been claimed for it, just as for lithium salts. It is readily soluble in water and is best given in solution.

Average dose: 0.25 gm. (4 grains).

This substance has been introduced with some slight modification under various names; usually the modification is only sufficient to enable the manufacturers to say that their product is not identical with the official. For instance, helmitol is anhydromethylen citric acid with hexamethylenamin. Uriform embraces two other drugs of minor importance. The official preparation may be considered at least equal to them, since it is not modified by any useless or inferior products, and is readily controlled by chemical tests for purity.

Uva Ursi.

Another drug of this class which has been the subject of much dispute is *uva ursi*. Its principal usefulness is probably in catarrhal conditions of the urinary tract. It contains a glucosid, arbutin, which is decomposed, partly perhaps in the kidney, but more abundantly in contact with catarrhal mucous membrane, hydrochinon, an antiseptic, being formed.

UVA URSI.—U. S.—The dried leaves of *Arctostaphylos uva ursi*, of which the only official preparation is:

FLUIDEXTRACTUM UVA URSI.—U. S.

Average dose: 2 c.c. (30 minims).

Infusion of *uva ursi* is made according to the general formula for infusions by pouring 1 liter (1 quart) of boiling water on 50 gms. (1 oz. 5 drs.) of bruised *uva ursi*.

The fluid extract or the infusion may be given alone three or four times daily.

Chimaphila.

CHIMAPHILA.—U. S.—The dried leaves of *Chimaphila umbellata*, commonly called pipsissewa. It was introduced in America by Dr. John S. Mitchell in 1803, and later into England.

Its medicinal action closely resembles that of *uva ursi*, to which, however, *chimaphila* is inferior.

FLUIDEXTRACTUM CHIMAPHILÆ.—U. S.

Average dose: 2 c.c. (30 minims).

Acetates and Citrates.

There remains to be considered an important class of substances, which are used as diuretics, but they are so well known that only a very brief notice is needed here.

The acetates or citrates of sodium and potassium increase the alkalinity of the blood and lessen the acidity of the urine or render it alkaline; they also increase diuresis. Potassium bitartrate and nitrate are also widely used as diuretics, mainly as additions to mixtures. For this purpose they are largely diluted with water, the latter alone being the most commonly used of all diuretics.

Cantharides is very rarely used for its effect on the kidneys, as it is extremely irritant.

The methods used for producing diaphoresis are analogous to those employed for diuresis, consisting in those which influence the circulation and those acting on the sweat glands; but in addition, certain agents, notably, solution of ammonium acetate, act on the sweating center.

The circulation in the skin is readily influenced by the application of heat in numerous ways and by what amounts to the same thing, the prevention of its loss by an impervious cover, such as oiled silk or by agents which cause dilation of the vessels of the skin, such as hot alcoholic drinks and spirit of nitrous ether. Everyone is familiar with the sweating of nausea, and while any nauseant will cause diaphoresis, the only one which is generally employed for the purpose is the powder of ipecac and opium, the well-known Dover's powder. The only official substance used for the purpose which directly stimulates the secretion of sweat is pilocarpus and its alkaloid, pilocarpin. They do not act on the secretory cells as caffeine does or on the kidney, but by stimulation of the secretory nerves.

Diaphoretics are employed to arrest "colds" in the early stages, to aid in getting rid of fluid accumulations, as in dropsy, and to a lesser extent for getting rid of excretions. Diaphoresis often serves to relieve the kidneys or to supplement their action. Vegetable infusions which cause diuresis

will usually cause diaphoresis at the same time if the patient is kept warm and measures are taken to increase the blood supply of the surface (rubbing, mustard, etc.).

For the arrest of "colds" nearly anything causing sweating seems to be effective, but the powder of ipecac and opium mentioned in Chapter II enjoys a particular reputation.

PULVIS MORPHINÆ COMPOSITUS.—U. S.—Compound powder of morphin, also known as Tully's powder, containing 1.5 per cent. of morphin and 32 per cent. of camphor, has also been recommended, and is sometimes used, as a diaphoretic, in place of the older and more popular Dover's powder.

Average dose: 0.5 gm. (7 grains).

Potassium citrate, referred to as a diuretic, is much used for its diaphoretic effect, particularly in the form of:

LIQUOR POTASSII CITRATIS.—U. S.—This is a water solution of potassium citrate, containing about 8 per cent. of anhydrous potassium citrate.

Average dose: 15 c.c. (4 fluidrachms).

SPIRITUS ÆTHERIS NITROSI.—U. S.—Sweet spirits of niter. This is a very generally popular diaphoretic which is also used as a diuretic in fevers,

Average dose: 2 c.c. (30 minims).

