TRANSACTIONS
OF THE
PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting, held February 7, 1916

The President, Dr. Charles H. Frazier, in the Chair

TOTAL CYSTECTOMY ONE AND A HALF YEARS AFTER OPERATION

Dr. B. A. Thomas presented a man, aged forty-two years, who was first cystoscoped by him January 23, 1912, on account of frequency of urination and dysuria. At that time small nodules or tubercles were discovered on the posterior aspect of the vesical sphincter. A few days later these were removed and a pathologist reported them to show "inflammatory changes but no evidence of tuberculosis." The patient was temporarily relieved but in a few weeks his symptoms returned with greater severity, and he was treated for over a year by several physicians, being cystoscoped frequently, both with and without general anæsthesia. His treatment consisted mainly of prostatic and vesical neck "punch operations," "fulgurations" or high frequency electro-coagulation, suprapubic cystotomy, etc. On September 30, 1913, he again came under the care of Dr. Thomas. At this time the patient's condition was deplorable. He was obliged to urinate very frequently with excruciating pain; had been utterly incapacitated from work for a year and a half, and threatened suicide.

Cystoscopy done at this time at the Polyclinic Hospital revealed multiple, variously sized, small tumor formations completely covering the trigonum and vesical neck, obscuring the ureteral orifices from view (Fig. 1). A few of these growths were removed by the cystoscopic rongeur for histo-pathological examination, and were reported by Dr. John A. Kolmer to be "inflamed polypi." On November 11, the bladder was opened suprapubically and the entire trigonum and vesical orifice thoroughly cauterized with the actual cautery. The patient was relieved for a month or six weeks, when his symptoms returned, and cysto-urethroscopy demonstrated the presence of reforming polypi about vesical orifice and in prostatic urethra. In view of the generally poor results following ureteral transplantation into the rectum, it was decided to perform bilateral nephrostomy, supplemented by total cystectomy. The left kidney was nephrostomized January 13, 1914; the right,

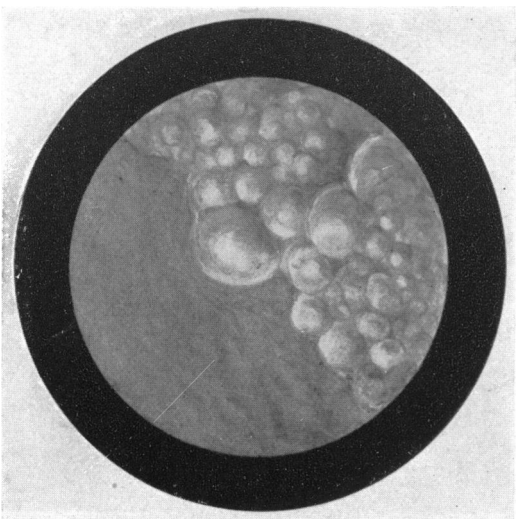
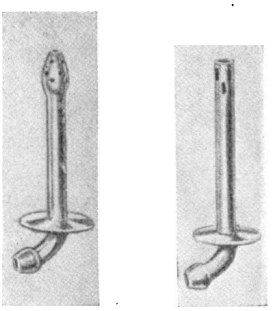


FIG. 1.—Cystoscopic appearance of multiple inflamed polypi covering trigonum and vesical orifice.



A *B*

FIG. 2.—One or the other of these sterling silver tubes is placed in the renal fistula and the tract permitted to granulate around it. Should phosphatic incrustations occur to interfere with the drainage, the tube must be removed for cleansing; in which event the bulbous expansion is not practicable, and tube *B* should be substituted and held in position by adhesive plaster. In order to make the drainage water-tight, the tube may be expanded conically for a short distance above the circular flange.

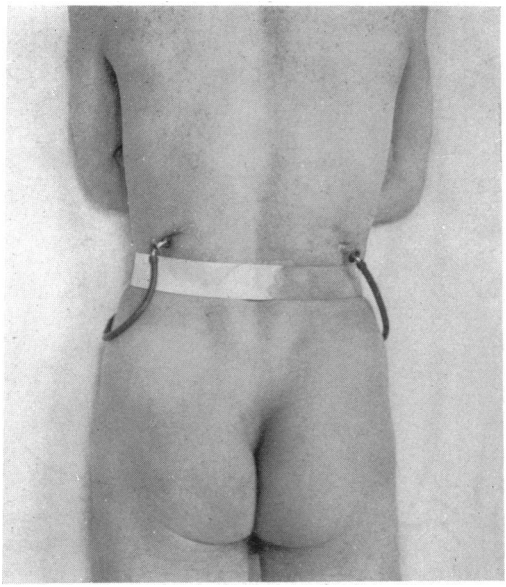


FIG. 3.—Posterior view of renal drainage apparatus. The silver tubes here shown are the same as *A* in Fig. 2. By expanding the tube near the flange and securing same close to the skin, the apparatus may be made almost, if not quite, water-tight.

