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SURGICAL TREATMENT OF INTUSSUSCEPTION.*

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(Continued from last issue.)

Intestinal Anastomosis.—An intestinal anastomosis between the bowel above and below the invagination by the use of decalcified perforated bone plates can be made in fifteen to twenty minutes, and at once restores the continuity of the intestinal canal. As soon as the hydrostatic pressure above the obstruction has been removed by this operation, the danger of gangrene is diminished, and the bowel may again become permeable by a subsequent spontaneous reduction or by sloughing and elimination of the intussusceptum. If the invagination remains permanently it does no particular harm, as the obstructed portion has been excluded permanently from the fecal circulation by the anastomosis and undergoes atrophic changes. I have in my possession a number of beautiful specimens of intestinal anastomosis from animals in which I had made an artificial invagination, and subsequently treated them by making an intestinal anastomosis, and I am firmly convinced that the same treatment is applicable in practice and promises good results in the future.

Koreynski ("Zwei Falle von Darminvagination langer Dauer," Virchow u. Hirsch's Jahresbericht,

Bk. 11, 1881, p. 193) reports an exceedingly interesting case where a bimucous fistula was established spontaneously in a case of invagination, followed by a cure. The patient was forty-one years of age, and the symptoms of obstruction had lasted for six weeks, but were completely relieved by the anastomotic opening. The existence of such an opening could be readily verified by digital exploration of the rectum. After the symptoms of obstruction had subsided, the exclusion of a part of the intestinal tract could be ascertained by insufflation of the rectum, which at once produced a tympanitic distension of the colon. A similar but smaller communication was found on *post mortem* examination, as in the case reported by Gerry, previously referred to. Intestinal anastomosis, without resection of the intussusceptum is applicable only in cases of irreducible invagination in which the intussusceptum is only a few inches, at most a foot in length, and in which the external surface of the affected segment shows no indications of the existence of gangrene.

Enterectomy.—Resection of all of the cylinders, especially if the invagination is extensive, is a very grave undertaking, as it requires a long time for its execution, a matter of vital importance in these cases, and involves the removal of important parts, and on these accounts should never be resorted to unless the intussusceptum show unmistakable evidences of gangrene. The extent of the gangrene is immaterial in reference to the advisability of making a resection, as a small gangrenous spot necessarily

*A paper read before the Ontario Medical Association.

would lead to perforation and death from septic peritonitis unless this radical measure is carried out. The resection under such circumstances must always include the entire intussusceptum, but not necessarily the entire sheath. The first evidences of gangrene upon the external surface of the bowel usually appear about the neck of the intussusciptions. When the invagination is extensive, and the lower portion of the sheath presents a healthy appearance, it is only necessary to include so much of the extensive cylinder as to insure healthy tissue on the distal side. The sheath is divided by a circular incision below the point presenting evidences of gangrene, the intussusceptum is then drawn out and the entering cylinder divided above the neck of the intussusciptions. The bowel above and below the invagination should be tied with a rubber band, passed through a slit made in the mesentery, to prevent fecal extravasation during the operation. The mesentery corresponding to the section of bowel to be removed should be tied in small sections with fine silk ligatures, as tying in larger sections or with catgut is liable to be followed by hemorrhage. After the resection has been made, it becomes a serious question how to proceed further. Shall the continuity of the intestinal canal be restored at once by suturing, or shall an artificial anus be established? When the resection involves the ileum above and the colon below, it is exceedingly difficult to restore the continuity of the intestinal canal by circular enterorrhaphy on account of the difference in the lumina of the ends to be united. As ileo-cæcal invagination is the most common form, it is evident that, as a rule, some other plan must be followed. Under these circumstances, one of two methods of procedure can be chosen.

Lateral Implantation.—The colon at the point of section is inverted to the extent of an inch or more, and permanently closed by making a few stitches of the continued suture, which should embrace only the structures down to the mucous membrane. This will maintain the invagination, and effectually prevents the escape of gas and fecal extravasation, and the iliac or smaller end is implanted into a slit corresponding in size to the circumference of the bowel, made in the colon on the side opposite to the meso-colon, at a point about two inches below

the closed end. Implantation and fixation are most efficiently secured by lining the lower end of the ileum with a soft rubber ring and two inversion sutures of catgut, to which should be added, as a matter of safety, after the iliac end is in place, a superficial continued suture uniting the serous surface of the colon around the opening with the peritoneal coat of the implanted end.

Enterectomy, followed by Intestinal Anastomosis.—If lateral implantation cannot be readily done, an equally efficient method consists in closing both ends and establishing continuity of the intestinal canal by lateral apposition with decalcified perforated bone plates in the same manner as has been described under the head of intestinal anastomosis. Restoration of the continuity of the intestinal canal after resection for invagination by lateral implantation or lateral apposition requires much less time than a circular enterorrhaphy, while at the same time both operations secure better conditions for definitive healing than circular suturing, and on these accounts should, under these and similar circumstances, be preferred to the latter procedure. Circular resection also becomes necessary if the invagination has been caused by a malignant tumor, as is so often the case in chronic ileo-cæcal invagination in the adult. As the tumor always occupies the apex of the intussusceptum the operation, to be described below, should be performed if the invagination is extensive and irreducible. If the invagination is limited, or can be reduced, circular resection of the invaginated portion, or of the segment to which the tumor is attached, is indicated. The following case I reported some time ago ("Two Cases of Resection of the Cæcum for Carcinoma, With Remarks on Intestinal Anastomosis in the Ileo-Cæcal Region," *Journal of the American Medical Association*, June 14th, 1890), and illustrates well the difficulties which are often encountered in the operative treatment of invagination caused by carcinoma in the ileo-cæcal region:

Carcinoma of ileo-cæcal valve with invagination; Resection of cæcum with portion of colon; Restoration of continuity of intestinal canal by ileo-colostomy with absorbable perforated bone plates; Death six days after operation from peritonitis caused by deep ulcers of excluded por-

tion of colon.—Patient was a corpulent married woman, 53 years of age, who was placed under my care at the Milwaukee Hospital, November 14th, 1889, by her physician, Dr. L. Reinhard. She is the mother of eleven children, and had always been in robust health until a year before she was admitted into the hospital. No history of tumors in any member of the family. Her present illness dates back one year, when she was seized by an attack of vomiting without any apparent cause, as even then she was able to take food without causing any discomfort. The vomiting was not attended by nausea, and subsided after a few days without any special treatment. A month later a similar attack recurred, followed again by apparent complete recovery. During the next six months she suffered from similar attacks at intervals of one month, each attack lasting for a few days; between them the patient considered herself well. The intervals then became gradually shorter; at first every two weeks, then every week, and finally, every second or third day. During all this time she never suffered from constipation, the stools being normal in frequency and character. During the last ten months she has lost forty pounds in weight, and the complexion of the face, which formerly was ruddy, has now become pale and yellow. A tumor was discovered five weeks ago in the umbilical region by her attending physician. At that time she suffered a great deal from pain and vomiting, both of which were relieved by a brisk cathartic. From this time on the bowels moved several times a day, the discharge being liquid, but contained at no time either mucus or blood. A number of physicians who examined the patient since the tumor was discovered in the umbilical region made a diagnosis of carcinoma of the stomach, and gave it as their opinion that the tumor involved the great curvature of this organ. Pain and vomiting have been the most prominent symptoms for a number of weeks, and were only partly relieved by subcutaneous injections of large doses of morphia. Although the patient felt more distressed after eating, the vomiting occurred at irregular intervals, and was not always brought on by taking food. A careful examination made the day before operation revealed the presence of a firm movable tumor, somewhat elongated in shape, and about the size of a medium-sized

orange, a little above and to the right of the umbilicus. The tumor could be easily pushed under the costal arch on both sides, and in a downward direction on the right side nearly as far as the iliac region, but not quite as far to the left side. The mobility was less in a lateral direction. The patient was much emaciated and presented an anæmic, almost cachectic, appearance. It was almost the unanimous opinion of those who examined the patient at this time that the tumor, carcinomatous in character, was located in the large curvature of the stomach, but the possibility of carcinoma of the transverse colon was not excluded. The great mobility of the tumor induced me, at the urgent request of the patient and her husband, to make an attempt to remove it in either event. The operation was performed November 14th, 1889. Immediately before the operation the stomach was washed out with a warm saturated aqueous solution of salicylic acid, and, at the same time, morphia and atropia were given subcutaneously. Chloroform was used as an anæsthetic. The abdomen was opened by an incision through the median line, extending from near the ensiform cartilage to the umbilicus. Manual exploration revealed the stomach in a healthy condition, and after careful examination it was ascertained that the tumor consisted of the structures of the ileo-cæcal region, which had become invaginated as far as the middle of the transverse colon. The incision was now enlarged in a downward direction for the purpose of securing more easy access to the seat of invagination. Moderate traction upon the bowel below the apex of the intussusceptum and above the neck of the intussusciens had no effect in reducing the invagination. I now grasped the invaginated portion with both of my hands, and firm compression for a few minutes was made for the purpose of diminishing the swelling by squeezing out the blood and œdema fluid, and thus facilitating the subsequent steps in effecting the invagination. The neck of the intussusciens was dilated by inserting the tip of the index finger at different points. Traction was then made as before and reduction was accomplished, not, however, without making a number of longitudinal lacerations in the peritoneal covering of the intussusciens, the rents extending from its neck in an upward direction for two or three

inches. The invaginated portion was eight inches in length, and was composed of the entire cæcum, a portion of the ascending colon, and a small part of the ileum. An examination of the surface of the intussusceptum showed that the obstacles to reduction were numerous adhesions between the opposed serous surfaces of the intussusceptum and intussusciens, which were forcibly separated during the disinvagination. On submitting the cæcum to a careful examination, it was evident that its interior was occupied by a tumor which appeared to involve the ileo-cæcal opening. The cæcum was therefore opened by a longitudinal incision, and examination of its interior by inspection and digital exploration revealed an ulcerating carcinoma, which occupied the entire ileo-cæcal valve, and had infiltrated a considerable portion of the cæcum. A similar incision was made into the ileum near its insertion into the cæcum, and digital examination through this opening proved that the carcinoma had diminished the size of the ileo-cæcal opening to the diameter of an ordinary lead pencil. Retro-peritoneal and mesenteric glands normal. As the invaginated portion of the colon had been considerably damaged during the reduction of the invagination, it was decided to remove it with the carcinomatous cæcum. Fæcal extravasation was prevented in the same manner as in the preceding case by digital compression of the intestine beyond the line of section. The meso-colon and meso-cæcum were ligated in small sections with fine silk before the parts were excised. The ileum was divided about three inches above its insertion into the cæcum, and the colon about eight inches below the ileo-cæcal valve. Both resected ends were turned inwards about an inch, and the invagination maintained by a few stitches of the continued suture, which embraced only the serous and muscular coats, and one of them also the invaginated mesentery. The continuity of the bowel was restored by an ileo-colostomy, with decalcified perforated bone plates, in the same manner as in the first case, only that in this instance the incision into the colon was made about six inches from its closed end, as the part below this, which had been the intussusciens, could not be trusted in doing its share of the work in establishing the intestinal anastomosis on account of the pathological

conditions which were produced during the time the invagination existed. The peritoneal lacerations which were made during the reduction of the invagination were closed with a few superficial sutures. Scarification of the serous surfaces which were to be included by the plates was done before the approximation sutures were tied, and a number of superficial sutures were applied outside the borders of the plates to aid these in maintaining apposition between a maximum area of serous surfaces. Through the mesentery of the closed resected ends, a suture was passed which was brought out through a button-hole made for drainage in the right iliac fossa, and after the intestine was dropped into the abdominal cavity the approximated portion was drawn into proper position in the ileo-cæcal region by making traction on the suture, and was anchored in this locality by tying the suture over a small roll of iodoform gauze. A rubber drain was inserted through the button-hole, and the abdominal incision closed in the usual manner by two rows of sutures. External dressing was composed of a compress of iodoform gauze and a thick layer of absorbent cotton, which was retained by wide strips of rubber plaster encircling two-thirds of the circumference of the body. Duration of the operation, an hour and a half. The patient reacted well from the immediate effects of the operation, and no untoward symptoms appeared until the end of the third day, when unmistakable symptoms of septic peritonitis developed suddenly, which rapidly increased in intensity as the inflammation became more diffuse. The dressings were now removed, and through the drainage opening pus was sought for, but no fluid could be found. Castor oil was given which procured free evacuation. The peritonitis proved fatal on the third day—six days after operation.

