In order to control the results of a comparison of the average weights before and after thallium, and of the average normal weight classified according to age periods, the average weights after thallium according to height were compared with the average normal weights for the same heights. Table IV shows the average weight in kilograms according to height in inches four months to two years after thallium in 51 male children, and one to two years after thallium in 25 female children.

TABLE IV.—*Males and Females*

Height in Inches	Males		Females	
	Average Weight 4 months to 2 years after Thallium	Average Normal Weight	Weight 1 to 2 years after Thallium	Average Normal Weight
35	15.9	14.1	—	—
38	16.6	15.9	—	—
40	19.1	17.4	16.3	16.8
41	16.8	18.2	21.3	20.58
43	19.8	19.4	22.2	21.8
44	20.3	20.2	22.6	22.4
45	21.2	21.3	24.8	23.9
46	21.9	22.6	27.2	25.59
47	23.8	24.9	30.7	28.1
48	24.6	25.8	30.4	29.5
49	24.4	26.7	29.0	30.9
50	26.9	28.1	32.7	34.5
51	28.1	23.5	—	—
53	28.6	32.7	—	—
55	34	35	—	—

An analysis of Tables II and III shows, first, that immediately before the administration of thallium the average weight according to age of the 51 male and 25 female children dealt with in the investigation compares favourably with the average normal weight for the corresponding age periods. The weight of the males up to the age of 7, and of the females up to the age of 9, is practically identical with the average normal weight, but in the later age periods it is anything from 1.4 to 5 kilograms below normal. The difference is greatest in the males. It is to be noted, however, that in both cases there were fewer children in the age periods 9 and 10 years than in the age periods 4 years to 8 years. In Table II the average weight of the same children four months to two years after thallium is seen to be on the whole better than that for the corresponding age periods immediately prior to the administration. Table I shows that this improvement cannot be due entirely to a redistribution of the children into different age periods, at least for the period six years to eight years, since almost the same number of children appear in these groups before and after the administration of thallium. In Table II there is a fall in weight below the average normal weight for the age periods 9, 10, and 11 years, and this corresponds to that found in the average weight, before thallium was given, for the periods 8, 9, and 10 years. The average weights of the female children one to two years after thallium administration is quite appreciably higher than the corresponding average normal weights.

Table IV shows that in both male and female cases the height four months to two years, and one to two years after thallium administration bears a normal relationship to the weight; and Tables II and III show that the average height at a similar period after

thallium administration is normal for the various age periods. In males the height for the age periods 10 years and 11 years is below the average normal, but this corresponds to the subnormal average weight for the same periods. As the period elapsing between the first and second weighings varied in most of the children, no attempt has been made to ascertain the average increase in weight during this interval of children of corresponding age periods or heights.

CONCLUSION

Examined from several aspects the weights and heights of both male and female children four months to two years after thallium administration do not appear to show any gross deviation from the normal. In fact, below 10 years of age the figures are, if anything, slightly better than normal. Using the weights and heights observed in this investigation as standards on which to interpret physical development, and taking into account the results of a general medical examination, there is no evidence to show that the continued normal growth and nutrition of children are adversely influenced or interfered with as a result of the previous administration of thallium acetate in sufficient quantity to produce epilation of the scalp.

PERITONITIS DUE TO PERFORATION OF THE BOWEL BY FOREIGN BODIES

BY

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LEEDS

The following report (communicated to a recent meeting of the Leeds and West Riding Medico-Chirurgical Society) of the personal experiences with a fish bone which had been swallowed by one of us (A. H.) may be of general interest.

During October, 1929, I began to suffer from pain between the shoulder blades, which seemed to originate in the stomach. There was no pain over the stomach in front. The pain commenced as a feeling of discomfort, gradually developing a very definite character, varying greatly in intensity and in duration. When the pain was at its worst it gave rise to a feeling as if the chest would burst open. I thought at first it was angina, but soon decided that it was not so. Then I thought it was duodenal in position, and naturally wondered if an ulcer was the cause. I found out that the attacks came on mostly in the afternoon, when the stomach was empty. The pain could be cured by taking a drink of some kind or a biscuit. As I have not eaten lunch for forty years my stomach is always empty in the afternoon. The attacks of pain gradually got more severe, and the last attack I suffered from was on July 22nd, 1930. For a month prior to this date I had been in bed suffering from the effects of a motor accident. This period of rest did not alter the attacks of pain in any way. On July 24th I voided, per anum, a fish bone (Fig. 1). I have never had an attack of pain since.

FIG. 1.—A photograph of the fish bone swallowed.

Dr. Walter Garstang, professor of zoology in the University of Leeds, informs me that the bone is the

post-temporal bone of the whiting (Fig. 2). It is one of a string of bones attaching the pectoral girdle to the back of the skull. From the shape of the bone one can see that the pain was caused by the bone presenting at the pyloric orifice with the two prongs in front, so that it was impossible for it to pass in this way. Taking something into the stomach evidently had the effect of dislodging it for the time being. The bone presented a

FIG. 2.—Showing the position of the post-temporal bone of the whiting.

dark appearance, no sign of digestion being apparent. I suffer from pernicious anaemia and have achlorhydria, which may account for the bone not having been digested.

