wear.

The brace may be made by any blacksmith, but its construction and application must be fully understood by the surgeon. It must be measured and made for each case individually; you cannot buy it by name or ready made. Often braces are supplied which resemble this, but fit badly and are of no use. Often the uprights are of tempered steel and are too flexible, furnishing no fixation. This I found in one of my cases at the Montreal General Hospital. The brace is fitted by two wrenches or keys, and requires care and some trouble to do it properly. The brace must be daily applied with care by the parents and the patient watched that the straps are kept constantly tight. Look after the skin of the back to avoid chafing Prevent it by alcohol rubbing and Talc powdering in hot weather.

Whitman improves the Taylor brace in efficiency by attaching shoulder caps and providing backward traction; thus increasing the leverage of the brace.

The object of mechanical treatment is to free the spine from the influence of local deformity, and from the deforming tendency of the disease and its complications, and to distribute compensation. The test of an appliance is its efficiency to meet these indications. The test of the treatment is the effect upon the patient. (Whitman).

Abscess occurs in one out of five patients, as we get them late in the course of the disease, and its liability increases from the upper to the lower regions of the spine. W. R. Townsend gives statistics, cervical, 8 p.c.; dorsal, 20 p.c.; lumbar, 72 p.c., of abscess cases. In cervical disease they can be found early, as they must come forward, spread laterally or go through posteriorly. In the dorsal region they may burrow anywhere. Lumbar and iliac abscess are most dangerous from possibility of rupture internally. They sometimes rupture externally if not opened early or aspirated, and often attain great

size before this relief is afforded. Abscesses should not be interfered with, unless from their position they are disturbing vital functions or because of their size and deformity. Of course, if infected, better evacuate.

Shaffer says an abscess should not occur under proper treatment, and if found, should tend to disappear if proper protection and support is provided. (Cases cited). Unless they can be radically dealt with, the source of pus reached and closing up expected, unless urgency demands they had better be left alone. Aspiration and injection of anti-tubercular solutions can be carried out under strict aseptic precautions without harm or danger. Iodoform glycerin, 10 per cent., sterilised, has given the best of any results. Camphor naphthalin has also been used by Menard. Precautions are necessary for this method of treatment. Use a large trocar to evacuate, as clots and masses remain behind with a small canula, then wash out if one fancies to do so with some other antiseptic solution, 1 to 10,000 sublimate is useful, rather unnecessary though; after which inject the cavity full of your iodoform glycerin solution, but do not force it in or use any undue pressure as the fluid may be driven into the surrounding tissues; leave for a time and then withdraw the excess. The point is to thoroughly bring the walls into contact with your solution. Several aspirations and injections may be required and the contents and walls of abscesses have been found to entirely disappear under this method of treatment, but it is not always satisfactory. Tubby, (Guy's Hospital Reports) is not favourable to iodoform oil injections. If they can be completely eradicated at one sitting and do not require drainage, Baker and Treves think it is justifiable to operate, but it is often impossible to remove the carious bone and so stop liquefaction and suppuration, so extensive may the disease be, without completely destroying the continuity of the spine. Receding abscesses which are quiescent had better be left alone. Openings in the inguinal region and discharging sinuses are certainly to be condemned. Cervical abscesses should always be opened through the posterior triangles, if possible, and not the pharynx.

Abscesses, as a cause of compression paraplegia, must be considered. They are very often the cause of this condition and sometimes they find their way out, but at other times it is warrantable to operate, to do a laminectomy and relieve the pressure from in front of the cord. They can be aspirated even in this situation. The treatment of paralysis in Potts' disease demands attention. Muirhead Little says paralysis occurs in from 8 to 30 per cent. of cases. In 75 per cent. of these cases recovery was brought about by rest and extension only.

Bradford places the percentage higher and says that 83 per cent. recovered by conservative treatment. Taylor says 100 per cent. when paralysis comes on during the treatment. Parkin, of Hull, says there are very few cases of spastic paraplegia, most are without rigidity and have complete loss of the knee jerk—ankle clonus and knee jerk is marked in some, (cases here quoted). Recumbency and fixation will usually cure. Gibney speaks highly of Potass. Iod. in large doses, gr. 70, three times a day, in addition to recumbency. I have certainly observed some striking results during its use, both in the Hospital for Ruptured and Crippled, New York, and here, as in the following case: a girl 8 years of age, with complete paraplegia and involvment of both rectum and bladder who gave no sign of improvement until the iodide was administered and pushed. This was made a test case on account of lack of faith in the beneficial influence of the drug. She took 35 grains, three times a day, in rising doses, and completely recovered in a comparatively short time. Bradford, of Boston, says Potassium iodide is of no avail. If it is the interior of the body of the vertebra that is carious and pressure is made against the cord posteriorly, extension is of no avail.

Extension can be carried out by a pelvic band and webbing straps to a cross bar below the feet attached to a rope and pulley and gravity or rope and weight counter-extension.

Macewen's series of laminectomy cases seemed to show as a usual cause of the paraplegia the presence of a connective tissue tumour, hypertrophic pachymengitis pressing on the cord. (British Medical Journal, II., 1888).

Arbuthnot Lane disputes this and says that it is usually due to direct pressure by an abscess on the cord or by a narrowing of the canal by deposit of bone. Neve deprecates early operation and says the scope for laminectomy in Potts' disease is small.

Noble Smith says laminectomy does not interfere with the stability of the spine.

Operative treatment in Potts' disease is limited in its application. If the tuberculous focus can be eradicated entirely there is hope of a good result—if not, distant parts may be infected by disturbing the original lesion as well as continuing the local trouble.

Wiring of the spinous processes has been suggested and carried out, to support the spine and relieve pressure upon diseased portions, I can get no report of results.

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ON RETROPERITONEAL AND PERIRENAL LIPOMATA.

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(*Continued.*)

Enormous retroperitoneal lipomata of this nature, while not unrecorded in literature would not seem to be very frequent. As will be seen from the accompanying chart, I have been able to meet with altogether forty-two recorded cases excluding one or two mere statements of observed retroperitoneal lipomata. The description of these is often imperfect in one or more important particulars, nevertheless taken all-in-all, there is a remarkable similarity in the histories given.

The greatest number have been recorded in France (9); England Germany and Scandinavia have each supplied half a dozen; America five; Switzerland, four; Austria three; Belgium two. The fullest studies made so far have been by Terrillon in France who collected fifteen cases, and by Josephson and Vestberg in Sweden, who in a very full paper have analysed thirty cases (including Terrillon's fifteen. Salzer of Vienna has contributed a thoughtful article on the subject and is the only one, I believe, who has drawn especial attention to the perirenal development of many of these growths.

For the benefit of future workers upon this subject I have tabulated all the cases of retroperitoneal lipoma that I have been able to find recorded, dividing them into those which appear to me to have been definitely of perirenal origin, those in which the origin is doubtful, those which appear to have developed either in the mesentery or the radix mesenterii, and those which judging from the descriptions given seem to have developed in the lower half of the abdomen.

The classification is not wholly satisfactory, for in too many instances only the vaguest idea seems to have ruled as to the primary seat of origin. Nevertheless the attempt to make such a classification may draw the attention of future observers to the need for more exact description of the position of the tumours when first recognised, and the relationship of parts found at the operation or autopsy. It is clear that all these huge lipomata do not have a like origin; a large number undoubtedly originate in the neighbourhood of one or other kidney, others undoubtedly originate lower down; but it is not a little curious that where observers have recorded more than one case, those cases are with rare exceptions all of the same category. Salzer's three

cases and my two are all perirenal. Péan's are all mesenteric; Homans does not venture to ascribe a starting point for his cases but they present parallel features. This may, of course, be but a coincidence. If it be not, then probably all are recording like conditions with different preconceived notions.

Nor again can I feel satisfied that every important fact in connection with each case is contained in these tables. I have recorded all those which are commonest in connection with this form of growth, together with important points of departure from the usual history, and again the results of operative interference. Most of the cases, I am glad to note, I have found on the shelves of our medical library at McGill; for the more out-of-the-way articles in French and Swedish[1] literature I have had recourse to the College of Surgeons' Library in London and the Surgeon General's Library at Washington. I would especially acknowledge my indebtedness to this last great library. In the bibliography I note those cases not consulted at first hand.

It will be seen that about one third of the cases may reasonably be described as having a perirenal origin and that very possibly some of those classed as doubtful belong to the same category. The largest collection of retroperitoneal fat occurs physiologically around the kidney and here, consequently, is a most likely place for retroperitoneal lipomata to originate. On the other hand it must be called to mind that fatty tumours do not always originate in those sites where fat is normally present in large quantities: for example they are common over the shoulders and rare in the panniculus, and I have come across no example of abdominal lipomata developing in the essentially fatty appendices epiploicæ. I may add that I have not in my tables included cases of lipomata of the omentum (Meredith[2] and Roberts[3]) or of the gastro-hepatic omentum or ligament, (Peyrot[4]) for these cannot be considered retroperitoneal and are distinguished from the main mass of retroperitoneal tumours by not being crossed anteriorily by any portion of the intestine.

Analyzing the cases here collected, it will be seen that the condition

[1] With regard to the Swedish cases let me say that I would ask future writers on this subject conversant with the language to verify my epitomes. Where I have epitomised Swedish references to French and other cases and have later abstracted the original articles I have been surprised at the correctness of my epitomes; for my translations have been conducted minus a dictionary, by the light of elementary comparative philology and vague memories of consultations of my Baedeker during a few weeks spent many years ago in Scandinavia,—mainly in Norway and Denmark.

[2] Meredith, *Lancet*.

[3] Roberts, *Medical News*.

[4] Peyrot, *Bulletins et Memoires de la Soc. de Chirug. de Paris*.

is more frequent in the female than in the male, in the proportion of 25 to 16. Where the relationship to the kidney is given, the growth is found about as frequently arising from the left side as from the right. (Right 13, left 11.) The neoplasm is almost essentially a development of middle and later life, the statistics being as follows :

Below 30 years			2	cases.
Above 30 but below	40		8	"
" 40	"	50	9	"
" 50	"	60	4	"
" 60	"	70	7	"
" 70			1	"
Not stated			11	"

A very exceptional case is that of Lauwers, in which the tumour was recognized 14 days after birth, and, growing steadily, attained such a size and led to so much emaciation, that when removed at the age of seven, it weighed 6 lbs., or almost a third of the total weight of the child after its removal (20 lbs).

The rate of growth is very slow. Upon an average between two and three years elapsed between the first recognition of the tumour and removal, or death of the patient. Three cases were observed for 4 years ; Bruntzel's case for 5 or 8 ; Lauwers and Lundin and Hedbom's for 7 ; Terrier and Guillemain's for 7 if not 12 years. In other words, the growth for long causes so little general disturbance that the patient does not readily submit to operation until the tumour has assumed enormous proportions. The size attained by the growth is shown by the fact that the majority are recorded as being more than 20 lbs. (English) in weight ; one (Waldeyer) was 63 lbs. ; five above 50 lbs ; four above 40 lbs. ; six between 30 and 40 lbs.

How little general disturbance is caused will be seen by following the epitome given of the general symptoms. In case after case there is the record of absence of pain and absence of any marked disturbance of the intestinal and urinary functions. Only towards the end may there be pain passing down one or both extremities with œdema of the legs. The common history of all the cases is the extreme emaciation that may develop, coupled with dyspnœa.

But in about fifteen per cent. of the cases there is some history of more extensive disturbance. In Madelung's there was a tendency to vomit, in Péan's third case " functional troubles" of the abdominal and thoracic viscera, in one of Roux's, periodic crises of intestinal obstruction, in Josephson and Vestberg's slight digestive disturbances, in Belkowsky's dysuria, in Cooper Foster's frequent micturition, and in Lundin and Hedbom's irritability with flatulence and colic. In only one (Pickering Pick,) is there the history of general pain and severe abdominal disturbance.

It is interesting to note how frequently the definite presence of fluctuation has led to erroneous diagnosis. Even when the tumour has been exposed, as in Bruntzel's case, trocars have been inserted in the expectation that fluid could be drawn off. Nothing could better emphasise the fluid nature of fat in the living body than the frequent history of false diagnosis of ascites, multilocular ovarian cyst, or, as in two cases, of echinococcus cysts. Where there is a fluctuating tumour of the abdomen from which, upon repeated puncture, no fluid is obtainable, it is clear that the existence of a lipoma (or a myxoma) must be seriously considered. One such case occurred recently in Dr. Stewart's wards at the Royal Victoria Hospital. There had been slow progressive, painless and somewhat unilateral development of the abdominal tumour, with accompanying progressive emaciation and dyspnœa. A length of the intestine could be felt passing across the tumour. Unfortunately the patient, a young Jewess, would not be operated upon and her friends removed her to die at home. The only slight contra-indication in this case was the age; if I remember aright, she was scarcely twenty years old. The apparent development of secondary growths elsewhere was not against the diagnosis, although it was against operation, for we possess other instances of these large lipomata progressing to a sarcomatous termination, (*e.g.* Waldeyer's and my first case).

That a length of the intestine should pass in front of the growth is readily explained. When the growth develops in the mesentery or behind the colon, it must be covered in front by the intestine with, on either side of it, the separated laminæ of the mesenteric peritoneum. That in a very large number of cases the portion of intestine crossing in front is recognized as being portion of either the ascending or descending colon, supports the view that the lipoma in these cases has developed in the neighbourhood of the kidney. In Waldeyer's case the transverse colon passed across the tumour, and this fact led to the opinion that the growth originated in the radix mesenterii, but at the same time the right kidney was involved in the mass, hence this might be included among the perirenal cases. For while a growth developing evenly around the kidney must inevitably push forward the colon (ascending or descending), these growths are not necessarily regular, and we have examples (Spencer Wells and Bruntzel) in which the colon has been pushed to one side. It is thus possible that an irregular growth originating around the kidney should be crossed by portions of transverse rather than by the other portions of the colon. But I would not appear to urge too strongly this contention that, whenever the kidney is involved, there the

growth has originated in its neighbourhood. My own case shows very clearly that these large tumours are composed of numerous distinct lobes, some of which upon the surface may be separate and freely movable over the main mass. These, it is true, were in my case small and from the absence of any degenerative changes would appear to have been more recent than the other portions of the growth. Still their existence indicates that there may be a development of multiple retroperitoneal lipomata which eventually fuse, and Dreschfeld's case is strongly in support of this view, as are also those of Balkowsky, Schiller and Spencer Wells.

One symptom mentioned in a large number of the reports needs but to be referred to in passing, namely, the eventual œdema of the lower extremities, due to the venous obstruction in the abdomen. It is noted more than once that this did not show itself coincidently in both legs, but appeared first in the side upon which the tumour originated.

Passing now to the histology of the tumours, the divergent descriptions are easily reconciled when we remember that every member of the group of connective tissue tumours may pass into or show areas of conversion into other members of the group. There are instances of enormous perirenal fibromata (Lathuraz,[1] D'Antona,[2] Bauby and Daunic[3]), and myxomata (Elben,[4] Gould,[5] Witzel,[6] and (?) Guyot[7]) while tumours mainly fatty may show more or less extensive conversion into fibroid, cartilaginous, osteoid, mucoid or embryonic (sarcomatous) tissue. We have thus cases of pure lipoma, fibro-lipoma, fibro-chondro-osteo-lipomata, lipoma myxomatodes, and lipo-sarcomata. On the whole when we are dealing with such large slow-growing tissues one must hold the view that originally they were overgrowths of highly developed tissue, and that where upon extirpation more embryonic tissue is found this is of relatively recent appearance. Thus I cannot agree with Wigglesworth who regarded his case as one of primary myxoma which had undergone later fatty change.

Not only may there be deposits of calcareous salts and *osteoid* appearances in older and degenerated portions of the growth (Péan, Alsberg,) but as Dreschfeld first pointed out there may be true *osseous*

[1] Lathuraz, Lyon Méd., 1895. p. 329 (fibroma 40 lbs. ? mesenteric).

