Initially, the interpretation proved less straightforward than in cyanotic heart disease. At the outset a number of false interpretations were made but with increasing experience it was found that a very definite distinction could be drawn between a patent ductus and a septal defect. The exact localization of a septal defect was less definite but often possible.

At first, when the venous angiocardiogram indicated a patent ductus, this was confirmed by counter-current cine-aortography. With increasing experience this confirmation became unnecessary and sole reliance could usually be placed on the cine-angiocardiogram, a simpler procedure that also had the advantage of indicating any associated cardiac defects.

An incidental advantage of the technique was the need for less anæsthesia. Complete cessation of movement was not necessary to obtain still pictures since each cine frame was exposed for a much shorter duration that is usually possible on full-sized films. With sedation by the Toronto modification of the "lytic cocktail" (Rowe, Vlad and Keith, 1956) the disturbance to the patient was usually slight and sometimes his general condition even appeared to be improved by the procedure.

A cine film was shown to demonstrate the cine-angiocardiographic evidence of patent ductus arteriosus, aortic-pulmonary fistula and uncomplicated septal defects.

Grateful acknowledgments are due to Dr. Clifford Parsons, who has been very closely associated with this study. The technique and evaluation of the radiographic signs will be described more fully elsewhere.

REFERENCES

ASTLEY, R., and OLDHAM, J. S. (1956) *Brit. J. Radiol.*, **29**, 556.
OLDHAM, J. S. (1957) M.D. Thesis, Oxford.
ROWE, R. D., VLAD, P., and KEITH, J. D. (1956) *Radiology*, **66**, 344.

The Association of Acute Appendicitis with Infective Diarrhœa

By K. B. ROGERS, M.D.

The Children's Hospital, Birmingham

THIS is a preliminary report of the work of the pathology departments and the surgeons of the Birmingham Children's Hospital and it will be reported more fully later by all those concerned.

At this hospital the routine bacteriological examinations are designed to ensure that all non-lactose fermenting bacilli, from any site, are fully examined to ensure that any salmonellæ or shigellæ are identified. These methods allowed both *Shig. sonnei* and salmonellæ to be identified in the pus from the peritoneal cavities of cases of perforated appendicitis: it was also noted that some children, who had been admitted for appendicectomy, developed dysentery due to the same organisms a few days after operation.

In 1956 the proximal third of every appendix was examined bacteriologically whilst the distal portion was used for histological examinations. There were 250 appendicectomies: 170 appendices were cultured and 12 yielded *Shig. sonnei.* All of the appendices from which these strains of *Shig. sonnei* were isolated showed histological evidence of acute inflammation: *Salm. heidelberg* was isolated from one appendix which also showed histological evidence of inflammation.

Eleven of the strains of *Shig. sonnei*, and the strain of salmonella, were identified by slide agglutinations of emulsions made from colonies picked off desoxycholate citrate medium, the morning after each of these appendicectomies had been performed. The twelfth strain of *Shig. sonnei* was isolated a day later from a subculture made on to a desoxycholate citrate plate, from selenite fluid enrichment medium in which the specimen had been growing for eighteen hours. The identity of each strain was verified by tube agglutination and biochemical testing (Rogers, 1954*a*): each strain was also tested for its sensitivity to antibiotics and sulphonamides.

As soon as a strain was identified the patient was transferred to the isolation ward and was given appropriate chemotherapy. The rapid identification of all these strains, at a time when the intestines of the patient were quiet following the operative interference, allowed all the infected children to be removed to the isolation ward before any post-operative diarrhœa developed. The introduction of chemotherapy, within a day of operation, may have aborted any attacks of diarrhœa or the patients may have only been carriers, but none of these patients developed diarrhœa: chemoprophylaxis was given to all the other children in the ward to which the infectious case had been originally admitted (Rogers, 1954*b*). It is noteworthy that during the dysentery pandemic of 1956 no surgical ward had to be closed to admissions because of the spread of dysentery.

The appendices were also cultured to demonstrate the presence of other organisms, including clostridia, by the techniques previously described (Rogers and Heslop, 1948). Except for the anaerobic cultures, and the incubation of the MacConkey and desoxycholate citrate plates, all these cultures were incubated in an atmosphere of 10% carbon dioxide: this probably accounted for the finding of Lancefield group F hæmolytic streptococci in 11% of the appendices, as Liu (1954) has shown that these "minute" group F streptococci grow better in an increased concentration of carbon dioxide. A few of the appendices provided heavy growths of pneumococci and *H. influenzæ*, and 34% grew *Cl. welchii.*

It is not suggested that salmonellæ or shigellæ are the cause of acute appendicitis but that sometimes acute appendicitis is associated with an enteral infection and that if cultures are made to demonstrate the presence of these intestinal pathogens it is possible to remove an infectious case from a ward before cross-infection occurs. It must be emphasized that there was a pandemic of Sonne dysentery in the year in which the above investigation was made and this may account for the relatively large proportion of the appendices from which *Shig. sonnei* was isolated.

REFERENCES

LIU, P. (1954) *J. Bact.*, **68**, 282.
ROGERS, K. B. (1954*a*) *Brit. med. J.*, **1**, 147.
—— (1954*b*) *Med. ill.*, **8**, 239.
——, and HESLOP, W. (1948) *J. clin. Path.*, **1**, 315.

The Treatment of Juvenile Thyrotoxicosis with Potassium Perchlorate

By Professor J. M. SMELLIE
The Children's Hospital, Birmingham

THE infrequency of hyperthyroidism in children renders knowledge and experience of its treatment limited and the merits and demerits of various therapeutic procedures are controversial. 6 children, aged from 6 years to 13 years have been treated with 200–300 mg. of potassium perchlorate daily. The duration of treatment has been from nine months to three years. In all, satisfactory clinical progress has been achieved and the children are now euthyroid. The only undesirable side-effect encountered has been a minor degree of hypothyroidism in two instances; none has had any gastro-intestinal upset. Iodine must not be given during perchlorate treatment.

Experience to date would appear to indicate that treatment will be required for a period of two to three years and perhaps even up to puberty.

It is not yet possible to say whether potassium perchlorate will restore all hyperthyroid children to a euthyroid state and thus render surgery unnecessary, but it does at least delay consideration of any operative procedures without detriment to the patient.

[This paper is published in full in the *Lancet* (1957) ii, 1035.]

Duodenal Obstruction in the New-born

By A. GOUREVITCH, F.R.C.S.
United Birmingham Hospitals

(In presenting this paper, I wish to record that Mr. Michael Lord has participated in the work of its preparation.)

CONGENITAL abnormalities are responsible for the hard core of neonatal deaths. Notable among these are congenital abnormalities of the bowel, and, in particular, obstruction.

The results of operative treatment particularly in the intrinsic group, have been disappointing and a number of factors, which I shall examine here, have contributed to this.

This paper concerns a series of 58 babies with duodenal obstruction admitted to the Birmingham Children's Hospital between the years 1939 and 1956. 49 were operated on; of the remainder 7 were considered too ill for surgery, a mongol was left, and in another, a malrotation, operation was not indicated.

I have separated duodenal obstruction from the rest of neonatal intestinal obstruction to compare conditions having a similar clinical and radiological picture. Furthermore, I believe that duodenal obstruction is ætiologically and in its natural history a different condition from jejuno-ileal atresia.