Post mortem four hours after death. Abdominal incision united throughout. Omentum displaced towards the right iliac region and adherent to intestines. Separation of the omental adhesions liberated about half a pint of sero-sanguinolent fluid from the right iliac region. A fibrino-plastic peritonitis, which had evidently started near the site of operation, was found to have become diffused from here over the lower portion of the peritoneal cavity, being especially well-marked in the right iliac region. Breaking

down the adhesions the closed end of the colon was found turned in an upward direction, while the seat of approximation occupied the ileo-cæcal region. At a point corresponding to the cut surface of the meso-colon, a disintegrated softened blood clot was found. After removing the coaptated parts with adjacent portion of the colon and ileum, the serous surfaces which had been included between the plates were found firmly adherent throughout, and the superficial sutures completely buried beneath a layer of plastic exudation. On connecting the ileum with a hydrant a large stream of water escaped from the gut end of the colon, showing that the new opening was fully established. On closing the open end of the colon the bowel was forcibly distended without causing any leakage, a positive proof that union between the coaptated surfaces was perfect. The remnants of the plates came away by the irrigation to which the specimen was submitted, the one from the ileum was much softened, while in that from the colon about three-quarters of the margin of the perforation was still intact. On splitting the bowel open on each side where the plates had been, the anastomotic communication could be seen from each side as an oval opening with smooth margins lined with mucous membrane, through which the thumb could be readily inserted as far as the first joint. The approximation sutures remained attached by one of the marginal threads. The most interesting condition was found in the excluded portion of the colon, that is, in that part below the anastomotic opening which formerly had been the intussusciens. An old circular ulcer about a quarter of an inch in diameter, with abrupt indented margins, was found at a point which corresponded to the space between the two layers of peritoneum of the meso-colon. The ulcer had nearly perforated, and the peritoneum covering it was of an ashy-gray color, showing that it was on the verge of necrosis; this point corresponded to the location of the softened blood clot, from where evidently the peritonitis had taken its origin. There can be but little doubt that infection occurred from the ulcer through the necrosed peritoneum, where it was communicated to the blood clot, and from there to the peritoneum. Another ulcer, somewhat smaller in size, was found about an inch higher up in the bowel, and at a

point opposite to the attachment of the meso-colon.

In this case the carcinoma developed in the region of the ileo-cæcal valve, where it infiltrated the entire circumference of the ileo-cæcal opening, thus giving rise to early stenosis and remote symptoms of intestinal obstruction. As the tumor in the umbilical region was only discovered five weeks prior to the operation, it is somewhat uncertain at what time invagination occurred. The great thickening of the wall of both the intussusceptum and the intussusciens, the great vascularity, and especially the numerous firm adhesions, would rather indicate that the invagination had existed for a long time, perhaps six months or a year. The ileum for some distance was slightly dilated, and its walls hypertrophic. The thickening gradually increased as the ileum approached the cæcum. The ulcers which were found in the excluded portion of the colon, and which for obvious reasons I considered the direct cause of the fatal peritonitis, were undoubtedly of long standing, and were caused by the invagination. My only regret in this case is that I did not excise the entire invagination, intussusceptum, and intussusciens, as in case this had been done the patient would not only have recovered from the operation, but would in all probability have been permanently cured. In reference to diagnosis during life, I will repeat that the most urgent and prominent symptoms pointed rather to carcinoma of the stomach than to carcinoma of the cæcum, complicated by invagination. In the aged invagination is frequently caused by the presence of a malignant tumor in the bowel below the ileo-cæcal valve, and the obstruction, like in my case, is usually at first incomplete, and gives rise to a clinical picture suggestive of chronic stenosis.

The absence of blood and mucus in the discharges, of constipation and straining, and the presence of periodical attacks of vomiting, but more especially the great mobility of the tumor, led me to suspect a carcinoma of the great curvature of the stomach rather than the conditions found during the operation. On the supposition that the tumor was located in the stomach, the abdomen was opened by a median incision, which, on being enlarged, afforded ample access to the parts which were to be

treated by operative measures. Had the primary location of the carcinoma been known beforehand and the complication correctly interpreted, it would have been better to make a lateral incision. Adequate drainage, should this be required, can be established more readily after an operation through a lateral than a median incision in operations in the ileo-cæcal region.

In cases of colic invagination requiring an extensive resection, approximation of the two ends is not possible, on account of their distance from each other, and the comparatively slight immobility of this part of the intestine. In such a case lateral implantation is impracticable for the same reasons. The choice lies between the establishment of an artificial anus and lateral apposition; the former should never be made, as in case of recovery of the patient the fæcal fistula would remain as a permanent condition without any prospects of a cure. The continuity of the intestinal canal can be restored at once in these cases by making an ileo-colostomy or a colo-colostomy by lateral apposition with perforated decalcified bone plates, according to the location or extent of the resection.

Enterectomy and Circular Enterorrhaphy.—Wassiljew ("Invaginatio Ileo-cæcalis, Laparotomia, Resectio Intestini," Heilung, *Centralblatt f. Chirurgie*, No. 12, 1888) reports a very interesting case of resection for invagination and circular suturing which ultimately terminated in recovery. The patient was a man, aged twenty-five years, who was seized with abdominal pain and vomiting. As the symptoms of obstruction did not yield to ordinary treatment, laparotomy was performed on the second day. On opening the abdominal cavity, a swelling was readily detected in the right hypogastric region. This swelling was drawn forwards, and found to be an extensive invagination of the ileum into the colon. As reduction could not be accomplished, an elastic ligature was tied around the gut in two places and the ileum and mesentery were divided. Then the invaginated portion was readily withdrawn, and about seventeen inches were resected. The abdominal cavity was washed out with a weak solution of sublimate, and the cut ends of the gut were fixed by sutures to the abdominal wound. Much gas and fæcal matter escaped when the ligatures were untied. During the sixth week an operation was performed for the

cure of the artificial anus. About six inches more of the intestine were resected, and the cut ends united by two rows of sutures. On the third day the bowels moved, but on the fifth day the fæcal discharges again escaped through the wound. The different attempts to close the fistulous opening failed. Digital exploration showed that a spur was beginning to form. To this spur a pressure forceps was applied; it fell off on the third day; ultimately the fistula closed.

Enterectomy; excision of Intussusceptum, followed by Intestinal Anastomosis.—As a last and distinctly separate class from invagination in reference to operative treatment are cases in which the invagination is extensive and irreducible, with no external evidences of gangrene. Resection of the entire segment is not to be thought of, as death from the immediate effects of the operation would be almost sure to follow. An anastomotic communication between the bowel above and below the obstruction would exclude too much of the intestine permanently from the fæcal circulation, and in many cases it would be impossible or impracticable to make an operation of this kind. In preference to making a permanent artificial anus on the proximal side of the obstruction, I would suggest to remove the intussusceptum through an incision below the neck of the intussusciens, this to be followed by an intestinal anastomosis, uniting the wound made with a similar wound in the bowel above the neck of the intussusciens, the whole operation consisting of three stages: (a) Enterotomy; (b) resection of intussusceptum, and (c) intestinal anastomosis.

The sheath is opened by longitudinal incision about two inches below the neck of the intussusciens on the free convex side of the bowel. This incision must be long enough to enable the extraction of the intussusceptum. A large aneurism needle, armed with a small rubber cord band or tubing, is passed around the intussusceptum, between it and the sheath. This rubber ligature is then tied with sufficient firmness to occlude completely the lumen of the inner cylinder of the intussusceptum, and to constrict the mesenteric vessels, to prevent hemorrhage after resection of the part below it. By making traction upon the ligature the intussusceptum is brought well forward into the incision, when the

anterior half is divided about an inch below the ligature, with straight, blunt-pointed scissors, after which the artery needle is passed around it just below the point of section and the division completed between the ligature and the artery needle. As the external surface of the intussusceptum, covered with mucous membrane, faces the mucous lining of the sheath, adhesions are never present between these structures in recent cases, and extraction of the resected portion of the inner two cylinders can be effected without much difficulty. The ligated stump is dropped into the lumen of the bowel and pushed upwards away from the incision. Disinvagination of the remaining portion of the intussusceptum is prevented by adhesions about the neck of the intussusciens and the rubber ligature, and in the absence of such, a few superficial sutures are applied at the neck of the intussusciens. The obstruction is now complete, but the obstructed segment of bowel is at once excluded from the fecal circulation by making an anastomotic opening between the bowel above and below it. If the incision made for the resection and removal of the intussusceptum is too large for this purpose, it is partly closed by suturing, after which it is united with a similar incision in the bowel, an inch or two above the neck of the intussusciens. The wounds are brought together and held in accurate apposition between two perforated decalcified bone plates, assisted by a number of superficial sutures along the margins of the plates. Complicated as this operation may appear, it is very simple, and can be done in a much shorter time than it would take to make a circular resection, followed by circular suturing. The obstruction, made complete by the operation, is relieved at once completely and permanently by the anastomosis. The ligated portion of the intussusceptum will, of course, become gangrenous, from the elastic constriction, and will later come away with the ligature.

