a view to ascertaining whether the organisms were limited to sewage from a localized area. The work was then discontinued owing to the onset of extremely cold and wet weather. The question of the distribution of enteric organisms in the other districts of the city therefore remains to be determined.

Since the city of Edinburgh is at present comparatively free from enteric fever, the presence of *B. paratyphosus* B in the sewage of a particular district is in all probability mainly due to resident "carriers," and it is significant that this district was the locus of an outbreak of paratyphoid B fever in 1927. The medical officer of health of Edinburgh, in his report for that year, has made special reference to sewage as a source of this outbreak. Owing to the inability of the main sewer of the district to carry off the excessive volume of water during a flood, two of the byre steadings concerned in the outbreak were inundated with overflow from drains and sewers near-by. It seems not unlikely that the milk may have become infected through contamination of the premises in this way. Of course, for the infection to have been thus transmitted the sewage dammed back into the byres must not only have contained the specific organism at the time in question, but must also have been fairly heavily contaminated in view of the dilution with the flood water. The presence of a "carrier" actually at or near the byres would, of course, increase the probability of this happening, but it must not be forgotten that such a "carrier" may have introduced the infection by more direct contamination of the milk vessels.

The suggestion is put forward that, by ascertaining the points of entry of the *B. paratyphosus* B into the various tributaries of the main sewers found to contain paratyphoid bacilli, "carriers" of the organism might be located with the help of public health officials. Criticism may be raised that the strains of *B. paratyphosus* B (Schottmüller) isolated might be of animal origin, for Jordan (1923) has recorded strains of porcine origin belonging to the Schottmüller type. In District A of the city, from which the sewage in question was obtained, there are a number of piggeries, but the rarity of strains of porcine origin and the small proportion of excretal matter from such piggeries in the communal sewage would render unlikely the possibility of these strains coming from such a source. The excreta from several of the piggeries in the district have been examined by the same methods as those which were applied to the samples of sewage, but no paratyphoid bacilli have thus far been isolated. The question, however, is still receiving attention.

SUMMARY.

1. *B. paratyphosus* B (Schottmüller) has been isolated by selective methods from 7 out of 20 specimens of sewage from the city of Edinburgh. Seventeen of the samples, including all the positive ones, were from one district, and were selected in view of the preliminary finding of the organisms in the main sewer of the district.

2. Comparison has been made of three selective methods: (1) Wilson and Blair's "glucose-bismuth-sulphite-iron-brilliant-green medium"; (2) Browning, Gilmour, and Mackie's brilliant green enrichment medium; and (3) Rakieten and Rettger's modification of the second. Any one of the three methods may fail to detect paratyphoid bacilli isolated by the others. Wilson and Blair's method has the advantage that it is a direct plating method, and the enrichment methods have the disadvantage that they tend to permit overgrowth of *B. fluorescens* and *B. proteus* types, which are prevalent in sewage.

3. The organisms are probably very unevenly distributed in the sewage.

4. No evidence has been obtained that paratyphoid bacilli survive for long periods in sewage.

5. The danger of the presence of *B. paratyphosus* B in sewage is discussed, particularly in relation to an outbreak subsequent to the flooding of two byres in 1927, and it is suggested that this method could be adopted in the tracing of "carriers."

6. The possibility of the strains of *B. paratyphosus* B isolated being of animal origin is considered unlikely.

I desire to express my thanks to Professor T. J. Mackie for his advice and guidance in the course of this investigation, and to the burgh engineer and his staff for their willingness in providing samples of sewage.

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TORSION AND STRANGULATION OF A HYDATID OF MORGAGNI.

BY

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I RECENTLY removed a strangulated and thrombosed hydatid of Morgagni which was giving rise to symptoms resembling those of mild appendicitis. Such a lesion must be very uncommon, and the following details would therefore seem to be of general interest.

A woman, aged 33, who complained of right-sided abdominal pain, was seen by me on August 6th, 1928. She stated that during the previous three weeks she had had several attacks of pain in the right iliac fossa. This pain was colicky in character, and had become so much worse during the last three days before she came to hospital as to provoke vomiting on several occasions.

