normal; when this takes place urotropine is given until the urine is free from bacilli. If the case is persistent—that is, if the *Bacillus coli* can be obtained from a catheter specimen of the urine after the above treatment—then if an autogenous vaccine be used a permanent cure generally results.

The case I have quoted apparently quite cleared up. Its interest to me was to note how easily one might have missed it.

Tuberculous Peritonitis.

As a rule there is little difficulty in diagnosing this condition—I am referring particularly to the form which occurs in children. I have seen a large number of such cases, and what has always struck me about them is the extraordinary recovery that takes place, even when the most extreme type of the disease has been present.

There is little doubt, I think, that the tubercle bacilli are of the bovine type, which does not seem to have the same destructive power as the human; or it may be the abdominal organs and their coverings do not afford a soil helpful for the growth of the bacilli; or, again, the protective properties of these organs may be antagonistic to the bacilli's growth. At any rate, we know clinically that when bacilli attack any organs other than the lungs and brain, the prognosis is more favourable.

We meet this disease under two conditions, or rather two types—the ascitic and the plastic—the former characterized by a large amount of fluid, and the latter by tumours and irregular masses.

I am strongly in favour of medical rather than surgical treatment. I would trust to plenty of fresh air, good food, and particularly sun whenever possible. I rarely or never recommend laparotomy. I know that this is contrary to most surgical minds, but if we only have patience and allow sufficient time for rest under favourable conditions the reward will be a very large percentage of recoveries in the full sense of the word. I have not seen the surgical success which most of our books and surgeons suggest to us.

Acute Red Rash following Wounds.

We must have all seen universal scarlet skin rashes following on wounds, whether these have been produced by the surgeon or by infectious disease. Many years ago Mr. Howse, then assistant surgeon at Guy's Hospital, wrote a paper in the *Guy's Hospital Reports* attempting to prove—which he did to his own satisfaction—that these rashes were due to the infection of scarlet fever. The diagnosis between scarlet fever and the ordinary septic causes is, of course, most important, and a mistake may lead to disastrous consequences.

I have come to the conclusion that these rashes, although exceedingly like that of scarlet fever, are almost invariably due to septic causes, but I would make the proviso that where there was a possibility of any scarlet fever infection in the immediate neighbourhood of the patient, I would take all the ordinary precautions which are adopted in an infectious case. It is almost needless to say that it is when the rash first appears that the difficulty of diagnosis arises. In a few days the diagnosis settles itself, but then it may possibly be too late.

On Difficulty of Breathing in the Obese.

In some cases we are primarily consulted for difficulty of breathing, which does not improve until a general course of treatment is adopted. The cases I am thinking of occur both in women and men, at ages between 50 and 70. These patients are stout, indolent, well-to-do, and enjoy the good things of the table. It will be found on inquiry that the shortness of breath is not permanent, and is often associated with a particular increase or unsuitability of food. On examination the left heart seems enlarged, impulse feeble, and the pulse is quick and weak; the bowels are constipated, and albumin may be present in the urine. Such patients sometimes complain of tenderness and weight over the liver, and a general lassitude of mind and body; their nights are often sleepless or restless. At first sight one is tempted to give heart tonics and stimulants. I am not prepared to say that this is wrong, but under these, without other means, the patient does not improve. The diet requires to be very carefully regulated, food given in small bulk, solid rather than fluid, and about every three

hours. The bowels must be kept free; perhaps the most valuable drug at this stage is calomel given frequently in small doses. It is advisable for the first few days, if possible, to keep the patient in bed, as the free opening of the bowels may produce faintness and syncope if the patient is up and about. As soon as the patient is better, moderate exercise should be insisted on, and a general plan of moderation in all things enjoined.

I think that the breathing difficulty is brought about by the flabby condition of the heart setting up some dilatation, and that this is followed by pulmonary and liver congestion, the original cause being overloading of the abdominal organs from excessive or unwholesome foods, together with the absence of exercise or good air, and the inability to dispose of the waste products. At any rate, my experience is that no amount of tonics, whether cardiac, nervous, or intestinal, have any real effect until the patient adopts a rational system of living.

THE USE OF LIPIODOL IN THE DIAGNOSIS OF BRONCHIECTASIS.

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In certain cases presenting clinically the signs of a cavity in the upper lobe of one or other lung the persistent absence of tubercle bacilli from the sputum and a somewhat indefinite radiograph of the thorax suggest the possibility of bronchiectasis rather than tuberculosis, and the diagnosis is often extremely difficult. In children tuberculous cavities are not uncommon in the lower lobes of the lungs, and, on the other hand, cases of hepatic abscess and of subphrenic abscess produce such obscure signs in the lungs that it is sometimes very difficult to determine whether suppuration is occurring above or below the diaphragm; here again ordinary radiographs often give little or no help. By injecting lipiodol before employing x rays, however, a clear picture of the bronchi is obtained, bronchial dilatation of even slight degree is definitely shown, and localization of vague shadows becomes very much simplified.

