11 years of age, I have been able to detect such crepitations in 81, or just over 30 per cent. In this connexion it is well to bear in mind that children—especially the younger ones—often flinch a little when the stethoscope touches the chest, and the slight tremor causes the skin to rub against the instrument, and thus gives rise to a friction sound almost indistinguishable from crepitant râles. In strumous children the skin is often dry and rough, and these pseudo-crepitations are the more easily produced.

I have not infrequently been asked to confirm a diagnosis of pulmonary tuberculosis in children when I could find no evidences of pulmonary disease on examination of the chest. It is, however, well to give a guarded opinion in these cases. Tuberculosis of other organs—bronchial glands, for example—may be present and cause the symptoms which have suggested the diagnosis of phthisis. If that be the case, the lungs will probably become affected sooner or later; and, in any case, the line of treatment will not be affected by the presence or absence of tubercle in the lung. Proper treatment commenced in good time may prevent extension to the lung, or may cure the disease if it has already attacked these organs; delay until definite physical signs present themselves may materially diminish the chances of recovery.

There are certain aids to diagnosis which may in some cases be of use. The *x* rays may possibly disclose some consolidation in the lung which gave no sufficient evidence of its presence on physical examination. Injections of tuberculin might give clear indications of the presence of tuberculosis, though not of its seat. I have on other occasions given my reasons for having discontinued the use of tuberculin and for considering its use for diagnostic purposes to be risky.

I have not sufficient experience of taking the opsonic index to express any opinion as to its value in assisting diagnosis in doubtful cases in children.

The difficulties of diagnosis are not confined to those cases in which the symptoms and physical signs are few in number and indefinite in character. Pleural effusion may be mistaken for tuberculous infiltration of the base of the lung, and even when consolidation of the lung is undoubtedly present it may be difficult to determine its cause—whether due to the action of the tubercle bacillus or of some other morbid micro-organism, such as the pneumococcus or the influenza bacillus. Pneumonia affecting the apex of the lung may sometimes be only distinguished from tuberculosis by a microscopical examination of the sputum.

In this connexion I may briefly refer to a case recently under my care in hospital:

CASE V.—A girl, aged 14 years, was admitted as an emergency case supposed to be suffering from acute tuberculosis of the lung. She gave a history of three weeks' illness. On admission she was obviously acutely ill, with hectic appearance; temperature 103.4° F., pulse 128, respirations 32. There was deficient movement of the right chest, dullness on percussion all over this side, with bronchial breathing and fine moist crepitations. In the left lung there were scattered sibilant rhonchi, with some fine râles at the base behind. I expressed the opinion that the case was one of pneumococcic rather than of tuberculous infection, and this view was subsequently confirmed by the presence of pneumococci in the sputum, which was free from tubercle bacilli. The girl remained acutely ill for a fortnight, and then she developed a swelling of the right knee, suggestive of tuberculosis, which subsided under treatment after about ten days. The general symptoms and the temperature had begun to improve a few days previously, and her recovery was ultimately complete. She remained under observation for about six months, and at no time were tubercle bacilli found in the sputum.

PROGNOSIS.

The large mortality from pulmonary tuberculosis in children shows that the prognosis must always be a guarded one. The proportion of cases in which healed tuberculosis is found in children who have died from other complaints is evidence that recovery from tuberculosis is not infrequent even in infancy.

To a certain extent we may take it as a rule that the younger the child the more grave is the outlook. We have to bear in mind, however, the greatly increased mortality, in girls especially, after the age of 10 years, and I think we may take it as certain that a large amount of this

increased mortality occurs in girls at about the age of puberty. The age of puberty is variable, but is generally in this country within the limits of 12 and 15 years of age.

I have repeatedly pointed out that in girls who become phthisical within these ages the prognosis will be much influenced according as menstruation has or has not already commenced. I have found that tuberculous girls at about the age of puberty in whom menstruation has not commenced have a much better chance of recovery than those who have already menstruated (see Case IV). As I have expressed it, it appears as though a reserve of energy stored up for the completion of sexual development may be diverted from its purpose and utilized in combating the tuberculosis. Puberty in these cases is delayed until the disease has become arrested.

A few words in conclusion as to treatment.

The most important requirement is to put the child under proper hygienic conditions. Life in the open air, good and sufficient food, cleanliness, and a proper amount of rest and sleep, are the essentials. As a rule I consider that children are much better not kept in bed, unless the fever is high and the weakness extreme.

