b. Basis of connective tissue in which were embedded

1. Glands having the characteristics of periurethral glands and
2. Large and numerous vascular spaces.

J. Y. Simpson's report of Dr. John Reed's finding of a rich distribution of nerve filaments in a painful caruncle has not been verified by other observers.

It is apparent that a fairly definite classification of the histopathology of caruncles is now established and it should be emphasized that not all caruncles will belong to the same class when submitted to microscopic examination.

The results of annoyances from caruncles deserve much consideration. Loss of sleep from frequent urination, urethral tenesmus and multiple vague pains may destroy the health of an otherwise healthy woman "and in her desperation she submits to anything offering relief." The condition is usually mistaken for urethritis or cystitis. I have had one patient referred to me who had been operated on for urethral fissure, one with a diagnosis of epithelioma of the meatus, and a third with a laboratory diagnosis of small-celled sarcoma, the slide being sent in with the patient. All the growths were quite small caruncles.

Treatment is not that of irrigation of the bladder, dilatation of the urethra, or use of caustics. Temporary remissions come not from these treatments but in spite of them. Complete excision well outside and under the tumor should be performed and the wound closed so as to leave the least possible cicatrix and a wide external meatus, thus providing against stricture. When the distal portion of the urethra is excised in a circular way it should not be allowed to retract; the skin of the vestibule should be drawn in and united to the urethra by horseshair sutures. When caruncles are not completely removed they recur. Instances are recorded of primary carcinoma occurring in the urethra or periurethral glands from which caruncles had been excised.

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EARLY DIAGNOSIS OF CANCER OF THE ESOPHAGUS

A NEW TECHNIC OF X-RAY EXAMINATION

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It is with the hope of adding something of practical value to the diagnosis of early cancer of the gullet that I have instituted the practice of a new form of radiographic examination of it. My object was to hold the bismuth in the esophagus so that a sharper outline of it could be obtained, such as is observed when plates of the stomach are made in which the pylorus shuts on the stomach contents, allowing the bismuth to distribute itself through the entire organ, thus outlining the curvatures sharply. Since in the normal individual as well as in those who have only a small degree of cancer formation, fluids reach the cardiac end of the gullet in from five to ten seconds, and solids in about twice that length of time, it seemed to me important to plug in some way the lower end of the tube so that the bismuth introduced could fill the gullet and give a sharp outline of its walls.

such for instance, as is produced when a cardiospasm is present or a stenosis which holds the bismuth above them.

For this purpose, after experimenting with several methods, I concluded to use a simple apparatus made by George Tiemann and Company, which may be described as follows: To a 120 cm. (4-foot) length of rubber tubing 4 mm. in diameter, is attached a rubber bag covered with a reinforcement of silk, and having a brass tip at its lower end to give it weight. At the upper end of the tube is a cock. An ordinary surgical syringe of about 60 c.c. (2-ounce) capacity containing water is used to distend the bag, which, when distended, is fusiform in shape and measures about 10 cm. in its circumference. The tube is lubricated with glycerin and passed in the usual manner of a stomach-tube, or a mandrin may be employed to assist in its introduction. It is allowed to go down to beyond a mark made on the tube about 40 cm. ($15\frac{3}{4}$ inches) from the upper end of the bag. The bag is then in the stomach, after which it is filled with water by means of the syringe. When this is done, the cock is closed and the tube is pulled on so that the bag is drawn tightly into the funnel-shaped

Bassler's cardia plugger.

cardiac orifice of the stomach. The patient is now told to exhale completely so as to raise the dome of the diaphragm to a high level, and the external tube is held tightly at this point. It is then fastened about the forehead of the patient, a double knot being employed to hold it, or in some instances it may be fastened around the neck. This is decided according to whether the patients have an opening in the teeth line, because it is desirable to have the tube rest on the gum rather than over the sharp edges of the teeth. In most instances, for comfort and quick work, an external weight may be employed to hold the bag tightly against the cardia (this is now my preference). Any weight of from one-half to one pound answers for the purpose. There is no danger of the tube breaking because there is a silk string inside the tube to keep it from stretching too far. At the same time, the length of the string within the tube is such as to permit the first 40 cm. to stretch 2 inches, this being made so as to allow for the excursion of the diaphragm in ordinary respiration which is about 2 inches at this part of it. When this has been accomplished, a mixture of bismuth, acacia and water is run into the gullet from an irrigating jar by means of an ordinary urethral catheter, preference being given to one

of large size in order to have a stiffness for ready introduction.