[2] D'Antona, Atti. della R. Accad. Med. Chir. di Napoli, 1895, p. 142 (perirenal fibrosarcoma).

[3] Bauby & Daunic, *Le Midi. Méd.*, II., 1893, p. 532, ('pararenal' fibro-myoma).

[4] Elben, Wurttemb. Med. Corresp. bl., 1880, No. 14 (hæmorrhagic perirenal myxoma).

[5] Gould, *Lancet*, 1888, II., p. 518 (hæmorrhagic "perirenal myxoma").

[6] Witzel, *D. Zeitschr. f. Chirurg.*, XXIV., 1886, p. 326.

[7] Guyot, *Gaz. de Hôpt.*, 1870, p. 369 (myxo-chondro-fibroma).

development. In Josephson and Vestberg's first case similar true osteomatous areas were recognized. In this same case, as in Waldeyer's and Dr. Hanna's cases, were also evidences of sarcomatous development, but in one of these only (Waldeyer's) were secondary growths found elsewhere. How benign are these growths is further shown by the fact that in only one instance (Tillmann) was there recurrence (? sarcomatous) after removal, and that in another (Roux) the woman gave birth to a healthy child 6 months after its removal.

On the whole the tendency is for these massive tumours to be of the nature of myxolipoma, or as some term it, of lipoma myxomatodes. One of the fullest descriptions of such a growth is by Bruntzel, under the misleading title of fibroma of the capsule of the kidney. There can be no doubt, however, in reading Dr. Bruntzel's very clear description of his case and the naked-eye appearance of the tumour that he was really dealing with a growth of this nature: there was the same gradual though very slow enlargement of the abdomen and progressive emaciation, unaccompanied for years by any disturbance of the general health, the same perfect fluctuation leading to numerous fruitless attempts to tap the enlargement. Even when the tumour was exposed upon the operating table, the surgeon was so deceived by its appearance and fluctuation that he employed a trocar in the hope of lessening its bulk prior to removal, a feature that speaks powerfully against its having been mainly fibromatous. And indeed the description given in the article is that the tumour was composed of a number of masses from the size of a child's head to that of a man's head, in the fibrous tissue of which lay large quantities of loose fatty tissue; at the back, in a kind of hilum, lay partially imbedded the left kidney. Clearly from this description the growth was a lipoma myxomatodes identical with my own case.

Passing now to the results of operative interference the results obtained were perhaps only what might be expected to follow the removal of enormous masses filling the greater portion of the abdomen and composed of a tissue which, contrary to what is frequently taught, has a peculiarly rich vascular supply. Of the 42 cases, in 26 the tumour was removed, wholly or almost wholly. In twelve cases the operation was successful, or 46.1 per cent. (Alsberg, Buckner, Bruntzel, Belkowsky, Lundin and Hedbom, Lauwers, Madelung, Monod, Péan, Pernice, Roux and Tillman) though as above stated in Tillman's there was recurrence. In general there is little sign of surrounding inflammatory disturbance and the layer of peritoneum covering the growth is described as being smooth and glistening. In general also the huge mass peels out with fair ease from its surround-

ings, though there are often accessory fatty lobules that have to be removed after the evisceration of the main mass.

The greatest danger lies in the fact that in its growth forward the tumour carries before it the portion of the intestine and of necessity the mesenteric vessels supplying this. As a consequence, unless great care be taken in the removal, the blood supply of this portion of the intestine is cut off, and gangrene or necrotic inflammation ensues. This seems to have been the history in most of the fatal cases and in some of those which were successful (Madelung, Alsberg, Bruntzel, Lundin and Hedbom).

There are thus it would seem two courses to be recommended to the surgeon operating in such cases. Whenever possible the tumour should be approached by a lateral or lumbar and not by any anterior incision, for by this means it may be removed without excessive injury to the covering peritoneum and the vascular supply of the gut which crosses it. Failing the adoption of this course there must be free resection of this portion of intestine. Alsberg removed seven inches of the transverse colon, Madelung, eight inches of the small intestine which had been injured, Lundin eight inches of the transverse colon with repeated subsequent enterotomies, while Roux removed four feet of the small intestine.

Exploratory incision without removal seems in one case (Terrier and Guillemain) to have led to arrest of growth and recovery of health during the next three years.

To recapitulate—a retroperitoneal lipoma may be suspected where there is a very slowly growing tumour situated most often more to one side than the other, accompanied by little disturbance of general health save progressive emaciation and eventual dyspnœa; which is crossed by a length of intestine, and gives a sense of fluctuation; from which, further, repeated puncture fails to draw any fluid. The sense of fluctuation distinguishes this from a fibroma, the rate of growth from a sarcoma and to some extent from a myxoma. The diagnosis from this latter, rarer condition is difficult. The results of puncture exclude ovarian or other cystic formations and ascites.

Removal is possible even when such a tumour has attained enormous dimensions. For the operation to be successful the main precaution to take is to see that the gut crossing the tumour is not deprived of its blood supply or if so deprived is freely removed, with resection.

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TABLE I.—RETROPERITONEAL LIPOMATA.—CASES

Authority.	Age and Sex.	Duration of Growth.	General Symptoms.	Fluctuation.	Relationship of Colon.
1. Morgagni..... 1760.	F. 60	Several months.	Not given.	Not stated.	Not stated.
2. Moynier.. .... 1850.	F. 47	Not known.	Suffered from cancer of uterus ending in peritonitis.	Not stated.	Descend'g colon in front.
3. Spencer Wells.. 1868.	F. 43	Several years.	Confined to room for last year.	Not stated.	Ascend'g colon passed to left.
4. Bruntzel..... 1882.	F. 33	5 or 8 years.	Good health for several years; progressive emaciation; latterly pains down left lower limb.	Yes.	Descend'g colon adherent to left side of growth anteriorly.
5. Wigglesworth... 1883.	F. 43	2 years.	Emaciation; dyspnœa.	Yes.	Not stated.
6. Kummell..... 1886.	M. 38	3 years.	Rapid growth during last few months; no symptoms mentioned.	Yes.	Colon crossed front of tumour.
7. Salzer (1)..... 1888. Kundrat's case.	M. Mid. Age.	Very slowly growing.	Not given.	Yes.	Descend'g colon in front.
8. Salzer (2)..... Kolisko's case.	F. 53	Not stated.	Not given.	No.	Not stated.
9. Salzer (3)..... Billroth's case.	M. 40	2 years.	Growth progressive, painless; good appetite; regular motions; no vomiting or icterus; great emaciation; œdema of lower limbs for last year.	Yes.	Descend'g colon in front.
10. Thiriar ..... 1889.	F. 63	——	——	——	——
11. Tillman ..... 1891.	F. 28	1 year.	Growth more rapid during later months, with dysuria.	Yes.	Descend'g colon and sigmoid in front.
12. Monod ..... 1892.	M. —	Not stated.	Not stated.	Not stated.	Not stated.
13. Author ..... Dr. Hanna's case.	M. 45	13 months.	Growth progressive and painless; appetite good; no digestive troubles; suppuration of part of growth; towards end slight œdema of legs.	Yes.	Descend'g colon in groove, pass'g across front.
14. Author..... Army Museum case.	M. 60	2 years.	Steady painless growth; no disturbance of general functions.	Not stated.	Not stated clearly.

WHICH APPEAR TO HAVE BEEN PERIRENAL IN ORIGIN.

Termination.	Relationship to Kidney.	Nature of Tumour.	Weight.	Remarks.
No operation.	In connection with capsule of right kidney.	Some parts firmer than others; appeared like fat.	——	"Ut steatomatis refferret materiam."
——	Left kidney behind and to inner side of tumour.	Pure Lipoma; very vascular.	315 grms.	Tumour only found at autopsy, 2 to 3 times size of kidney; soft and fluctuating; capsule of kidney continued onto tumour
Laparotomy; peritonitis; d. in 48 hours.	Right kidney involved in mass.	Lipoma.	——	Even after removal of main mass 12 to 20 lbs. of the growth were removed at autopsy.
Laparotomy; fistula from descending colon; recovery.	Left kidney adherent to border of tumour in a kind of hilum.	Fibro-lipoma œdematosum.	37½ lbs, (German)	Puncture attempted several times; states origin of growth from capsule: gives good diagram, but calls growth a "fibroma."
Death from respiratory troubles.	R. kidney buried 1½ inches in growth.	Myxo-lipoma.	41¼ lbs,	Describes case as a myxoma which had undergone fatty degeneration.
Laparotomy; d. 2 days later.	"Started from left kidney."	Lipoma, not fully described.	Enormous.	Puncture negative; diagnosis echinococcus cysts; spleen also adherent.
Laparotomy: d. shortly after.	Left kidney completely imbedded in upper part of tumour.	Myxo-lipoma.	Size of man's head.	Echinococcus diagnosed.
Laparotomy; collapse.	Right kidney carried four fingers breadth forward by growth.	Fibro-lipoma myxomatodes.	Size of man's head.	Solid ovarian tumour diagnosed.
Laparotomy; collapse.	Left kidney imbedded in the growth.	Myxo-lipoma.	27,400 grms.	Puncture negative; gives good diagram; points out perirenal origin.
——	Assoc'ted with capsule of left kidney.	Fibro-lipoma.	11 kilos.	Diagnosed as multilocular cyst of ovary.
Laparotomy; recovery: recurrence.	Left kidney removed with tumour.	In part lipoma, in part myxoma fibromatosum.	10 kilo (with kidney).	Diagnosed ovarian cyst; recurrence after 1 year; inoperable.
Laparotomy; recovery.	Degenerated kidney, side not stated, thought to be within tumour.	Lipoma.	6,600 grms,	No signs of kidney, its vessels, or ureter seen during the operation; in middle of tumour a mass of fatty degenerated tissue shape of kidney (?)
Septicæmia and dyspnœa; death.	Left kidney imbedded in hinder surface and in part atrophied.	Myxo-lipoma becoming sarcomatous in one area.	14 lbs.	Puncture negative; diagnosis retroperitoneal tumour confirmed by exploratory laparotomy.
Caught cold; d. from exhaustion.	Left kidney imbedded in hinder surface and atrophied.	Myxo-lipoma.	41½ lbs.	——

Authority.	Sex and Age.	Duration of Growth.	General Symptoms.	Fluctuation.	Relationship of Colon.
15. Waldeyer and Freund.. 1865.	F. 30	Not stated	Not given.	Not stated.	Transv. colon passed across
16. Pickering Pick.. 1869.	M. 36	11 months	Rapid growth; great emaciation; malignant cachexia; vomiting and great pain.	Not stated.	Asc'g colon in front.
17. Cauvy..... 1874.	M. 54	4 years	No pain; great emaciation; dyspnœa; œdema of legs, specially right.	Yes.	Not stated.
18. Dreschfeld..... 1880.	F. 49	3 years	Good health; gradual painless growth; emaciation; anorexia during last year.	No.	Main mass at back of abdomen.
19. Madelung..... 1881.	F. 32	2 years (?)	Abdominal disturbance for 2 yrs.; tumour noticed for 6 mos. before operation; no pain; tendency to vomit.	Yes.	Jejunum in intimate connection.
20. Homans..... 1883. 1st case.	M. 39	4 years	Good health; progressive growth, with emaciation.	Yes.	Asc. colon adherent cross'd transversely.
21. Homans..... 2nd case.	F. 60	1 year +	Emaciation and dyspnœa.	Yes.	Asc. colon cros'd in front
22. Terrillon..... 1886.	M. 35	3 years +	Abdominal pain; no urinary and little intestinal disturbance; progressive emaciation.	Yes.	Cæcum and asc. colon in front
23. Lauwers..... 1891.	Boy 7	7 years	Noticed when 14 days old; slow growth right sided; often punctured without result; great emaciation.	——	Asc. colon along left edge.
24. Terrier and Guellemain... 1892. Case 2.	F. 55	2 years	Gradual growth in rt.; hypochondrium.	Yes.	——
25. Schiller..... 1894.	M. 40	1 year +	Gradual growth; little disturbance; constipation(?)	Not stated.	Desc. colon push'd toward mid-line.
26. Josephson and Vestberg. 1895. Case 2,	M. 70	15 months	Gradual growth; slight digestive disturbances; great emaciation, etc.; œdema of legs and scrotum.	——	Colon and small intestines adherent to growth.
27. Lundin and Hedbom.. 1895.	M. 52	7 years	Painless; diminished appetite; irritability; flatulence, colic and dyspnœa; decrease in urine.	——	Asc. colon hepatic flex. and transv. colon adherent.

Termination.	Relationship to Kidney.	Nature of Tumour.	Weight.	Remarks.
——	R. kidney imbedd'd in mass.	Myxo-lipoma, with sarcoma in parts.	63 lbs. (German)	Secondary growths in liver (sarcomatous); supposed to have developed in radix mesenterii, but right kidney involved.
Sank marasmus. (?)	Not stated.	Pure lipoma.	29¾ lbs.	Said to have been situated more to the right than left.
Septicæmia.	Not known.	Lipoma.	——	Autopsy not obtainable; tumour of great size exposed and found retroperitoneal intra vitam.
Laporotomy; death 5 days later.	L. kidney pushed to right border of tumour.	Lobulated fibro-lipomata, with osseous nodules	Not ascertained.	Lobules on both sides of independent origin.; part removed at p.m. weighed 12 lbs. and extended down pelvis on left side.
Laparotomy; resection of 8 cm. of gut; recov'ry.	——	Lipoma, œdematosum myxomatodes.	——	Puncture without result; diagnosis ovarian cyst; extended on both sides; intestines behind; probably from mesentery of small intestines.
Laparotomy; death.	Not stated.	Myxo-lipoma.	57 lbs.	Puncture ineffectual; kidneys stated to have been unaffected; growth on right side mainly.
Laparotomy; death.	Not stated.	Pure lipoma.	35 lbs.	
Laparotomy; D. 32nd day; diarrhœa.	Not stated.	Myxo-lipoma.	57 lbs. (French)	Both kidneys said to have been healthy: growth mainly on right side.
Laparotomy; recovery.	——	Lobulated lipoma with fibrous bands.	6 kilo.	Tumour nearly one-third weight of child.
Exploratory incision; arrest of growth.	Not known.	Enormous lobulated lipoma.	——	For three years after exploratory laparotomy patient's condition improved; arrest of growth; hold it to have developed in mesentery.
Laparotomy; D. 14th day; heart paralysis.	Not stated.	Lipomata.	11·3 kilo.	Multiple nodules, mainly retroperitoneal; some pedunculated; main mass to left.
Marasmus; death	Kidneys small; Lt. connected with tumour.	Myxo-lipoma, with sarcomatous and fibromatous areas.	10·3 kilo.	If I read the Swedish aright, the cæcum was over the front of the tumour, but the growth was median.
Laparotomy; recovery.	Not stated.	Lipoma.	37½ lbs. (Swedish)	Resected 20 cm. of transv. colon; gangrene supervened, successive enterotomies and recovery.

TABLE III.—CASES NOT OF PERIRENAL ORIGIN AND APPAR

Authority.	Sex and Age.	Duration of Growth.	General Symptoms.	Fluctuation.	Relationship of Colon.
28. Buckner..... 1852.	F. 8-para.	3 years.+	Caused no marked trouble, gave birth to healthy child six months before operation.	Elastic.	——
29. Péan..... 1881. Case 1.	F. 60.	2 years.	Good health, progressive growth.	Semi-fluctuant.	——
30. Péan..... 1881. Case 2.	F. 62.	Not stated.	Great emaciation, no ascites.	Yes, in parts hard.	——
31. Péan..... 1885. Case 3.	F. 30.	1 year.	Bad health; functional troubles of principal viscera of abdomen and thorax.	Yes.	——
32. Alsberg..... 1887.	F. 46.	3 years.	Painless; had grown rapidly of late, emaciation, weakness, dyspnœa, enlarged veins over abdomen.	Yes.	Covered in front by expanded upper lamina of Tr. meso-colon.
33. Roux..... 1893. Case 2.	?	Not stated.	——	Not stated.	Not stated.
34. Roux ..... Case 3.	M. 41.	Not stated.	Periodic crises of intestinal occlusion.	——	——
35. Josephson and Vestberg. 1895. Case 1.	F. 61.	3½ years.	No symptoms save great emaciation and increase of abdomen.	Yes.	Covered by rectum, sigmoid and descending colon.