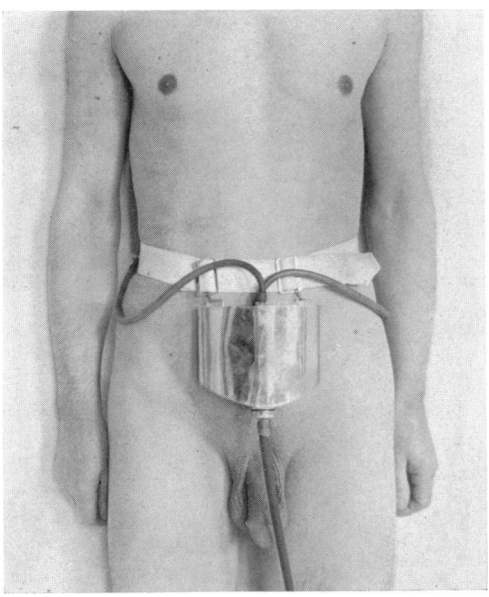


FIG. 4.—Anterior view of drainage apparatus, showing receptacle suspended over suprapubic region. The tubing attached to the bottom of the reservoir may or may not be utilized.

FIG. 5.—Carcinoma of penis of nine months' duration. Observe metastasis to right inguinal lymph-node.

FIG. 6.—Appearance of external genitalia four and a half years after amputation of penis for carcinoma. Patient can urinate in erect posture quite satisfactorily.

February 24. The patient was markedly relieved after these operations for several months, save that he had to have his left ureter re-ligated with silk, the original catgut ligature becoming absorbed and permitting of partial patency of the ureter. On November 6, 1914, total cystectomy was done, the patient showing a remarkable convalescence. Four months later he began to complain of discomfort in the perineum and pain, referred down the urethra, associated with a slight mucopurulent discharge from the meatus. Suspecting involvement of the prostatic urethra and realizing from the beginning that the prostate was very slightly enlarged, a radical perineal extracapsular prostatectomy and posterior urethrectomy were performed. In order to minimize the danger of recurrence of these growths, 50.5 mg. of the element radium were implanted deeply in the perineum for 48 hours.

The renolumbar fistulæ have been fitted with sterling silver tubes (as shown in Fig. 2). These are connected with light rubber tubing to a flat metal receptacle suspended over the suprapubic region (Figs. 3 and 4). Thus equipped this man has been in good general health and practically free from pain for months; has little difficulty in keeping himself dry; requires dressing but once a week, excepting what he can do himself; goes about in- and out-of-doors at his leisure, and is able to do light work in comparative comfort.

The reporter thought this case to be worthy of record, not only as vindicating the feasibility of Watson's suggestion made in 1906, but because it marks the first instance in which the procedure has been successfully accomplished, and illustrates the practicability of the utilization of a satisfactory renal drainage apparatus.

AMPUTATION OF PENIS FOR CARCINOMA: CONDITION FOUR AND A HALF YEARS AFTER OPERATION

Dr. B. A. THOMAS presented a man, aged fifty-eight years, who came to the Polyclinic Hospital in October, 1911, with a typical carcinoma of the glans penis, involving the urethra, with metastasis to the inguinal lymph-nodes on the right side (Fig. 5). He stated that he had noticed the lesion on penis for nine months. The inguinal lymph-nodes in both groins were thoroughly removed and the penis amputated as close to the pubic arch as possible. Dr. John A. Kolmer, who examined the specimens pathologically, reported "carcinoma of the penis with metastasis to at least one lymph-node."

The patient convalesced satisfactorily and when seen last, February 7, 1916, had gained 40 pounds in weight, enjoyed excellent health, worked every day, and showed no signs of recurrence or metastasis (Fig. 6).

The case is of interest, first, owing to the fact that the patient has been free of any signs of recurrence or metastasis for 4½ years, although at the time of operation metastasis was present in the inguinal lymph-nodes; second, because complete extirpation of the penis with perineal urethrostomy was not done, necessitating the patient to sit down in order to urinate; and third, because the patient can urinate quite satisfactorily in the standing posture.

DR. E. H. SITER said that of 12 cases of cancer of the penis that had been under his observation, 2 were inoperable; 10 were operated upon. In 2 of these operated cases an amputation was done and in the other 8 a total extirpation, including the scrotum. The best interests of the patient in these operations, he thought to be served when the urethra is brought out in the perineum. There is better control and no excoriation. After total extirpation of the entire genitalia there was a smaller percentage of recurrence.

Some five years ago he operated upon 2 cases in Blockley, doing a total extirpation. These patients he had seen within six months and they have had no recurrence. Where only an amputation was done he had invariably had recurrence.

