that is, rotated anticlockwise through 90 degrees. It is set transversely across the table. The lower cross-member is rectangular in section $\frac{3}{4}$ in. (1.9 cm.) high by $\frac{5}{8}$ in. (1.6 cm.) thick and has two holes pierced in it for two longitudinally running bars to pass through. These bars are $\frac{1}{2}$ in. (1.3 cm.) in diameter, $4\frac{1}{2}$ in. (11 cm.) apart (centre to centre), and have a clearance of 1 in. (2.5 cm.) above the base board; they are parallel and form a slide on which the head and

shoulder rest can be moved to adjust for the length of the patient. The frame can be clamped firmly at the selected position by tightening the wing-headed screws which are threaded through the cross-member from above so as to screw down on to the longitudinal bars. The bars are 1 ft. 11 in. (58 cm.) long and are held at the head end in a vertical steel plate 6 in. (15 cm.) wide by $2\frac{1}{2}$ in. (6.4 cm.) high which is screwed on to the edge of the table, and at the lower end are

brazed to a bar fixed on the table.

A vertical post is screwed to the right side of the D frame. It is 1 ft. 6 in. (46 cm.) high and has a horizontal extension across the patient. From the cross-arm is suspended an arm holder made of a rectangular piece of leather 8 by 5 in. (20 by 12.5 cm.) which can be wrapped around the arms and held with Velcro straps.

PELVIC REST

The pelvic support was made from a commercially available support of the type equipped with a clamp to fix it to the edge of a table. For our apparatus the clamp was sawn off and the base was screwed on to the foot end of the table. The pelvis does not rest direct on the metal of the support; a special fitting was built up on the expanded metal pelvic rest from pieces of Perspex to give the following facilities: (1) a slot to hold x-ray films for anteroposterior views, (2) a housing to take the lower ends of the two metal strips which support the lumbar and thoracic regions, and (3) a socket for the detachable vertical post which fits up against the perineum.

This part of the apparatus is best understood by reference to Figs. 1 and 2. Films for lateral x-ray pictures can be held in a clamp fitted to the upright of the pelvic rest. The two x-ray film holders enable pictures to be taken easily and conveniently without exposing anyone to irradiation.

APPARATUS IN USE

The anaesthetized child is placed on the table in the supine position with the perineum against the post. The arms are put in the sling and require no further watching. The surgeon holds the legs in the required position while the plaster is put on by the plaster sister or technician. At the conclusion the pegs which hold the body support strips in place are removed, the head and shoulder rest is lifted clear of its socket in the lower part of the upright, and the child is moved cephalad and slid off the pelvic support, the arms having been released from the suspended sling. The sacral part of the plaster can be trimmed and finished off later when the child is awake.

The Formica top of the table is easily cleaned of splashes of plaster that fall on it.

The apparatus was designed by Mr. A. E. Collins, charge nurse in the orthopaedic operating-theatre, and was made by members of the engineering and radiotherapy departments of the hospital. The photograph was prepared by Mr. Sheppard, the hospital photographer.

FIG. 1.—Diagram of pelvic support.

FIG. 2.—Photograph of infant plastering table.

Disposable Operative Cholangiogram Cannula

Mr. J. MCKENZIE BUCHANAN, consultant surgeon, North Staffordshire Hospital Centre, Stoke-on-Trent, writes: The first operative cholangiogram carried out during the course of a cholecystectomy was reported by Mirizzi in 1932. Primary or pre-exploratory operative cholangiography is now acknowledged by many surgeons as an essential preliminary to cholecystectomy or to exploration of the bile ducts. There are several methods of introducing a radio-opaque dye into the biliary system; they include needling

and cannulating techniques via the cystic duct, the gall bladder, the common bile duct, or the liver itself.

For several years we carried out primary operative cholangiography using an ordinary intravenous type of nylon catheter inserted into the cystic duct. The disadvantage, however, was that it would readily slip out of the duct when abdominal retractors and packs were removed immediately before filming. It was therefore obvious that this minor but annoying complication could be

overcome by expanding the tip of the catheter in such a way that, once inserted into the duct, it could then be held securely by means of an encircling ligature without fear of dislodgement.

