infancy or childhood. Happily the labours of Camidge have now made it possible for us to recognize, by examination of the urine and faeces, whether a morbid condition of the pancreas is present in any given case. We know that in mumps the gland is not seldom attacked, its implication in typhoid fever, as I have shown,⁸ is capable of demonstration, and it seems not improbable that it is in some degree affected in many of the acute specific fevers. What relation, if any, such incidents bear to the later onset of diabetes we have no remotest idea; but the subject may well repay attentive inquiry. The inaugural disturbances in so important a gland as the pancreas may perhaps have consequences the vastness and the importance of which are hardly realized to-day.

These are some of the instances, not by any means all, perhaps not even the happiest, which might have been selected, in which a commencement has been made in the investigation of the inaugural symptoms of abdominal diseases. It has seemed to me desirable and appropriate to call attention to the necessity for a closer and more intimate study of all diseases in their earliest beginnings. We must shake off the incurious apathy which seems now to possess us in reference to all those early, no doubt often "trivial," disturbances of health which lead slowly or swiftly, none the less surely, to disorders of so grave a character that serious or formidable measures become necessary for their arrest. It is chiefly, I think, to the general practitioner that we must look for the most effective help in this research. It is he who sees the cases first, and it is he to whom the occasion and the opportunity come for the early diagnosis. I believe it to be true that our textbook descriptions of the clinical aspects of many diseases are based upon the manifestations which are present when that disease is in its full career or is hastening to the end. The terminal rather than the prodromal symptoms receive detailed description. This was, of course, inevitable in the days when the confirmation of the diagnosis could only be made at the time the dead body was examined. Now our opportunity is greater and our responsibility clearer. It is, I think, by a closer and more intimate examination of the anamnesis, followed by a precise investigation of the parts affected during the life of the patient, that our knowledge of the earlier phases of diseases will come. By this means we shall be able by degrees to remove the reproach that now justly attaches to much of our work in the surgery of the abdominal viscera—the reproach that we are so often "too late."

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Remarks

ON THE

RHEUMATIC ORIGIN OF CERTAIN
SEROUS INFLAMMATIONS.

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THE rheumatic origin of serous inflammation of the pericardium is recognized by every one and has never, I think, been called in question, but a similar source for inflammation of other serous membranes is less willingly conceded. Why this should be so—why, for instance, a serous membrane in the abdominal cavity should be held to be exempt from a source of illness to which a serous membrane in the thorax is admitted to be prone, is a mystery of which I have never heard a satisfactory explanation. One may assert, or one may deny, this immunity from rheumatic inflammation of the abdominal serous membrane, and a proof in either direction is not easy to arrive at. The success or failure of anti-rheumatic treatment should, however, afford testimony the significance of which could not be entirely ignored; and if in any case there arose some fresh manifestation

common to rheumatic illnesses, the suggestive evidence thus supplied would deserve to be carefully weighed before being rejected as empty or inconclusive.

Some years ago I saw in consultation with Dr. A. B. Rendel a robust little boy of 2½ years who was suffering from acute appendicitis. It was the third day of the illness, and I found the child lying with his right knee drawn up and presenting all the characters of a sharp attack of the inflammation. There was, in addition, a soft and evidently quite recent systolic murmur heard at the apex of the heart. Now several months previously I had had an opportunity of making a thorough examination of the boy, and am sure that at that time the heart sounds were absolutely healthy. Moreover, Dr. Rendel had examined the heart with the other organs at the beginning of the illness two days before my visit and was satisfied that the heart sounds then had been perfectly clear. There was no pain or tenderness complained of in the joints, and the illness had in all respects the features of an ordinary attack of inflammation of the appendix. Sodium salicylate was ordered, and the inflammation very quickly subsided; but the heart murmur persisted, and the child's temperature ranged from 99° to 100° for ten days after the signs of appendicitis had disappeared. I heard recently from Dr. Rendel that the murmur was still audible, after three years, but that compensation was complete.