DR. ALEXANDER RANDALL said that carcinoma of the penis presents many phases of difference from carcinoma elsewhere. Metastasis and the time of recurrence in carcinoma of the penis are apparently very late. The apparent immunity of the circumcised is peculiar to all. In 100 cases reported by Barney in the ANNALS OF SURGERY for 1907, some interesting points were brought forward. He found 85 per cent. of the cases had congenital phimosis, about 60 per cent. had carcinoma in the inguinal glands, and that 75 per cent. had enlarged inguinal lymph-glands. The growth was an epithelioma in practically every case. There were 26 recurrent cases in this series. Under one year there were 12 cases, or 39 per cent.; from 1 to 2 years, 6 cases, or 19 per cent.; from 2 to 3 years, 5 cases, or 16 per cent.; 3 to 4 years, 2 cases, or 6 per cent. In from 4 to 5 years there were no recurrences. After five years there was recurrence in 12 per cent. He likewise shows that a patient may live over 11 years from the time of onset of the cancerous growth. The operation of choice is the operation of Nicoll, published in 1909, which is more surgically a cancer operation like that used in carcinoma of the breast, because he takes out the inguinal glands and lymph-channels down to the dorsum of the penis and the penis itself, all in one piece, starting outside the zone of cancer and working towards the primary growth, making a complete resection of all involved tissue. This is the ideal operation, rather than that of amputation of the penis,

and just a single excision of the glands on either side, through separate incisions.

FRACTURE OF FIRST LUMBAR VERTEBRA WITHOUT NERVE SYMPTOMS

DR. FRANCIS OLCOTT ALLEN said that among the patients at the Insane Department of the Pennsylvania Hospital there was found a woman of forty, small, slightly built, but physically well. About midnight, June 18, 1915, she managed to get out of a second-story window and dropped to the ground, some twenty or twenty-five feet below. From an examination of the soft earth under the window, it was apparent that she had landed on her feet and then on her buttocks. She got up and made her way across the grounds for a distance of several hundred feet. She was then overtaken, brought back and put to bed.

He saw her about an hour and a half after this escapade. She was sitting up in bed, talking incessantly, entirely preoccupied with her own ideas, and paying no attention to the severe injury she had sustained. Examination revealed a marked swelling of the soft parts in the lumbar region, with a distinct kyphosis. This area was tender and gave some pain on certain motions of the trunk. No paralysis or other signs of a cord lesion could be made out. A skiagram was taken the next day and showed a fracture of the first lumbar vertebra. Owing to the disturbed mental state the patient was allowed to do as she pleased, as far as her injury was concerned, sitting up in bed most of the time, until she was able to be about. Her mind gradually recovered and she returned to her home, where she now is assisting her husband in a bakery. At a further examination made January 17, 1916, just seven months after injury, there was found a distinct kyphosis in the region of the first lumbar vertebra, with ankylosis of the adjacent spine. There was some tenderness over the spine just below the kyphosis, but no other physical findings were noted. The patient said that her injury did not prevent her from doing her work or anything she wanted to do. She complained of some pain in the lumbosacral region, of a sense of weakness when she did not wear corsets, and of her back feeling tired at night after doing her work in the bakery. Dr. Bowen reports on a skiagram made the same day:

The body of the first lumbar vertebra is considerably deformed but there is no evidence of the previous line of fracture. This vertebra will eventually be ankylosed with the twelfth dorsal and the second lumbar. A considerable part of that process is already accomplished.

The interesting feature of this case is, of course, that the cord and spinal nerves escaped even temporary injury. The spinal cord proper ends at the level of the lower part of the first lumbar vertebra, but through the canal of the first lumbar there also pass the nerves supplying sensation as high as the groin, and motion to the legs below the knees, as well as control of the bladder and rectum. In injuries of this portion of the spine, some or all of these functions are usually affected, and it is extraordinary that, in as marked a bony lesion as this patient presents, there should not be sufficient impingement upon the canal to cause pressure upon the nerve structures.

Dr. Henry R. Wharton had had under his care two cases of fracture of the lumbar vertebræ which presented no marked symptoms of spinal injury. One was the case of a young woman of eighteen years of age who fell under a trolley car. There was marked kyphosis and a little evidence of loss of power in the lower extremities; some anæsthesia of the anterior surface of the thighs. The other case was that of a woman of twenty-five who jumped out of a burning apartment house in West Philadelphia, alighting on a bank of snow. He saw her a short time after the accident. There was fracture of the second lumbar vertebra, as shown by X-ray examination, and marked kyphosis. The only symptom of spinal injury was anæsthesia of the anterior surface of the thighs. Dr. Burr saw the latter case with him and found no evidence of spinal injury except the skin anæsthesia previously noted. Both patients made good recoveries and have good use of their limbs. He had seen both within a year. They walk perfectly well, although they still have marked kyphosis in the lumbar region at the site of injury and have slight rigidity of the spine in bending. Otherwise their conditions are excellent.