Excision of the Intussusceptum through the Rectum.—In cases of invagination of the colon into the rectum, with or without the presence of a tumor, the necessary operative procedure should be done through the rectum. If no tumor is attached to the apex of the intussusceptum, reduction is attempted by rectal insufflation, aided, if necessary, by insertion of the hand into the rectum in adults, and by the use of an

oesophageal tube or a whalebone bougie, the end protected with a sponge, both in adults and children. If these means fail in reducing the invagination, the tumor, if it exists, or the intussusceptum, or both, can be removed through the rectum. The case of Kulenkampff, previously referred to, serves a good example in illustrating this part of the operative treatment of invagination. Bryant (*British Medical Journal*, April 9th, 1887) relates the case of a lady, aged seventy-five, who had been suffering from obstruction, due to a low invagination, for fourteen days. He suspected the existence of a tumor, and this, after much difficulty, was found, drawn down, and removed; the patient making a rapid and permanent recovery.

Barker (*The Lancet*, May 14th, 1887), in a case of invagination of the rectum, due to adenoid epithelioma of that part of the gut, succeeded in drawing down and excising the affected part, and reduced the invagination. The patient made a speedy, and what appeared a permanent, recovery. Three similar cases had been treated previously in the same manner, two by Verneuil, and one by Kulenkampff, only one of them recovering. The case reported by Nicolaysen ("Tumor Carcinomatosus Intestini," S. Romani; "Resektion of S. Romanum," Heltredelse; "Nord. Med. Arkive," Bk. xiv., No. 13) is of special interest as illustrating the course to be pursued when it becomes necessary to resect a portion of the intestine with the tumor. The patient was a woman, forty-nine years old, who had suffered from troublesome constipation and painful defecation for a year, due to chronic invagination of the sigmoid flexure of the colon into the rectum, produced by an epithelioma. Through the rectum a tumor could be felt, which, by traction, could be drawn down to the anus. The diagnosis made was carcinoma of the colon and invagination of colon into rectum. The patient could produce the invagination at will. The extirpation was made by pulling the tumor downwards beyond the anal orifice. The healthy mucous surfaces 2.5, ctm. above the base of the tumor were circumscribed by a row of silk sutures, which were carried through the entire thickness of both intestinal walls. The tumor was excised one ctm. below the sutures; only one artery had to be tied. Posteriorly and on the left of the circular wound the divided

meso-colon could be seen. The wound was accurately united by a superficial continued suture. As soon as the bowel was replaced it retracted as far as the upper portion of the rectum. The patient had recovered after fifteen days, and reported herself well at the end of two and a half months. The intestinal tube removed measured 6.5 cm. The tumor, under the microscope, showed the typical structure of cylindrical-celled epithelioma.

Mikulicz has devised and described a somewhat similar operation for such cases recently, and reports a successful case. The invagination was of a colico-rectal form; the intussusceptum protruded some distance beyond the anus. He first divided the outer cylinder anteriorly and united the resected end with the inner tube by suturing. The same was then done posteriorly, and when the whole circumference was securely sutured, except at a point corresponding with the mesenteric attachment, the vessels here were tied as fast as they were divided, after which the resection was completed, and finally the mucous membranes were united by a circular continued suture and the bowel returned.

Konig made the parts in a case of this kind more accessible by making an incision in the perineal raphe and extirpating the coccyx.

CONCLUSIONS.

1. Intussusception of the bowels is a strictly surgical affection, and should be treated as such from the beginning, on the same ground as a strangulated hernia.

2. Immediately after the accident has occurred peristaltic action should be arrested by emptying the stomach by an emetic or irrigation, by suspending stomach feeding, combined with the administration of opiates in sufficient doses to procure rest for the bowel at and above the seat of invagination.

3. Prompt arrest of peristalsis procures for the affected part the most favorable conditions to arrest further invagination and to effect spontaneous or artificial reduction.

4. Artificial means to effect disinvagination should be instituted as soon as this form of intestinal obstruction is recognized or even suspected.

5. Rectal insufflation of hydrogen gas or filtered air is the most efficient and safest proce-

dure in reducing the invagination, and, if employed sufficiently early, will prove successful in the majority of cases.

6. Inversion of the patient and complete relaxation of the abdominal muscles by the use of an anæsthetic are important factors in rendering the inflation efficient.

7. Enterostomy and colostomy, according to the seat of the invagination, are only permissible if the patient's general condition does not warrant laparotomy.

8. Laparotomy in all other cases should be done as soon as the irreducibility of the invagination has been demonstrated by rectal insufflation.

9. In acute recent cases the swelling of the intussusceptum, caused by the circular constriction at the neck of the intussusciens, often proves a serious obstacle to reduction, and should be removed as nearly as possible by manual compression made direct or over a large aseptic sponge before attempts are made to reduce the invagination by traction.

10. Reduction of the invagination is accomplished most readily by making traction in opposite directions upon the bowel, above the neck of the intussusciens, and upon the sheath below the apex of the intussusception, combined with pressure against the intussusceptum in a direction from below upwards.

11. If adhesions between the apposed serous surfaces of the inner two cylinders resist reduction, they should be carefully separated with a Kocher's director or a small pair of straight blunt-pointed scissors before traction is made.

12. After reduction has been accomplished the affected segment of the bowel should be carefully examined, and small patches of gangrene or rents of the peritoneal coat covered by stitching the peritoneum over them.

13. Recurrence of invagination is prevented most effectually by shortening the mesentery by folding it in the direction of the bowel, and fastening the fold in this position with a few catgut or fine silk sutures.

14. If the external surface of the bowel presents evidences of gangrene, disinvagination should not be attempted, and in such cases a resection is absolutely indicated.

15. The resection, under such circumstances, should always include the whole intussusceptum,

but only so much of the intussusciens as is threatened by gangrene.

16. If the continuity of the bowel cannot be restored by circular suturing, either on account of the difference in size of the lumina of the resected ends, or inflammatory softening, the same object is attained in an equally satisfactory manner, and more safely, by lateral implantation or intestinal anastomosis.

17. If the invagination is not extensive, but irreducible, and the bowel presents no signs of gangrene, the obstruction should be allowed to remain, and the continuity of the intestinal canal restored by making an anastomotic opening between the bowel above and below the invagination, by the use of perforated decalcified bone plates.

18. If the invagination is extensive, irreducible, and the bowel presents no indications of gangrene externally, the intussusceptum should be made accessible through an incision below the neck of the intussusciens and resected after securing the stump with an elastic ligature, after which the obstruction is permanently excluded by an intestinal anastomosis.

19. In irreducible colico-rectal invagination, or when this form of invagination has been caused by a malignant tumor, the intussusceptum should be drawn downward and removed by the operation devised by Mikulicz.

REPORT OF FOURTEEN CASES OF APPENDICITIS.*

BY T. K. HOLMES, M.D., CHATHAM.

The literature of appendicitis is so generally known and so abundant that it would be unfair to occupy the time of this meeting in reiterating what is within the knowledge or reach of all.

The subject has acquired increased interest within the past few years because of the success of the surgical treatment of suitable cases, and it is to place my own experience of the disease before you that I venture to relate the leading features of fourteen cases that I have either seen in consultation or have had under my own care.

The mortality is large, and is doubtless much increased by failure to recognize when medical treatment should end and surgical means begin. I have found great difficulty in deciding this

question, and have not been aided very much in its solution by rules laid down by writers on the subject. Many cases get well under the use of opium, hot fomentations, and perfect quiet; and not a few that seem to be progressing favorably under this plan of treatment suddenly and unexpectedly get worse and die. Of the fourteen cases, one made a slow but apparently a complete recovery under medical treatment, as he is still free from a return of the disease after the lapse of fifteen years; one has had two relapses since the first attack four years ago, being ill at the present time; one recovered after an abscess had formed and burrowed its way beneath Poupart's ligament into the thigh; one died from exhaustion consequent upon obstruction of the bowel, produced by the abscess; one died from rupture of the lower part of the ileum, which had become inflamed and softened by its proximity to an abscess; three died quite suddenly from rupture of an abscess into the peritoneal cavity; and six recovered after evacuation of the abscess by a surgical operation.

In most of the cases in which suppuration occurred, that event was not indicated by violence of pain or by intensity of fever, and those who died unexpectedly had marked amelioration of both before the fatal rupture. This gives five deaths and nine recoveries. All of those operated on recovered. The death rate in this series of cases was doubtless greatly increased by failure to recognize the existence of pus, and to evacuate it before rupture into the general peritoneum. I am satisfied that it is often very difficult, and sometimes impossible, to be certain of the presence of an abscess without an exploratory operation, and very often those most interested will not permit of this until it is too late to afford a chance of success. No cases demand more prompt recognition, or more accurate diagnosis than these, and by one who has seen apparently mild cases progress under medical treatment to a sudden fatal termination, no case can be viewed without apprehension.

Case 1.—P. McM., a robust man, æt. 24 years, was attacked with chill, fever, and pain in the abdomen, on October 20th, 1876. The pain was chiefly in the right iliac fossa, but radiated towards the navel. I saw him first on the third day of the illness, and found his temperature 103°, pulse 116, and symptoms as above-

*Read at the Meeting of the Ontario Medical Association, June 4

mentioned. There was distinct hardness over the cæcum, and dullness on percussion also. The treatment consisted of opium, hot poultices, abstinence from food, and perfect quiet. He gradually recovered, but the hardness and tenderness did not entirely disappear for several weeks. He has had no return of the affection since.

Case 2.—Miss H., æt. 18 years, under care of Dr. Bell, of Merlin. I saw her, in consultation, ten days after the onset of the disease. The symptoms had been chill, fever, and pain, as in Case 1. The bowels had been constipated and the abdomen tympanitic, with hardness and dullness in the cæcal region, but as her condition seemed favorable at the time of my visit, no change was suggested in the treatment, which had consisted of opium, rest, and hot fomentations. She made a good recovery. There had been a similar attack about eight months before, and this patient is now suffering from the third attack, and is under the care of Dr. Lyster, of Detroit.

Case 3.—W. W., æt. 31, a dentist by profession, had long suffered from constipation, and had on three or four previous occasions had attacks of pain on right side of the lower part of the abdomen. I saw him on account of the present attack on the 2nd of October, 1881, and found that he had been ill five days, complaining of pain in the abdomen, especially about the umbilicus and the right side of the abdomen. The pain was very severe, and there was a good deal of tympanitic distension. The temperature was normal, and continued so throughout the illness, and his pulse did not rise above 90 until a few hours before his death. No localized tenderness could be detected, and the tympanitis caused a resonant sound to be heard over every part of the abdomen. The bowels did not move; there was almost constant nausea, and no nourishment of any kind could be retained on the stomach; hiccough came on three days before his death and he sank from exhaustion. Drs. McKeough and Rutherford visited him with me. At the autopsy an abscess containing about five ounces of dark bluish-grey pus was found behind the junction of ileum with the colon, and pressing on the gut about the ileo-cæcal valve. The diseased appendix was in the abscess cavity. Uncertainty as to

the cause of obstruction prevented surgical interference, which would undoubtedly have been the right course to pursue. The remarkable features of this case were the slow pulse, the absence of fever, and the inability to localize the disease.