TABLE IV.—CASES REGARDED AS GROWING FROM

36. Broca... ..... 1850.	M. aged	Not stated.	Not stated.	Semi-fluctuant.	Sigmoid flexure lay overfront.
37. Pollock ..... 1852.	F.	Not known.	Not stated.	——	——
38. Cooper Foster.. 1868.	F. 63.	4 years.	General health unimpaired frequent desire to micturate and pass fæces, during last few months œdema of legs.	Yes.	Asc. colon in front.
39. Pernice..... 1884.	F. 64.	6 years.	Steady growth, great emaciation, œdema.	Yes.	Adherent to appendix and cæcum.
40. Terrier and Guillemain 1892. Case 1.	F. 40.	7 or (?) 12 years.	Slow growth with emaciation, loss of strength.	Soft and yielding.	Cæcum and asc. colon over tumour.
41. Roux..... 1893. Case 1.	F.	—	——	——	——
42. Belkowsky..... 1893.	F. 46.	2½ years.	Right-sided growth, dysuria. No other symptom.	——	Mass in meso-colon of sigmoid.

ENTLY DEVELOPING IN THE MESENTERY OR RADIX MESENTERII.

Termination.	Relationship to Kidney.	Nature of Tumour.	Weight.	Remarks.
Laparotomy; recovery.	——	Apparently a fibro-lipoma.	Not given	Stated to be in mesentery between laminæ of peritoneum.
Laparotomy; died 10th day, diarrhœa.	——	Lipoma.	12 kilo.	Stated to be behind mesentery.
Laparotomy; died 4th day, exhaustion.	——	Fibro-lipoma with osteoid and calcareous areas.	20 kilo.	Stated to be behind mesentery.
Laparotomy; recovery.	——	Lipoma.	25 kilo.	Diagnosed solid mesenteric tumour; fibrous pedicle to prevertebral periosteum; enceinte 3 months at operation, child born at term.
Laparatomy; recovery.	Portion of tumour in neighbourhood of the kidney left behind.	Lipoma, in parts myxo-lipoma, in parts calcified.	34 lbs. (German)	Tumour grew between the two kidneys, pushing transv. colon down. Resected 18 ctm. of tr. colon.
Laparotomy; recovery.	——	Lipoma.	Not given	Situated in region of sigmoid; lipoma of meso-colon.
Laparotomy; recovery.	——	Lipoma.	——	Resected four feet of small intestine; stated to be mesenteric.
Laparotomy; paralysis of bowel, collapse 3rd day	——	Fibro-myxo-osteo-lipoma.	9 kilo.	Stated to have grown in mesentery of sigmoid flexure.

ILIAC FOSSÆ OR FROM BROAD LIGAMENT.

——	——	Lipoma with former fibro-lipomatous nodule.	About 15 kilo.	Died soon after admission to hospital before particulars could be obtained.
——	——	Simple fatty tumour.	——	Evidently small, found at autopsy in tissues of b'd ligament.
Apnœa.	——	Pure lipoma.	55 lbs.	Stated to have originated in right iliac region.
Laparotomy; recovery.	——	Pure lipoma.	15 kilo.	Diagnosis; ovarian cyst (?) from broad ligament; 6 intra-ligamentous cysts were removed at same time.
Laparotomy; died 8th day, intestinal occlusion.	——	Pure lipoma.	7.850 kilo.	Tapped without result; diagnosis, retroperitoneal lipoma, adherent at side to fossa iliaca; right ovary also adherent; tumour occupied ¾ abdomen.
——	——	Lipoma.	——	Stated to be growing in right iliac fossa, in association with a fibroma.
Laparotomy; recovery.	——	Lipomata with fibromata.	——	One growth in right iliac fossa (fibromatous); another in meso-colon of sigmoid flexure and extending up along left ureter (lipomatous).

FRACTURE OF THE SCAPULA BY MUSCULAR ACTION ALONE.

BY

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Fracture of the body of the scapula by muscular action is an accident of such rare occurrence that in the majority of text-books it is entirely ignored, some even saying that this accident is always the result of severe direct violence; others say it is almost always so caused, while still others, as Holmes, say that "it (the scapula), *is thought* to have been fractured in a few instances by muscular action alone." T. Pickering Pick, however, in his "Fractures and Dislocations," mentions in a foot-note that "one instance of fracture of the body of the bone by muscular action is quoted in the *Journal de Chirurgie* of May, 1845, but makes no further reference to it. The following report of an undoubted case of this fracture may therefore be of interest:

H. K., aged about 45 years, tall, spare but muscular, was injured on November 21st, 1893, as follows: He was driving a heavily laden team down a somewhat steep incline and walking beside the load, when part of the harness broke, and, to prevent the waggon running upon the horses, he caught hold of one wheel by the spokes with both hands. The impetus, however, was too great, and he was gradually forced over and down upon one knee. As his knee touched the ground, he felt something give way in his left shoulder and lost his hold. On rising to his feet he found the arm powerless and very painful, the pain being referred to the shoulder joint, which he thought to be dislocated.

On examination, there were found to be no visible signs of any bruise or injury, and he absolutely denied having received any blow from the waggon or anything else or having touched the ground with anything but his knee. The left shoulder presented no deformity, but was held somewhat lower than the right, the arm hanging straight down, limp and powerless, by the side. There was no swelling anywhere, as he was seen within a few minutes of the occurrence of the accident. On manipulation of the scapula, it was found that the entire inferior angle was torn away and separated from the rest of the bone by half or three-quarters of an inch. The line of fracture seemed to begin at about the notch where the oblique

line begins on the axillary border of the bone and to run across to the vertebral border almost parallel with the spine, the piece thus separated comprising considerably more bone than is covered by the attachments of the teres major and serratus magnus muscles. The fragment was freely movable, but it was only when the arm was pressed to the side, with the elbow held up and slightly to the rear, that it could be pushed up into its place and crepitus produced. The arm was put up in this position in a sling, with a rib roller enclosing the upper arm and binding it to the chest. A pad over the scapula seemed necessary to prevent the fractured edge of the fragment from tipping backwards and was therefore applied. Firm union was secured in seven weeks, leaving, however, a very marked ridge of callus over the seat of fracture. Motion was perfect, and the arm regained all its former usefulness. In this case, which was undoubtedly caused by muscular action alone, as shown by the absence of all bruises or abrasions and by the evidence of himself and others that he had received no blow or fall whatever, the powerful combined action of the muscles attached to the inferior angle of the bone evidently caused the fracture. And the scapula at this point is so covered with and imbedded in muscular tissue that, although the fragments were widely separated, there was yet no deformity visible to the eye alone, and, had there existed any other injury to the shoulder, the absence of crepitus and the reference of the pain elsewhere might easily have caused this to pass undiscovered.

Clinical Lecture.

ON A CASE OF CHRONIC LEAD POISONING.

DELIVERED AT THE ROYAL VICTORIA HOSPITAL, JAN'Y 27TH, 1897.

BY

JAMES STEWART, M.D.,

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Gastric Crises---Multiple Arthritis---Subjective Disturbance of Sensation---Muscular Atrophy of the Aran-Duchenne Type---Ataxia---Anæmia---Rapid Pulse---Chronic Nephritis (?).

GENTLEMEN,

I desire to direct your attention to a case of lead poisoning presenting certain symptoms of an unusual character. The story of this girl's troubles is a long one. It dates back four and a half years. She is now 27 years of age. Her occupation is that of a silk weaver. She enjoyed good health till September, 1892. At this time she was rather suddenly seized with pain in the region of the stomach, the pain was worse after taking food, and for several days she vomited after every meal. As the latter ceased she complained of pains in the joints of the upper extremities and of numbness in the hands. The middle phalangeal joints were swollen, red and very painful on movement. The wrists, elbows and shoulders, although painful on movement, were not red or swollen. The epigastric pain lasted for about six weeks, and the joint pains were more or less present until March, 1893, a period of six months, the pain being sufficiently severe to prevent her doing any work. She noticed also that there was wasting of the small muscles of the hands.

From March to September, 1893, she was free from pain, but the wasting and consequent weakness of the hands persisted and numbness of the hands was also present. She was, however, able to do house work.

In September, 1894, she had a second attack resembling that ushering in the onset of her troubles a year previously. She was fevered and had pains in the stomach and loins, and vomited after meals. The latter disappeared in the course of a week, but the former persisted. With the cessation of the vomiting, numbness and sharp pains in the upper extremities, felt mainly in the joints particularly in the middle

phalangeal joints, came on. The latter were, as during the previous attack, reddened and swollen.

Slight pains in the joints of the lower limbs were also complained of, but not sufficiently severe to prevent her from going about. The hip, knee and joints of the feet were all painful, but not swollen. During the year 1895 patient was able to be about the house, by times a little better and a little worse. In February, 1896, there was another acute attack ushered as before, by a week of vomiting, pain in the region of the stomach and in the lumbar region. There were darting pains in all the joints, worst in the small joints of the hands and feet. The right great toe was the only joint of the lower limbs red and swollen. Numbness in both upper and lower limbs was constantly complained of. Owing to the pain and weakness she was neither able to walk, stand or feed herself. The pain lessened somewhat in August, 1896. She was able with assistance to move about the house, and to feed herself, although with difficulty. In November, 1896, she had a fourth attack of acute epigastric pain and vomiting, followed by return of pain in the joints and loins and numbness in the extremities. The vomiting ceased after three days, and the pains disappeared after nine days. It was at this time that she was admitted into the hospital.

She was never robust, and has often complained of palpitation on exertion. The family history is good.

Present State.—She is pale and poorly nourished. Her weight is 81 pounds. She is despondent.

The gait is ataxic. She is unable to stand alone even with her eyes open. She tends constantly to fall backwards. During a five weeks stay in the hospital, the temperature was found to be slightly increased, averaging about 99° Fahr. The pulse ranged between 80 and 95.

There is marked atrophy of the small muscles of both hands. The interrossei, the lumbricales and those making up the thenar and hypothenar eminences are all wasted to an extreme degree.

The extensors of the wrists are also considerably wasted. The terminal phalanges are flexed, while the proximal ones are extended, giving rise to "claw hands." In consequence, there is great disability; she is unable to feed herself, and has been unable to write for the past nine months. There is great weakness of the extensors of the wrist, but there is no "wrist drop."

The muscles of the feet and legs are wasted and weak. The wasting chiefly involves the muscles on the anterior surface. With assistance she is able to take a few steps, but has a tendency to fall backwards. When lying, the feet and toes are in a state of planter flexion.

The tendon reflexes of the upper extremities appear to be normal The abdominal and planter reflexes are increased. The knee jerks are present, but not exaggerated. There is no ankle clonus. Co-ordination is good when in the recumbent position. Muscular sense in both upper and lower limbs is normal. There is a good deal of subjective sensory disturbance in the extremities. She constantly complains of darting pains in the joints of the fingers and toes, and of feelings of cold and heat in the hands and feet. Sensibility to touch, pain and temperature is, however, normal. Sight is good. Pupils react readily to light and accommodation. The ocular muscles are normal. Hearing is more acute in the right than in the left ear, a watch being heard 3 times as far away on the right as on the left.

There is no reaction to the induced current in the muscles of the thenar and hypothenar eminences. There is however slight reaction in the interossei and the extensor muscles of the forearms.

Taste is normal to sweet, sour, bitter and salt.

The remaining cranial nerves do not show any disturbance in their function.

Vascular System.—The pulse is rapid, rate 95; small, easily compressible, regular in volume and rythm. The vessel wall is normal in the superficial arteries.

The apex beat is in the fifth left interspace, $2\frac{3}{4}$ inches from midsternum. It is normal in force. A slight blowing systolic murmur is heard at the apex. It is not transmitted backwards, but is heard over the pulmonary cartilage. The second sounds at the base are normal. There is no œdema of the face or extremities.

Respiratory System.—The chest is long and flat. The expansion is good and equal, $2\frac{1}{2}$ inches. Respiration is costal. There is no dyspnœa, cough or expectoration. The breath sounds are vesicular, no adventitious sounds being heard.

Digestive System—The tongue is pale, clean, but rather dry. The teeth are bad and here and there covered with sordes. The gums are separated from the teeth and a blue line is seen at their margins, especially marked where sordes are present.

Constipation is usually present.

The liver and spleen are normal.

A blood count shows 1,880,000 red, 10,000 white and 55% of hæmoglobin.

The urine was, during her stay at the hospital, found to contain at every examination, casts, mainly hyaline, though albumen was never present. The sp. gr. was usually low, 1012. It was free from sugar. The urea was .825%.

During her first hospital residence she was treated with iodide of potassium and had three hot-air hip baths.

She could walk much better afterwards, and suffered much less from pains in the loins. She also slept much better. She left the hospital on the 23rd December, 1896, She was re-admitted on the 14th January. While at home she had swelling of feet, legs and eyelids and a few days later there was general œdema, but this all disappeared in the course of about ten days, and at present there is no trace of œdema in any part. The urine is found to contain casts, but it is free from both sugar and albumen.

The, very remarkable history, together with the unusual conditions present, at once, you will all readily observe, place the case outside of any of our so-called typical diseases. The history of repeated attacks of acute gastric irritation at long intervals, followed by arthritic attacks, and the onset eventually of marked wasting of certain muscular groups is in substance the chief clinical feature. The fact that the patient has a blue line on the gums, where they join several of the teeth, makes one naturally first think of chronic lead poisoning. This line is, however, not very distinct, and further the changes met with are not those usually characteristic of lead. You all know that the characteristic symptoms in lead poisoning beside the blue line, are intestinal colic and paralysis of the extensors of the wrists and first phalanges, producing wrist drop. In our patient there has been no history of intestinal colic and the extensors of the wrists, although weakened, are not paralyzed ; the weakness is due to wasting and not to paralysis.

We have here the condition, as far as the hands are concerned, of progressive muscular atrophy of the Aran-Duchenne type, a marked example of which we recently had in the clinic. The case, is, however, clearly not one of progressive muscular atrophy, as there has been no progress during a long time. An ordinary progressive muscular atrophy would have ended fatally by this time. It is well known that lead causes an atrophy of the muscles ; usually, however, the atrophy induced by this metal is attended by paralysis. It is rare, indeed, to meet with cases of pure atrophy without paralysis. The disability here is not due to paralysis, but to loss of muscular fibres. It is commonly believed that lead chiefly, if not entirely, brings about paralysis through producing a peripheral neuritis. That is certainly the most plausible explanation of the wrist drop. Lately, however, it is beginning to be recognized that lead is often widespread in its effects on the nervous system. Not counting the not infrequent cerebral symptoms of lead, we also meet with evidence pointing to a direct

action on the spinal cord. This case appears to be an example of this. That the atrophic and other symptoms are due to lead is rendered more than probable. First of all, we have the blue line on the gums and secondly she worked for several years at a trade where she was exposed to lead. The physician who treated her during the first attack, diagnosed it as being due to lead. She acknowledges that she was in the habit of keeping the yellow silk-thread in her mouth. This is not a rare mode of infection in women. Undoubtedly a small quantity of lead is sufficient to bring about the symptoms of poisoning in women. They have a special liability to poisoning by lead. This fact was exemplified in one thousand cases of lead poisoning which occurred in Yorkshire from drinking water contaminated by the metal. It was found that the proportion of women to men was as 4 to 1. The wasting of the muscles here is in all probability due to a progressive degeneration of the ganglion cells of the anterior horns, the lead picking out structures which subserve the same functions as the motor nerves. There is wasting of the anterior tibial group of muscles, another very unusual manifestation of lead poisoning, although a common one of arsenic and alcohol.