CASE OF HERMAPHRODITISM

Dr. Francis Olcott Allen gave the history of a second patient, a woman of forty-three, unmarried, an inmate of the Insane Department for many years, suffering from dementia præcox. Double inguinal hernia had been present since infancy. She had never menstruated, and vaginal examinations, the first when she was fourteen years old, showed that neither cervix nor uterus was palpable. When Dr. Allen saw her, on June 25, 1915, she had been ill for two days with an attack of vomiting and apparent abdominal discomfort. Her mental condition was such that it was not possible to be sure of her subjective sensations. She had had similar attacks before, but none so severe as the present one.

On examination there seemed to be tenderness in the lower right abdomen, but whether its seat was in the inguinal or the appendiceal region could not be determined. There was no muscular rigidity, nor was any hernia discoverable in her recumbent position. Her temperature was 101° and there was a leucocytosis of 17,000; 86 per cent. polymorphonuclear. He operated upon her the same day, removing a normal-looking appendix, which was later reported to show, microscopically, a chronic inflammation. On exploring the pelvis, no uterus, tubes, or ovaries could be found. At each internal ring there was a small body about the size of an ovary. His incision was through the right rectus, so that he could do no more than determine the presence of such a body on the left side. The one on the right side slipped readily in and out of the ring and was evidently the content of the hernia. He decided to remove this organ in order to prevent the recurrence of the hernia, and in doing so found that it was retroperitoneal; that extending from it into the inguinal canal there was a band of tissue; that a duct-like cord ran retroperitoneally toward the midline; and that another duct-like structure, also retroperitoneal, passed upward, under the cæcum, toward the kidney. There were no signs of peritoneal inflammation, past or present, and these three attachments were not adhesions but definite structures. The peritoneum was divided, the three structures mentioned ligated and cut, and the organ removed. The peritoneum was sutured over the uncovered surface and the abdominal wound closed.

The patient recovered and returned to the Insane Department, where she still is. She has not had any attacks of vomiting, such as she formerly had, and is physically well. Her mental state is unchanged.

The organ removed is described by Dr. Orton, of the Laboratory of the Insane Department, as follows:

Specimen consists of a mass of tissue of irregular form partially covered with serous membrane and made up of two closely associated masses. One of these is a roughly oval mass about 2.5 by 1.7 by 1.6 cm. in size and closely associated with a larger, more irregular, mass. Partly encircling the smaller mass and attached to it at either end is a cord-like or tubular structure varying in diameter from 2 to 6 mm.

Gross Appearance.—On section the smaller oval mass has a whitish, coarsely granular appearance, characteristic of a section of testicle, while the mass below shows numerous large vessels and a moderate amount of rather intense congestion.

Microscopic Examination.—Small pieces of the smaller mass fixed in Zenker's fluid and in formalin. Remainder fixed *in toto* in Kaizerling.

Zenker fixation, paraffin sections, eosin and methylene blue stain: Section is covered on one side by heavy fibrous tissue capsule. Main portion is made up

of tubular structures between which lie many close-packed masses of cells. The tubules are made up of light connective-tissue strands, containing, for the most part, loosely grouped, rather indefinitely formed cells with relatively few and rather small nuclei. In many instances the tubules are more or less filled with this material; in others, it forms a distinct parietal zone surrounding a lumen and with a general radial arrangement of protoplasm and nuclei.

In general, the microscopic picture of this section conforms entirely with that of a cryptorchid testis from a male or with the advanced stages of testicular atrophy seen as a result of hypophysectomy, in both of which there is complete or almost complete absence of cells of the spermatogenic series, but with the preservation of the tubular connective-tissue reticulum, in whose lumina lie the more or less altered remains of cells, which probably represent the sustentacular cells of Sertoli, and with a striking complement of the interstitial cells of Leydig.

This histologic diagnosis is borne out by the anatomic relations I have described—the gubernaculum passing ahead of the testicle into the inguinal canal and the vas deferens inward toward the seminal vesicles behind the rectum. The other duct-like structure running toward the kidney can be explained by assuming a persistent embryonic Müller's duct.

An examination of the patient's external genitalia and secondary sexual characters showed no evidence of even a tendency to masculinity. The bony frame was small; the distribution of hair typically feminine; the breasts as well developed as those of normal single women of the same age and build; the vulva, nymphæ, and urethra normal in appearance; the vagina of fair size, ending in a blind pouch; the clitoris not enlarged.

On the accepted theory that the internal secretion of the genital gland is the determining factor in the secondary sexual manifestations, this individual would be expected to be masculine in type. The only way to account for the findings as they are is to assume that ovarian tissue is also present and functionally predominant. It may be that the organ at the left ring is an ovary, though it seemed at operation precisely like the one removed. Or there may be ovarian tissue elsewhere, which was not found at operation. There are other cases recorded in which both testicular and ovarian tissues were present.