Case 4.—C. D., a young married man of robust appearance and good health; had never been ill before. On May 21st, 1882, his wife called to say that his appetite had failed, that he had occasional griping pain in his bowels, and that his tongue was very much coated. A purgative was prescribed and nothing more was heard from him until the 23rd, when I saw him for the first time. The bowels had moved freely, but he was still suffering great pain; his temperature was 103° and his pulse 112. The abdomen was tender and tympanitic, and he was very sick at his stomach. The pain was diffused over the abdomen, and no local affection in any one part of the abdomen could be made out. The case was considered one of general peritonitis, and was treated with opium, counter-irritation, hot fomentations, and he was confined to the bed and ordered to use a urinal and a bed-pan if the bowels should move. On the 25th his condition was not materially changed and the same treatment was continued. On June 2nd his temperature was 100°, pulse 98, and the tenderness over the abdomen had abated a good deal, but the tympanitis was extreme; the bowels had not moved nor had any flatus passed. On the night of June 2nd some one persuaded him to take a large dose of Epsom salts, and a few hours after he got out of bed thinking the medicine would act. While straining at stool he felt something rupture in the abdominal cavity, and was immediately lifted into bed, and died in three or four minutes. The autopsy showed general peritonitis, an abscess in the right iliac fossa, and a rupture in the lowest part of the ileum an inch and a half long. The gut for several inches above the rupture was softened and could be torn almost as easily as wet blotting paper. The abscess had not ruptured.

Case 5.—F., a young man, æt. 18 years, had always been well until February 5th, 1891, when he began to complain of pain in the right iliac region. His father first consulted me on Feb. 7th, and described the symptoms, which he said were not very severe and had not obliged his

son to remain in bed. I explained the serious nature of appendicitis to the father and enjoined absolute rest in bed, sending him opium to relieve the pain and instructing him to use hot poultices over the painful region. On the 10th his father returned to say that his son was very much better and that he wished to get up and go about as usual again, but in the evening sudden severe pain came on, and then for the first time the family thought it necessary to have him visited. Dr. McKeough went and found him partially collapsed, temperature sub-normal, pain very severe, abdomen distended and tender. He was given opium to relieve pain, but never rallied, dying on the following day. No autopsy could be obtained, but the history of the case leaves little doubt that there had been rupture of a perityphlitic abscess. Laparotomy after rupture is almost a forlorn hope, and when Dr. McKeough saw him it was in the night, and a long distance from the town; before assistance and instruments could have been obtained he was moribund.

Case 6.—Louis C., a very strong farmer, æt. 40 years, was first visited on December 20th, 1884, when it was found that he had been complaining of pain in the bowels for a week, but had not been confined to his bed. Examination showed pain in bowels, worse in right iliac fossa, symptoms of general peritonitis, constipation, and a temperature of 101°; his pulse was good, and 86 to the minute. There was a good deal of tympanitis, and the whole abdomen was tender. No hardness could be felt, but his symptoms pointed to inflammation about the cæcum, and the treatment was directed accordingly. His condition seemed to improve until the 24th, when he got out of bed to shut a window, and while walking across the room felt something give way in his right inguinal region. He became collapsed immediately and died in about four hours. No autopsy was made.

Case 7.—Miss H., æt. 14 years, was a patient of Dr. Tye, with whom I saw her in consultation, and who gave me a history of the attack. She had been ill about a week with the usual symptoms of perityphlitis, but had apparently been improving, and the acute symptoms of pain and tenderness had abated a good deal, and the fever had also disappeared, when about four o'clock a.m. on March 29th, 1889, she felt a

sudden pain as from rupture of something in the abdomen, and she immediately became collapsed, and on the afternoon of the same day, when I saw her, she was moribund, and died four hours after. No autopsy was made.

Case 8.—Frank B., a blacksmith, æt. 47, of good family and personal history. Attack began on August 9th, 1886, with vomiting and purging, headache, and general malaise. Dr. McKeough saw him first on the 12th, and found his pulse 80, temperature 99.6°, tongue coated, and pain in the back and limbs. On the 14th his pulse was 89, temperature 101°, and he complained of soreness over the whole abdomen, which was slightly tympanitic. On the 16th his pulse was 80, temperature 102°, bowels had moved spontaneously every day. Has been taking quinine in antiperiodic doses for five days. 20th: Since the 16th his temperature has varied from 100° to 103°, and the pulse has never exceeded 90. To-day there is great pain on the upper and inner part of the right thigh, especially where the femoral sheath emerges from beneath Poupart's ligament. There is some tympanitis, but no localized hardness, and the right thigh is flexed, as in typhlitis. 26th: The pain and tenderness in the thigh are less, but it is swollen to nearly twice the size of the left thigh. There are none of the ordinary signs of abscess in the iliac fossa, neither tenderness, swelling, nor hardness; temperature 100° to 102°, pulse 80. September 12th: On examining the limb to-day, a tumor as large as a small orange was found on the inner side of the thigh, about the junction of the upper with the middle third; it contained gas and some solid matter, and on elevating the limb and making pressure these contents returned into the abdomen with a gurgling noise. The diagnosis, which until now had been in doubt, became clear; perforative ulceration of the cæcum, or upper part of the appendix, had resulted in a fecal abscess, which had burrowed downwards and escaped beneath Poupart's ligament into the femoral tissue. Pressure, by means of absorbent cotton, along the track of the abscess, and a bandage firmly applied from the foot to the body, with elevation of the limb, constituted the subsequent treatment, and it was entirely successful. He improved steadily and was able to resume work early in December.

Case 9.—P. G., a girl six years old, had been ill three weeks with the ordinary symptoms of ulcerative appendicitis, and had been under the care of Dr. Pomeroy, of Dresden, with whom I saw her in consultation. Fluctuation could be detected to the right of the linea alba, and an incision opened directly into the abscess, as adhesion to the anterior abdominal wall was quite firm. Recovery was rapid and complete. The appendix was not seen. There has been no relapse.

Case 10.—Wm. D., a farmer, æt. 41 years, whom I saw in consultation with Dr. Bullis, of Dresden, on the 29th of May, 1889. He had been ill two weeks with pain in the abdomen—worse over cæcum—fever, vomiting, and great prostration. There was evidence of an abscess, but not clearly marked. Dr. Bullis administered chloroform and I made an incision about two inches from the anterior superior spinous process of the ileum, cutting downwards towards the ramus of the pubic bone. The wall of the abscess was adherent to the anterior abdominal wall, and was opened into directly. Thorough, gentle irrigation through a drainage tube, and frequent dressing, was carried out, and recovery was rapid, although a sinus continued to discharge for a long time. He had an attack about a year before this one from which he got apparently quite well.

Case 11.—W. B., a stout man, æt. 30 years, whom I saw in consultation with Dr. Fraser, of Thamesville, on July 16th, 1889. Dr. Fraser was first called to see him on the 7th of June and found him suffering from severe abdominal pain, which was worse in the right inguinal region, where there was great tenderness on pressure. The abdominal muscles were tense; there was considerable tympanitis, and his temperature was 103°. Opiates were given and hot fomentations were applied, and on the following day an oval-shaped tumor could be felt in this region. Leeches were applied and former treatment continued, and during the next ten days the pain and fever gradually subsided, but the tumor increased in size. On the 23rd he had so far improved as to be able to go to Dr. Fraser's office, and although the tumor continued to enlarge until July the 16th, the date of my visit, he had gained in health. The evidence of pus being now clearly marked, Dr. Fraser

opened directly into the pus cavity, the wall of which was adherent to the anterior abdominal wall. A large rubber drainage tube and frequent douching with boracic acid solution constituted the subsequent treatment, and recovery was rapid and complete.

Case 12.—J. B., a delicate boy, æt. 10 years, had been taken ill somewhere in Michigan about six weeks before I saw him. The history of the attack was that of appendicitis, but I could not gain accurate information as to the particulars of it. I saw him first on October 2nd, 1889, and discovered a tumor in the right inguinal region which gave indistinct evidence of fluctuation. An incision over the middle of the swelling opened the abscess, and drainage and daily dressing completed the cure in a month. There has been no return of the disease.

Case 13.—Mrs. Wm. W., æt. 45, and the mother of three children. I was called to see this patient on the 28th of June, 1889, by her attending physician, Dr. Caron, of Morpeth, and obtained the following history: She had been in good health until the summer of 1887, when she began to feel slight pain in the right hypochondrium, and occasional feelings of malaise and fever. She was treated for malarial fever most of the summer but got no relief, and gradually grew anæmic and weak. In the spring of 1888 she noticed a tumor in the region of the right kidney, and she consulted several medical men in Deroit and elsewhere during the next ten months. The most experienced of these considered it an enlarged kidney, but did not advise interference with it. I first saw her on the 28th of June, 1889; she was at that time confined to bed; was extremely anæmic; her temperature was normal and her pulse 120. I learned from Dr. Caron that she frequently had slight rise of temperature for a day or two at a time during his attendance on her through the previous four months. She was very much emaciated; her appetite was good at intervals, but indulgence of it was sure to be followed by pain in the bowels, vomiting, and diarrhœa, after which she would be better for a few days. A tumor as large as a double fist occupied the position of the right kidney, extending somewhat lower, towards right inguinal region. It was tender, hard, slightly movable, and she told me that occasionally it became distinctly harder and more

painful than on other days, and that the intense pain always abated with the hardness. This history led me to suspect an abscess communicating with the bowel by a fistulous opening, through which the cavity could be emptied at intervals, or become filled at others, and I advised an exploratory operation, which was not then acceded to, but five days afterwards I was asked to do it. Assisted by Drs. Caron and Shaver, I made an incision parallel with the linea alba, over the most prominent part of the tumor, and opened directly into the peritoneal cavity. Finding the tumor adhered to the anterior abdominal wall, nearest the right side, I closed the opening made in the peritoneum, extended the cutaneous incision by one at right-angle to the first, and then opened directly into the tumor, which proved to be a fæcal abscess, and communicated by a small fistula with the ascending colon. The subsequent treatment was carried out by Dr. Caron, and consisted in frequent cleansing through a large drainage tube, and attention to the general health. The fæces passed from the wound for several weeks, but the fistula finally closed, and the alvine evacuations were discharged naturally. She slowly improved for about three or four months, when she accidentally got wet, contracted pneumonia, and died of it after an illness of a few days.