Another unusual symptom of lead poisoning is ataxia. The ataxia of movement in this case is especially in the trunk muscles and the upper part of the lower limbs. This is probably to be explained by an involvement of the afferent fibres that come from the muscles that course up the postero-internal columns of the cord. The degeneration must be in the cord itself and not in the afferent peripheral fibres, otherwise we would have loss of knee jerks.

Why lead should pick out in the vast majority of cases the nerve endings in the musculo-spiral nerves we know not? Why there should be exceptions to this rule is equally unknown? The exceptions are numerous enough to be of great interest. In addition to those present in this case, others are met; for instance sometimes lead causes paralysis of an ocular muscle, sometimes a laryngeal muscle. There must be some determining factor to bring about such exceptions to a general rule. It is some factor that lessens the resistance to the chemical union betwen the constitutents of the poison and the nerve constitutents.

The case illustrates further manifestations of the effects of lead. There is a distinct history of pain and swelling in various joints. Whether the arthritic attacks were simple or uratic it is difficult to say. There is no evidence of any other gouty symptoms; several of the phalangeal joints are enlarged, but that is as frequently the effect of simple as of uratic arthritis. The relation between gout and lead poisoning

is very striking in patients who have a hereditary tendency to the former, especially if they take alcohol in the form of beer. In beer drinkers who suffer from lead poisoning, arthritis and other symptoms of gout are very common. Lead undoubtedly has a marked effect in such in inducing uratosis.

Finally a word about the renal symptoms. The urine is of low specific gravity and since she has been under observation it is constantly found to contain hyaline casts. Albumen, however, has not been present.

Are we to conclude from this, that there are interstitial or parenchymatous changes?

The persistent presence of casts for more than two months in a urine of low specific gravity, together with a general œdema, even if only temporary, is sufficient evidence of some changes. It is a well recognized fact that lead may bring about interstitial and parenchymatous changes in the kidneys, independent of any arterio-sclerotic changes.

In regard to prognosis little need be said. The atrophy in the small muscles of the hands has reached such an extreme degree that no restitution can take place. Whether there is any lead remaining in the system we have as yet been unable to determine. She is at present taking iodide of potassium, and she will be advised to continue the use of this drug for some time to come. Lead like the other heavy metals may remain for many years deposited in the tissues and in every case where symptoms of the poisoning have not disappeared it is advisable to prescribe iodide and to order occasional purgatives to ensure the elimination of any of the metal that may be thrown out into the intestinal canal.

Ephemerides, 1897.

By William Osler, M.D.

XIII. Rheumatic Neuritis Associated with Subcutaneous Fibroid Nodules.

I do not remember ever to have met with a case quite similar to the one I here report. The presence of the subcutaneous nodules, so common in rheumatic conditions, warrants, I think, the diagnosis. It is interesting, also, to note the great sensitiveness of the muscles, a striking feature in the neuritis due to alcohol and following typhoid fever.

Mr. W., aged 60, sent by Dr. Lockwood, July 1st, complaining of pains in the arms and legs. Patient is a tall spare man, who has always enjoyed good health, with the exception of dyspepsia, to which he has been subject at intervals for many years. He has taken very good care of himself. He is a moderate drinker. There is neither gout nor rheumatism in his family.

Early in March of this year he began to feel pain in the right leg chiefly about the ankle and instep, as though there was a band about them. It was sharp, but not very acute. He has felt at times a little numbness and tingling, and on several occasions there was a little redness of the skin about the ankle. Very soon the left leg became affected in the same way, and one day there were very sharp stabbing pains down the back of the leg. He describes here, too, the same sensation, as if there was a band about the ankle; he still has it at times. There was neither swelling nor pain in the joints. At this time the trouble was confined altogether to the legs. While the pain did not incapacitate him, it was a source of a good deal of annoyance and distress. About two months ago the arms began to be affected. There were ill-defined pains about the shoulders, without anything to be seen or localized, but with a good deal of tenderness of the forearms, particularly of the muscles, when he laid them on anything. He does not seem to have had any paræsthesiæ. The muscular power of the arms has been perfectly good. The chief distress really has been a soreness on pressure; yesterday there was so much pain in the arms that to get relief he had to sit with them stretched out on pillows. Early in the attack he noticed the presence of certain nodules on the legs and arms, which would appear and disappear. Beneath the skin a few inches from the elbow of right arm, just along

the margin of the ulna, there is a subcutaneous fibroid nodule, very superficial and prominent. There have been others in this region which have disappeared. There is no thickening of the ulnar nerve; there are no trophic changes. The muscles themselves are not very sore to the touch, though there is much pain in them when the arm is resting in certain positions. The blood vessels are not specially thickened. There is no soreness along the musculo-spiral nerve, but there is a little tenderness of the brachial cords. On several occasions there has been a little redness. One of these small nodules which was on the edge of the left tibia, has disappeared entirely. There is no atrophy of the muscles in arms or legs. The knee jerks are present, perhaps a little plus. The pupils are of medium size, and react well to light. There are no tophi on the ears.

July 8th. He has not been so well. The soreness in the arms and about the left wrist is very great and there has been subcutaneous redness and swelling. There is now on the extensor surface of the left arm, midway between the elbow and wrist, a raised red area about 3 by 2 inches. The redness looks fading, but this part is distinctly puffy. It was a patch similar to this which appeared on both ankles at an early period of the disease.

The subcutaneous fibroid nodule on the right arm has disappeared. There is one now on the inner surface of the left knee, which feels like a small shotty body beneath the skin. It is a little sensitive. There is another small nodule just on the inner surface of the patella. The left instep is distinctly swollen and red, and it is tender just above the outer malleolus.

Dr. Lockwood informs me that Mr. W. improved through the summer, and gradually got quite well after a course of baths at one of the springs.

XIV. Bright's Disease or Myxœdema.

There are few practitioners who, having once recognised myxœdema, do not recall cases of the disease which they have treated as chronic nephritis. There are instances in which the diagnosis is by no means easy, of which the following is an illustration.

Mrs. L., aged 44, seen February 28th, 1895, with Dr. Norris, complaining of swelling of the legs and face. She was a married woman with ten children, and had always had excellent health. Ever since she has been "grown-up" she has had a tendency to swelling of the feet, particularly at night. For a year or more she has been getting pale, and she thinks she has gained in weight.

In August last she noticed that her feet and ankles were swollen,

the left much more than the right, and recently the left hand has seemed a little puffy. The face has been a little swollen and flabby for several months, and the eyelids become œdematous in the morning.

The patient had a pale yellow, very muddy complexion ; the skin was dry, but there was no great puffiness of the eyelids, nor had she the broad features so characteristic of the myxœdematous facies. There were no folds of skin on the forehead, which showed a little brownish discolouration. The skin of the backs of the hands was dry, and not especially puffy, but she says that this morning the left hand was swollen. The neck was not swollen ; there were no large supra-clavicular pads ; the thyroid gland could be felt. The legs were swollen, particularly below the calves. The circumference at the ankle was almost the same as in the upper part of the leg. The swelling was particularly marked about the malleoli. There was no pitting like an ordinary œdema, but she says that at night the legs are very much larger than in the morning. There was no change in the voice. For some time she has been very despondent and low-spirited.

The pulse was 70 ; there was no increase in the tension. The temperature was 98.5°. She did not complain of coldness. There was no optic neuritis or retinitis. She did not pass a larger amount of urine than natural. It was normal in colour, specific gravity 1017, always contained a trace of albumin, but no tube casts.

The case had been regarded as one of Bright's disease, but her condition was certainly suggestive of myxœdema. She took three grains of the thyroid extract three times a day for a month before any change was noticed ; then the legs became softer, particularly in spots, and by the middle of June the hardness and swelling had almost disappeared, and the legs were very much smaller. She became thinner; the appetite was better ; the dryness of the skin had disappeared, and she was in very much better spirits.

In the latter part of the year she had to take larger doses of the thyroid extract. The change in her mental condition has been quite marked. Dr. Norris wrote that " her intellect is not at all dull, and she is full of energy, and says she feels stronger than she did." She has, however, had a little return of the swelling of the legs.

Throughout the year 1896 this patient has improved very much. She took a trip to England and returned greatly benefited. She has continued to take the thyroid extract, finding that if she omits it for a few weeks the swelling returns. Dr. Norris reports that perhaps the most striking feature in the case is the alteration in her disposition, which became quite natural again, and has remained so.

XV. Remarkable Noisy Expiration in Chronic Emphysema.

One evening a few years ago as I was travelling from Boston to New York in the Pullman car, a party of three or four gentlemen got on the train at, I think, Providence. One of them attracted immediate attention by the extraordinary noise which he made, and which could be heard by everyone in the car. It was a remarkable rumbling, noisy, gutteral expiration, very distressing to hear. The man sat in the compartment just across the aisle from me, and the most astonishing feature was that in spite of it he seemed quite comfortable and engaged in conversation and did not look distressed. He was a very large, well built man, and looked, indeed, the picture of health. In a few minutes the expiration became less noisy, but it still was prolonged, interrupted, and audible. The party moved away, having secured the drawing-room of the next car, and I made a little memorandum of the condition as one with which I had never met.

On April 10th, 1896, I recognized the owner of the remarkable noisy expiration in a Mr. ——, who was shown into my consulting room.

The thorax was very voluminous, barrel-shaped, the percussion note hyper-resonant even through the thick, heavily coated chest wall. Everywhere over the chest inspiration was quiet; in a few places piping sounds were heard. Expiration was very greatly prolonged, and accompanied with loud, whistling rhonchi. I have rarely heard such marked disproportion in length between the expiratory and inspiratory murmur. The pulse was good; the heart sounds were clear; evidently the compensation of the right ventricle was well maintained. He complained a great deal of distressing cough, and of the most extraordinary nocturnal paroxysms of dyspnœa, in which he had to sit up in a chair for hours at a time, leaning forward, and feeling all the time, as he expressed it, on the brink of suffocation.

He has lately for the first time had some swelling of the legs. For five or six years he has been troubled, particularly on any exertion, with loud noisy expiration. The air blubbers out, as he says, with a great deal of effort and noise, so that people do not like to have him about. In a way it is an exaggeration of the puffing and blowing which very stout people make on exertion, but in its staccato quality it was unlike any form of expiration I had ever heard. When perfectly quiet he could control it, but any exertion brought it on at once.

RETROSPECT

OF

CURRENT LITERATURE.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Treatment of Albuminuria by Reni-Puncture.

REGINALD HARRISON. "On the treatment of some Forms of Albuminuria by Reni-Puncture."—*British Medical Journal*, Oct. 17th, 1896.

In this paper Mr. Harrison relates the history of three cases in which albuminuria was present and in which, after a nephrotomy, the albumin was found to have disappeared. The first case was that of a youth who was suspected of having had scarlet fever three weeks before the date of operation, and who since that time had suffered from intense lumbar pain. Upon the kidney being exposed, it was found to be tense, and it was incised with the expectation of finding matter. Such was not the case however. There was a free discharge of blood and urine from the wound for some days, and in the course of ten days it healed soundly. From the time of operation, the excretion of urine greatly increased and the albumin gradually and completely disappeared.

The second case was that of a man of fifty who presented symptoms of renal calculus. The kidney was found to be large and tense, but its exploration did not reveal the suspected stone. A free discharge of blood and urine followed for some days. The urine, which before the operation had been largely and constantly albuminous, became quite normal and the patient remained in excellent health.

In the third case, a woman who had suffered from hæmaturia for a year and whose symptoms became greatly aggravated after an attack of influenza, was found to have pain on pressure over the left kidney, constant and increased albuminuria and a history of having previously passed a small calculus. The kidney was found to be swollen and tense, but no stone could be detected on exploration with the finger. A copious discharge of urine and blood from the wound during some

days was followed by the patient's recovery, the urine becoming normal.

Newman of Glasgow, records two cases in which albuminuria ceased after the performance of an operation for fixation of the kidney. In both cases tube casts were present.

The author considers that the relief afforded to the kidneys by the loss of blood following upon the incision of the organ, is a proof of the beneficial action which exerts its influence by the relief of high tension, and furthermore prevents those changes in the kidney which eventually lead to various forms of Bright's disease. Iridectomy in glaucoma and puncture of the capsule of the testicle in cases of acute orchitis are examples of the beneficial effects of the relief of tension.

Mr. Harrison concludes his interesting paper by indicating the class of cases in which operative measures may be of benefit and which he illustrates by those cases of nephritis which are found consequent on an attack of scarlet fever. In a majority of cases, scarlatinal nephritis is of a temporary character, but in a number of cases, it is not so. These latter may be divided into two groups. The first includes those instances where death is imminent with more or less suppression of urine, and where after death, a most intense vascular engorgement is found. The second group embraces those cases where the renal symptoms do not tend to recovery. The author considers that instances will be found in these two groups where the measures advocated will be of service.

Mr. Hurry Fenwick *(British Medical Journal*, Oct. 31, 1896) states that digital exploration of the kidney is usually fraught with some danger. A quiescent, chronically inflamed kidney may become acutely inflamed, and in cases of recent acute inflammation, the renal tissue is so exceedingly friable and the hæmorrhage may be so profuse as to require nephrectomy. He advises releasing the kidney capsule along the convex border, or if great engorgement be present, puncture with a scalpel without digital exploration.

JABOULAY. "La régénération du goître extirpé dans la Maladie de Basedow et la Section au Sympathique cervical dans cette maladie."—*Lyon Médical*, March 22, 1896.

JABOULAY. Section du Sympathique cervical dans l'exophtalmie.—*Lyon Médical*, May 31, 1896.

In the first of these papers, M. Jaboulay calls attention to the fact that the thyroid gland in cases of Graves' disease does not undergo the same changes as does the ordinary enlarged thyroid after oper-

ation with the intention of effecting a diminution in its volume. Instead of the excision of part of the gland or a division of the isthmus leading to atrophy, the gland soon reaches its former size, and may possibly proceed to still greater enlargement.

Having operated upon the thyroid of a patient with exophthalmic goître five times in three years, M. Jaboulay decided to divide the cervical sympathetic, which is now considered to play so important a rôle in the ætiology of the disease. He accordingly did so at a point between the superior and middle ganglia. The immediate result was excellent: diminution in the palpitation and tremors and also in the exophthalmos. After the lapse of a month, the palpitation and tremors reappeared and the goître increased in size, but the exophthalmos remained permanently cured.

In his second paper M. Jaboulay briefly records two other cases of exophthalmic goître in which section of the cervical sympathetic led to a great diminution in the protrusion of the eyeballs. He also mentions the case of a young man whose right cervical sympathetic nerve was divided with the intention of modifying the circulation in the corresponding cerebral hemisphere. After operation, the eye on the side which was operated upon, had the appearance of being set more deeply in the head, and of being more completely covered by the lids.

From these cases Mr. Jaboulay concludes that section of the cervical sympathetic should be practised in cases of Graves' disease for relief of the exophthalmos, and all the more so that some amelioration in the tachycardia and the tremors may result as well.

E. J. Semple.

Recollections of Surgery before the Use of Anæsthetics.

The Boston Medical and Surgical Journal, published on the 7th January, 1897, contains eight articles on the above subject from the pens of Benjamin Eddy Catting, M.D., A.M., A.A.S., T. M. Mankoe, M.D., William Ingalls, M.D., Samuel L. Abbot, M.D., Isaac F. Galloupe, M.D., C. V. Bemis, M.D., W. G. Wheeler, M.D., and H. A. A. Beach, M.D.

These reminiscences are interesting and valuable, as they are written by a group of men, rapidly getting smaller. But few operating surgeons of to-day have had any experience of operations of a serious character done without anæsthesia, and it is fortunate that those who are able have put on record their experience in operative surgery before the discovery of anæsthetics. It is now over fifty years since ether was first given in America for a severe surgical operation in the Massachusetts General Hospital on the 16th October, 1846. It was given

as far back as 1818 for asthma, and singularly enough the greatest care was used not to carry it to unconsciousness for fear of fatal results, several cases of death having been recorded from that cause.