There is a question of much importance with regard to children over 6 or 7 years of age, namely that of education. Ought they to attend school, or have lessons of any kind? I believe they are all the better for having lessons, excepting in acute cases. Without some occupation they tend to become fretful, dissatisfied, and tiresome. If not overpressed, and especially if the lessons can be taken out-of-doors, they will benefit physically, mentally, and morally by carrying on their education whilst under treatment. We must bear in mind that the cure of tuberculosis in children, as in adults, is not a matter of days, or even of a few weeks.

Treatment—in the sense of hygienic management under medical supervision—may be required for months or even for years, and in education we cannot afford to waste the most valuable years of life.

For the poorer children seaside schools—such as the City of Paris has established on the coast for its tuberculous children—and forest (or open-air) schools—such as have been instituted in Berlin—have a great value, both prophylactic and curative. Residential schools on the East Coast for tuberculous children, and open-air lessons in the school playground, or even in the London parks or in Epping Forest, are worth consideration.

Economically, it is more advantageous and less costly to keep the children free from tuberculosis and to treat those who become infected than to attempt to cure the consumptive adult.

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A CASE OF ACTINOMYCOSIS OF THE ABDOMINAL WALL

PRODUCED BY AN INFECTED FOREIGN BODY WHICH HAD ESCAPED FROM THE INTESTINE.

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THE history of the following case is of interest from the way in which the probable mode of infection was demonstrated.

History.

J. J., a carter, a strong, healthy-looking man, aged 46, was admitted into hospital on April 11th, 1905, complaining of a "lump in the side," which he had noticed for six months.

On exposing the abdomen a distinctly localized prominence could be seen, on the right side, touching internally the semi-lunar line and extending outwards beyond and above the anterior superior iliac spine and iliac crest. When the man

contracted the abdominal muscles the prominence became much less distinct, warranting the belief that the mass lay beneath the superficial layer of muscles at any rate. On palpation, a hard mass with somewhat irregular outline could be felt; it appeared to be slightly movable laterally but not in any other direction, and it could not be separated from the deeper parts. The skin over the swelling was normal in colour and freely movable; there was not the slightest tenderness of the swelling or abdomen. The patient had first noticed that there was anything wrong six months earlier, when he had discovered a small lump in the side, which had been slowly increasing in size since then. It had never given him the slightest pain; he had had no trouble with the bowels, which had acted regularly every day, and he had never suffered from indigestion. There was no history of syphilis or, indeed, of any ill-health. The family history was also good. The pulse-rate was 74 and the temperature 99.2° at night.

I was unable to come to any satisfactory conclusion as to the nature of the disease. From the slightly raised temperature at night I was inclined to think that it was inflammatory, and hazarded the suggestion that it might be tubercle, very chronic inflammation around the caecum or appendix, or actinomycosis. I did not feel justified in excluding syphilis or malignant disease. If the diagnosis was in doubt, the course of treatment to be pursued was not, and I decided to attempt to remove the mass.

Operation.

Operation revealed the fact that the mass involved the transversalis muscle and peritoneum, and slightly the internal oblique muscle, and was closely attached everywhere to the ascending colon. This attachment was, however, easily separated without cutting the coats of the bowel except at one spot where the adhesion was firmer and the peritoneal coat was nicked. The tumour was completely removed with a margin of surrounding muscle and the wound closed in layers in the usual manner. Convalescence was uneventful.

Description of Tumour.

The tumour on section cut like hard fibrous tissue and the cut surface had that appearance, but the outer part was harder and denser than the inner. The centre consisted of similar tissue containing numerous small areas of yellow softening of various sizes; the contents of some were liquid and pus like. One of these spaces was much larger than its fellows, and contained a small spearhead-like body like a piece of straw.

From the naked-eye appearance there was little doubt that the disease was actinomycosis, and microscopical examination, which was kindly undertaken for me by Dr. Charles Porter, of the Bacteriological Department of Sheffield University, confirmed this, typical filaments of the ray fungus being found in plenty, the small spearhead-like body being made out to be part of the husk of an ear of wheat. Such pieces of straw have been found in actinomycotic deposits both in man and in animals, especially when the jaws have been the seat of the disease (Bostrom, Soltmann), and are believed to be the means by which the infection is introduced.