Case 14.—W. C., a rather slightly built boy, æt. 11 years, was taken sick on the 5th of May, 1891, with slight pain in the bowels, loss of appetite, and vomiting. His stools were dark colored and offensive. On the 8th his father called on Dr. McKeough for medicine, and was given a purgative. This acted freely and the boy seemed so much better on the 9th and 10th that he was thought by his parents to be in no danger, but on the evening of the 10th the father noticed that his general appearance was bad, and sent for Dr. McKeough, who then saw him for the first time and at once recognized that he was seriously ill, and asked Dr. Fleming and myself to see him. At this time he had a pinched look; his temperature was 103° and his pulse 140 and weak, and his abdomen tympanitic and painful. The pain was diffused, but most felt about the navel. His bowels were quite loose and the stools had been greenish and offensive, but were less so to-day. Counter-irritation, with turpentine, hot poultices, opiates,

quietness, and abstinence from food, were ordered, and on the following day he felt better—his pulse was 108, temperature 99°, and the abdomen presented the same appearance, and was still painful enough to require morphine gr. $\frac{1}{10}$ every two or three hours. From the 10th until the 18th he seemed better in every way—less pain, temperature varying from normal to 100°, and pulse from 85 to 110—but on the latter night an oval swelling could be detected in the hypogastric region, and rather more marked on the left of the median line. He had retention of urine, was quite tympanitic, and had not been able to retain any nourishment, except chicken broth. Examination per rectum revealed a fluctuating swelling, which extended to both sides of the pelvis. It now became evident that an abscess existed, and that its evacuation should not be delayed. Dr. Eccles, of London, who was asked to see the case early next morning, confirmed the diagnosis, and, with Drs. Fleming and McKeough, assisted at the operation. An opening was made in the median line, midway between the pubis and the umbilicus. The omentum was found inflamed and partially adherent to the parietal peritoneum, and was united by suture wherever adhesion had not occurred. After some difficulty, the sac of the abscess was reached to the right of the median line and about three inches deep. About three ounces of very fœtid pus escaped; a drainage tube was inserted and the pus cavity douched well with sterilized water. A hard fæcal concretion was washed out; it was as large as a small bean and contained some hard, dark particles in its centre. About fourteen hours after the operation gas escaped from the tube and has continued to do so at intervals ever since. On the third day after the operation small particles of fæcal matter came from the wound, and since that time has continued at intervals, although several discharges have passed per anum. After the pus was evacuated, his pulse fell to 84, and his appetite became excellent, but on the 26th he had intermittent griping pains, a good deal of gaseous distension of the bowels, loss of appetite, and a temperature of 101½°, the highest his fever had been since the beginning of his sickness. A saline mixture acted freely, causing a good deal of thin fæcal discharge from the wound, and giving great

relief from pain and fever. The pulse also fell from 120 to 86, and in twenty-four hours his appetite returned. It was thought at first that the gas escaped through the ulceration in the appendix, but it may have been that a part of the intestine in close proximity to the abscess, having become weakened by diseased action, gave way when the pressure on the outside of the gut was relieved by the evacuation of the pus. To-day, June 1st, he feels well; pulse 90, temperature normal; very little discharge of any kind from the wound; bowels have moved naturally yesterday and to-day, and his rest and his appetite are good.

Selections.

RULES FOR THE MANAGEMENT OF INFANTS DURING THE HOT SEASON.*

BY WILLIAM GOODELL, M.D., OF PHILADELPHIA.

Rule 1.—Bathe the child once a day in tepid water. If it is feeble, sponge it all over twice a day with tepid water, or with tepid water and vinegar. The health of a child depends much upon its cleanliness.

Rule 2.—Avoid all tight bandaging. Make the clothing light and cool, and so loose that the child may have free play for its limbs. At night undress it, sponge it, and put on a slip. In the morning remove the slip and dress the child in clean clothes. If this can not be afforded, thoroughly air the day-clothing by hanging it up during the night. Use clean diapers, and change them often. Never dry a soiled one in the nursery or in the sitting-room, and never use one for a second time without first washing it.

Rule 3.—The child should sleep by itself in a cot or cradle. It should be put to bed at regular hours, and be early taught to go to sleep without being nursed in the arms. Without the advice of a physician, never give it any *spirits, cordials, carminatives, soothing syrups, or sleeping drops. Thousands of children die every year from the use of these poisons.* If the

child frets and does not sleep, it is either hungry or ill. If ill, it needs a physician. Never quiet it by candy or cake; they are the common causes of diarrhoea and of other troubles.

Rule 4.—Give the child plenty of fresh air. In the cool of the morning and evening send it out to the shady sides of broad streets, to the public squares or to the park. Make frequent excursions on the rivers. Whenever it seems to suffer from the heat, let it drink freely of ice water. Keep it out of the room in which washing or cooking is going on. It is excessive heat that destroys the lives of young infants.

Rule 5.—Keep your house sweet and clean, cool and well aired. In very hot weather let the windows be open day and night. Do your cooking in the yard, in a shed, in the garret, or in an upper room. Whitewash the walls every spring, and see that the cellar is clear of all rubbish. Let no slop collect to poison the air. Correct all foul smells by pouring carbolic acid or quick-lime into the sinks and privies. The former article can be got from the nearest druggist, who will give the needful directions for its use. Make every effort yourself, and urge your neighbors to keep the gutters of your street or court clean.

Rule 6.—*Breast-milk is the only proper food for infants.* If the supply is ample and the child thrives on it, no other kind of food should be given—while the hot weather lasts. If the mother has not enough, she must not wean the child, but give it, besides the breast, goat's or cow's milk, as prepared under Rule 8. Nurse the child once in two or three hours during the day, and as seldom as possible during the night. Always remove the child from the breast as soon as it has fallen asleep. Avoid giving the breast when you are overfatigued or overheated.

Rule 7.—If, unfortunately, the child must be brought up by hand, it should be fed on a milk diet alone, and that warm milk out of a nursing bottle, as directed under Rule 8. Goat's milk is the best, and next to it, cow's milk: If the child thrives on this diet, *no other kind of food whatever should be given while the hot weather lasts.* At all seasons of the year, but especially in summer, there is no safe substitute for milk to an infant that has not cut its front teeth. *Sago, arrow-root, potatoes, corn-flour, crackers,*

*At a meeting of the Obstetrical Society of Philadelphia, held April 3rd, 1873, the undersigned committee was appointed "To consider the Causes and the Prevention of Infant Mortality during the Summer Months." The following rules, drawn up by this committee, were revised and adopted by the society at a meeting held May 1, 1873, and ordered to be published—Dr. William Goodell, chairman; Dr. J. Forsyth Meigs, Dr. John L. Ludlow, Dr. Albert H. Smith, Dr. John S. Parry, Dr. William F. Jenks.

bread, every patented food, and every article of diet containing starch, cannot and must not be depended on as food for very young infants. Creeping or walking children must not be allowed to pick up unwholesome food.

Rule 8.—Each bottleful of milk should be sweetened by a small lump of loaf-sugar, or by half a teaspoonful of crushed sugar. If the milk is known to be pure, it may have one-fourth part of hot water added to it; but if it is not known to be pure, no water need be added. When the heat of the weather is great, the milk may be given quite cold. Be sure that the milk is unskimmed; have it as fresh as possible, and brought very early in the morning. Before using the pans into which it is to be poured, always scald them with boiling suds. In very hot weather, boil the milk as soon as it comes, and at once put away the vessels holding it in the coolest place in the house—upon ice if it can be afforded, or down a well. Milk carelessly allowed to stand in a warm room soon spoils, and becomes unfit for food.

Rule 9.—If the milk should disagree, a tablespoonful of lime-water may be added to each bottleful. Whenever pure milk cannot be got, try the condensed milk, which often answers admirably. It is sold by all the leading druggists and grocers, and may be prepared by adding, without sugar, one teaspoonful or more, according to the age of the child, to six teaspoonfuls of boiling water. Should this disagree, a teaspoonful of arrow-root, of sago, or of corn-starch to the pint of milk may be cautiously tried. If milk in any shape cannot be digested try, for a few days, pure cream diluted with three-fourths or four-fifths of water, returning to the milk as soon as possible.

Rule 10.—The nursing-bottle must be kept perfectly clean; otherwise the milk will turn sour, and the child will be made ill. After each meal it should be emptied, rinsed out, taken apart, and the tube, cork, nipple and bottle be placed in clean water, or in water to which a little soda has been added. It is a good plan to have two nursing-bottles, and to use them by turns.

Rule 11.—Do not wean a child just before or during the hot weather; nor, as a rule, until after its second summer. If suckling disagrees with the mother, she must not wean the child,

but feed it in part, out of nursing-bottle, on such food as has been directed. However small the supply of breast-milk, provided that it agrees with the child, the mother should carefully keep it up against sickness; it alone will often save the life of a child when everything else fails. When the child is over six months old, the mother may save her strength by giving it one or two meals a day of stale bread and milk, which should be pressed through a sieve and put in a nursing-bottle. When from eight months to a year old, it may have also one meal a day of the yolk of a fresh and rare-boiled egg, or one of beef or mutton broth into which stale bread has been crumbed. When older than this, it can have a little meat finely minced; but even then milk should be its principal food, and not such food as grown-up people eat.

BRIEF RULES FOR CASES OF EMERGENCY.

Rule 1.—If the child is suddenly attacked with vomiting, purging and prostration, send for a doctor at once. In the meantime, put the child for a few minutes in a hot bath, carefully wipe it dry with a warm towel, and wrap it in warm blankets. If its hands and feet are cold, bottles filled with hot water and wrapped in flannel should be laid against them.

Rule 2.—A mush poultice, or one made of flaxseed meal, to which one-quarter part of mustard flour has been added, or flannels wrung out of hot vinegar and water, should be placed over the belly.

Rule 3.—Five drops of brandy in a teaspoonful of water may be given every ten or fifteen minutes; but if the vomiting persists, give the brandy in equal parts of milk and lime-water.

Rule 4.—If the diarrhoea has just begun, or if it is caused by improper food, a teaspoonful of castor oil or of the spiced syrup of rhubarb should be given.

Rule 5.—If the child has been fed partly on the breast and partly on other food, the mother's milk alone must now be used. If the child has been weaned, then it should have pure milk with lime-water; or weak beef-tea, or chicken-water.

Rule 6.—The child should be allowed to drink cold water freely.

Rule 7.—The soiled diapers or the discharges

should be at once removed from the room, but saved for the physician to examine at his visit.

FOR THE CONVENIENCE OF MOTHERS THE FOLLOWING RECIPES FOR SPECIAL FORMS OF DIET ARE GIVEN.

Boiled Flour or Flour Ball.—Take one quart of good flour; tie it up in a pudding-bag so tightly as to get a firm, solid mass; put it into a pot of boiling water early in the morning, and let it boil until bedtime. Then take it out and let it dry. In the morning peel off from the surface and throw away the thin rind of dough, and with a nutmeg grater grate down the hard, dry mass into a powder. Of this, from one to three teaspoonfuls may be used, by first rubbing it into a paste with a little milk, then adding to it about a pint of milk, and, finally, by bringing the whole to just the boiling-point. It must be given through a nursing-bottle.

An excellent food for children who are costive in their bowels may be made by using bran-meal or unbolted flour instead of the white flour, preparing it as above directed.

Rice Water.—Wash four tablespoonfuls of rice; put it into two quarts of water, which boil down to one quart, and then add sugar and a little nutmeg. This makes a pleasant drink.

A half-pint or a pint of milk added to this, just before taking it from the fire, and allowed to come to a boil, gives a nourishing food suitable for cases of diarrhoea.

Sago, tapioca, barley, and cracked-corn, can be prepared in the same manner.