Her menstrual history was as follows. The last regular period was on May 8th; two months' amenorrhoea followed, after which she experienced irregular losses containing clots, but no obvious products of conception. She had had three pregnancies, all of which resulted in healthy children at full term. In 1921 she had an attack of pain in the right lower abdomen, which was diagnosed as appendicitis, but cleared up without operative intervention. She had never had any similar pain until the present time.

On abdominal examination pain and tenderness were found low down in the right iliac fossa above the lateral third of Poupart's ligament, and slight rigidity over the lower right rectus muscle; no other abnormality was noted. The temperature and pulse were both slightly raised—99.4° F. and 80.

A vaginal examination revealed that the cervix was soft; the external os admitted the finger-tip; the body of the uterus was normally anteverted and anteverted, and was enlarged to the size of a nine weeks' pregnancy. On the left side there was palpable an ovarian cyst, about two inches in diameter; on the right side the adnexa were not easily palpable, and rather immobile. A diagnosis was made of incomplete abortion, possibly due to right-sided oöphoritis secondary to inflammation of a pelvic appendix.

On August 20th, under spinal anaesthesia, I confirmed these findings by a further bimanual examination, and explored the uterine cavity, from which were removed several necrotic fragments of placental tissue. Pelvic laparotomy was then performed in order to investigate the condition of the appendix and the adnexa on the right side. The appendix was long and showed some slight thickening, but was not markedly abnormal; there was an ovarian cyst on either side, and hanging from the fimbriated extremity of the right tube was a reniform body, black in colour, and measuring about 3/4 by 1/4 by 1/4 inch, in the position in which one would expect to find the hydatid of Morgagni. It showed two well-marked twists in its pedicle, and was much larger than the normal hydatid on the left side. The peritoneum covering it was thick and lustreless. This body was removed without salpingectomy, and appendicectomy was performed.

The appendix, examined subsequently, showed signs of some chronic but no recent inflammation. The reniform body, on pathological examination, was pronounced to be a strangulated hydatid

of Morgagni, and is preserved in the Pathological Museum of the University of Oxford. The patient made an uninterrupted recovery.

This case has seemed worthy of record rather on account of the rarity of the condition than of its clinical significance. I have failed to find any allusion to this lesion in the literature of the subject, nor do any cases appear to have been published recently, at least in this country, America, or on the Continent. It would be interesting to know whether previous cases have been observed but not published.

The description of the original colicky pain was suggestive of a uterine origin, and was attributed to the incipient abortion, but the severe right-sided pain which induced vomiting did not begin until the abortion was almost complete—that is, three weeks later—when the uterus contained nothing but a few necrotic fragments. It seems not improbable that this pain was due to the stretching of the covering peritoneum produced by the engorgement of the strangulated hydatid. No cause was found for the torsion. The ovarian cysts were both simple follicular cysts following an old perioöphoritis, which had produced on the right side a few inconsiderable adhesions; the appendix presumably could have had nothing to do with the condition.

TORSION OF THE APPENDIX OF THE TESTIS (HYDATID OF MORGAGNI).

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THIS condition appears to be one of rare occurrence, in view of the fact that we can find no reference to it in standard textbooks or recent English literature. It is therefore of interest that during the year 1928 we have each operated on two such cases at the Queen's Hospital for Children. All four cases we were able to diagnose before operation.

In each case the patient was a boy aged 12 years, and had not attained puberty. The cases demonstrated a marked similarity of onset and subsequent history, and the following case may be taken as typical.

The patient, five days before admission, complained of sudden pain in the right testis, without history of trauma. There was no vomiting or constitutional disturbance. Pain continued in spite of rest in bed, and on attendance at hospital the following condition was observed. There was swelling and tenderness of the whole testis, the skin of the scrotum was reddened and oedematous, and the spermatic cord was thickened throughout its length. On palpation a small body, about the size of a pea, was felt lying between the upper pole of the testis and the globus major. This small swelling was exquisitely tender, and not freely movable.