LIQUOR AMMONII ACETATIS.—U. S.—The old-time spirit of Mindererus.

Average dose: 15 c.c. (4 fluidrachms).

Pilocarpus.

The only official drugs which have diaphoresis as their predominant therapeutic action are pilocarpus and its alkaloid, pilocarpin. They are both too well known to require very extended notice in this place.

PILOCARPUS.—U. S.—Pilocarpus or jaborandi leaves contain, by assay, not less than 0.5 per cent. of alkaloids.

Average dose: 2 gm. (30 grains), given occasionally in the form of a 5 per cent. infusion, made according to the official general formula for that class of preparations.

FLUIDEXTRACTUM PILOCARPI.—U. S.—This is made with diluted alcohol and contains 0.4 per cent. of the alkaloids from pilocarpus.

Average dose: 2 c.c. (30 minims).

PILOCARPINÆ HYDROCHLORIDUM.—U. S., and

PILOCARPINÆ NITRAS.—U. S., are therapeutically identical. They are both very soluble in water.

Average dose of either: 0.01 gm. (1/6 grain).

Clinical Report

A CASE OF CARCINOMA OF THE PANCREAS.

WITH NEGATIVE SO-CALLED PANCREATIC REACTION;

CHOLECYSTENTEROSTOMY.

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In a series of 53,000 cases of carcinoma collected from European institutions, in which careful postmortem records are kept, there were 226 cases of carcinoma of the pancreas, or 4.2 cases in every 1,000 cases of carcinoma of all organs. In the following case, in spite of repeated trials and a positive diagnosis, the so-called pancreatic reaction of Cammidge was negative. In the course of an exploratory laparotomy cholecystenterostomy was performed to relieve distress from absorption of bile and pain due to pressure of distention of the bile tract and accomplished the purpose.

Patient.—D. A., farmer, 58 years old, married, born in England, residence Bloomington, Wis., was referred to me June 26, 1905, by Dr. J. M. Lewis of the same place.

Family History.—Negative, except that his father died of "stomach trouble."

Previous History.—In this the only conspicuous features are sciatic rheumatism, so-called, from time to time for several years and previous to ten years ago, excessive use of alcohol. Patient denies venereal disease.

Present Illness.—This seems to date back two and one-half years to an accident whereby he was thrown from a wagon and struck on back of neck and small of back. Following the accident and lasting for two months there was paralysis of both upper extremities. This cleared up spontaneously. The bowels, previously naturally regular, have not moved since without the aid of drugs, and this condition has been getting progressively worse. His best weight five and one-half years ago was 200 pounds and at the time of accident was 175. Whereas patient dates the beginning of his illness with the occurrence of the accident, his present condition probably really began to manifest itself in December, 1904. At this time patient weighed 170 pounds, and since then his weight has progressively fallen to 130. With this rapid decline in weight his strength, too, began to fail and has kept pace with the loss of weight. Accompanying the constipation which followed the accident indigestion began, but it was not until December, 1904, that this became more than ordinarily marked. In March, 1905, dyspeptic symptoms became pronounced. These consisted of loss of appetite, especially for meats; distress after eating, with belching, water brash and nausea. In April, 1905, pain began in the right upper quadrant of the abdomen, extending downward on the right side of the abdomen, around the lower ribs on the right side to the back and across the upper half of the abdomen. The character of the pain varied from a dull ache, which was almost constant, to severe paroxysms of acute pain. The pain was remarked to be worse at night. Further, the pain was aggravated by constipation and relieved by catharsis. At this time patient detected a lump in the upper right quadrant of the abdomen. Early in May bronzing of the skin set in. Toward the end of May, without regard to pain, vomiting began. This occurred especially after meals and also before breakfast. For the last two weeks patient has vomited in the evening what was eaten during the day. One week ago jaundice set in insidiously and has become rapidly and progressively deeper. Considering the amount of food eaten, the stools were noticeably bulky and contained undigested food particles. Fat in the stools was not remarked, and there has been no diarrhea. Since the jaundice set in the stools are lighter in color and the patient has felt weaker. The bronzing of the skin has also been obscured by the jaundice. The patient was alarmed about his condition by the pain and the onset of jaundice.