Beef Tea.—Take one pound of juicy, lean beef—say a piece off the shoulder or the round—and mince it up with a sharp knife on a board or a mincing-block. Then put it with its juice into an earthen vessel containing a pint of tepid water, and let it stand for two hours. Strain off the liquid through a clean cloth, squeezing well the meat, and add a little salt. Place the whole of the juice thus obtained over the fire, but remove it as soon as it has become browned. Never let it boil; otherwise most of the nutritious matter of the beef will be thrown down as a sediment. Prepared in this way the whole nourishment of the beef is retained in the tea, making a pleasant and palatable food. A little pepper or allspice may be added if preferred.

Mutton Tea.—May be prepared in the same

way. It makes an agreeable change when the patient has become tired of beef tea.

Raw Beef for Children.—Take half a pound of juicy beef, free from any fat; mince it up very finely; then rub it up into a smooth pulp either in a mortar or with an ordinary potato masher. Spread a little out upon a plate and sprinkle over it some salt, or some sugar if the child prefers it. Give it with a teaspoon or upon a buttered slice of stale bread. It makes an excellent food for children with dysentery.

Annals of Hygiene.—*New Orleans Medical and Surgical Journal.*

COCAINE IN SURGICAL PRACTICE.—At a recent meeting of the Pirogovian Russian Surgical Society, Dr. Zmigrodski, house surgeon to the Petropavlovskaja Bolnitsa in St. Petersburg, has read a highly interesting and suggestive paper on the subject, based on his personal extensive observations, as well as on those of a distinguished colleague of his, Dr. K. P. Dombrowski. Since July, 1887, in the said hospital cocaine has been systematically resorted to in all surgical operations, being employed alone in minor ones, and in conjunction with chloroform anæsthesia in those of a more serious nature. As practised by Dr. Dombrowski and himself, the "mixed narcosis" is usually commenced with the administration of chloroform, in the ordinary way, which is given in but very trifling quantities, the patient remaining conscious from the beginning to the end. After a certain number of whiffs, a four per cent. solution of cocaine is injected, the usual dose amounting to two syringe-fuls ($1\frac{1}{2}$ grains of pure cocaine). In very protracted operations, however, twice as much is gradually injected. The advantages claimed for the "mixed anæsthesia" are these: (1) Only small quantities of chloroform are required for all practical intentions and purposes; (2) vomiting occurs but exceedingly seldom; (3) the pulse remains good all through; (4) the patient's subjective state after the operation proves to be invariably excellent. As to a simple cocainisation, it is said to be especially indicated in plastic operations and in cases of reduction of luxations. In operations on bones, however, cocaine alone is insufficient. A local injection of the drug affords, further, an excellent "mobilising means" (as the author puts it) in

cases of rigidity of joints frequently following a prolonged use of stiff dressings, and requiring the treatment by "articular gymnastics." The latter not uncommonly proves to be impracticable on account of severe pain, caused by any exercise of the kind. Injections of cocaine, however, can make the procedure quite painless, the patient readily beginning to train his pseudo-ankylosed joint in due manner. As far as the author's experience goes, the cocaine anæsthesia, whether simple or mixed, seems to be free from any serious concomitant or consecutive effects. True, in women there may now and then occur some nervous symptoms, but, as the author is inclined to believe, they should be attributed rather to some emotional causes than to the agency of the drug used.

In the course of a prolonged discussion, following Dr. Zmigrodski's communication, Dr. A. A. Troianoff, house surgeon to the Obükhovskaia Bolnitsa, has said that he found a local cocaine solution ($\frac{1}{5}$ grain of the alkaloid) useful only in cutaneous operations, while in those on deeper seated tissues it failed to secure a sufficient anæsthesia.

Dr. O. A. Schlesinger has stated that he has obtained excellent pain-killing results in cases of labor in primiparæ, during the "crowning" expelling pains. He injects a syringeful of a five per cent. solution of cocaine into the labia, and, besides, paints the uterine os and cervix with the same fluid. The anæsthetic effects last from 15 to 20 minutes.

Professor M. S. Sübotin, of Kharkov, has said that he resorts only to a local cocainisation in suitable cases, a "mixed narcosis" having failed in his hands.

Dr. A. L. Ebermann has stated that he employs cocaine in operations on the urethra and bladder. Amongst other things, he has pointed to the curious fact that, while inducing a complete anæsthesia of the canal and vesical cavity, cocaine always fails to produce any anæsthetic impression on the neck of the bladder.

Dr. A. P. Zelenkoff has concurred with Dr. Zmigrodski in recognizing the value of cocaine as a "mobilising agent."—*Medical Chronicle*.

TREATMENT OF SEVERE VOMITING OF PREGNANCY.—Dr. Amand Routh read a paper on this subject at a recent meeting of the Harveian

Society. After alluding to the difference between the vomiting of pregnancy and the vomiting *in* pregnancy, he noted the anxiety occasioned by severe forms of this condition, and the advantage of having an easy and efficacious mode of treatment in itself free from risk. Although it was now generally held to be reflex, and due to some local irritation at or near the os uteri internum, great difference of opinion existed as to the exact pathology and as to how it was produced. The author did not think the vomiting was often secondary to displacement or incarceration, and showed that it occurred where no malposition existed, and that, even when vomiting occurred with misplacement, replacement did not cure it. The treatment by drugs, accessory measures, replacement, Copeman's dilatation, local applications of cocaine, counter irritation, etc., was reviewed, and it was shown by several cases that painting the cervix and the end of its canal with iodine paint (equal parts of iodine, iodide of potassium, spirits of wine, and water) had, in the author's hands, never once failed in the last seven years at once to stop the sickness, which might, however, begin to return from the fifth to the fifteenth day, when it was almost certainly permanently arrested by a second application.—*British Medical Journal*.

THE Canadian Practitioner

A SEMI-MONTHLY REVIEW OF THE PROGRESS
OF THE MEDICAL SCIENCES.

Contributions of various descriptions are invited. We shall be glad to receive from our friends everywhere current medical news of general interest.

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TORONTO, AUGUST 1, 1891.

EXECUTIONS BY ELECTRICITY.

Since the execution of the four criminals at Sing Sing, N.Y., there has been considerable discussion in both the medical and lay journals respecting the new method. The advocates of electrocution, as it is sometimes called, appear to be well satisfied with the Sing Sing results.

Dr. Rockwell, who was present, says, in a letter to the *Medical News*: "The executions on Tuesday demonstrated to the satisfaction of myself, as well, I think, as of all others present, that no method for the disposition of criminals condemned to death could better meet the requirements of decency and efficiency, and that it ought to supplant everywhere the barbarous process of hanging. Through electricity death comes instantly, painlessly, and unattended by mutilation, convulsions, or any distressing outward manifestations of pain."

After the wretched bungling in the Kemmler case it is satisfactory to know that the other four wretches were snuffed out with so much "decency and efficiency," and so scientifically, too. The new method, however, has its drawbacks. It requires a very complicated machinery, the utmost care, and the service of scientific electricians. The experts appear to take considerable enjoyment out of their work, and it would, perhaps, be ill-natured to begrudge them the satisfaction growing out of the success attained by their admirable skill. They do their business in *almost no time*, with neatness and expedition.

Many a murderous crank will probably, in the future, contemplate the eminently respectable method of his departure from this vale of tears with considerable satisfaction. He is less likely to cheat the aristocratic electrocutor by suicide than the common hangman. The brute who deliberately murders his victim generally dislikes to be hanged, and will doubtless feel very grateful to the modern reformer, who has shown such consideration for his sensibilities and prejudices.

There are many who think, however, that the old-fashioned method of hanging such a wretch will answer very well. It is certainly less troublesome in all respects. Some object to the hanging because it causes so much suffering. Occasionally it may, when want of skill or dexterity is shown by the hangman; but, as a rule, there is not much pain. Death is generally speedy. In any case, we are told that as soon as the noose is tightened sensation is abolished. Upon the whole, the rope does its work well; and as it is readily procurable and easily handled, we see no reason why it should in this country be thrown aside for the new fad.

BRITISH MEDICAL ASSOCIATION.

The British Medical Association is undoubtedly the greatest medical society in the world. It has a membership of about sixteen thousand, and its numbers are increasing rapidly from year to year. The fifty-ninth annual meeting was held in the beautiful town of Bournemouth, in the south of England, July 28th to 31st inclusive. The arrangements made for this meeting were elaborate and complete.

The able and energetic secretary of the Association, Mr. Ernest Hart, was in Canada in the month of June, and organized three branches of the society, at Winnipeg, Toronto, and Montreal. Mr. Hart delivered interesting addresses in these cities, and considerable enthusiasm was manifested by the Canadians who were present at the various meetings. The following officers were elected:

Winnipeg: President, Dr. A. H. Ferguson; Vice-Presidents, Drs. Thornton and Lamont; Joint Secretaries, Drs. J. R. Jones and Hutton; Council, Drs. Pennefather, Lacombe, Higginson, Blanchard, and Gillies.

Toronto: President, Dr. A. B. Macallum; Vice-President, Dr. W. B. Geikie; Secretary, Dr. W. B. Thistle; Treasurer, Dr. H. T. Machell; Council, Drs. Powell, Reeve, Wishart, Cameron, and McPhedran.

Montreal: President, Dr. Hingston; Vice-President, Dr. Geo. Ross; Secretary, Dr. J. C. Cameron; Treasurer, Dr. J. Perrigo; Council, Drs. Roddick, F. W. Campbell, and Wilkins.

THE CASE OF MR. W. H. GLADSTONE.

The death of Mr. W. H. Gladstone was caused by a cerebral tumor, of which the symptoms first appeared about five years ago. These symptoms consisted in localized epileptiform seizures, followed by motor aphasia and paralysis of the right arm and leg. After a recent consultation between Sir Andrew Clark, Dr. Hughlings Jackson, Dr. Ferrier, Mr. Horsley, and Dr. Prickett, an exploratory operation was performed. The patient, as we are told in the *British Medical Journal*, recovered from the effects of the chloroform, but his strength did not enable him to rally from the shock and he slowly sank. It was found that the severe and prolonged pressure had flattened the medulla oblongata and basal structures.

Meeting of Medical Societies.

PATHOLOGICAL SOCIETY OF TORONTO.

March 28th, 1891.

The Society met in the Biological Department, the President, Dr. J. E. Graham, in the chair.

The following specimens, with remarks, were presented for Dr. T. K. Holmes, of Chatham :

(1) UTERUS AND APPENDAGES FROM A CASE OF RUPTURED TUBAL PREGNANCY.

The uterus is from a married woman who had been delivered of a child about a year before her death, and after weaning the child had menstruated once. She then missed the next period, but had a slight discharge of blood a few days later. About four weeks after the regular period she was seized at night with severe pain in the lower part of the abdomen, and rapidly became very weak. A doctor was sent for and found her almost pulseless and very pale. He prescribed for her and went home three miles, but was sent for almost as soon as he got home, and this time he took Dr. Langford, of Blenheim, with him. She was in *articulo mortis* when they arrived, and died a few minutes after, and before morning. The autopsy made next forenoon revealed a large quantity of blood in the abdominal cavity, and a minute opening in the Fallopian tube, quite close to the uterus. It was thought to be rupture of a small abscess, but the symptoms led one to think it was a ruptured tubal pregnancy and on examining the specimen one discovered what appeared to be placental tissue.