The first recorded case of the extraction of teeth under ether was on the 30th September, 1846, by Dr. Morton. The preparation for an operation in those pre-anæsthetic days included means to hold the patient as quiet as possible by means of mechanical appliances and strong well trained attendants.

Operations were dreaded alike by patient and surgeon; they were all alike, full of dreaded horrors to patients, and not without terror to the onlookers. Some patients raved and stormed, roared out heavy groans and heart-rending shrieks.

The use of anæsthetics was not adopted without opposition. There were two opinions on the safety, availability and wisdom of the measure. The younger men were as a rule enthusiastically in favour of giving the plan a trial. The older men, embracing many of the best and most eminent practitioners, felt hesitation as to its expediency and some even opposed the proposal as dangerous and unjustifiable. The opposition contended that the prolonged etherization was a menace to life. Secondly, it was thought that, as the whole nervous system was under the paralysing influence of the anæsthetic, the circular coats of the vessels would lose their contracting power, the blood vessels would not retract and contract, as we usually observe them to do after section, and that therefore there would be much greater difficulty in controlling hæmorrhage, than there would be if the nerves retained their sensibility. Thirdly it was thought that on account of the general disturbance of the system and nausea following the administration of ether, reparative power would be lessened, primary union more rarely attained and that suppuration would be a more common result.

It will hardly be realized in our day how warmly these questions were then discussed, nor is it necessary in the light of our abundant experience to point out their fallacy.

The question is often asked, what did surgeons do to mitigate the sufferings of operations before the discovery of anæsthesia. Practically they did nothing. Various attempts were made in that direction. Cold was applied by various refrigerating processes, to the point of benumbing the parts, care being taken to stop far short of congelation; but all these trials had the fatal defects that they could not be maintained during the operative procedure, and that they only affected the surface of the wound, any excursion of the knife into unnumbed parts giving pain. Opium was naturally suggested and was frequently

used, but, while its power of soothing pain after operation was freely recognized, its power of preventing pain during operation was disappointing.

There was a great difference in the behaviour of patients under operation. Some showed great fortitude and courage, but the majority showed their suffering by groans and cries of more or less intensity, which they seemed to have no power to control, and which, indeed, seemed to afford a sort of relief to their sufferings. It was noted that instances of superior fortitude were more common among women than among men.

One effect of the screams and groans of the patient was seen among the young students during their first month in the operating room. It was not at all unusual for a student to faint and be carried out, and such an occurrence called forth no comment. One rather amusing experience is related by Dr. Markoe. The operation was on a very extensive necrosis of the tibia in a fine manly looking sailor. He bore the first incisions without a murmur, but when the tedious and painful process of stripping the integuments from the involucrum had been going on some little time, he turned to one of the assistants and asked in a whisper, "Could I have a chew of tobacco?" It was given to him and it seemed to comfort him and brace him up. When the exasperating hammering and chiselling had been going on for some time he asked for another chew, which was given him, and seemed to reanimate his courage. The chiselling was long and tedious and he once more turned to the doctor and said. "Doctor, doctor, give me another chew of tobacco, and give me a damned big one this time." This was done and under the stimulating influence of a "damned big chew" the operation was completed, having occupied the best part of an hour, during which not one word of complaint was uttered and not even a groan passed his lips. Many patients seemed to suffer more from the touches of the sponge, the picking up and ligature of the vessels, especially if other tissue and nerves were included, and from the puncture of the needle in closing the wound than during the main steps of the operation.

In reducing dislocation of the hip, muscular relaxation was sometimes induced by injecting an infusion of tobacco into the rectum.

Of course in those days exploratory operations were seldom performed. Nervous shock was a reality. The fright, appreciation of danger and anxiety as to the result, caused a depression of the vital forces. These old surgeons can appreciate the tremendous boon to humanity of anæsthetics much more fully than those of us who came upon the scene when ether and chloroform were in general use.

Geo. E. Armstrong.

Pharmacology and Therapeutics.

UNDER THE CHARGE OF A. D. BLACKADER.

Formaldehyde and its Applications.

TRILLAT, A. "La Formaldehyde et ses applications pour la désinfection de locaux contaminés."—Paris, 1896.

WALTER, K. "Zur Bedeutung des Formalins bezw. Formaldehyds als Disinfectionsmittel".—*Zeitschrift für Hygiene und Infectionskrankheiten*, Bd. 21, H. 3.

COUTTS, FRANCIS J. H. "Formaldehyde."—Retrospect in *Medical Chronicle*, December, 1896.

JOHNSTON, WYATT. "Disinfection by Formaline."—*Second Annual Report of the Board of Health, Province of Quebec, for the year ending* June 30, 1896.

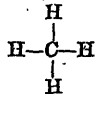
ALEXANDER, W. G. "An Ideal Germicide."—*New York Medical Journal*, January 9, 1897.

During the past few years the action of formaldehyde or formaline as a disinfectant has been carefully studied in many of the European laboratories, and many papers on its properties have appeared in the journals during the past twelvemonth. Its chemical activity and reactions, its remarkable powers of penetrating animal tissues without losing its efficacy, and the possibility of its formation under the influence of the sun's rays, and in this way playing an important role in vegetable physiology, give this drug a special interest to the scientist.

Formic aldehyde CH_2O is produced, when, by means of a specially constructed lamp, the vapour of methyl alcohol (CH_3OH), is passed over an incandescent platinum hood or mantle. The following formula represents the reaction: $CH_4O + O = CH_2O + H_2O$.

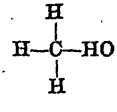
It may be considered to form one of a series formed by the increasing oxidation of methane.

Methane:

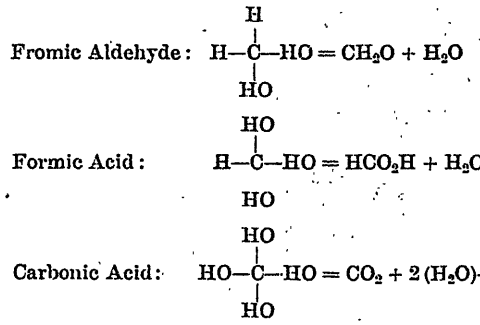


$= CH_4$

Methyl Alcohol:



$= CH_3OH$



Formic aldehyde at ordinary temperature is a colourless gas with an extremely irritating odour. At a temperature of 20° C. it assumes the polymeric form, known as paraformaldehyde, by the union of two molecules. This is a white substance, unctuous to the touch and soluble in water and alcohol. Trioxymethylene is produced by the union of three molcules and is a white powder, evolving a strong odour of formic aldehyde.

Formol or Formaline is supposed to be a solution of paraformaldehyde in water and is of a strength of about 40 per cent.

Formaline has a bactericidal action almost equal to that of corrosive sublimate, whilst it is much less toxic. One part in 20,000 is sufficient to slow the ammoniacal fermentation of urine, and 1 in 4,000 inhibits it altogether. Dr. Wyatt Johnston, in his report, says of it: "As the result of over a year's personal use of this substance, I can unhesitatingly recommend it as being a rapid and certain germicide in the strength of from ½ to 1 per cent. and upwards. Its destructive effect upon spores is relatively high, and it has the very great advantage that this efficacity is not impaired by contact with albuminoid material, something which can scarcely be said about any other substance. If in stronger (2–4 percent.) solutions it has remarkable power in penetrating animal tissues, and disinfecting solid masses of flesh in a manner which even strong mineral acids are incapable of doing. Its action is extremely rapid and permanent. It combines strong germicidal properties with those of an unusually good deodorant. It has little or no effect upon fabrics, instruments, &c., through continued contact, and its vapours are not destructive to, or liable to cause bleaching or spotting of clothes. In the form of vapour, this substance possesses remarkable germicidal properties, destroying dried anthrax spores and killing all the germs in dust after an exposure of only two to four hours. It may be mentioned in comparison that carbolic acid in 3 per cent. solution requires 24 hours to destroy anthrax spores. The action of formaldehyde can be

promptly controlled and checked by means of ammonia, with which it forms an inert and harmless compound."

Formaline has little influence on the frog's heart, unless in solutions over 1 per cent. in strength. Given internally, very small doses are sufficient to raise blood pressure, and markedly affect respiration. Doses exceeding 1 c.c. per kilo of body weight rapidly produce death; doses of 0.1 c.c. are poisonous if introduced into the circulation, and even smaller doses produce marked symptoms of irritation. A powerful action on the nervous system is indicated by the resulting analgesia, lowering of temperature and convulsions.

When brought into contact with the living skin undiluted formalin exerts a kind of tanning effect, making the skin impermeable and finally brings about its necrosis. This action depends upon the property of formalin of very readily penetrating living and dead animal tissue and combining with it. The tissue is destroyed without suppuration or formation of a wound.

As a disinfectant, formaline must be regarded as occupying a most important position. Dr. Alexander, in a recent address, says of it: Among the number of antiseptic substances known at present there are only a few which are capable of destroying all germs of organic life in 24 hours. It has been proved by numerous and very elaborate experiments that after an hour's exposure to a one *per mille* solution of formalin the most resistant forms of micro-organisms were destroyed. Formalin, therefore, is equal to corrosive sublimate in germicidal power, and when albuminoids are concerned, superior. Great importance is attached to the applicability of this antiseptic in the form of a gas or vapour. Only in this way can we conveniently disinfect large rooms, and more delicate articles in closed apparatus. Experiments carried out with formalin vapour show that a 2½ per cent. volume of its vapour destroyed all traces of organic life in a quarter of an hour. When allowed to evaporate in the presence of wool, gauze bandages, &c., the vapour condenses upon the fabrics in a solid form (paraformalin), and thus disinfects them; on evaporation again paraformalin becomes dissociated into formalin vapour and exerts an antiseptic influence upon its surroundings.

Several observers have experimented with formaldehyde to test its efficacy in the disinfection of rooms and some have found difficulty in its effective application. Wyatt Johnston writes as follows: "Kinyoun, of Washington, has recently shown that by having the formaline gas perfectly dry even all the upholstery and bedding of an ordinary Pullman car can be completely sterilized by filling it with gas. I can testify personally to the perfect efficacy with which one can disinfect

in an ordinary exsiccator containing formaline such articles as diphtheria outfits, folded papers, &c., and varnished or painted objects, which cannot be heated and are injured by the application of antiseptic solutions. Many of the appliances devised for formaline disinfection are nearly worthless for ordinary sanitary purposes. The formaline lamps at present in the market do not liberate a sufficient volume of the gas to penetrate folded clothing or bedding. They also generate a large amount of water vapour during the act of burning, which renders the gas much less penetrating than if used dry. Used in this way, however, it will disinfect thoroughly the exposed parts.

It has been shown by Roux, Trillat, Kinyoun, and other observers that the addition of calcium chloride to the formaline solution causes the gas to be evolved more rapidly, and in a more dry and effective form. Formaldehyde gas undoubtedly ranks far above sulphurous acid as a disinfectant. There is still room for simplification in the apparatus and technique, but satisfactory disinfection by formaline seems now to be an accomplished fact. The chief drawback to its general adoption at present is its expense.

Formaline would appear to be particularly suitable for the disinfection of books, as the vapour is not detrimental in any way to the books, whilst it is very prompt in its action. Horton found that in a closed space books can be thoroughly disinfected by using 1 c.c of commercial formaline to 300 c.c. of air.

Dr. Alexander considers formaldehyde the "ideal germicide, deodorant, and antizymotic." He has used it in his practice for a year. He quotes De Buck and Vanderlinden, as having used it successfully in one-half per cent strength for washing hands and instruments, cleansing site of operation, and for rendering infected wounds, cavities, and sinuses, antiseptic. Formaline does not spoil the edge of the knife, not seeming to attack metal at all. Dr. Alexander has used the pure 40 per cent formaline very successfully in chancroid and chancre, applying it locally, a single application being sufficient to cause the ulcer to heal rapidly. In ten cases of gonorrhœa he used a one-half per cent solution, injected three times a day, with satisfactory results; he found the treatment free from the pain and irritation usually observed after the use of sublimate and other solutions.

De Smet claims good results from the use of formaldehyde in gonorrhœa in women. Sixty cases, some very obstinate, were cured. The vulva was washed with a 1 in 1,000 solution, and the vagina douched through a speculum with a solution, varying from 2 in 1,000 to 5 in 1,000. If the uterine cavity and cervical canal were involved, some of the same solution was injected. When there is laceration of

the cervix, tampons soaked in 1 in 1,000 of formaldehyde are left for two or three hours in the vagina. When fungous endometritis is present, the curette must be first applied. The applications give rise to no pain, and may be used daily, or every second day.

Solis-Cohen has, during the past year, seen such good results in the treatment of tuberculosis of the larynx, alike in infiltrative, ulcerative, and vegetative cases, by means of formic aldehyde solutions, that he is tempted to believe that in this agent we have a means of treatment superior to any other that he has ever used. He uses the commercial formaline, diluting it to the strength required, which ranges from one-half to four per cent of formic aldehyde—that is, from one to ten per cent of the commercial formaline, which contains 40 per cent. of formaldehyde. Before making the applications the parts should be thoroughly cocainised, or otherwise the application to the mucous membranes causes an intense burning, stinging, and even strangling sensation. The mode of application is similar to that employed with lactic acid. The parts are thoroughly rubbed with the formaldehyde solution after previous cleansing and cocainization. Beginning with the weakest solution, the strength is increased up to 10 per cent of the commercial formaline, which corresponds to four per cent of pure formaldehyde. This is the strongest solution he has found necessary to employ.

A. D Blackader.

Therapeutic Suggestions.

Euquinine.—Prof. Carl Von Noorden, of Frankfort-on-the-Main, has an article on euquinine in the *Centralblatt für innere Medicin* for November 28th. He describes it as the ethyl carbonic acid ester of quinine. It occurs in white needles which are soluble with difficulty in water, but readily soluble in alcohol, in ether, and in chloroform. It has an alkaline reaction and forms crystalline salts with acids. The chloride is readily soluble in water, the sulphate dissolves with some difficulty, and the tannate is almost insoluble. The alkaloid itself, which is the form in which Von Noorden has used euquinine most largely, is entirely tasteless at first, but has a slight bitter aftertaste, reminding one of the taste of a very weak solution of quinine. If it is taken in sherry, milk, soup, cocoa or the like, no unpleasant taste is perceived. Healthy persons can take fifteen grains, and in most instances twice that amount, daily, without experiencing any unpleasant feeling in the head. Even after a prolonged use of these doses there were no disturbances attributable to them in any of his patients. Euquinine is said to have the characteristic remedial virtues of quinine without its unpleasant properties, and may be used in all cases in which that drug is indicated.—*N. Y. Medical Journal*, Jan. 2, 1897.

Death Consequent on the Administration of Nitrous Oxide Gas as an Anæsthetic.—Dr. H. A. Hare (*Therapeutic Gazette*, December, 1896,) calls attention to the danger in persons suffering from atheromatous vessels from the marked rise in arterial pressure produced by the administration of this drug, and relates an instance in which rupture of a blood-vessel in the brain took place, apparently, as the result of this. A man between 50 and 60 years of age, who had on several previous occasions taken nitrous oxide in the dentist's chair, on this occasion took it apparently as usual, and returned to consciousness with the usual rapidity. He had left the chair to rinse out his mouth at the washstand, and while doing so complained of a feeling of numbness in the right hand—extending up his arm and then rapidly to the lower extremity. He soon afterwards became unconscious. When seen by Dr. Hare shortly afterwards there was absolute insensibility, which, notwithstanding the use of venesection and other measures, deepened into coma, and death took place about twelve hours after taking the anæsthetic.

The Treatment of Threadworms and Tapeworm in Children.—Dr. J. Comby, (*La Medicine Moderne*, July 1, 1866; *The Practitioner*, December, 1896,) after reviewing the usual methods of treatment, recommends the administration of anthelmintic remedies and at the same time the employment of local parasiticide applications. For three consecutive days the following powder is given in the morning fasting:—

Santonin	grm. ·05 (gr. $\frac{3}{4}$)
Calomel	grm. ·10 (gr. $1\frac{1}{2}$)

At bedtime the interior of the bowel is anointed by inserting the finger smeared with the following ointment:—

Glycerine of starch	20 grammes.
Mercurial ointment	10 grammes.