Examination.—The patient was a man of six feet or more, well developed but poorly nourished. The skin and conjunctivæ were deeply pigmented with bile, but no subcutaneous hemorrhages were made out. The history of the accident was borne out by a well-marked kyphosis in the mid-cervical region. Here, instead of a convexity forward, there was a convexity backward of the fourth, fifth and sixth cervical vertebrae. The thorax was negative. Bilateral inguinal, and saphenous, and right supra-clavicular lymphatic glands were moderately enlarged, firm, smooth, movable, discrete and not tender. Knee jerks were present, but feeble. There was no edema of the ankles. Per rectum prostate and adnexa were negative, as also were the external genitals. Pulse was 72, temperature 99 and respiration 20. The abdomen on inspection revealed the light and shadow of a mass in the upper half of the abdomen. Pulsation over the mass was visible. On palpation a large, smooth, firm mass, nodular on a large scale, was made out extending across the abdomen almost from rib to rib, the lower border being on a level with the umbilicus. The mass was but slightly movable and tender on deep pressure only. Immediately around and behind the umbilicus deep resistance was made out merging above with that of the mass mentioned. The mass measured roughly seven inches across by three inches vertically. It was greater in the antero-posterior and vertical planes on the right side of the median line. Pulsation of the mass was marked. Above the mass there was an area of resonance filling the epigastrium and extending particularly to the left behind the ribs. On the right the outline of the mass was less distinctly followed along the costal margin down-

ward. The liver dullness extended from the fifth rib to one finger's breadth below the costal margin in the mammillary line. Opposite the ninth rib, beneath the liver, could be indistinctly felt a large, smooth, rounded mass about the size of a small orange, fading away above and to the left into the larger mass. This evidently represented the gall bladder. On bimanual palpation the right kidney was found negative, likewise the spleen. No ascites was made out. On dilatation of the stomach with air resonance was found over the epigastrium extending upward behind the xyphoid cartilage and well to the left behind the ribs. Below this area of resonance the mass remained immovable and unaffected by respiration and manipulation. At the same time the tumor mass seemed to be near the anterior abdominal wall, dividing the cavity into upper and lower sections, the upper having the stomach resonance and the lower that of the colon and small intestines. The floor of the upper section on deep palpation seemed to have a shelving surface, with the dilated stomach more superficial than the mass.

Fluid dilatation showed the stomach capacity to be forty-six ounces. After a test meal of toast and tea the stomach contents gave a negative reaction to litmus, no free HCl., and a positive reaction to lactic acid. With air dilatation the stomach orifices leaked perceptibly. Urinalysis gave sp. gr. 1.007, faintly acid reaction, slightest possible trace albumin, no sugar, bile present, indeterminate sediment, and negative so-called pancreatic reaction.

The patient was told frankly that in all probability he had a malignant growth, that it was either in the stomach or in the pancreas, that an operation would probably be of no permanent and perhaps of no temporary benefit, but that an exploratory opening of the abdominal cavity would settle the diagnosis and might suggest an operation for relief of some of the symptoms. With this understanding the patient requested the operation, and asked to have done whatever was indicated in the premises.

Operation.—Accordingly the abdomen was opened June 28 by an incision through the right rectus near the median line above the umbilicus. The stomach was found normal, but pushed upward by the mass. The pylorus was normal. The colon and omentum were found normal. These were brought out of the wound, revealing the enlarged pancreas stretching across the posterior wall and extending well to the left of the spinal column. The gland was greatly enlarged, especially on the right, hard and nodular. On the surface of the mesocolon and adjacent coils of intestines were numerous small, pearly, opaque, hard, nodules, irregular in size and shape. These with the enlarged retroperitoneal lymphatics accounted for the deep resistance on palpation about the umbilicus. Specimens of these nodules were removed and proved on histologic examination to be medullary carcinoma. To the right the gall-bladder was found distended to the size of the bulb of a three-ounce ear syringe. It was soft, but not easily compressible. The cystic, hepatic and common ducts were distended to the size of the little finger. No stones were made out. The head of the pancreas was greatly enlarged, and a process of the gland surrounded the junction of the common duct and duodenum. This process passing around to the right from behind the duodenum almost reached the main body of the head on the left and constricted the lumen of the duodenum.

Realizing that the situation was hopeless for cure and that the common bile duct was completely occluded, while the lumen of the duodenum was only constricted and would probably remain patent till death from intoxication and starvation occurred, I concluded to do cholecystenterostomy. This was done with a Murphy button at the hepatic flexure of the colon. Patient rallied from operation well. His pain, he said, was much less, and by the third or fourth day jaundice had practically disappeared. His appetite began then to improve and his mind became more active.

Subsequent History.—He returned home the twelfth day after operation, relieved of the jaundice and much of his pain. He is reported to have died August 13 and to have suffered severe pain the last few days. During the time after operation pancreatin was administered after eating with benefit to digestion.

In view of the reliance placed on the so-called pancreatic reaction of Cammidge¹ by Robson² undue weight was given to the negative result before operation in the diagnosis. This feature and the greater frequency of carcinoma ventriculi seemed to favor, on the doctrine of chances, cancer of the stomach with adhesions and extensions involving the common bile duct and immobilizing the mass. After the diagnosis became established further tests were performed before and after jaundice disappeared. All the tests were uniformly negative, in spite of care in following the author's directions and the use of reliable reagents. Instead of the characteristic crystals a brownish amorphous deposit was obtained. It is not my intention to impeach the value of the reaction, but rather to enter a plea for more light on the subject to the end that the reaction which Robson has found of signal value in this difficult class of cases may be made susceptible of general application.