The case is interesting because of the length of time the bone was retained in the stomach. It seems a wonder the bone did not perforate the stomach wall, and it was only a fortunate chance which allowed the bone to pass the pylorus.

It may be that many of the cases of atypical duodenal ulcer one sees are due to bones and other objects being in the stomach. A few years ago I removed from a man's rectum a piece of twig three inches long and three-sixteenths thick, which had been embedded there for four years. In this case the man had suffered from indigestion for a long time before the pain was transferred to the rectum.

Commenting on this case the other author (G. A.) referred to the case of triple perforation of the ileum by fish bones (brill) reported in the *British Medical Journal* (1928, i, 307), and suggested that it was advisable to be always on the look out for foreign bodies perforating the bowel wall as a possible cause of an unexplained peritonitis, labelled idiopathic or haematogenous, somewhat unsatisfactorily in many cases.

Three days later the following case was referred to hospital by Dr. Sinton of Headingley.

W. L., aged 62, a clothworker, was admitted to hospital on January 12th complaining of severe generalized abdominal pain. This pain commenced very suddenly, and without warning, twenty hours previously, across the lower abdomen, giving rise to a strong desire to defaecate. It was of a colicky type, with only occasional brief intervals of relief, bringing him almost double to the floor, and making rest quite impossible. Nausea was present from the beginning, but vomiting did not occur until nine hours later. All symptoms increased in severity, compelling him to call in Dr. Sinton, who dispatched him to hospital immediately. On admission the patient looked ill and was cyanosed. Pulse rate was 120, temperature 97° F., blood pressure 140/80, respirations 20. The tongue was dry, dirty, and coated. Examination revealed a hard, rigid abdomen, which could not be overcome, and which was extremely tender. There was slight pain on flexion of the right leg. Rectal examination revealed high anterior tenderness, but was otherwise negative. A diagnosis of general peritonitis was made with no little assurance, but the cause remained obscure. The patient volunteered no information when he was asked if he had

swallowed a foreign body. Operation was carried out immediately under spinal novocain anaesthesia (150 mg. in 15 c.cm. cerebro-spinal fluid; level 1-2 dorsal) after preliminary medication consisting of hypodermic injections of morphine 1/4 grain, atropine 1/100 grain, and adrenaline (1 in 1,000) 15 minims. Free sero-purulent effusion was present in the general peritoneal cavity, especially in the lower part. A normal appendix was removed. Having in mind, in view of the recent discussion, the possibility of a foreign body, a perforated diverticulum, or a stercoral ulcer of the large bowel proximal to a growth, the surgeon on searching the pelvis felt a sharp foreign body projecting from the anterior aspect of the lower sigmoid colon. This proved to be the sharp end of a rabbit's rib, which when removed measured 2 inches (Fig. 3). This bone was shown to the patient at the time of removal, and he at once remembered having partaken somewhat vigorously of a hearty dish composed of rabbit, onions, and potatoes two and a half days prior to the onset of the pain. The perforation was sutured, infolded, and an omental graft placed over it. The peritoneal cavity was drained. Convalescence proceeded uneventfully, and the patient was discharged from hospital cured four weeks later.

FIG. 3.—Showing the rib bone of a rabbit, which had perforated the lower sigmoid colon, giving rise to general peritonitis. (Natural size.)

The case is placed on record because it is felt that, occasionally, foreign bodies perforating the bowel and producing general peritonitis are missed. It is advisable in these obscure cases to inquire very carefully into the nature of meals partaken prior to the onset of the malady.

We are indebted to Mr. Collinson, under whose care the patient was admitted, for permission to report the case, and to Miss E. M. Wright for Figure 2.

THE GONOCOCCAL COMPLEMENT-FIXATION TEST

BY

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The object of this paper is to demonstrate the need for the complement-deviation test as a means of efficient diagnosis and treatment of gonorrhoea. Although much work has been done in Europe by R. Förster,¹ A. Cohn,² and P. Timoféeff,³ in America by Kolmer⁴ and Kilduffe,⁵ and in this country by Thomson,⁶ Osmond,⁷ and Osmond and Oliver,⁸ it is regrettable that the merit of the test is not more appreciated, and that it is, in consequence, insufficiently used. The opinions expressed below are based on the study of the clinical histories and serum reactions of approximately 7,000 cases.

RATIONALE OF THE TEST

The test, the technique of which I have described elsewhere,⁹ is highly specific (0.03 per cent. false positives in 1,133 cases¹⁰), but it must be clearly understood that it demonstrates the presence or absence of specific gonococcal antibody in the blood, and not the presence of gonococci in the tissues. Thus all results must be read in conjunction with the clinical history, and judged accordingly. The production of the specific antibody depends on: (a) the age of the infection; (b) the anatomical spread of the disease; (c) the reaction of the