This dose is suitable for children of four to six years of age. If the treatment is not entirely successful, a second course may be repeated after one or two weeks interval.

The same writer, in a subsequent article, (August 1, 1896,) recommends the following procedure in the case of a tapeworm. After one day on strictly milk diet the following draught is administered early in the morning fasting:—

Ethereal Extract of Male Fern	grms. 6. (℥iss)
Essence of Turpentine	grms. 1. (♏ XV)
Syrup of Orange Flowers	grms. 30. (℥ i)
Peppermint water	grms. 50. (℥ iss)

Half an hour after this give 20 grammes of castor oil. If unsuccessful, two or three months interval may be allowed before repeating the treatment.

A. D. Blackader.

Ophthalmology.

UNDER THE CHARGE OF J. W. STIRLING.

The Diagnostic Value of Light Perception.

R. WALLACE HENRY. "The light perceptive power as an aid to diagnosis and prognosis in diseases of the eye."—*Ophthalmic Review*, February, 1896.

This very able article enforces the great importance of the examination of the light sense in all cases of eye disease.

The details of Dr. Henry's researches are very extensive, and are the results of investigations carried out in one hundred and seven cases and on two hundred and three eyes.

Dr. Henry has originated a very simple and practical photometer. It consists of a long box, having a blackened interior with curtain attachment at the end to which the observer's head is applied; this black cloth curtain is drawn over the observer's head and tight round his neck, thereby excluding all light; at the other end of the box is an opening into which fit nine small panes of opal glass of an ascertained constant transparency. These panes fit one behind the other, and can be separately removed or replaced. At a distance of $\frac{1}{3}$ metre in front of this opening is placed a candle of a definite brightness, behind which is a shade.

If the observer sees the light first through, say, seven panes, then his light sense can be defined as No. 7, if through five panes it is called No. 5, and so forth.

In healthy eyes the light sense begins to diminish after 30 years of age, and more markedly after 60 years.

Hypermetropes of 4 dioptres and upwards have a diminished light sense, whilst myopes have a normal light sense.

The light sense was most notably diminished in those cases in which the retina was affected, whether through local disease of the eye or through morbid states of the blood.

It further appears that the nerve fibres transmitting the light impressions to the brain are more resistent than those conveying the form and colour sensations.

For example in toxic retrobulbar neuritis and in hemianopsia, the form and colour sense can be clearly obtunded whilst the light perception is unaffected.

In cases of amblyopia with normal fundus or only slight pallor of

the temporal half of the optic disc, and with central scotoma for colours, if the light sense is normal, the cause is toxic; the limits of the field being normal, it is due to tobacco abuse, or if there is some concentric limiting of the field it is due to abuse of alcohol.

The prognosis in both cases is good; in the former the course covers months, in the latter, weeks.

If, however, the light sense be diminished, it is not likely a pure case of toxic amblyopia, and the urine should be examined for albumen or sugar.

In albuminuria and diabetes diminution of the light sense is of value as indicating that we may soon expect the typical changes in the retina; the sudden reduction of the light perception being due to the diminished nutrition of the retina which precedes these forms of retinitis.

With a normal fundus, a slight failing of the form and light sense with concentric limitation of the field of vision points to beginning optic nerve atrophy, the prognosis being very grave.

In cases of simple glaucoma or optic atrophy, where the diagnosis is doubtful, the light sense is much more reduced in the former.

In optic neuritis, and also in choroiditis, a decided lessening of the light sense points to implication of the retina.

Hence it follows that the greatest diminution of the light sense is found in cases of the retinal disease, and especially in retinitis pigmentosa.

Eye Diseases and Blindness Among Negroes.

J. MORRISON RAY. "Observations upon eye diseases and blindness in the coloured race."—*N. Y. Medical Journal*, July 18, 1896.

This paper is of much interest and is the result of observations covering a large number of cases.

The negro suffers to a greater percentage from the graver forms of eye disease than the white, and blindness seems to be more prevalent among the coloured race than the white.

There is a well defined difference in the two races in their proclivity to various forms of eye disease.

The negro is markedly liable to suppurative forms of keratitis and to iritis, associated with condylomatous developments.

On the other hand, the negro enjoys a peculiar incomprehensible immunity from granular lids and a lesser liability to cancerous growths in this locality.

Eye diseases, as a rule, follow a more disastrous course, and consequently blindness is very common.

Ocular Symptoms in Abdominal Typhus.

W. EBSTEIN. "Primary motor paralysis in the oculo-motor tract and other post-typhoid complications in a case of abdominal typhus." —*Archiv. f. Path. Anat. Physiol. und Klin. Med. Virchow*, Band 145, July, 1896.

The case was a student aged 20, who, with the exception of diphtheria at the age of three years, was previously healthy.

He was taken ill in a house in which there had been, recently, cases of typhoid fever.

His symptoms were cough and pain in the chest, a brownish discharge for three days from both ears, ptosis, and paralysis of the left internal rectus, characteristic typhoid temperature and pulse.

There was fever until the 19th day, when the temperature became normal and remained so for a few days, but was then followed by a relapse and high temperature.

Convulsions and cramps of the left side occurred six weeks after the first onset; tonic, then clonic spasms of the left facial nerve, and later of the right arm and both extremities.

He bit his tongue, and the pupils were dilated and immovable during the convulsions.

The urine was concentrated and scanty, with no sugar, but little albumen and many hyaline casts.

On drinking a little milk, a bleb like eruption appeared on the body

The patient remained unconscious and had involuntary bladder and bowel movements, clonic cramps of the eye muscles and convergent strabismus, hyperæsthesia of the lower extremities.

Recovery after four months.

Ebstein considers the symptoms as due to cerebral irritation or a light inflammation.

The primary oculo-motor paralysis was due to a low peripheral neuritis.

Cancer Serum and Formal in Malignant Tumour.

NIEDEN. "Use of the Emmerich-Scholl's Cancer Serum and Formal in inoperable ocular tumours.—*Bericht der 25 Ophthal Congress in Heidelberg*, May, 1896.

The treatment of tumours by erysipelas is not new. Thirty-one years ago Busch recommended inoculation of erysipelas in ulcerating tumours.

Nieden reported the healing of two cases of irido-choroiditis after an attack of erysipelas.

Nieden recently treated two cases of inoperable ocular tumours with cancer serum, but unsuccessfully.

After failure of the serum he injected a 2% formal solution which caused sloughing of the outer parts and seemed to limit the progress of the tumour.

Nieden thinks the formal treatment might prolong the life of such patients.

Eye Disease and Gout.

A. WANGENMANN. "Eye disease and gout."—*Bericht der 25 Oph. Cong. Heidelberg*, 1896.

Gout causes seroplastic inflammations with or without uric acid concretions.

Wangenmann refers to many cases of scleritis, iridocyclitis with concretions between the retina and choroid, lumps in the sclera and a characteristic case of episcleritis periodica fugax.

Gout may indirectly cause many eye diseases, especially of the blood-vessels and early atheroma; in this connection may be noted recurring vitreous diseases ending in cataract, detachment of retina, retinitis hemorrhagica, and sclerosing corneal diseases.

Argentamin In Eye Diseases.

KARL HOOR. "Æthylendiamin silver phosphate in ocular therapeutics.—*Klin Monatsblatter für Angenheilkunde*, July, 1896.

This silver salt is a preparation of phosphate of silver in 15% solution of æthylendiamin, which gives it an alkaline reaction. It appears to have a greater bactericidal power than the usual nitrate of silver solution; it penetrates deeper and deeper, is equally astringent, causes less pain and can be used in a more concentrated form.

The following are the results:—

1. It possesses all the advantages of nitrate of silver and none of its disadvantages.

2. The unpleasant subjective symptoms of nitrate of silver are wanting.

3. It penetrates the tissues more deeply, and thereby intensifies its antiseptic action.

4. It is especially useful in trachoma.

5. It is excellent in cases of conjunctivitis, catarrhal ophthalmia, follicular catarrh, purulent conjunctival inflammations, and blennorrhœa of the new-born and adults.

6. The result in each case was what at least might have been expected with nitrate of silver.

7. In cases with free secretion, it may be applied three or four times a day, or oftener, without producing any irritation.

8. Corneal complications and pannus offer no contra indications to the use of the salt, and it is even well tolerated by hyperemic or inflammatory conditions of the iris or ciliary body.

This silver phosphate preparation is most serviceable in 5% solution, and must be kept in dark bottles else it will decompose.

J. W. Stirling.

Reviews and Notices of Books.

Rough Notes on Remedies. By Wm. Murray, M.D., F.R.C.P., Lond., Newcastle on Tyne. Second edition. London, H. K. Lewis, 136 Gower Street, 1897.

A small, but excellent contribution to practical therapeutics. It contains six chapters, dealing with:

I. Arsenic in Diabetes, Chorea and Asthma.
II. Belladonna in Renal Calculi.
III. Mercury in Heart Disease.
IV. Calomel in large doses.
V. Nitrate of Silver in Epilepsy.
VI. Our Mistakes.

The author has pursued a line of work, which, if more generally followed by members of the profession, would result in more useful and definite information on many of our old remedies. We hope Dr. Murray will continue and further extend his praiseworthy work. J. S.

An American Text-Book of Physiology. By Henry P. Bowditch, M.D.; John G. Curtis, M.D.; Henry A. Donaldson, M.D.; W. H. Howell, Ph. D., M.D.; Frederic S. Lee, Ph. D.; W. P. Lombard, M.D.; Graham Lusk, Ph. D.; W. T. Porter, M.D.; Edward T. Reichert, M.D., and Henry Sewall, Ph. D., M.D. Edited by William H. Howell, Ph. D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Fully illustrated. Philadelphia, W. B. Saunders, 925 Walnut Street, 1896.

A volume of over one thousand pages, well printed and beautifully illustrated, written by the chief physiologists in the leading universities of the United States; such is the work under consideration.

The fact that the editor considers it impossible for any one physiologist to be sufficiently conversant with the advances made in physiology to write well on them all is evidence of great strides being made in this subject. For the practical physician the subject is one of first importance. In this volume we will find probably more fully than in any other in the English language an account of the present status of our physiological knowledge.

Dr. Lombard contributes the article on the general physiology of muscle and nerve. Dr. Howell writes on secretion, the chemistry of digestion and nutrition, the movements of the alimentary canal, bladder and ureter and on the blood and lymph. The articles on the circulation are contributed by Drs. Curtis and Porter. Dr. Reichert deals with

respiration and animal heat, the latter article being a very valuable one. Dr. H. P. Donaldson is the author of the chapters on the central nervous system. It is a very clear and able discussion of a difficult subject.

The chapters on the special senses, written by Bowditch and Sewall, are worthy of all praise.

Dr. Lee writes the article on reproduction, and Lusk, that on the chemistry of the animal body. J. S.

A Treatise on Surgery. By American Authors. For Students and Practitioners of Surgery and Medicine. Edited by ROSWELL PARK, A.M., M.D., Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo, Buffalo, New York; Member of the Congress of German Surgeons; Fellow of the American Surgical Association; Ex-President Medical Society of the State of New York; Surgeon to the Buffalo General Hospital, etc. Volume I. General Surgery, with 356 engravings and 21 full-page plates in colours and monochrome. Lea Brothers & Co., Philadelphia and New York, 1896.

This is another addition to the already long list of surgical works recently published. Less full than Dennis' work, and yet not by any means merely a hand-book.

It bears the unmistakable evidence of its well known editor, as no less than sixteen of the chapters in the first volume are from his pen.

Part I., dealing with surgical pathology, by Roswell Park, is full, clear, up-to-date, and very tersely written. The chapter on the surgical pathology of the blood, contains much that is of clinical value.

The remaining chapters are written by teachers and hospital men having large fields of observation and they have done their work with great care.

The first volume dealing with general surgery and its principles is as a whole a very creditable work. Students and practitioners will find in it a great deal of valuable information presented in an attractive and interesting manner. G. E. A.

Royal Infirmary Clinics. By ALEXANDER JAMES, M.D., F.R.C.P., Eng., Physician to the Royal Infirmary, Edinburgh. Edinburgh: Oliver and Boyd, Tweeddale Court, 1896.

This small, well printed volume contains sixteen clinical lectures delivered by Dr. James at the Royal Infirmary, of Edinburgh. Two of the lectures on chronic nephritis are especially worthy of commendation. A lecture on an interesting case or Addison's disease is illustrated by two beautifully coloured plates. Although intended for the students of the author's class, the lectures will well repay perusal. J. S.

Society Proceedings.

MONTREAL MEDICO CHIRURGICAL SOCIETY.

Stated Meeting, December 12th, 1896.

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

Spina Bifida, Operation with Transplantation of Bone to Close the Orifice.

Dr. G. E. ARMSTRONG exhibited a child upon whom he had performed this operation.

Dr. WYATT JOHNSTON had seen the part removed and thought it consisted of atrophic nerve elements, some showing multipolar cells.

Dr. J. B. MCCONNELL pointed out that the benefit which might accrue from an operation depended upon the nature of the tumour, and that it might be misleading to have a favorable result reported in regard to a case of spina bifida, unless the variety was indicated. For where it was a simple meningocele, there was no difficulty, but in a hydro-myelocele, in which the sac consisted of the flattened-out spinal cord, and in meningo-myelocele the condition was generally considered to be one in which operation was not to be recommended, as it was likely to endanger the patient.

Vesical Calculi.

Dr. WILLIAM GARDNER exhibited a collection of calculi and sand removed from the bladder of a woman of 70, a patient of Dr. J. T. Finnie, of this city. There were thirteen stones, all facetted, of the size of chestnuts, besides numerous others smaller, of all sizes down to that of a grain of the finest sand. The patient had suffered for the last twenty years from procidentia uteri. The displacement had not prevented her being active, and had not apparently caused very much suffering until within the last few weeks. Four or five weeks previous to operation she contracted pneumonia, from which, notwithstanding her advanced age, she recovered. During convalescence she began to suffer intensely from pelvic tenesmus with violent pain. The urine was fetid and turbid. On handling the completely prolapsed pelvic organs the sensation conveyed was that of a bag of marbles. The stones were removed through an incision made in the base of the bladder by the knife of the thermo-cautery, care being taken to avoid the muscular fibres at the vesico-urethral orifice. None of the calculi

were encysted; the bladder, however, was succulated in parts. It was thoroughly irrigated with warm boracic acid solution. The cut edges of the vesical and vaginal mucosa were then brought together by a continuous fine catgut suture. The narrator said that the case was unique in his experience. Calculus of the urinary bladder was extremely rare in women, but in this case the extraordinary accumulation, which must have been forming during a period of several years, was very remarkable. The operation of cystotomy was selected for the removal of the stones in this case, for the reason, that the alternative procedure of dilatation of the urethra would inevitably, especially in the tissues of an old woman, have resulted in permanent incurable incontinence of urine from destruction of the sphincter of the bladder. The incision was kept open to drain and rest the bladder, so facilitating the cure of the cystitis. When the cystitis had been cured and the parts otherwise become healthy, the closure of the artificial fistula would be a comparatively easy operation. The relief to the symptoms had been complete.

Appended was a report of the weight and chemical composition of the stones, by Dr. Ruttan, Professor of Practical Chemistry in the Medical Faculty of McGill University.

"The total weight of the calculi (almost dry) was 265 grammes (or 9 ounces, 150 grains). I find that each of the larger calculi has a nucleus of uric acid, stratified with a little phosphate; when examined under a lens, the nucleus is surrounded by a deep layer of mixed phosphates of lime, being chiefly neutral calcium phosphate, and quite free from uric acid, the next layer is chiefly uric acid, but also has fine lines of phosphate in it, and it tends to break into layers. Outside of this is the outer coating, white, composed of phosphates, chiefly triple phosphate carrying a little uric acid. The fine calculi, seed-like forms, are uric acid, and facetted like biliary calculi. All show the marks of having grown in a confined space and of having been closely packed. All calculi from the size of a pea to the largest have the history of the larger ones above."