(2) HYPERTROPHIED TISSUE REMOVED FROM A LACERATED CERVIX UTERI.

This was removed from the anterior lip of a cervix lacerated bilaterally. The lip was so broad and thick that it would have been impossible to cure the lacerations without first removing this tissue, which was done by denuding the posterior lip in the usual way and then dissecting the hard tissue out entirely across the anterior lip, depending upon the undenuded central strip of tissue on the posterior lip to form the restored cervical canal. The operation turned out most satisfactorily, and the parts now present a normal appearance, and the nervous symptoms are entirely relieved.

(3) CARCINOMA UTERI.

This small bit of tissue was from a patient sent me by Dr. Lake, of Ridgeway. The disease involved the vagina, and of course offered no hope of cure by any radical operation. Scraping and the thermic cautery gave temporary relief from hemorrhage, but she sank and died about five months afterwards.

(4) TUMOR OF THE TESTICLE.

The tumor was removed from a man 56 years old, about two months ago. It had been growing about eleven months. A hydrocele had existed in connection with it, and had been cured last summer by tapping and injecting pure carbolic acid. The tumor occupied the right side of the scrotum, extending up to the external ring. It was hard and painless, and was removed without difficulty, the wound being healed in less than two weeks. He gained in strength and felt much better, but about a month after the wound had healed a rapidly growing tumor appeared in the abdominal cavity, near the umbilicus, and his health failed very soon. He is still living, but offers no hope of recovery. There is no history of tubercular or of syphilitic disease in his ancestors, but his daughter recently died after hysterectomy for cancer.

(5) STRICTURE OF THE ŒSOPHAGUS.

The œsophagus was removed from a woman, æt. 64, who had a good family history and who had a large family of healthy children. She was never seriously ill until about eight months before her death, when there came on gradual and progressive difficulty in swallowing. She was under the care of Dr. Samson, of Blenheim, with whom Dr. Holmes saw her in consultation several times. From almost the beginning of her sickness she could not swallow solids, and even liquids were taken with great difficulty. A medium-sized stomach tube could always be passed easily, and the autopsy showed patency of the diseased part of the œsophagus. The tissue at the point of disease was pretty hard and somewhat thickened. She became greatly emaciated, and died eight months after the first symptoms were noticed.

MYXOMA REMOVED FROM THE GREAT PECTORAL MUSCLE.

Dr. Primrose presented a specimen with

microscopic sections, and gave the following account of the case:

The patient from whom this tumor was removed came under my care on Aug. 12th, 1890, when the following condition existed: On the right side of the chest anteriorly there was a swelling, presenting a circular outline, with a diameter of $2\frac{1}{2}$ to 3 inches. The inner edge was one inch from the centre of the sternum, and the upper edge a little more than one inch below the clavicle. It lay apparently in the line of division of the clavicular and sternal portions of the pectoralis major muscle. When this muscle was thrown into action the tumor became much more prominent, but the circumference diminished. With the muscles relaxed the tumor projected three-quarters of an inch beyond the general surface of the chest wall. On palpation the tumor felt soft but did not fluctuate. It presented elevations and indentations on the surface, and it slipped from under the finger on pressure in a curious fashion. The patient suffered no discomfort, with the exception of a gnawing sensation at the seat of the tumor after working hard.

The patient had first noticed the tumor nine months before coming under my care. He had a fall three years previously, and received an injury in the region of the tumor. He knows of no other apparent cause. The rate of growth had been very gradual. It was about half the size of a hen's egg when first noticed. The condition was thought to be that of fatty tumor, but on exposing the growth at the operation it was found to be composed of a gray gelatinous-looking material. It was intimately connected with the muscle; some of the muscle fibres passed over the surface. The mass was, however, detached readily from the muscle by the aid of the finger-nail; it passed between the muscle fibres, and a considerable mass of growth was found on the under aspect of the muscle; this portion was removed after drawing the muscle aside by retractors. The whole mass, when removed, was found to be composed chiefly of a cluster of small lobules, each lobule being about the size of a grape, and consisting of a clear jelly-like material. On section aropy fluid could be squeezed out of it. At the operation it was thought that there was some enlargement at the junction of the third rib

with its cartilage. Under the microscope the tumor presents the appearance of myxomatous tissue; branching cells are observed lying in the midst of clear, transparent material; fibrous tissue is observed running here and there, and blood vessels also. Fat globules are seen scattered throughout the section. There is a delicate capsule surrounding the growth. At no point could one discover any evidence of sarcomatous growth; nor, indeed, was anything discovered save the characteristic structure of a pure myxoma. In looking up the literature of the subject I find that the only reference Hamilton* makes to myxomatous growths which have been described under the name of "myxoma" are in connection with the sarcomata. In these, and in the one figured in his book, there is a portion of the tumor presenting myxomatous structure, and a portion that of a typical round-celled sarcoma. In referring to mucoid or myxomatous degeneration, Hamilton states that "in the foetus at an early period of life, the whole of the subcutaneous areolar tissues consist of a texture highly loaded with this substance, the Wharton's jelly of the umbilical cord and the vitreous humor are both of a mucoid character."†

Cohnheim, while advancing his embryonic theory in discussing the etiology of tumors, instances the occurrence of large subcutaneous myxomata as met with in the thigh of the adult, for instance. He rejects the hypothesis that the subcutaneous and adipose tissues have reverted in such cases, not simply to juvenile, but to intra-uterine habits, and have transformed the albuminous material conveyed them by the blood stream, not, as is usual, into collagen and fat, but into mucin. He supposes rather that the rudiment of the tumor has risen in embryonic life, and it will, under such circumstances, be precisely the physiological function of its cells to produce mucous tissue. In the embryo, he states, myxomatous tissue is extensively developed, and regularly constitutes the first stage in the formation of collagenous and fatty tissues.‡

In whatever way the etiology of the tumor may be explained, I think we must look upon

*Text-book of Pathology. D. J. Hamilton. Page 369.

†A Text-book of Pathology. D. J. Hamilton. Page 176.

‡Cohnheim's Lectures on General Pathology. New Sydenham Society's Publication. Vol. II., p. 777.

the specimen presented as that of a pure myxoma developed in connection with the areolar tissue which exists between the clavicular and sternal portions of the great pectoral muscle.

Dr. Acheson asked if Dr. Primrose regarded this myxoma as a neoplasm distinct from sarcoma, and not the result of a degeneration of a tumor primarily sarcomatous.

Dr. A. B. Macallum said that mucigen is not relatively more abundant in the embryo than it is in the adult.

Dr. Oldright spoke of the extreme liability to recurrence of the myxomata, and related a case which had recurred three times.

Dr. Primrose, in reply, said that he thought there was no appearance in this tumor of sarcoma, and that if Dr. Macallum is right then Cohnheim's theory of the embryonic origin of tumors is destroyed.

ACUTE NECROSIS OF THE FEMUR.

Dr. Peters presented a specimen and gave the following history: The patient, a female nine or ten years of age, died after a week's illness. There was some swelling near the right knee. On incision over the lower end of the femur, *post mortem*, thick creamy pus escaped. The periosteum was raised and separated over nearly the whole of the lower part of the femur, but the disease stopped short at the epiphysis. There was commencing separation of the diaphysis from the epiphysis. In the fresh pus stained were found staphylococcus pyogenes aureus, and other bacteria. Cultures were made from the pus thirty-six hours afterwards, and colonies of staphylococcus pyogenes aureus and bacillus putrescens were obtained. Two mice were injected with some of the pure culture. One died in thirty-six hours with all the symptoms of acute septicæmia. This disease has also been called acute osteo-myelitis, bone typhus, septic osteitis, or acute epiphysitis. Senn says it is very frequent in children, but this has not been his experience. The etiological factor is in all probability staphylococcus pyogenes aureus, or albus, the same that gives rise to furuncle, acute mammary abscess, etc. The virulence of the disease when in bone is to be accounted for by the peculiarity of the tissue near the epiphysis, and its special septicity is due to the nature of the circulation in bone. Death results in various ways; sometimes in a

few hours from septic intoxication; most commonly, however, from metastatic abscesses. The progress of the disease is rapid, and the extent of the bone affected usually much greater than in this case.

Dr. W. P. Caven, who had been associated with Dr. Peters in the case, gave the following clinical history:

Emma R., æt. 9; father and mother alive and healthy; one brother died, æt. 10, from caries of spine; one brother and one sister died from heart disease, both having suffered with rheumatic fever. Patient thin and always delicate. Saw patient first on Feb. 21st. She complained of pain in right knee; it had prevented her going to school the day previous. The joint was red and tender, but not swollen. Pulse, 100; temperature, 102° F.

Feb. 22: Pain still in right knee; not swollen; also in right elbow. Pain also complained of in right thigh, but not swollen, measurements being the same for both thighs. Urine normal. Temperature and pulse same as day previous. No chills.

Feb. 23: Pain in same parts, also in left shoulder; the right thigh a little larger than the left, and very tender, especially just above the knee. No chills, but copious perspirations. Temperature, 103; pulse, 120. No fluctuations detected. Condition remained about same for two days.

Feb. 26th: Consultation with Dr. Graham. No fluctuation present. Right thigh, above knee, 1½ inches more than left. No pitting or œdema. Decided to call in surgeon.

Feb. 27th: Dr. Peters saw patient, and thought it advisable to operate, but before consent obtained patient had developed pericarditis and double pleurisy.

Obit. March 2nd: Day before death a swelling presented in right submaxillary region.

Dr. McPhedran asked if the urine or the condition of the spleen had given any aid in the diagnosis.

Dr. Caven replied that the urine gave no indications, but there was a slight enlargement of the spleen.

Dr. Osler said such cases were not uncommon, and related one which he saw in Montreal, and which was thought at first to be acute rheumatism, but the real nature of which soon

became evident; *post mortem* there was found also ulcerative endocarditis. He spoke of the difficulties of diagnosis. The local symptoms were often slight, while the constitutional ones were grave.

Dr. Graham related a case of this disease in the tarsus, where the patient recovered.

Dr. Peters, in reply, said the interesting point was where did the disease commence, in the medulla or in the periosteum, as this would greatly influence the treatment; for, if in the medulla, there would be no use in opening the periosteum merely, but one should drill through the bone into the medulla. This might have been a case of multiple necrosis, for the autopsy was only a partial one. If multiple, it might explain why these cases are so often mistaken for rheumatism.

NATURE AND ORIGIN OF AMYLOID.

Dr. A. B. Macallum read a paper on this subject, a preliminary note of which appeared at page 255 of THE CANADIAN PRACTITIONER.

Dr. Osler asked whether the iron is seen in the same granular form as it ordinarily is in the ammonium sulphide reaction.

Dr. Macallum replied that there was no granular appearance, but that under the microscope it gave a diffuse stain like that of iodine-green.

