not appear to last for long, as relapses are quite common. A second attack may occur within six weeks after the first, and the same type of infection may arise winter after winter.

The pathogenic types of Pfeiffer's bacillus may be very fastidious as to their growth requirements, and unless the culture medium is correct may not grow at all. For this reason their presence is often undetected. Frequently they will not grow on blood media unless in close proximity to other organisms. In this particular case the mouth was rinsed out with a fairly strong antiseptic, to get rid of the ordinary salivary organisms before the sputum was expectorated.

DESCRIPTION OF FIG. 2

Fig. 2 is a photomicrograph of a primary culture from the nasal secretion of a case of sinusitis following upon a Pfeiffer bacillus infection of the respiratory tract. Note again the very numerous colonies of this organism. The inset circle shows a smear of this nasal secretion, which confirms the very heavy bacillary infection. The sinusitis, which followed a course of extreme chronicity, eventually disappeared after prolonged immunization with an autogenous vaccine. We have also found that vaccines are of value in the prevention and treatment of the tracheitis cases.

RETROGRADE (TRANSGASTRIC) OESOPHAGOSCOPY FOR CARCINOMA OF THE OESOPHAGUS

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(With Special Plate)

In a recent paper on the subject of carcinoma of the oesophagus¹ it was stated that the introduction of radon seeds through the oesophagoscope was of necessity an empirical procedure, as thereby it was possible to irradiate only the upper end of the stricture. The idea subsequently occurred that it might be feasible to attack the lower end of the growth from below, and experiments were made on the cadaver with the object of determining whether it was possible to pass an oesophagoscope upwards through the stomach, and if so how far.

It was found that with the back supported by a block the instrument could be passed with ease nearly as far as the cricoid (Plate, Figs. 3 and 4). It was then decided to try the experiment on a suitable patient, and one such, who had previously undergone peroral oesophagoscopy and insertion of radon seeds into a growth at the level of the fourth dorsal vertebra, was selected.

Technique

The steps of the operation are as follows. Under intratracheal anaesthesia, with the gall-bladder rest raising the lower ribs, the stomach is delivered through a generous left paramedian incision. A portion of its anterior surface is isolated with a clamp and incised longitudinally for a distance of one and a half inches, the cut edges being oversewn to obviate bleeding, preferably with a buttonhole stitch. The clamp is released and reapplied right across the stomach distal to the incision, and the stomach contents are removed by means of a suction apparatus. The left hand is then passed along the anterior surface of the stomach to the oesophageal hiatus of the diaphragm, in order to facilitate the insertion of the oesophagoscope, which is passed under direct vision through the opening in the stomach and up into the oesophagus.

During this manoeuvre the beak of the instrument must be kept close to the lesser curvature of the stomach, as

otherwise it is liable to slip into the fundus and the direction is lost. The appearance of the oesophagus and its respiratory excursions are exactly similar to those seen from above, but the pulsation transmitted from the heart to the oesophagoscope is much more forceful, as the proximal end of the instrument is not fixed as it is in the mouth. The radon seeds are inserted into the growth by means of a Jobson's trocar and cannula, as described in the aforementioned paper, and the oesophagoscope is withdrawn.

The opening in the stomach is sutured and infolded in the usual manner and the abdomen closed. A gastrostomy tube can be left in if required, but should not be necessary if the patient has been fit enough to undergo the laparotomy.

Case Records

The above procedure has been carried out on two patients who had previously had peroral seeding, with recovery from operation in both cases. It is, of course, only justifiable when inspection of the upper end of the irradiated growth shows healing of the ulcer as evidence of the radio-sensitivity of the growth.

In the first case ulceration was visible at the site of the lower end of the growth, and a subsequent skiagram showed that the distance over which the shadows of the radon seeds were visible had been increased from 1½ to 3 inches. (Figs. 1 and 2.) This patient died later from ulceration of a tracheal extension of the growth into the innominate artery, and at post-mortem examination it was seen that the oesophageal ulcer was fairly well healed and had a smooth base and edge, although there was extensive peri-oesophageal growth.

In the second case inspection from below showed that the lower edge of the ulcer had been healed, but there was a stricture which would not admit a No. 25 bougie. More seeds were inserted in case there was growth beyond the line of vision. In this case the length of oesophagus irradiated was one and a half inches, the vertical extent of the growth being small. This patient is still alive and well nine months after the commencement of treatment, and can swallow bread-and-butter, mince, potatoes—in fact, anything except lumps of meat.

Comment

Although oesophagoscopic irradiation of carcinoma is still obviously suitable only for cases where the growth has not spread beyond the wall of the gullet, combined irradiation from above and below is a step in advance of the restricted and somewhat haphazard irradiation which results from attack on only one edge of the tumour. In conjunction, however, with deep x-ray therapy, which is the only means of irradiating the peri-oesophageal region without having recourse to a serious operation, the method appears to have distinct possibilities. The x-radiation must, of course, take place before radon seeds are inserted, as otherwise harmful secondary radiations would be set up by the rays impinging on the platinum seed-capsules which are left in the oesophageal wall.

W. W. Spink and D. L. Augustine (*Journ. Amer. Med. Assoc.*, May 18th, 1935), who record their observations on thirty-five sporadic cases of trichinosis occurring in and around Boston during the last three years, maintain that the disease is common in the United States, and that the majority of cases are mild. The commonest sources of infection were raw and cooked pork sausages, pork chops, boiled ham, and raw pork sandwiches. The most reliable diagnostic sign was the presence of eosinophilia, which usually began in the second week, reached its height in the third to fourth weeks, and then gradually declined. The skin test usually became positive about the seventeenth day of infection and the precipitation test at the end of the fourth week. Other laboratory tests, such as search for the parasite in the stools, blood, or cerebro-spinal fluid, were usually unsuccessful.

¹ Jobson and Steele: *British Medical Journal*, 1934, i, 233.

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FIG. 1.—Skiagram of first case, showing accessibility for insertion of radon seeds from above.

FIG. 2.—Skiagram of same case four months later, showing additional needles inserted from below.

FIG. 3.—Photograph showing effective range of oesophagoscope by the trans-gastric approach.

FIG. 4.—The oesophagoscope in situ.

[The captions for figs. 3 and 4 should be transposed.]