Dr. F. J. SHEPHERD asked if the inflammation was considered due to the presence of the calculi or to the prolapsus. If due to the former he did not understand the necessity of keeping up drainage, as in the male bladder removal of the cause is followed by the cure of the inflammation.

Dr. J. C. WEBSTER said that there was no analogy between the male bladder containing calculi and the female viscus in the condition of prolapsus described by Dr. Gardner. The anatomical conditions as shown by frozen sections were entirely different. In the female, the

most dependant part of the bladder being below the urethral orifice, acted as a *cul-de-sac* for the retention of stinking urine. He had seen one somewhat similar case, but there had been no large calculi present. The bladder was drained, and subsequently an operation performed for the prolapse.

Dr. GARDNER replied that immediate closing of the bladder was carried out in a healthy organ, but in such cases as these he preferred to follow the rule, as laid down by Emmet, and drain.

Typhoid Perforation.

Dr. G. E. ARMSTRONG reported a case of operation for perforation of the bowel in typhoid fever and Dr. Wyatt Johnston exhibited specimens from the case. (See page 601.)

Dr. J. G. ADAMI stated that Dr. Armstrong's case was the sixth in which the operation might be said to have been followed by a certain amount of success, as the patient had lived for six weeks after its performance. Of the six cases, four had been reported from America.

He drew attention to several interesting points. First, with regard to the part played by the omentum. When, some time previously, he had read a paper on this subject, Dr. Lafleur had pointed out how rarely protective adhesions followed perforation in typhoid fever, as there was but little inflammatory lymph thrown out. Here, however, this part was played by a little tag of omentum which closed in the wound. It must be admitted, that in typhoid generally, there was singularly little power of repair of wounds or perforations. This being so, it was inevitable that all operations in typhoid must be attended with but doubtful success, and there must be a large number of failures. Hence other auxiliaries to repair must be sought after. He would suggest that the formation of an artificial anus above the usual region of ulcers, that is four to six inches above the valve, with rectal feeding, might insure physiological rest and prevent irritation of the lower part of the gut by fæces. He asked Dr. Armstrong whether such a course was feasible.

Dr. T. G. RODDICK said that the same idea of putting the diseased part at rest, by forming an artificial anus, had occurred to him during the reading of the paper. This, with careful drainage, would make it almost impossible for ulceration to progress. It remained a question, whether the change of diet from milk to animal broths, etc., affected the ultimate result. He had pleasure in congratulating Dr. Armstrong on his success in closing the original perforation, and in thus prolonging to such a degree the life of his patient.

Dr. WM. GARDNER asked if anything had been done in the way of securing the omentum to the opening, or where the latter was scanty

of turning down a portion and suturing it over the opening. He had noticed in Dr. Johnston's account of autopsies on three cases, that the sutures had held firm, so probably the patient had died from the effects of the peritonitis.

Dr. F. J. SHEPHERD had hoped that this was going to be one of the successful cases, but the difficulties were very great. It was a question, whether the original peritoneal inflammation had not continued in spite of the careful washing out. Patients suffering from typhoid had not much reparative power, and when there was no tendency to repair, operation was almost hopeless. In most operations of this character the patient was operated on too late and died a few hours afterwards.

Dr. F. G. FINLEY thought the case presented a great number of features of interest. Such as, the early date at which perforation had occurred, the tenth day. This was the third case he had seen operated on, and the other two had died within a few hours from shock. This patient's condition had presented some difficulties, in that the temperature had kept up so long there seemed some doubt whether it was due to the fever or to sepsis, and, acting on the latter supposition, later on it was thought advisable to give him more food to keep up his strength. The autopsy showed, however, that the typhoid had persisted to the fiftieth day.

He considered that the chances of recovery were much greater in these early cases where the patient was not exhausted by three weeks or more of fever.

Dr. ARMSTRONG, in reply, said, in regard to the time at which the operation should be done, that he considered that the opening should be closed as soon as possible after the shock following the perforation had passed off. He also thought it would be good practice to give a hypodermic of morphia once a definite diagnosis of perforation had been made. This would arrest peristalsis, prevent diffusion of the septic matter from the bowel, and conserve the patient's strength.

With regard to an artificial anus, the difficulty would be to provide room for efficient drainage without making another opening.

Dr. Adami's idea of cutting off the typhoid area could not be carried out, as it was impossible to get away from the ulcer area. Perforations occurred over the whole length of the bowel, from the beginning of the ileum to the sigmoid flexure.

Undoubtedly the chances of recovery were better after convalescence was established, and the patient was able to take food to keep up his strength, instead of having both the fever and the operation to contend with at one and the same time.

On the Influence of the Age of the Test Culture upon Typhoid Serum Reactions.

Drs. WYATT JOHNSTON and D. D. MACTAGGART said that they had met with pseudo-reactions sufficiently decided to give rise to error in diagnosis in non-typhoid blood, when the cultures were too active. Pfeiffer states that typhoid serum can be diluted to a point where, though it would no longer give a reaction with virulent culture, it would still do so with an attenuated one. Drs. Johnston and MacTaggart find the reverse to be the case. In working with cultures highly virulent by transplanting them daily during a period of several weeks or months, they found that such cultures became peculiarly sensitive, so that even a few hours delay in transplanting produced, so to speak, a kind of premature decay. With such cultures a decided clumping was in three cases not typhoidal, obtainable when they were 24 to 30 hours old, while none occurred with the same culture from 12 to 20 hours old. The clumping in these cases was not that of the typical, complete reaction, but was sufficiently close to simulate a partial reaction.

When the bouillon culture was made from a stock culture kept at room temperature for a week or more, a few hours or days difference in the age appeared to have comparatively little effect on the result as far as the occurrence of pseudo reactions was concerned.[1]

In doubtful cases the best safeguard against being deceived by pseudo-reactions was that recommended by Widal, of very free dilution of the blood, to a point (1 to 30 or 1 to 50), where only genuine typhoid blood would react, as pseudo reactions were most liable to occur with relatively concentrated solutions. Drs. Johnston and MacTaggart stated that in 400 blood examinations so far they had not yet met with the typical, complete serum reactions, under conditions which excluded genuine typhoid fever, and had only met with one severe case apparently of genuine typhoid when they could not readily obtain it during the height of the attack.

Dr. C. F. MARTIN stated that, in conjunction with Dr. H. B. YATES, he had examined the dried blood from all the patients in one of the medical wards of the Royal Victoria Hospital, the specimens having been collected by Dr. Argue, who had sent them on numbered slips of paper and retained the key to the diagnosis. They were thus enabled to make a fair test of the value of the method, and as a preliminary investigation they employed a five days' old typhoid culture, and had

[1] With attenuated cultures grown at room temperatures and transplanted at intervals of about one month, these pseudo-reactions do not occur.

allowed the dried blood to remain untouched for ten days prior to employing the test.

The cases were of the most varied nature, and among them were five of typhoid fever. When the complete examination of all the series had been made, the results were compared with the key of the house physician with the following result:—

In not one of the typhoid cases had there been a strong, positive reaction at the end o 4 hours. In two there had been a typical reaction within five minutes, which, in one instance, passed off after a few hours, and in the other, had become so modified as to be named merely a partial reaction, *i.e.*, although agglutination was present, there was considerable motion in many isolated bacilli. In the other three specimens from typhoid patients, there was no change in the hanging drop after five minutes, while in half an hour a partial reaction was manifest, either by agglutination, or by general cessation, which in 24 hours had not become sufficiently typical to yield a positive diagnosis When they obtained, within 24 hours, some definite agglutination with isolated motile bacilli elsewhere, they called this a weak reaction, and obtained it to a more or less marked degree in one case each of aortic disease, rheumatism, pernicious anæmia, and gastric neurosis, in two cases of venereal disease, and in a case of tuberculosis.

In the other cases the results were quite negative. In endeavoring to establish the relation between these remarkable results and their technique, Drs. Martin and Yates concluded that the fault lay either in the age of the culture used, the long exposure of the blood, or as Dr. Johnston had already suggested, the insufficient dilution of the serum employed. Their investigations being merely commenced they were not as yet prepared to definitely state the causes.

With reference to diabetes, they had examined two cases, and found in both instances a positive reaction within ten minutes, which, however, soon again disappeared, leaving after 24 hours absolutely no agglutination or cessation of motion.

Dr. JOHNSTON said, in reply, that a partial reaction did not, in his opinion, justify a positive diagnosis. Also, unless the blood was freely diluted, pseudo-reactions were liable to occur with virulent cultures. Sometimes in very early stages of genuine typhoid only a partial reaction might be obtainable.

THE

Montreal Medical Journal.

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BRITISH MEDICAL ASSOCIATION.

Judging from telegrams received from Dr. Roddick, his visit to London to confer with the leaders of the Association there has been most successful; he was received most cordially, and we understand that a dinner was given in his honour. A later telegram conveys news which we feel assured will be hailed with delight throughout Canada, namely that Lord Lister will be present at the Meeting. We learn also that the lists of Presidents of the various sections is nearly complete. It will be understood that while it is hoped to have leading members of the profession in the old country as presidents of the various sections, some little time is taken in making the list, even after the council of the Association has formulated the list of those to be asked to accept. Some of those first upon the list of selections may not be able to visit us. Happily there is an 'embarras de richesse' in the choice.

Negotiations are now in progress with the leading railway companies, to determine what shall be the reduction in fares offered to Canadian members of the Association, as distinct from the reductions offered for excursions during and after the Meeting: we hope shortly to be able to announce material reduction in the ordinary fares.

We are glad to announce that material reductions in rates have been offered by all companies to those travelling to Montreal via New York. The Canadian Pacific Railway offers to members and their families boarding their steamers at Hong Kong, Shanghai, Nagasaki, Kobe or Yokohama on production of proof of membership to their agents in these parts, tickets to Montreal, first cabin, for £36, or £63, return, tickets being good by the steamers leaving Hong Kong about June 9th and 30th, and July 1st, and having a time limit of six

months from the date of issue to date of embarkation at Vancouver and return.

The Museum Committee has of late been busied sending out circulars to likely exhibitors and with them, a most admirable plan of the Victoria Skating Rink with the proposed arrangements of the tables and stands. If the programmes and other publications of the Association are in as excellent taste and form as is this plan devised by the Museum Committee, the Montreal meeting will stand out far ahead of all previous meetings in this particular.

COMPLIMENTARY DINNER IN LONDON TO THE PRESIDENT-ELECT OF THE BRITISH MEDICAL ASSOCIATION.

At the moment of going to press, we have received the *British Medical Journal* of January 23rd, and do not hesitate to abstract the following evidence of the good will manifested in the old country, not only towards Dr. Roddick, but towards Montreal and the prospective meeting of the British Medical Association in this city.

"On Wednesday evening, January 20th, Dr. Roddick, who earlier in the day had attended the meeting of the Council to discuss the arrangements as to the next annual meeting of the British Medical Association, which begins in Montreal on August 31st next, was entertained at dinner by some members of the Council at the Grand Hotel.

Among those present as guests were the President of the College of Physicians (Dr. Wilks), the Master of the Apothecaries' Society (Mr. E. Tegart), and Dr. Macnamara, Senior Vice-President of the College of Surgeons.

The chair was taken by Dr. Robert Saundby, President of the Council, who, at the end of the dinner, briefly proposed the toast of "The Queen," and spoke of her virtues, both as a queen and as a woman, which had endeared her to all subjects of the British Empire. The toast having been duly honoured,

Dr. Saundby again rose to propose the toast of "Our Guest," Professor Roddick. He said the object for which they had gathered together that night was, as they knew, to welcome Professor Roddick, their President-elect. Professor Roddick had made the long journey from Montreal, crossing the Atlantic, in order, by personal conference, to advance the arrangements for the coming meeting. They all felt extremely grateful to him for his kindness, and acknowledged deeply the sacrifice he must have made in leaving his professional work at this time of year. They were all heartily glad to see him among them, to make his acquaintance and give him a real and hearty British

welcome in his capacity as President-elect. He (the President of Council) hoped they were all looking forward to going to Canada and enjoying the hospitality which each Canadian friend promised them at Carlisle in such hearty terms. He was certain that everyone who did go to Canada would be well received and most heartily repaid for his visit. He was trespassing on Professor Roddick's speech in saying so much, but their business was to express their welcome to Professor Roddick for having come over here. The Arrangement Committee was always composed of six members, appointed locally by the town in which the meeting was to be held, and six members appointed by the Council. There was no difficulty in settling points which arose, because the representatives of the Council, so long as certain formalities were complied with, were only anxious to do all they could to meet the views of the local representatives. On this occasion the six Canadian representatives were sitting in Canada and the six London representatives sitting in London, and it became a little difficult, even with the cable across the Atlantic, to adjust the many matters of detail which arose for decision. Professor Roddick had undertaken the journey to set those matters straight. The result had been extremely satisfactory.

The toast, which was warmly received, having been duly honoured,

Dr. RODDICK, who was received with loud applause, in responding said he had to thank the President of Council for the very kind and very flattering manner in which he had proposed his health, and the gentlemen present for the very friendly and enthusiastic manner in which they had received that toast. He assured them that when he arrived here he was somewhat surprised, and he might say flattered, to learn through the President of Council by a letter to him that a dinner would be tendered to him that evening after the meeting of the Council. He was more than surprised—he was almost frightened into shock—when he discovered that not only were they going to dine him, but they expected him to make a speech. He assured them that without exception this was probably one of the proudest days of his life. He felt that if he had been at some inconvenience in crossing the Atlantic he had been fully repaid by the way in which he had been treated that day, and by the magnanimous manner in which they were treating him that night. He assured them that the dinner was most unexpected, and while he could not conceal the fact that he had felt very much and very keenly the great honour they had done him in nominating him as President-Elect of this great British Medical Association, at the same time he certainly did not expect this to be backed up by such treatment as he had received since he arrived in

London a week or ten days ago. The idea of having the British Medical Association in Canada originated some years ago. He had himself prompted his friend Dr. Osler on one occasion to suggest at the dinner of the British Medical Association in Bristol that they might ask the Association to visit Montreal. Sir William Hingston also spoke at Nottingham on the subject, and ever since a Branch of the British Medical Association had been formed in Montreal he had never ceased himself to agitate this question. He felt it was a great contract to bring the Association to Montreal, but he was an Imperialist, and if there was anything by means of which he could bring more closely the premier Colony of Canada to the British Isles, he would be always willing to do it. There is no doubt about it that we have sometimes not been looked after quite so well by our friends on this side of the Atlantic as we should have been; we have felt ourselves neglected, and we have constantly had occasion to feel that those over here did not know us as well as they ought, and he wished they did. He hoped it would be many a-day before Canadians added more stars and stripes to the United States, and hoped that they would be satisfied for a long time with that flag that was wrapped around Wolfe on the Plains of Abraham, and which 50 years later led DeSalabery and Brock on to victory. He thought they were getting in the thin edge of the wedge of genuine Imperialism in bringing over in the same year to Canada two great associations like the British Medical Association and the British Association. Undoubtedly the visit to Montreal would be a success if they would give them the opportunity of making it a success. They wanted the members of the Association, and that was all—they would attend to the rest. They would see that the members of the Association were well looked after, and had nothing to complain of. He hoped they would be able to come back and say that one of the most successful meetings of the British Medical Association was held in the city of Montreal. Not only that but they in Canada felt that there was going to be an intellectual treat for the Canadians; and, as he said to-day at the Council meeting, they were very anxious to do this. They were anxious to have 600, 800 or 1,000 Canadian practitioners meet the men who were going over from this side. He certainly thought they ought to guarantee to Montreal 500 or 600 at any rate. Not only would it be an intellectual treat, but he thought they could give the members a social treat and a treat in travel which those of the meeting who had never crossed the Atlantic before would have an opportunity of experiencing. They would show them one of the largest rivers in the world, which was only 200 miles across in one place, and the old city of

Quebec, which dated back very far, to the days of Jacques Cartier and Champlain. Then they could show the members one of the prettiest cities in the world—the city of Montreal. Further than that, they proposed to take them to see the greatest cataract in the world—Niagara Falls. Beyond that, they would journey, he hoped, as many as could be persuaded to go, to the great wheat fields of Manitoba and the North West, which would give them an opportunity of seeing where the millions of bushels of wheat came from, which, if the crop failed in India and all the other cereal-growing countries in the world, they could provide them with. They would be taken to the great Rocky Range of mountains, the scenery of which could not be excelled in the world. Again, if they were inclined to invest, and wanted to know something about where their money was going, they could take the members to the Kootenay Valley, the great mining country of Rossland. They would also have an opportunity of seeing the great Pacific Ocean. He thought altogether they could certainly offer the members of the Association a thorough treat, and hoped that every member of the Council—especially everyone that heard him that night—would guarantee, at any rate, ten others who would come across the Atlantic. He assured them that, so far as the profession in Canada was concerned, they were unanimous on that point. There was no jealousy; no one begrudged anybody anything. For himself he felt that he had the entire profession in Canada at his back. They had a free hand, and they wanted the members to feel that they must come, and let everything else go. He could positively assure them that they should certainly have a trip which could not be bettered anywhere in the world. In conclusion, he thanked them very heartily, and said he could not allow that opportunity to pass without again saying how flattered and grateful he was for the great kindness they had shown him.