Lipiodol, a vegetable oil containing 40 per cent. by weight of iodine, was first introduced into radiology by Sicard, for the localization of tumours of the spinal cord,¹ and Forestier, who suggested that it might be used for the diagnosis of broncho-pulmonary affections, and it was later employed for this purpose in adults by Sergent and Cottenot.² Lipiodol has been used extensively³ by one of us (P. F. A.-D.) in the case of children clinically supposed to be suffering from pulmonary tuberculosis in whom the diagnosis was not confirmed by other means—examination of sputum, inoculation of the sputum into guinea-pigs, complement fixation tests. Signs of a cavity in the middle or lower third of the lung in such cases might equally well be due to bronchiectasis, interlobar pleurisy communicating with a bronchus, pulmonary abscess, or hydatid cyst; by the use of lipiodol definite diagnosis has been possible.

Cases of frank tuberculosis should not be submitted to this method, for the congestive action of the iodine may produce harmful effects, and even in doubtful cases an ordinary radiograph may clearly indicate a diagnosis. There remain a certain number of cases where its use is invaluable.

Method.

The patient is placed in position on an x-ray table so that a photograph may be taken immediately after the lipiodol is introduced; a preliminary injection of morphine is given half an hour previously. A pillow is placed under the shoulders so as to extend the neck, and the skin is prepared as in the ordinary tracheotomy operation. Two syringes, of 2 c.cm. and 5 c.cm. capacity, are prepared, containing 1 per cent. novocain, and the lipiodol is sterilized in a container in a water-bath. A strong syringe of 20 c.cm.

capacity is also sterilized, and a piece of flexible tubing and a metal connexion are attached to it. When everything is ready the contents of the smallest syringe are injected subcutaneously in the region of the crico-thyroid space so as to render the parts anaesthetic. A fine trocar and cannula of about 1.5 mm. bore, curved like a tracheotomy tube and fitted similarly with a flange and with tapes for tying round the neck, is then passed strictly in the middle line into the trachea through the crico-thyroid membrane. Instruments of varying sizes, as in the case of tracheotomy tubes, are employed according to the age of the patient. The operator stands on the right of the patient and steadies the cricoid and thyroid cartilages with his left hand while he inserts the trocar with his right. An assistant greatly facilitates working with the necessary speed. As soon as the cannula is in place the patient coughs; the trocar is withdrawn, and a draught of air indicates that the cannula is in position in the trachea. The novocain solution in the 5 c.cm. syringe is now injected into the trachea; the first few drops may provoke further coughing, but this quickly disappears.

The lipiodol has meanwhile been drawn into the largest syringe and it is now injected very slowly through the cannula at a rate of about 3 c.cm. a minute. About 10 c.cm. are necessary to inject the bronchi of a child of 7 to 14 years, and after a little experience the amount required is easily judged. By turning the patient to one side or the other the bulk of the oil can be caused to flow into one or other lung if one side of the thorax is particularly suspected.

FIG. 2.—Large dilatations of the bronchi.

The cannula is now withdrawn and a radiograph of the chest is taken immediately in the horizontal position. The patient can now be screened and photographed in a vertical position. The patient suffers little or no inconvenience; in one case symptoms suggesting asphyxia occurred, but the pulse remained normal and the child recovered. Symptoms of acute iodism, including oedema of the larynx, have been reported in another case, and it is suggested that in persons

particularly susceptible to iodine this method should not be employed. Otherwise the use of lipiodol has not so far been attended by any accident. The oil remains in the bronchi for some time, as can be shown by later radiographs, but it gradually disappears. Possibly lipiodol could be employed in this manner for its therapeutic effects.

FIG. 1.—Multiple small bronchial dilatations.

obtained after the injection of lipiodol are very striking (Fig. 1). In one case with a history and physical signs strongly suggesting bronchiectasis the ordinary radiograph was considered to be in favour of a diagnosis of tuberculosis. After the injection of lipiodol, however, the clinical diagnosis of dilatation of the bronchi was completely confirmed (Fig. 2). In a case of tuberculosis lipiodol was employed to inject a cavity at the apex, and a very striking picture was obtained (Fig. 3). This is, however, as we have indicated above, not a practice to be followed.

FIG. 3.—Tuberculous cavity at the apex of the lung in a child of 15.

We are indebted to Dr. Darbois, radiographer to the Tenon and Debrousse Hospitals, for the x-ray photographs.

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