TUMOR OF THE CEREBELLUM.

Dr. W. P. Caven read the following history:

The specimen presented was a tumor of the under surface of the left lateral hemisphere of the cerebellum. The tumor pressed forward on the pons, also toward the middle line, displacing the cerebellar substance not infiltrating it. Where the tumor rested upon the base of the skull, the bone was slightly eroded. The tumor sprang from the dura mater, and microscopic examination proved it to belong to the sarcomatous group.

Clinical history: Miss R., æt. 58. Family and personal history good. Her paternal grandfather died, æt. 92, from some form of fungating tumor, which presented itself in the region of the frontal bone.

First saw patient on July 11th, 1890, when the only complaint was partial loss of sensation throughout the whole distribution of the fifth nerve. No interference with motor branches of fifth, or with sixth or seventh. Taste un-

affected; motion and sensation normal; no alteration in superficial or deep reflexes; no optic neuritis; no headache; no vomiting.

Next saw patient in December, when in addition to above symptoms patient complained of attacks of dizziness, with a tendency to face toward the left side; these attacks most marked on rising from sitting posture, although sometimes felt while in recumbent position; on one occasion patient was seized with an attack and fell out of bed. At this time patient also complained of pain in the occipital region and down the neck; head would become retracted and neck stiff. Double optic neuritis now present; pupils dilated and sluggish. About the middle of January vomiting began; it never was a marked feature of the case, occurring at intervals of two or three days and ceasing altogether a couple of weeks before death.

Feb. 1st, 1891: Slight facial palsy now noticed for first time, and some difficulty in swallowing now manifested, this increasing till death on Feb. 18th. During the last week of life patient had frequent general convulsive twitchings, senses became dulled and she sank into a comatose state. Pulse and temperature remained normal as far as observed.

The interesting point in this case is the presence of a local symptom for a long time previous to the general symptoms of tumor of the brain. No general symptoms were manifested until December, 1890; whereas the local symptom, anæsthesia in distribution of the fifth, was observed first in May, 1889, the patient maintaining that it came on suddenly, never having experienced any neuralgic pain in the region of the fifth.

Dr. Osler asked if it were not more likely to be a fibro-sarcoma than a glioma from its situation.

Drs. Graham, Acheson and McPhedran thought that from its microscopical characters it was undoubtedly a fibro-sarcoma.

SARCOMA TIBIÆ.

Dr. Thistle presented a specimen and gave the following history:

Sarcoma of tibia removed from a young man æt. 23 years. Duration of growth, about 10 months. The young man first experienced discomfort about 10 months prior to operation, complaining of aching and tired feeling in limb.

This condition passed into more decided pain after a time, and the head of tibia became enlarged. The enlargement became prominent in the lower part of the popliteal space. A perforation occurred on anterior surface of tibia about region of tibial tubercle. From this opening there was discharge of dark watery, grumous fluid. After several months general health began to fail noticeably, and operation was decided upon. At this time there was no evidence of affection of the organs. The leg was removed by amputation through the lower ninth of femur. Recovery was rapid and complete, patient being out three weeks from date of operation. General health improved rapidly and up to date there has been no evidence of recurrence. The growth proved to be as diagnosed, a sarcoma which began on head of tibia, which was completely hollowed, and leaving simply a shell. The growth had extended posteriorly, involving soft parts behind the knee.

Personal.

DR. JOHN H. RAUCH has resigned his position as Secretary of the State Board of Health of Illinois.

DR. J. H. C. WILLOUGHBY, of Regina, spent a few days in Toronto early in July.

DR. HARRY OLDRIGHT, of Toronto, has gone to England.

DR. G. S. RENNIE, of Hamilton, has been gazetted Assistant Surgeon to the 13th Battalion.

DR. FRED. H. S. AMES has removed from Brigiden to Sarnia.

Obituary.

DR. GEO. ARCHER TYE was essentially a self-educated and a self-made man in all respects, and at the same time one of the best practical and scientific physicians this country has known. He was peculiarly handicapped as a boy, but overcame serious obstacles, and obtained a good preliminary education chiefly by studying alone at the intervals he could snatch from his daily work. After some weary years he was able to commence his regular medical studies, which he completed in 1866, when he received the degree of M.D., from Long Island College Hospital. He received M.D. from Victoria in 1867.

After graduating, he settled down to the drudgery of country practice, in which he was unusually successful. Although one of the busiest practitioners to be found he continued to be a thorough and earnest student up to the

time of his last illness, and enjoyed the proud distinction of being one of the best physiologists and pathologists in Canada. He was one of those wonderful enthusiasts who spent many an hour between midnight and morn working with his microscope, or reading the latest and best medical literature in all departments. His capabilities were recognized by the University of Toronto and the Ontario Medical Council, as shown by his appointment by both bodies to the position of examiner in physiology, or pathology, or both, for several years.

He was no mere book-worm, however, but a most able practising physician, possessing good judgment as well as great attainments. Apart from his knowledge of things medical, he was a grand man in all respects; modest in the extreme, always honorable in his dealings with his fellow men, kind and sympathetic to his patients, generous and considerate towards all brother practitioners. He was respected by all, and loved by those who knew him well. He always took a deep interest in the work of medical societies, and was one of the strongest supporters of the Ontario Medical Association, of which he was one of the most highly honored presidents. He practised for many years in Thamesville, but a few years ago removed to Chatham. The change brought him little or no rest, because he almost immediately entered into a very large practice, and soon formed a partnership with Dr. J. H. Duncan with very gratifying results. He was in poor health for a year, and his death, which occurred July 23, at the age of 56, was caused by phthisis following pneumonia.

DR. FRANK H. POTTER, of Buffalo, only son of Dr. W. W. Potter, of the same city, died at his home, July 16th, after an illness of about twelve days, from peri-cæcal abscess. A section was made by Dr. Mordecai Price, of Philadelphia, and about six to eight ounces of pus evacuated. The prospects were good for a time, but he commenced to sink on the fourth day after operation, and death occurred on the following day. He was a young man, æt. 31, of unusual promise and most lovable disposition, and his untimely death was a sad blow to his relatives and many friends.

DR. S. BEDSON, warden of the penitentiary in Manitoba, was one of the best known physicians in the Northwestern Territories. He took much interest in military matters, and was on active service in the Northwest rebellion with the rank of colonel. His kindly and genial manners made him exceedingly popular. He had been in poor health for some time, but his sudden death from apoplexy was a great shock to his many friends. He was buried at Stoney Mountain, Manitoba, July 22nd.

Miscellaneous.

DR. CANNIFF'S SERVICES.—We have much pleasure in publishing the following letter, which will be heartily endorsed by the general profession of Toronto:

To the Editor of The Globe:

SIR,—I trust you will give me space in the columns of *The Globe* to make some remarks respecting one who has faithfully served the city for seven or eight years. I have been hoping and expecting that some one more competent to do so than myself would render honor to one to whom honor is due. Perhaps it is an example of "out of sight, out of mind." The splendid work accomplished by Dr. Canniff in public health matters has never been duly recognised. When he commenced his career in sanitary reform there was great ignorance and indifference among the citizens and their representatives in the Council, and even no longer ago than the time of Mayor Manning the medical officer was told by the mayor that such an officer was unnecessary. I have been cognizant of the proceedings in connection with that office and duly read the carefully-prepared and lucid reports issued from time to time from the health office and know whereof I speak. At the present time there is a general interest felt in sanitary matters, but it was Dr. Canniff who first aroused that interest and created the desire among citizens to have healthy homes. Looking back I call to mind that it was his action which caused the filthy University Creek to be superseded by a sewer, as well as the equally polluted Garrison and Rosedale Creeks. Who was it but he who first, and time and again, called attention to the fact that the wells of Toronto were foul and unfit for domestic use and who was the means of having hundreds closed? I remember when some seven years ago he sounded the alarm that Toronto Bay was no better than an immense cesspool. For years he urged the abolition of privy pits, tried to have abattoirs constructed and slaughter houses abolished, and at almost every meeting of the local Board of Health urged the construction of crematories and endeavored to protect the citizens from impure milk and ice. In his report to the Board in the spring of 1890, he stated that he knew the character of the ice in the various ice houses, and asked that he might be authorised to compel the dealers to use separate wagons for pure and impure ice and to have painted upon each different labels, as that in no other way could the safety of the public from impure ice be secured, but the Board declined, and there is strong probability that the increase of typhoid last season was due to polluted ice.

The idea to have the smallpox hospital on the island east of the gap was proposed by Dr. Canniff three years ago. His management of smallpox cases and prevention of the spread of that loathsome disease was his greatest success. When there was an epidemic in Buffalo three years ago, and the disease was brought to Toronto in seven different places, all of them in crowded streets and crowded houses, the disease did not extend from one of them, a result the late president of the American Public Health Association declared to be marvellous. Year after year the sanitary condition of the island received his careful attention. Some of his recommendations with regard to the filling up of the lagoons or connecting them with the bay, so as to prevent stagnation and have a current through them, were followed. Others were neglected by the Board and Council. When dead fish collected on the shore they were gathered up and disposed of. He made arrangements to have the garbage removed to where it would not endanger the public. Through his instrumentality the slips were dredged out, and when possible at hours when the public were not passing.

Any one who will look at his yearly reports will see how the Medical Health Department grew and developed

under his guiding hand. It may not generally be known that he was in his office at 8 or 8.30 a.m. in summer and 9 in winter. Every report of every inspector was examined by him and instructions given. In spite of manifold obstacles, he succeeded in having houses unfit for human occupation vacated. Notwithstanding an indifferent, lukewarm, or a hostile Board and enemies in authority, he made Toronto a healthy city, as the mortality returns show. This will be seen by his last annual report. Toronto was then far ahead of all the cities in the Dominion. Enemies of the department were continually declaring or insinuating that his system was bad or that there was no system, and not a month before he resigned, out of despair and worn out by worry and discouragement, he asked that veteran sanitarian, Dr. Oldright, to examine his mode of procedure, and this is what Dr. Oldright said: "In pursuance of your request that I should examine into the system adopted in your office and express my opinion upon it, I have to say that I have looked at the various forms and traced the successive steps for the abatement of nuisances and correction of insanitary conditions, for the limitation of infectious diseases, for the regulation of dairies, slaughter houses, junk shops, etc., for recording and filing reports of work done, and for the execution of such other sanitary work as appertains to the office of a local medical health officer. I have had opportunities of seeing the methods employed in Chicago, New York, and Boston, and I am glad to be able to say that those adopted by you are similar, and equally well-adapted to attain the ends in view."

ONE WHO KNOWS.

Toronto, June 24.

Arrangements are being made for a post-graduate course in Edinburgh, to commence September 21st and end October 10th.

At the recent final examination for M.B. and C.M. in the University of Edinburgh, the number of successful candidates was 192.

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SEND FOR ANNOUNCEMENT.

BAYARD HOLMES, M.D.,

Corresponding Secretary.

240 Wabash Ave., Chicago.