A study of a number of cardiospasm plates wherein there is only a slight degree of dilatation of the esophagus shows that the diameter of the gullet throughout its entire course runs about 3 cm., and the length of the normal gullet is about 23 cm. This capacity may be taken as a high standard for size, and represents about 160 c.c. It is wise to fill the gullet for an examination. Therefore 150 c.c. of suspension are placed in the irrigating jar and allowed to flow in until the bismuth mixture appears in the mouth, when one knows that the gullet is filled. With the patient standing, radiographs are then taken in the lateral dorsal position with the left back to the plate. These plates may be stereoscoped. Such plates then show the outline of the gullet and its normal narrowings as well as any changes present.

It is evident that by this method of examination irregularities of the walls of the gullet can be observed, and also it is rendered possible to make a diagnosis of carcinoma of the gullet long before stenosis appears. After the plates are taken, the tube is untied or the weight taken off and the relaxation of tension permits the bismuth mixture to flow into the stomach. The cock is then opened and the water siphons out of the bag, particularly when it is drawn into the gullet a little to encourage its collapse. Following this, fluoroscopic observations or plates of the stomach may be made. The regular employment of this method of examining the esophagus in x-ray examination of the alimentary tract is recommended as a routine. When stenosis is present it is not practical and is unnecessary for diagnosis.

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SIMPLIFIED TRANSFUSION*

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The transfusion of blood is of undoubted benefit in several diseases, and in surgery it holds a well-established position, with an increasing field of utility. But the technical difficulties of this rather delicate operation interfere with its more frequent employment. The usual methods, those of the Carrel suture and the Crile and Elsberg cannulas, require considerable experience, and the first attempts of the surgeon are often unsuccessful.

The Brewer tube is much simpler and apparently serves quite as well as the first-named methods. Even with this, as with the cannula and suture, the difficulty lies in the fact that the limbs of the donor and recipient maintain a position which interferes materially with the surgeon's work, and at the critical moment any slight movement may disturb the anastomosis or prevent a perfect transfusion.

To obviate this, for some time past in the research laboratory, we have used a rubber tube with small glass tips as a connecting medium. The interior of this tube is coated with a mixture of petrolatum and paraffin.

Such a method, of course, is not new. Guerin in 1875 used rubber tubing to perform transfusion and earlier experimenters used similar appliances. But since Carrel has shown that glass tubes coated with paraffin may remain in the aorta for months, and that similarly

treated rubber tubing may be used to replace resected portions of an artery, without the production of thrombosis, the failure of earlier methods of this character may be overcome.

Our cannula is made of a piece of rubber catheter. The tips are easily drawn from glass tubing, over a Bunsen flame, and may be of various calibers. They should be slightly flared at the point and smooth at each end. The connected tube and tips should be boiled in equal parts of white petrolatum and paraffin. Great caution should be observed that this coating be evenly distributed, and that no bare surfaces occur in the cannula. The usual technic of transfusion may then be followed.

Under surgical asepsis, and novocain anesthesia, about an inch of radial artery of the donor is exposed, its lateral branches ligated, cleaned of adventitia, smeared with sterile petrolatum and ligated below. A clamp is gently applied above, and the vessel cut diagonally upward, half across. A mosquito hemostat is attached to the triangular bit of artery thus formed. This renders the introduction of the cannula easy. It may now be introduced and a ligature put about it. A short section of median basilic or median cephalic vein of the recipient is then exposed, cleaned, coated with petrolatum,

Author's cannula for blood transfusion.

ligated below, clamped above and cut as was the artery. The arms of donor and recipient are laid side by side and the arterial clamp released sufficiently to allow the tube to fill with blood. The free tip of the cannula is then introduced into the vein, and ligated in position. The clamp is removed from the vein, then from the artery and the transfusion started. During the active transfusion of blood, the tube can be seen and felt to pulsate vigorously.

Usually in ten or fifteen minutes sufficient blood is transfused for all purposes. Much depends, however, on the relative size of the two subjects, the needs of one and the strength of the other. Hemoglobin tests should be made, but clinical judgment is at present our best guide. In our work on dogs, reciprocal transfusion has been maintained by this tube for periods over half an hour, with no evidence of clotting. In the human being, after fifteen minutes of active transfusion, spurtling still occurred from the cannula when disconnected from the vein. Should thrombosis supervene, as it may in any method with imperfect technic, it would be highly injudicious to attempt to dislodge the clot without first disconnecting the cannula.

With this advice, a blood transfusion is hardly more difficult than any intravenous injection.

* From the Research Laboratory of the Medical Department of the University of California.