In the past three years we have been experimenting with several modifications of cannulae, and eventually have been satisfied with one made from a surgical grade of flexible nylon having a bore of 0.039 in. (1 mm.) and an outside diameter of 0.052 in. (1.3 mm.). The cannula is 24 in. (61 cm.)

in length, and at its distal end has a tapering mount 0.236 in. (6 mm.) in length. At its proximal end there is a female Luer lock fitting, which can be firmly attached to a Luer or Luer lock syringe (see photograph).

Our technique of primary operative cholangiography follows very closely that of Schulenburg (1966). Two points are worth mentioning. Firstly, if the supine patient is tilted to the right by means

of sandbags under the left buttock and lower left chest, then the radiological shadow of the vertebral column will not obscure the definition of the common duct. Secondly, it is useful to dissect out the cystic duct at the beginning of the operation; a ligature is placed round it close to the gall bladder and tied. Immediately beyond this ligature a small cut is made with scalpel or scissors in the wall of the cystic

duct and the tapered mount of the cannula tip is inserted into the duct lumen. A second ligature tied round the duct, distal to the cannula insertion, will now hold the cannula firmly in position. After three films have been taken, injecting 1 ml., 5 ml., and 10 ml. of radio-opaque dye—for example, iodipamide (Biligradin 50%)—a third ligature is tied round the cystic duct flush with the common duct. The cystic duct is then divided between the second and third ligatures, and the gall bladder and cystic duct (with cannula attached) are removed. By using this technique there is minimal spillage of potentially infected bile into the peritoneal cavity.

The cannula is sterilized and marketed in a sealed plastic envelope. Essentially the cannula is disposable, though it can be used five or six times if carefully washed through postoperatively and then resterilized in a formalin cabinet.

The cannula is made by Portex Ltd., Hythe, Kent, under the title of Stoke-on-Trent cholangiogram cannula. My thanks are due to Mr. D. S. Allen, Product Manager of Portex Ltd., for his help and co-operation.

REFERENCES

- Mirizzi, P. L. (1932). *Bol. Soc. Cirurg. B. Aires*, 16, 1133.
Schulenburg, C. A. R. (1966). *Operative Cholangiography*, p. 9. Butterworths, London.

Simple Inspection by Tube

Mr. J. L. DOUGLAS, General Surgical Unit, Hairmyres Hospital, East Kilbride, Glasgow,

writes: One of the difficulties in the surgery of upper gastrointestinal bleeding is the proper

examination of the inside of the stomach, and I have found that a boiling-tube some 5 to 7 cm. in diameter and about 30 cm. long (such as is normally obtainable from the biochemistry department) is useful.

An adequate gastrotomy wound is made, the usual massive clots of blood are evacuated, and the boiling-tube is inserted. It can be gently pressed against the mucosa of the stomach, even up to the oesophageal orifice, and an excellent view of the mucosa can be obtained. The whole lining of the stomach can be visually examined in a matter of seconds. In Hairmyres Hospital we have used this device, and the illumination from the theatre lamp—even in the depths—is good.

A solid Perspex instrument optically ground, with a lens system and built-in light, would, I am sure, be even better. In fact such an instrument could be used for the examination of any organ—even the heart in the presence of opaque fluid.

The following further applications are suggested. If a bleeding-point suitable for arrest by stitching is identified, a large-bore glass tube can be slid over the boiling-tube to form a caisson. The tube is then removed and the mucosa caught by tissue forceps and drawn into the caisson, forming a cone. Gentle diathermy can be applied to multiple haemorrhagic points. Stitching is accomplished by atraumatic suture material held in a boomerang needle holder. Tying the stitch is by crushing a metal clip round the two ends of the ligature material. The last two procedures require special instruments (see Figs. 1–3), which have been designed in this department as prototypes.

FIGS. 1 and 2.—Modified boomerang needle holder for use within caisson.
FIG. 3.—Clamp for crushing ring ligature within caisson.