Dr. RODDICK, on again rising, and in proposing the toast of "The British Medical Association," said he assured them that it afforded him very great pleasure indeed to present to them that toast. He quite appreciated now for the first time what the British Medical Association was. One had to come and spend a day or two and attend the different meetings and the meeting of Council to know how much work was before them. He had no conception of the amount of work which was undertaken and accomplished by the British Medical Association. He had to congratulate them on one thing, and that was the officials of the Association. He thought they had been exceedingly lucky in the choice they had made in their President of Council, Dr. Saundby, and in the choice he understood they had made

many years ago (and he hoped it would be a long time before they found it necessary to shelve him) in their worthy Secretary, Mr. Fowke. Together their organization was grand. He had been sitting in the Parliament of Canada, where they had 240 members, and had been at different Committee meetings there, but he certainly never saw a better conducted and more orderly meeting than that which he attended that afternoon in their Council Room. Although there was a difference of opinion, as there always is—and there must be to give spice to the pudding—the Chairman of the Council managed to make everyone believe that he was everybody's friend. He felt about the Chairman, that some day they would see him sitting in the House of Commons. He certainly had the legislator's head, the political instinct, and besides that there was the statesman in him. He (Dr. Roddick) said their Association, numbering 20,000 members, was certainly the largest medical association of the kind in the world, and that was a great deal to say. He felt that if the Association was not the most influential, it was among the most influential, and he doubted if as a scientific body there was its equal anywhere in the world. From such a small beginning a comparatively few years ago, it was astonishing how the Association had grown to enormous proportions. He felt that the Branches of the Association should be encouraged, and thought they certainly would constitute one of the links of that great Imperialism to which he previously referred. He hoped they would allow the Colonial Branches to grow and prosper, and that some day they would be tempted to accept an invitation from Australia. In proposing that toast they must allow him to say a word about his friend on the right (Dr. Henry Barnes), the President of the Association. Although he met him for the first time yesterday, he had begun to love him, and felt, in the choice which the men of the Border Counties made in selecting him as their President, they had made an admirable choice. He could understand now how the Carlisle meeting had been such a success. With Dr. Barnes as President it could not be otherwise. He asked them to drink to "The British Medical Association," and would connect with that toast the health of the President of the Association.

The toast having been drunk,

Dr. Henry Barnes (Carlisle), the President of the Association, in responding, said that to have succeeded to the Chair of the British Medical Association—after the very brilliant and successful meeting in London, presided over by the late Sir Russell Reynolds, a man of world-wide reputation, a man who was beloved throughout the whole of the medical profession—was a distinction which was sufficient for

any man; and to preside over the Association and to be followed by the first Colonial President of the Association was an honour which he did not esteem less highly. He thought it was a happy inspiration on the part of the President of Council to invite them there to a dinner of welcome to the President-elect, the first Colonial President of the British Medical Association. The Association was thoroughly justifying its designation of "British" by accepting the invitation of the premier colony of the British Dominions. After the brilliantly successful meeting in London came to a conclusion it was felt that there were very few places that would care to put themselves in competition with London, but he had himself felt that some of the most useful meetings of the Association had been held in the less populous centres, and the success of the meeting in Carlisle had once more demonstrated the truth of this view. One of the principal objects of the Association was to promote cordiality and good feeling amongst its members, and he was proud and glad to say that the members of the profession in Cumberland, after the visit of the Association, were better friends than ever before. Carlisle also had proved that it was possible to hold meetings in less wealthy places. The guarantee fund which had been raised had paid all expenses, and had permitted a substantial return to be made to the subscribers. When he first joined the Association it had only 2,000 members. When he became President the circulation of the *Journal* was 19,000. He thought the increase in the circulation of the *Journal* was the best augury for the success of the Association. He understood from Professor Roddick that the number of Colonial Branches was increasing in Canada, and he believed that wherever the English language was spoken, wherever medical men were practising, there the *British Medical Journal* circulated.

The Treasurer (Dr. Parsons), next proposed "The Medical Corporations," and he hoped Professor Roddick would understand, from the presence of the President of the Royal College of Physicians, the Senior Vice-President of the Royal College of Surgeons (Mr. Macnamara), and the Master of the Apothecaries' Company, that it was the desire of the whole medical profession, as well as the British Medical Association, to accord him a very hearty and sincere welcome. The medical profession was very much indebted to these corporations in a variety of ways. The Apothecaries' Company was entitled to their gratitude, because it was the first to recognize the fact that the education of the medical practitioner should be the liberal education of gentlemen. It was the first to recognize that an examination and acquaintance with arts was a necessary preliminary to the study of

physic. He asked them to drink to the medical corporations, and to couple with the toast the name of Dr. Wilks, the President of the Royal College of Physicians. Long might he enjoy that dignity!

The toast having been duly honoured,

Dr. Wilks, in replying, said he thanked them for responding to the kind words of the Treasurer. He was very pleased with the remarks that had been made by the Treasurer as to the sympathy which ought to exist, and he hoped did exist, between the Board and the Corporations. Dr. Wilks then proceeded to refer at some length to the difficult work of the Royal College of Physicians. He said the profession at large appeared hardly to be aware of the extent of this work, of the care which was given to cases of complaint brought to the knowledge of the College, or of the number of cases which thus came under consideration during the course of the year. The British Medical Association could do very much by voluntary co-operation and union to bring pressure to bear and to set a high standard of professional conduct, but the powers of the Association were practically limited to this. But the Colleges possessed further powers. What he wished the profession to understand was that the Royal College of Physicians was prepared to exercise its powers in these matters, and that it did exercise them, as he believed, to the very great benefit of the profession, which might rest assured that every complaint duly authenticated would receive most cordial attention at the hand of the Censors Board, and would be made the subject of minute and painstaking inquiry.

Mr. Wheelhouse then, in a few graceful words, proposed "The Health of Dr. Saundby," thanking him for giving them the opportunity of meeting the President-elect. This was suitably acknowledged by Dr. Saundby, who then proposed the health of Dr. Dundas Grant and Dr. Charles Grant and Mr. Harden, who had contributed several excellent songs to the pleasure of the evening.

MEDICAL LIBRARY, McGILL UNIVERSITY.

DONATIONS TO THE LIBRARY FOR QUARTER ENDING NOV. 30TH, 1896.

From the libraries of the Surgeon-General's office, United States Army: Boston Medical Library; Royal College of Surgeons, Lond.; College of Physicians, Phil.; New York Academy of Medicine; Library Public Documents, Wash. Also the following Transactions and Journals: Tr. of the Medical and Chirurgical Faculty of the State of Maryland; Tr. of the Clinical Society of London; Tr. of American Electro Therapeutic Association; Tr. of the Association of American

Physicians; Tr. of the American Climatological Asso.; Tr. of the New York State Medical Asso.; Virginia Medical Times; Post Graduate, New York.

The library is indebted to the following authors for copies of their works:

J. C. Webster, B.A., M.D., F.R.C.P., Ed.—Selected Papers; Ectopic Pregnancy; Practical and Operative Gynæcology.

G. E. De Schweinitz, A.M., M.D.—The Toxic Amblyopias.

J. H. Musser, M.D.—Practical Treatise on Medical Diagnosis.

H. M. Whelpley, M.D., Ph. G., F.R., M.L.—Therapeutic Terms for Pharmacists and Physicians; Chemical Lecture Notes.

Otto A. Wall, M.D., Ph. G.—The Prescription; Therapeutically; Pharmaceutically; Gramatically and Historically considered.

W. J. C. Miller, B.A.—Medical Register, 1896; Dentist's Register, 1896, London.

Carey Coombs, M.D., Lond.—Galvanisors in the Treatment of Neuritis and other diseases.

Dr. Klein—Loud Micro-organisms and Disease.

R. Fletcher, M.D.—The Witches Pharmacopœia, Medical Lore, Ph.

F. M. R. Spendlove, M.D.—The Nature of Disease, Ph.

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

Professor Shepherd—Case books of R. L. MacDonnell, M.D., and Richard MacDonnell, M.D., unbound journals and pamphlets.

Professor Adami—Medical Chronicle, Vols. XI, XIII, XV, XVI, XVII, XIX, and N. S., Vol. III.

Professor Cameron—Lehrbuch der Geburtshülfe, by M. Runge, M.D.; Thérapeutique Obstétricale, by A. Auvard, M.D.; Pathology of Childbed, by F. Winckel, M.D.; Practical Treatise on Urinary and Renal diseases, by W. Roberts, M.D.; tr. from 2nd German Ed., by J. R. Chadwick, M.D.; Medical Diagnosis, by J. M. Da Costa, M.D.; Diseases of Women, Vol. 1, by L. Tait, M.D.; Manual of Obstetrics by Dr. Dorland; Manual of Pathological History, Vol. I and II, by Carnil and Ranvier, translated by A. M. Hart, M.D.; British Gynæcological Journal, Vol. X and XI.

Professor Blackader—Materia Medica and Pharmacology, by D. M. R. Culbreth. M.D.

Professor Mills, Pamphlets.

Professor Finley—Handbuch der Speciellen Pathologie and Therap, by R. Virchow, J. Vogel und Strubel, Bels, I to VII. Pamphlets.

Dr. Kirkpatrick (Montreal Medical Journal) American Academy of Railway Surgeons two Vols.; unbound Journals and Pamphlets.

Dr. G. M. Gould, Journals.

Dr. C. Wilson—Corporis Humani, by C. Bartholini, (1611).

Dr. W. S. Morrow—Experimented Physiology, by B. Martin, Lond., 1755.

Dr. L. Lamarche—Union Médicale.

New Books and Journals Received for the Quarter.—Annual of the Universal Medical Sciences, Journal de Anatomie, Archiv. für Physiologie, Practitioner Lond., Archives of Surgery, Dublin J. of Med. Sci., Revue des Sciences Médicales, Schmidt's Jahrbüsher, British Medical J., Journal of Physiology, Arch. für die Gesammten Physiologie, American Journal of Med. Sci., Jahresbericht Gesammten Medicine, Chemisches Central Blatt, Annals of Surgery, Journal de l'Anatomie, Journal of Anatomy and Physiology, British Gynæcological Journal, New York Medical Journal, Archiv. für Klinische Chirurgie, Archiv. für Path. Anat. und Phy., und für Kl Med., Disease of the Skin, Morris; Index Medicus, Edinburgh Med. J., Medical Jurisprudence, Witthaust Becker, System of Medicine, Allbutt, Vol. I, Grey's Anat., Boston Medical Journal.

THE SOCIETY OF MEDICAL PHONOGRAPHERS.—In Great Britain the Society of Medical Phonographers has been founded to promote the use of phonetic short-hand in medical work. This society has made steady progress, and it now numbers two hundred and fifty names on its membership roll. This society issues the *Record*, a monthly medical periodical in lithographed short-hand, and has recently published two small pamphlets dealing with the use of short-hand by the student and by the practitioner respectively. More recently a list of twenty-five hundred phonographic outlines of medical terms has been issued. The value of short-hand as a means of securing not only adequate records of facts, but of intercommunication, has led to the establishment of various circulating manuscript magazines, each of which presents the advantages of a small medical society even to those who are in remote parts of the kingdom, while at the same time affording practice in reading. The annual subscription to the society, which is five shillings, or in the case of students before qualification three shillings, entitles the subscriber to receive post-free all the phonographic literature issued by the society for the year. The society has petitioned the General Medical Council to make short-hand an optional mark-bearing subject at the preliminary examination. The educational committee of the Council has had this petition under consideration and will report on it at the next meeting. Dr. Gowers has been chiefly instrumental in securing the organization of the society.

The New York Board of Health has under consideration the banishing of dogs from the streets.

The Philadelphia *Polyclinic* says that while in this country only one per cent. of epileptics recover, in Germany, under the village system, five or six recover, and more than half of those admitted are greatly improved.

A suit for $20,000, brought by a Mrs. Yinsley for alleged dissection of her husband's body at the Central Medical College of St. Joseph, Mo., has been won by the college. This is the second trial and it is to be hoped the last.

The death of Rokitansky, the Viennese opera singer, at the age of sixty, and son of the celebrated Austrian pathologist, who also had a son a physician, recalls the answer given by Rokitansky, Sr., when asked what his sons did. He said: "*Der eine heilt und der andere heult*," *i.e.*, "One heals and the other howls."

A modification of the Hagedorn needle has been devised by Dr. J. A. Dibrell, Jr., of Little Rock. The point and the eye ends are of the

Hagedorn shape, but the middle part of the needle is flattened in the other direction so that it can be grasped by an ordinary needle holder and does not require a Hagedorn holder.

A dumb thermometer is on the market. The temperature is not indicated by a scale upon the instrument, but instead a close-fitting case bears the markings and the physician is enabled to read the temperature when the thermometer is encased. This invention is calculated to obviate the depressing effects incident to patients catching a glimpse of their fever record.

NEW BOOKS, ETC., RECEIVED AND NOTED.

Transactions of the American Surgical Association. Vol. XIV, 1896.

Report of three cases of Phthisis pulmonalis following scald of the chest. By J. N. Hall, M.D, Re-printed from the Medical Record Aug. 15th, 1896.

The value of the pulmonic second sound. By J. N. Hall, M.D. Re-print from the Journal of the American Medical Association, June 27th, 1896.

A study of Cicatrices with reference to right and left-handedness and ambidexterity. By J. N. Hall, M.D. Reprint from the Boston Medical and Surgical Journal. Dec. 17th, 1896.

Sub-Conjunctival Injections. By Clarence A. Veasey, A.M., M.D. Reprint from American Journal of Ophthalmology. Sept. 1896.

Autoscopy of the Larynx and Trachea, By Alfred Kirstein, M.D. Translated by Max Thornet, A.M., M.D. Philadelphia; The F. A. Davis Co.

Artificial Anæsthesia. By Lawrence Turnbull, M.D., Ph. G. Philadelphia; P. Blaskiston, Son & Co.

The Principles of Theoretical Chemistry. By Ira Remsen. Philadelphia and New York; Lea Brothers & Co.

Bulletin 51. Report on Crops, Live Stock, &c., in Manitoba. Dec. 4, 1896.

La Role de la Graisse dans les Hernies. By Just Lucas-Championnière. Reprint from Journal de Médecine et de Chirurgie pratiques. Sept. 10th, 1896.

Vingt Cas de Fractures de Clavicule traites par le Massage. Dr. Dragon. Reprint du Journal de Médecine et de Chirurgie pratiques. August, 25th, 1896.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. 98th Annual Session.

Transactions of the Medical Society of the State of North Carolina. 43rd Annual Meeting.