Cholecystenterostomy has been held by many to be a questionable procedure in this class of cases, offering but slight benefit at the expense of some hazard and the usual discomfort following the operation. In the case in question the toxic symptoms of bile absorption and much of the pain—a large share of which seemed to be due to pressure from the distended bile tract—were

come plugged, thereby necessitating the removal of the tubes with the sutures and packing from the perineal wound, led me to experiment with metallic tubes, resulting in the instrument described below, which in my hands has proved very satisfactory. The tube for continuous irrigation is 12.5 cm. long, the size of a No. 32 French catheter. It is composed of a larger tube into which a smaller one is incorporated. At the vesical end are two openings, the larger being the outflow, the smaller the inflow. At the distal end the tube diverges, the larger one being attached to a drainage tube that is carried to a bucket under the bed; the smaller for the attachment of the tube from a fountain syringe, which is suspended two or three feet above the patient. After the tube is inserted it is held in place by a movable steel collar, controlled by a thumbscrew. Attached to the sides of the collar are two small rings, through which are passed the retention sutures from the perineal wound. By loosening the thumbscrew the tube can either be pushed farther in or drawn out without disturbing the dressings. If the tube becomes occluded it is very easy to remove it through the collar and replace it again in the bladder without disturbing the packing in the perineal wound. Until this instrument was devised I used two catheters stitched together, as advised by Dr. Young of Baltimore.

If the bladder is badly infected the irrigations are kept up for four or five days, or even longer; if not infected the continuous irrigation is stopped as soon as the fluid from the bladder comes away free of blood.

relieved. In view of the comparatively slight post-operative reaction the patient stated, on having the question put squarely to him, that he considered it worth the discomfort to obtain a definite diagnosis and be relieved of the worst of his suffering as long as might be.

New Instrument

METALLIC TUBES FOR CONTINUOUS IRRIGATION AFTER PROSTATECTOMY AND FOR DRAINAGE AFTER PERINEAL SECTION.*

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The difficulty often encountered in introducing the rubber tube after perineal prostatectomy, especially if the prostatic urethra is injured, as well as the tendency of the tube to be-

The tube is allowed to remain in place for twenty-four hours after the hemorrhage has stopped. It is then removed, but the collar is left hanging to the perineal sutures. In this way, if a hemorrhage should occur and it was found necessary to replace the perineal tube, it could easily be done by passing it back through the collar to its proper position in the bladder and it is then securely held in place by tightening up the thumbscrew.

The advantages of continuous irrigation in these cases are: 1. The coagulation of the blood from any hemorrhage that may take place in the bladder and occlude the tube, as occurs in a tube without continuous irrigation, rarely occurs. 2. The liability to sepsis is lessened. 3. The patient is comfortable and does not have to be disturbed by irrigations.

The instrument for perineal drainage, where continuous irrigation is not indicated, consists of a tube 12.5 cm. long, the size of a 30 French catheter, with four openings in the vesical end (Fig. 1). The distal end has a shoulder to hold the rubber tube, which passes into the drainage vessel. The tube is held in the perineal wound by the collar as described in the instrument for continuous irrigation. The drainage through this tube is excellent, as the caliber is large and easily cleaned by irrigation.

My experience with both these tubes covers a number of cases in all of which the results were more satisfactory than with any other form of drainage tubes which I have used.

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1. Abstract of the Arris and Gale lecture on the "Chemistry of the Urine in Diseases of the Pancreas," by P. J. Cammidge, *British Med. Jour.*, April 2, 1904. Also "Surgical Aspect of Digestive Disorders," p. 287, by J. G. Mumford and A. K. Stone.
2. "The Hunterian Lectures on the Pathology and Surgery of Certain Diseases of the Pancreas," by A. W. Mayo Robson, *Lancet*, March 19 and 26, April 2, 1904. Also "Diseases of the Pancreas," by A. W. Mayo Robson and R. G. A. Moynihan. "Diseases of the Pancreas," by L. Osler, edited by R. H. Fitz in *Nothnagel's Encyclopedia*.

*Presented before the Medical Society of the District of Columbia, 1905.

Opium in Australia.—The various Australian states having agreed to prohibit the sale and growth of opium, the government of the commonwealth has prohibited the importation of opium except for medicinal purposes. All the states will lose revenue by the prohibition, the loss to Queensland alone, it is said, being estimated at \$80,000 yearly.