In this interesting case the cardiac murmur occurred suddenly in the course of an inflammatory disease, and the presumption is strong that it was also due to inflammatory agency. The patient had been quite healthy up to the time of the attack. He was not anaemic or cachectic, or in any way ill-nourished or in such a condition as originates and maintains a temporary disturbance of function. Moreover, the murmur did not subside as the disease passed off, but remained as a permanent feature, which even in a cursory examination could hardly escape attention. It is difficult, then, to reject the belief that there must have been some connexion between the inflammation in the abdominal cavity and the valvular inflammation, or that the two lesions were a consequence of the same general cause. That this cause was not an infection of the valve by any virulent microbe such as the *Bacillus coli* is evident from the mild character of the symptoms. Infective endocarditis is a complaint of the utmost gravity which gives rise to urgent and distressing symptoms, and too often proves fatal. In any case the illness is long and tedious, and convalescence imperfect and slow. In the case recorded the cardiac complication in no way increased the severity of the attack, for this ran a short and easy course, and soon came to an end. The subsidence of the disease followed very quickly upon the adoption of anti-rheumatic treatment; but, leaving that out of the question, it is difficult to suggest any other explanation of an inflammation attacking at the same time a serous membrane in two different parts of the body than to presume that in each case its origin was the same; and, as the valvular inflammation had all the familiar characters of a mild rheumatic endocarditis, to attribute the inflammation of the appendix to a similar rheumatic source. Were it otherwise, we should be forced to conclude that a mild valvular inflammation can be set up by other than rheumatic agency in a child who is free from infectious fever or constitutional disease, and whose insignificant general symptoms forbid the suspicion of infection of the valve by a virulent micro-organism. Personally, I believe rheumatic appendicitis to be a common complaint. The inflammation is severe at first, and gives rise to all the symptoms which we are used to associate with this form of illness; and, in the absence of other manifestations of the rheumatic dyscrasia, I know of no other way of distinguishing it from the infective variety than by observing the almost immediate improvement which sets in under the influence of the special treatment. In former days, when no one ever thought of operating—at any rate, at an early stage—and every case of "typhilitis" was treated by rest and opium, the patients usually recovered after an illness of a week or ten days. Now, under the sodium salicylate, improvement in this, the rheumatic, form of the complaint, generally begins well within forty-eight hours of taking the first dose of the medicine, and is usually completed before the end of the week.

Instead of a circumscribed local inflammation, the illness may take the shape of a severe general peritonitis. The following case seems to me to be capable of no other explanation than that it was an instance of rheumatic inflammation affecting the peritoneum.

A young man about 22 or 23, well built and robust, left Liverpool on a very cold day at the end of his holiday to return home.

He entered the train in perfect health, but in the course of the journey was seized with violent pains in the abdomen, and felt very ill. On arriving at Euston it was all he could do to creep into a cab and drive to his home at Surbiton. Dr. H. F. T. Chambers was at once sent for, and found the young man in a very grave state, suffering from a general peritonitis. Twenty-four hours later I saw the patient with him in consultation. The young man's condition was then most serious; his abdomen was tense, greatly distended, and everywhere excessively tender; his pulse small and hard, and his face pale and drawn and ghastly in the extreme. He was so desperately ill that I spoke with great caution as to his chances of recovery, which I feared were of the slightest, and Dr. Chambers was of much the same opinion. The patient was already taking morphine. As there was a strong rheumatic tendency in the family, we ordered 20 grains of sodium salicylate to be taken every three hours, on the chance of the inflammation being of this nature, but I left the house with small expectation that this or any other treatment would be found of the slightest avail. In spite, however, of our gloomy anticipations, the result was as happy as it was unexpected. In twenty-four hours after beginning the medicine there was a great and unmistakable improvement, and at the end of another twenty-four hours the patient was declared to be out of danger. He was convalescent by the end of the week.

Now this case, which had all the appearance of an attack of general peritonitis of the most virulent character, changed its whole aspect with unlooked-for rapidity, and it is surely not unreasonable to assume that this fortunate result had some connexion with the treatment adopted. I may repeat that the condition of the patient at my visit appeared to both Dr. Chambers and myself to be almost hopeless, and yet in the course of twenty-four hours the improvement was such as to justify the most sanguine expectations. If it be conceded that this happy change was due to the sodium salicylate, the inference that the inflammation of the peritoneum was of a rheumatic nature seems to me to be unavoidable. The after-history of the case is interesting. I heard recently that the patient left Surbiton shortly after his recovery, and Dr. Chambers lost sight of him. He learned, however, indirectly that the young man had remained perfectly well for two years and had then had an attack of appendicitis, for which he was operated on and recovered. It would be interesting to ascertain the nature of this attack, of which I have been able to learn nothing. It may very possibly have been of the same nature as the first. Certainly at the time of my visit, if the physical signs had been limited to the right side of the abdomen I should scarcely have dared, in view of the extreme urgency of the symptoms, to take the responsibility of opposing an operation.

I venture to submit that the two cases narrated above furnish evidence which cannot be lightly dismissed as to the nature of some attacks of serous inflammation in the abdomen, and suggest, at any rate, the possibility that these may at times have a rheumatic origin. If this be granted, it is advisable in all cases of appendicitis to begin the treatment with a few substantial doses of the salicylate of soda, for the rheumatic element cannot be excluded until the result of treatment by this remedy has been ascertained.