The course of events in this case was probably this: A piece of infected straw bearing spores of the ray fungus was swallowed by the patient; the small particle found perforated the colon and entered the abdominal wall, setting up the disease there, leaving as evidence of its passage the adhesions between the bowel and abdominal wall. Bearing on this view is the interesting paper by Mr. Bland-Sutton, drawing attention to the ease and frequency with which small foreign bodies, pieces of straw, metal, etc., perforate the large bowel and produce tumour-like inflammatory swellings and abscesses in the abdomen, their more or less firm attachment to the bowel wall pointing to the mode of origin; he cited a case in which a lump about the size of a bantam's egg in the left iliac fossa was shown at operation to be inflammatory, adherent to the bowel, and to contain in its interior a piece of straw.

The following further information obtained from my patient subsequent to the operation throws further light on the above views. For at least eighteen months previous to the discovery of the abdominal condition he had had a very decayed molar tooth which he was accustomed to pick with a piece of straw. He was hardly ever without a piece of straw in his mouth when at work. Three months before he noticed the lump the tooth broke off, and he did not put a piece of straw in his mouth again.

REFERENCE.

1 *Lancet*, October 24th, 1903.

THE late Mr. William Chapman, of Warminster, whose will has now been proved, left £100 to the Warminster Cottage Hospital.

THE VALUE OF CALCIUM IODIDE IN THE TREATMENT OF ULCERS.

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LAST April, in a short memorandum, I published some good results I obtained from calcium chloride in the treatment of chilblains. Sir A. E. Wright had about nine years previously published the result of his work on the same subject with an elaboration of detail that I did not attempt.

I was particularly impressed by the remarkable readiness with which the broken chilblains responded to the treatment. A broken chilblain is an acute ulcer, so that the administration of calcium chloride had the good effect of causing acute ulcers to heal. One of the broken chilblains that came under my notice had been very much neglected and as a consequence had become very offensive, and almost gangrenous if smell were the sole criterion. After two days' treatment with calcium chloride the smell from this foul ulcer had almost disappeared. Soon afterwards I had occasion to see in adult or elderly people some offensive chronic ulcers of the leg, having a characteristic and objectionable odour not easily removed by the usual methods of nursing them. I use the word "nursing" as it better describes the mental attitude of the average medical man with regard to these sores. The usual experience is to find that the ulcer may after a lengthy period close up, only to break down on the least provocation. Even after the ulcer has closed, the scar and the surrounding skin often appear weak and unhealthy. The consequence is that medical men give up all hope of getting any good results, and pay little attention to this common but chronic ailment.

The good effect produced by calcium chloride in removing the offensive smell from an acute ulcer suggested to me the possibility of an equally good result in chronic ulcers. With this object I ordered two patients—each of whom had, in spite of cleanly and careful nursing, a very foul ulcer—to take 15 gr. of calcium chloride three times a day. The result was beyond expectation, and in a few days the two ulcers were practically free from smell. In addition to this improvement I was very pleased to notice that the edges of both ulcers had begun to take on a typically healing appearance.

I afterwards placed several other patients under the same treatment, and in nearly all cases the response was ready and good. Instead of the usual *statu quo ante*, I found a series of healthy-looking ulcers from day to day. In addition to the improvement in the edges of the ulcers, the surrounding skin to the extent of 2 to 3 in. began to take on a healthy appearance not usually associated with even a healed ulcer. In some of the cases, however, after a period of healthy activity, the healing process became slower, and in two or three cases ceased altogether.

For a few days calcium chloride increases the coagulability of the blood, then this effect ceases; and remembering this I hesitated to proceed with the treatment in the cases of chronic ulcer. Feeling, however, that I was on the right track, and that possibly a slight modification of the treatment would be attended by beneficial results, I decided to try calcium iodide—a very deliquescent crystalline salt, which on exposure to air readily gives off iodine. The only reference to it that I came across was in Hare's *Therapeutics*, where the one fact stated is that the dose is 2 to 4 gr.

The benefit derived from the calcium iodide was more than could be expected, for its effect in reducing thick, callous edges into thin, healing ones was little less than miraculous. This may appear a rather extravagant phrase, but I know that some who have seen this marked effect will bear me out in every particular, and that others who try the drug will find their results equally encouraging.

CASE I (aged 47).

April 5th: Ulcer on left leg $3\frac{1}{4} \times \frac{3}{4}$ in. Placed on calcium chloride; 15 grams three times a day.

April 10th: Ulcer diminished all round. A band of skin has grown across the centre, dividing the original ulcers into two smaller ones $\frac{3}{4}$ in. and 1 in. long respectively.

April 17th: These two ulcers reduced to $\frac{3}{4}$ in. and $\frac{1}{2}$ in. long.

April 21st: Both ulcers healed.