At operation the tumour was found to be of a deep plum colour, and obviously full of blood clot. There was marked oedema of the spermatic cord. The tumour was in the position of the hydatid of Morgagni, and had a pedicle, which had obviously undergone torsion. The pedicle was ligatured and the hydatid removed. On microscopic examination the following report was obtained: Section shows organizing blood clot undergoing degeneration; here and there are cystic spaces lined with flat unciliated epithelium.

The patient was immediately relieved after operation, and made an uninterrupted recovery.

In one case of five days' duration the hydatid showed signs of commencing sloughing. Another case was brought to the hospital six hours after onset, and already demonstrated oedema and reddening of the scrotal skin. Two cases occurred on the right side, and two on the left.

In conclusion, we wonder if this condition is really of rare occurrence, or whether these cases are frequently treated as orchitis of unknown origin, and left until the twisted hydatid sloughs, and resolution eventually occurs; presumably a painful and protracted process.

VARICOSE VEINS: THEIR MODERN TREATMENT BY SCLEROSING INJECTIONS.

METHODS AND TECHNIQUE OF "SICARD AND GAUGIER"
AS PRACTISED AT THE HÔPITAL NECKER, PARIS.

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SCLEROSING injections for the treatment of varicose conditions have emerged successfully from the trial stage and are now almost universally regarded as being safe, effective, and the treatment of choice for varix.

The object of treatment is to obliterate the whole or part of the veins concerned in the superficial circulation of the limb—namely, the internal and external saphenous veins and their branches. These veins run in the subcutaneous tissue and have no support except their own walls; when the superficial circulation is occluded the blood returns by the deep veins, which are well supported by the muscles of the leg.

The principal points of interest to the doctor who intends taking up this work are: (1) methods of selecting cases suitable for treatment; (2) technique of injection; (3) choice of sclerosing fluid and strength of dosage; (4) number of injections necessary and interval between each; (5) the pathological effects of injection on the vein; (6) after-effects and possible complications. The advantages of this method are that when properly administered injections are safe and certain in their results, cause little pain or discomfort, and the patient need not lie up.

A bewilderingly large literature on injection treatment is being added to daily; most of it is interesting and helpful, but a lack of agreement on the essential points just mentioned is unfortunately a frequent and salient feature. In the confusion thus caused many who wish to take up this work find it difficult to decide what procedure to follow. Ill results of a serious character following treatment are being reported with increasing frequency, and are mainly due to defective technique and lack of authoritative knowledge on the subject. As it is universally conceded that it is to Professor Sicard of Paris we are indebted for establishing, in 1916, the treatment of varicose veins of the limbs by injection as a safe and effective procedure (the idea had been experimented with unsatisfactorily for seventy years), those who are about to adopt this method of treatment for the first time will be wise to follow the methods of this, the greatest authority, or at least adopt those methods as a sound basis on which to found their own experience. (The principle of employing sclerosing fluids for treatment of varix was, however, first successfully put into practice by British doctors, but only for the treatment of haemorrhoids. Morgan and Colles of Dublin were the pioneers seventy years ago, and Mr. Swinford Edwards, whose house-surgeon at St. Mark's Hospital it was my privilege to be, first introduced the method to this country, his article in the *British Medical Journal* of October 13th, 1888, being still one of the most instructive.)

Sicard's opinions and advice on this subject are as authoritative as Ehrlich's on the treatment of syphilis by arsenical injections. His special clinic at the Hôpital Necker, Paris, is of world-wide reputation, and here he and his colleagues, Gaugier, Paraf, Forestier, Haguénau, and Lermoyez, have treated many thousands of cases, necessitating hundreds of thousands of injections, with excellent results and without a single serious mishap.

Sodium salicylate is the sclerosing injection they recommend, and since the publication of their results many other workers, acknowledging their indebtedness to Sicard's work, have endeavoured to find, if possible, an even more effective chemical for injection; quinine (Génévrier), mercury biniodide (Montpellier and Lacroix of Algiers), glucose (Nobl), the citrate (Troisier), chloride (Linsler), and carbonate of sodium, and other solutions, all have now their own advocates. Every new sclerosing fluid recommended by any authoritative worker is given an