This patient's family history is very curious in connection with her own genital anomaly, and suggests a possible hereditary factor in her case. Her maternal grandmother was one of a large family, among whom two married sisters had no children. Her mother was one of

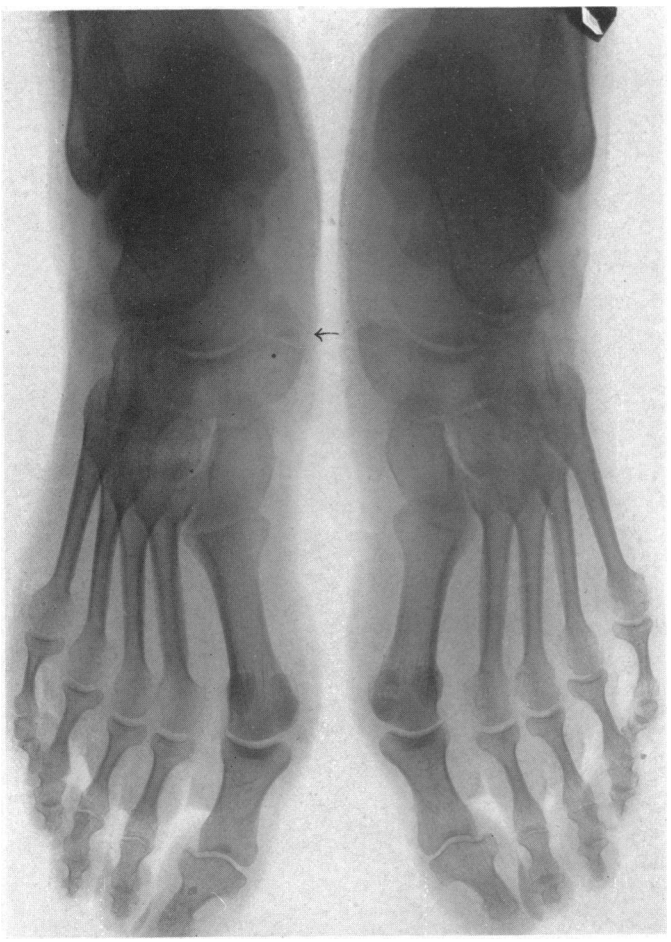


FIG. 7.—Fracture of tuberosity of scaphoid of foot by muscular action.

seven sisters and two brothers. Of these, three sisters never menstruated. One of the three was examined some years ago and was found to have "testicles." What such a report means is, of course, uncertain, but it indicates some anomalous condition. The patient herself is the only abnormal member of her immediate family, both of her sisters having normal menstruation, and one of them a normal child.

FRACTURE OF THE TUBEROSITY OF THE SCAPHOID OF THE FOOT BY MUSCULAR ACTION

DR. GEORGE ERETY SHOEMAKER described an unusual variety of injury which simulates a sprain of the foot, but in reality is a more serious lesion. The patient was a normal young woman of thirty years, lately convalescent after a pregnancy, but otherwise well. The injury was occasioned by so slight an application of force as stepping from an automobile to the pavement, where a slight irregularity turned the foot, clad in a light, low shoe. She fainted with the pain and fell, but only after the injury; consequently, the injury was due to muscular action. An ordinary adhesive plaster dressing of strips, alternating in direction, applied by the Gibney method, proved intolerable, causing pain from pressure under the inner side of the arch of the foot, where was the point of greatest tenderness. Another dressing was applied with like result. Crepitus was not obtainable, perhaps on account of swelling. The X-ray showed that the tuberosity of the scaphoid was broken off or separated, the fragment being a half inch in thickness and not a scale. By comparison with the normal scaphoid of the other foot, the slight displacement and the line of separation are seen very distinctly.

A question arises as to whether this was a fracture or a separation of the tuberosity, because Piersol (Anatomy, page 425) says that the end of the knob of the tuberosity is sometimes distinct from the scaphoid and is then known as the tibiale externum.

Spalteholz does not mention any such anomaly, nor does Cunningham or Quain; moreover, anomalies of this type tend to be bilateral if present, but here the other scaphoid is all in one piece.

The main portion of the tendon of the tibialis posticus muscle is inserted in this tuberosity and it is easy to understand the powerful force brought to bear by a misstep upon this support of the arch of the foot. I believe the condition to have been one of fracture of the scaphoid. If unrecognized by the X-ray, and therefore not treated by fixation for a sufficiently long time, the disability from such an injury

would likely be lasting, because the tibialis posticus would move the fragment and prevent union.

A plaster-of-Paris dressing gave immediate relief from pain. The treatment was that of fracture. Convalescence was normal, but it was a year and a half before occasional discomfort failed to be felt under strain.