I have seen not one or two, but many, cases of appendicitis in which the question of operation was being considered which underwent such rapid improvement under antirheumatic treatment that all idea of surgical interference was quickly set aside. If the treatment fail—that is, if no improvement be noticed within thirty-six hours of taking the first dose of the salicylate (which should be of substantial quantity and given every three hours)—the assumption of a rheumatic origin for the inflammation may be definitely abandoned.

A NEW code of instructions recently issued by Dr. H. E. Armstrong, Medical Officer of Health for Newcastle, for persons entering the enteric fever pavilion of the City Hospital for Infectious Diseases, gives fuller recognition to the risk of direct propagation of this disease than any similar code which has come under our observation. In addition to ordinary precautions in regard to the treatment of stools, urine, and other discharges, it is laid down that all persons entering the pavilion must don and button up one of the special garments provided and wash and disinfect their hands on leaving. Friends of the patients are not to be allowed to kiss them or to sit on their beds, and inhalation of the patient's breath or of foul air from beneath the bedclothes is to be avoided as far as possible. After handling any patient a nurse is at once to wash and disinfect her hands, and everything used in the wards is to be carefully protected from flies.

ABDOMINAL AUSCULTATION AS AN AID IN DIAGNOSIS.

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IN 1705 a posthumous work by Robert Hooke¹ was published, in which he suggested "that it may be possible to discover the Motions of the Internal Parts of Bodies . . . by the sound they make, that one may discover the works performed in the several Offices and Shops of a Man's Body, and thereby discover what Instrument or Engine is out of order, what Works are going on at several Times and lie still at others." In this connexion he mentioned the noises produced by the "motion of wind to and fro in the guts." But it was not until exactly two centuries later that the first serious attempt was made to analyse the numerous sounds which can be heard on listening to the abdomen. In 1905 Cannon² succeeded in demonstrating the rhythmical production of sounds in the stomach and small intestines of normal individuals. Though I have been able to confirm his observations on a few occasions in the stomach, I have never recognized any rhythm in the sounds produced in the small intestine. On the other hand, in a paper published in the *Guy's Hospital Reports* for 1907³ it was shown that the sounds heard over the caecum undergo definite and important variations in the course of the day.

We listened on a number of occasions at short intervals throughout the morning and afternoon to the sounds heard when the stethoscope was placed over the caecum of normal individuals. Before deciding that any series of sounds originated in the caecum, we listened to other parts of the abdomen, in order to determine whether anything similar in character and rhythm could be heard elsewhere. In the morning before breakfast, about twelve hours after the last meal had been eaten, no sounds could ever be heard over the caecum. The silence continued until between three and a half and four and a half hours after breakfast, when a few sounds could be heard, which were quite distinct from anything present in other parts of the abdomen. The sounds gradually became louder and more frequent, until they reached a maximum in one hour to two and a half hours after their commencement. After this it is not of much use to listen again to the caecum, as the relation of the sounds to the time at which breakfast was taken is confused by the taking of other meals.

An ounce and a half of bismuth oxychloride was taken with the breakfast on one occasion by four different individuals. It was found with the *x* rays that the appearance of a shadow in the caecum immediately followed the occurrence of the earliest sounds in the right iliac fossa. In those investigations in which auscultation was practised without skiagraphy, the first caecal sounds were always heard at about the time that *x*-ray observations had previously shown that the first traces of the food would reach the caecum.

We have thus in auscultation a means by which the rate of passage of the contents of the small intestine from the stomach to the caecum can be measured. Auscultation may therefore take the place of skiagraphy, when the latter cannot for any reason be used, in the diagnosis of the rare cases in which constipation is due in part to the slow passage of food through the small intestine.

The sounds heard over the caecum are in all probability due to the actual entry of the fluid contents of the ileum into the gas-containing caecum. Their loudness varies considerably in different individuals. When, five or six hours after a meal, the gas is largely replaced by faecal material, the sounds diminish in intensity and become less continuous. At all times they are louder in the upright than in the horizontal position, but for the first few seconds after lying down the sounds are generally loud and almost continuous, owing probably to the movements of the fluid contents produced by the action of gravity.

In 1903 Keith suggested from anatomical considerations that a strong ileo-caecal sphincter exists in man and most animals, as the transverse layer of the muscular coat of the ileum is greatly thickened where it enters the colon. In the following year Elliott⁴ proved experimentally that such a sphincter exists. He found that it was kept in a condition of moderate tonic contraction by impulses