EXPERIMENTAL COLONIC STASIS

DRS. CHARLES H. FRAZIER and MAX M. PEET read a paper with the above title, for which see page 729.

HIGH INTESTINAL STASIS

DRS. J. E. SWEET, MAX M. PEET, and B. M. HENDRIX read a paper with the above title, for which see page 720.

DR. JOHN H. JOPSON said that surgeons had long noted that the poison responsible for the fatal results in cases of acute intestinal obstruction was much aggravated in its action both by the anæsthetic and by operations for the relief of the obstruction when the bowel was not drained externally. Cases of intestinal obstruction may come to the operating table in fair condition, and shortly after anæsthesia is begun, and also after the liberation of the obstruction, the patient will go down very rapidly. The advantages of enterotomy and enterostomy are well recognized, although there is still some difference of opinion as to the advisability of the formation of a fecal fistula. In cases of spontaneous establishment of fecal fistula, the rapidity of improvement is oftentimes most striking. Perhaps Dr. Sweet can say whether the sudden relief of the obstruction in the bowel is followed by rapid absorption in the hitherto distended portion, or does the absorption take place lower down after the obstruction is relieved?

Regarding the work of Drs. Frazier and Peet of reversal of the colon in the dog, he did not think this furnishes a thorough criterion of the conditions found in the human subject. Clinical experience has demonstrated that cases presenting marked ptosis of the large and small bowel, associated with constipation, are relieved and made more comfortable, as a rule, so long as the constipation is overcome by medicinal or operative measures. Almost any one of the several operations which have been recommended for intestinal stasis will give relief, temporary perhaps, but still marked for the time. One should not, therefore, discard the whole theory of intestinal stasis in its relation to colonic absorption on the testimonial of experimental work alone, when it is strongly controverted by clinical experience.

DR. A. E. TAYLOR said that there are four obvious possibilities in the intoxication to be observed in high intestinal obstruction and in colonic stasis:

Intoxication by retention of toxic substances secreted by or formed in the glands of the digestive apparatus and the intestinal mucosa.

Intoxication by absorption of half-way stages of protein or lipoid digestion, or by abnormal intermediary stages.

Intoxication by products of bacterial action on the products of the digestion of protein or lipoid.

Intoxication by specific bacterial poisons, in really representing specific infectious processes.

It is likely that many so-called gastro-intestinal intoxications are in reality specific bacterial infections involving the alimentary tract, but the bacteriology of the fæces is in such a state of confusion that it has not been possible to isolate and identify the pathogenic organism in accordance with established procedures.

Intoxications under factors one and two may reasonably be restricted to high intestinal obstruction; intoxication under factor three may reasonably be restricted to colonic stasis.

Bacteria operating, in the colon largely, upon the end-products of protein digestion seem to display, in accordance with the characteristics of the particular flora, three directions of reaction: direct reduction, leading to the splitting off of ammonia and the conversion of the amino-acid back to the corresponding fatty acid; hydrolysis, with splitting off of ammonia, and leading to the corresponding hydroxy-acid; and the so-called carboxylase reaction, carbon dioxide being split off and the corresponding amine formed. It seems reasonable to infer that certain flora react in the one direction, other flora in another. The formation of amines tends to the production of substances likely to have toxic properties, especially the amines of the basic histone bodies, which exist in nature in the ergot, and one of which, imidazolethylamine, is very toxic. It is clear, both from the results of these experiments and from clinical experiences, that mere retention of normal stools in the colon, under certain conditions of bacterial activity, need not necessarily lead to the formation of toxic substances. The exact toxic cause of the symptoms in high intestinal obstruction has not been established.

DR. SWEET, in reply to Dr. Jopson, said that it has been found that substances such as strychnia are absorbed with difficulty from the obstructed loop. It has been found that the specific poison of high obstruction is not absorbed from the normal intestine. Nevertheless,

there is clinical evidence that the material above an obstruction can cause symptoms of intoxication if allowed to pass down the gut, and it should be noted that neither of the two experiments I have just mentioned actually corresponds to the clinical condition. The intestine below an obstruction is not necessarily a normal intestine, and it is conceivable that rapid absorption might take place, as, in fact it seems, occurs in clinical practice.

JEJUNAL ULCER FOLLOWING GASTRO-ENTEROSTOMY

DR. NATHANIEL GINSBURG read a paper with the above title, for which see page 732.

DR. JOHN H. JOPSON had had one case of ulcer at the stoma following gastro-enterostomy for perforation of a duodenal ulcer. The symptoms of ulcer had been present for ten years before perforation had taken place. At operation the perforation was found temporarily sealed by adhesions. It was sutured and a posterior gastro-enterostomy performed, using catgut for the inner and Pagenstecher for the outer sutures. The ulcer symptoms recurred about five and a half months after operation. There was hunger pain, paroxysmal in type, coming on especially in the afternoon and during the night, without vomiting. An area of tenderness was present just to the right of the middle line and between the ensiform cartilage and the umbilicus. Pain would begin over a small area and spread downward. The patient could not take any solid foods without pain. Liquid diet gave moderate relief. At operation, in July, 1914, the pylorus was found buried in adhesions and was not disturbed. There was a perforating ulcer at the gastro-enterostomy opening involving both stomach and jejunum, covered in by recent adhesions, not leaking but bleeding freely when exposed. It was 2 cm. in diameter. It was sutured and anastomosis performed between the proximal and the distal portions of the jejunum below the gastro-enterostomy opening.

This operation was not followed by permanent relief. There was marked hyperacidity of the gastric secretion subsequently and frequently blood present in considerable quantities in the stools. The patient was fairly well on liquid diet. When last seen he was better, but still suffering from ulcer symptoms.

DR. GEORGE G. ROSS mentioned a case in his service at the Germantown Hospital, a man upon whom he did a gastro-enterostomy for gastric ulcer. Two years after the operation the man came back to the hospital in the middle of the night with a perforated gastrojejunal

ulcer. He was operated upon by Dr. Swartley. The case will be fully reported at a future meeting of the Academy.

DR. DAMON B. PFEIFFER recently saw a case which seems to throw some light upon the rôle of unabsorbable sutures in gastrojejunal ulcer. The case occurred in the service of Dr. Deaver and was that of a woman who at operation was found to have duodenal ulcer of chronic type. The ulcer was excised, the duodenum inverted and sewed to the denuded head of the pancreas, and a posterior gastrojejunostomy made. Following the operation the patient did pretty well for a couple of weeks. She then began to have epigastric pains as before the operation, and finally, after a downward course, during which she passed considerable blood from the bowel, she died. At autopsy, upon opening up the loop of jejunum just beneath the gastrojejunostomy, it was found that the outer seroserous suture, which was a continuous one of linen thread, was hanging in the bowel. Half had ulcerated out and half was retained. The inner layer of suture was chromic catgut and there was no trace of it. The in-turned end of the stomach which had been sutured in much the same way as the gastro-enterostomy, *i.e.*, with a linen suture outside and chromic gut within, showed much the same condition, and the linen thread was hanging part way in the lumen of the stomach. The condition was very suggestive; if the patient had lived, ultimately both sutures probably would have pulled out; but it is easy to suppose that such a suture in place for some time might set up chronic ulcer and be the foundation of gastrojejunal ulcer.

DR. J. EDWIN SWEET said that in the laboratory of surgical research they used silk for all coats of the intestines. They have seen many gastrojejunostomies with the silk sutures sloughing away with no evidence of ulcer forming about them. One can well imagine that silk thread in a gastric mucosa, which was, as evidenced by previous history, subject to ulcer formation, might be an added irritation, but one can hardly conceive of how silk thread alone in a normal mucosa could be held responsible.

DR. NATHANIEL GINSBURG said that with reference to the unabsorbable suture in relation to gastrojejunal ulcer, this is not the sole factor responsible for the development of this lesion. Chronic irritation at the line of union maintained by hyperacidity and the presence of the suture acting as a foreign body, in some cases, is the causative element in the production of the ulcer at the stoma site.

Lieblein supports the contention that hyperacid gastric contents plus the traumatism occasioned by the suture at the anastomosis site is a very important etiological factor. He quotes the work of Wilkie, of

Edinburgh, who, in his animal experimentation, used silk sutures and later fed the animals upon a hyperacid diet. He was able to produce jejunal and gastrojejunal ulcers in his animals, using a control set of cats to whom he did not feed hyperacid diet following operation, and in whom ulcer was not produced. It must be borne in mind, however, that the physiology of the gastro-intestinal path of the human and the lower animal type differs markedly, and that the nervous system which is such an important factor in the human plays little part in experimental work upon dogs and cats.

In a discussion some years ago, Cannon stated that he fed animals with shot whom he had gastro-enterostomatized without closure of the pylorus. His radiograph showed a shot with a string attached, having passed through the patent pylorus. He contended that the best functional result therefore occurs if the pylorus is occluded when gastro-enterostomy is done, thereby forcing all the gastric contents through the stoma.

Patterson replied that he was unable to speak from experimental work upon dogs, but he never fed his patients upon shot, inferring that the difference between human and animal surgery must always be borne in mind in making deductions when the final summary is drawn.

A NEW NEEDLE-HOLDER

DR. J. E. SWEET presented a needle-holder and said that his reason for attempting the design of a new instrument is to be found in the slightly unusual conditions surrounding the operative work in the Research Laboratory and in the fact that no instrument of which he had knowledge satisfactorily fulfilled these conditions. They have found from experience that their patients, since they will not be quiet after an operation, but will be as active as before, must have their wounds so repaired that the strain will be withstood. They have found that this can only be accomplished by the use of interrupted sutures in the layer of the wound which normally carries the chief strain—the aponeurosis layer in a midline wound, for instance—and these interrupted sutures must be laid not over one-eighth to one-quarter inch apart. Further, they must prepare their own suture material. The result of this is that they try to avoid the loss of time caused by the threading of many needles, and therefore adopt the technic of starting with a long thread, tying each suture as laid, thus saving time and suture material. With the common needle-holder this means that the suture is placed, the needle-holder laid down, the suture tied, scissors picked up, the suture cut, the scissors laid down, and the needle-holder taken

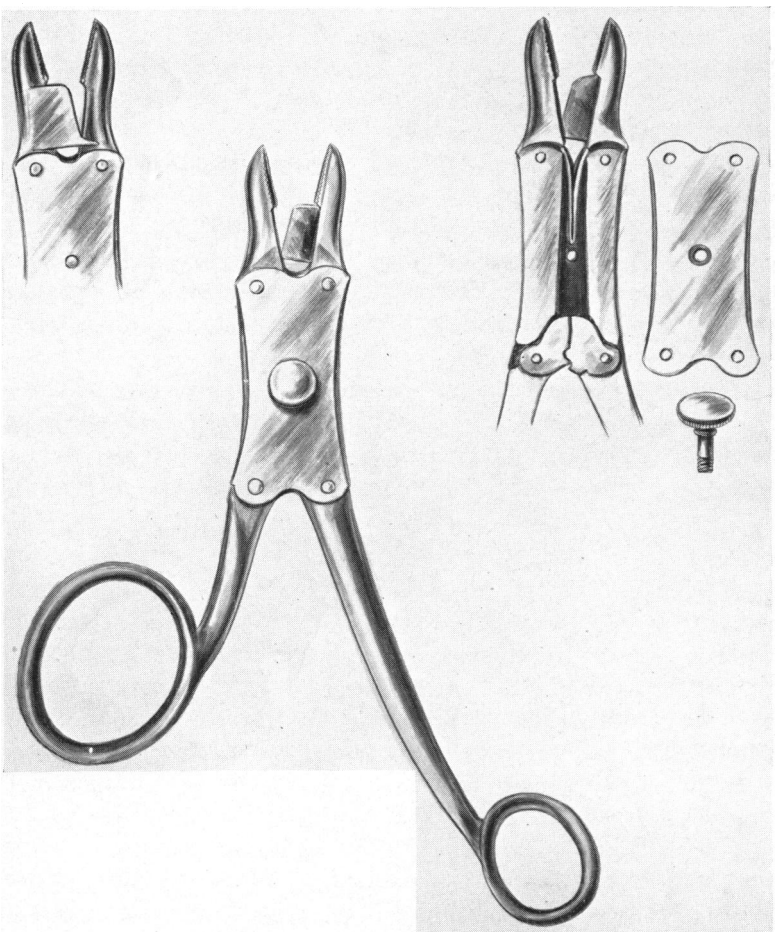


FIG. 8.—Sweet's needle-holder.

up again. He therefore wanted a holder which could be held in the hand, and yet leave the thumb and fingers free for tying. This principle is found in the handles of the Kocher scissors. Since one of these handles is very short, and therefore permits of but short leverage, he introduced the principle of the double-lever joint, such as is used in powerful cutting implements, as bolt cutters, heavy wire cutters, etc.

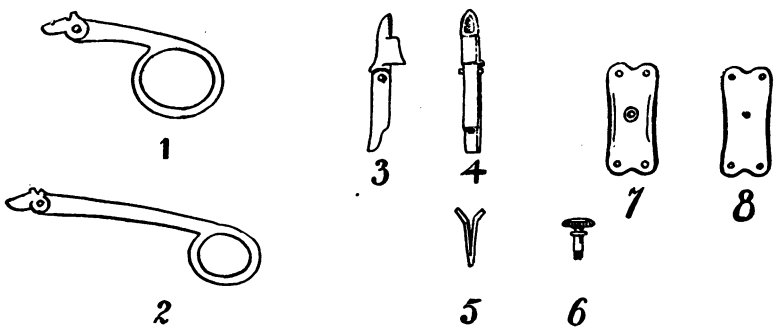


FIG. 9.—The component parts of needle-holder.

This gives great power at the jaw, and enabled him to dispense with any form of catch for the handles; a comparatively light pressure on the handles holds the needle firmly, and any form of catch, with the well-known troubles inherent to them, is unnecessary. The scissors attachment is not new in principle, nor is the form of the jaw. It is not unlikely that in this form of instrument, with the bearings supported at each end, the alignment of the scissors blades will be kept more perfect than in other types. By removing the one screw the entire mechanism comes apart for cleaning.

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