staphylococcal infections at the same time has more power than the serum of those suffering from tuberculosis only.

4. The bactericidal action of my own serum after I had been inoculated with cholera and typhoid mixed vaccine was noticeable on both these bacteria, but otherwise was unchanged.

In conclusion, I must thank Sir Almroth Wright and the members of his staff who supplied me with the different materials for my experiments and gave me every assistance.

A CASE OF ACUTE RHEUMATISM OCCURRING IN THE TROPICS.

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With Notes on the Heart by HAROLD T. SKAE, M.D.

IN view of the important conclusion reached by Mr. J. T. Clarke in his paper on the Geographical Factor in Rheumatic Fever,¹ I think the following case should be fully reported. The number of diseases about which it can be definitely postulated that they do not occur in the tropics, becomes less year by year as the closer settlement of tropical areas brings increased facilities for clinical and laboratory research. This being so, it would seem rash to exclude the very large and important group of ailments comprised under the terms "acute rheumatism" and "rheumatoid arthritis" from tropical diseases, on the rather equivocal evidence of the annual returns quoted by Mr. Clarke, or even the limited experience of the very small number of tropical practitioners who have put their opinion on this point on record.

Acute rheumatism is a disease which calls for special and energetic treatment if it does exist, bearing a resemblance in that way to diphtheria, about which the following remark from Castellani and Chalmers's "Manual of Tropical Medicine" is instructive. In speaking of cosmopolitan fevers in the tropics they say: "Diphtheria is more common than generally stated, but is *apt to be overlooked* owing to the old belief that it does not occur in the tropics." It seems to me that we have here a grave warning against accepting without the very fullest evidence a negative finding as to the existence of any acute disease in such a wide and diversified area as the tropics. The following case is the first to which I have paid close attention, but doubtless many more of a similar kind have been passed over or been loosely diagnosed as "rheumatism" without prefix, which term, as Mr. Clarke reminds us, is now banished from the nomenclature of diseases.

Marthan, a Tamil boy, aged 10 years, was admitted to Kamuning Estate Hospital on June 28th, 1915, complaining of acute pain and swelling of both ankle-joints. He presented the following symptoms. Both ankle-joints were considerably swollen and so painful as to render walking impossible. On the slightest palpation the patient winced and cried out. That apprehension of touch which causes shrinking even when the movement is made as if one intended examining the joints was observed. The heart impulse was very diffuse and produced a wavy motion, easily visible over the cardiac region. The apex beat was situated half an inch below and one inch outside the nipple line. On auscultation there was present a loud blowing systolic

murmur. There was a history of slight fever for two days previous to admission. On admission the temperature was 100° F. There was no enlargement of the liver, and the splenic dullness was only very slightly more extensive than normal. Repeated blood examination gave negative results. No evidence of intestinal parasites was found on examining the faeces, either macro- or microscopically. Urine concentrated, no albumin. On the second day the temperature remitted, but rose again to 100° on the third day, and thereafter for three weeks it fluctuated, varying as to the first ten days between 99° and 101°, and afterwards from 98° to 100°. On the third day the case was seen and examined by Dr. McLean, who confirmed the presence of a very definite pericardial friction sound. From this date salicylate of soda, gr. v. thrice daily, was given. On the morning of the fifth day the left knee became swollen and painful. The pain in the left ankle had by this time subsided. By the tenth day the right knee had become very much swollen and was very painful. From this date the salicylate was increased to gr. x. thrice daily. Mr. Clarke saw the patient on the tenth day, but did not agree with the diagnosis on account of the absence of excessive sweating and anæmia. The presence or absence of sweating before this day had not been noted, but from then onward sweating was a marked feature. From this date the condition showed the fluctuation regarding the joints affected so characteristic of acute rheumatism. The cardiac condition also varied, but at no time was it normal. The pericarditis, however, was not evident. On the eighteenth day the boy was seen by Dr. Skae, who kindly reported on the heart condition as follows.

Notes on the Condition of the Heart by Dr. SKAE.

The chest is well formed for a Tamil boy of the patient's age. A diffuse wavy cardiac impulse is noticeable, having maximum intensity one inch outside the nipple line in the fifth left interspace. The diffuse wavy character is clearly felt with the hand. The deep cardiac dullness begins at the upper border of the second rib in the left parasternal line; on the fourth rib, just above and outside the nipple; and on the fifth rib, one inch outside the nipple line. The percussion dullness over the sixth rib in this line is resonant. The deep dullness extends on the right to one inch from centre of the sternum at the third interspace, and about one and a quarter inches at the fourth. The superficial dullness of the liver begins in the mammary line up the upper border of the sixth rib. There is dullness at the external angle of the fifth right interspace. On auscultation over the apical region the systolic sound is found to be accompanied by a soft, blowing murmur, audible as far as the mid-axillary line and faintly at the angle of the scapula. The second sounds are relatively loud both at the apex and over the tricuspid area. Over the aortic area the second sound is moderately loud. In the pulmonic area the first sound shows a roughish blowing systolic murmur, not traceable downwards towards the apex. In this area the second sound is noticeably low and frequently reduplicated. No pericardial friction rub was heard.

On July 24th the wavy impulse was less evident, but there was slight systolic retraction of the chest wall. Deep dullness now half an inch outside the left nipple line, in the fifth interspace, the upper border of the second left costal cartilage, and a quarter of an inch to the right of sternal margin. The heart was fairly regular, the systolic sound stronger, the apical murmur slight, accompanying and following the systolic sound. Accentuation of the pulmonic second sound was less marked. Over the apical region a rough superficial friction sound, of double rhythm and unmodified by cessation of respiration, was heard during some minutes, then lost, and again heard when the patient was made to sit up.

On July 27th the systolic murmurs were again louder in the apical and pulmonic areas. The rough pericardial friction sound was readily heard over the apical region, varying a good deal in loudness, but undoubtedly pericardial. The heart sounds were more distinct and loud than formerly.

On Sept. 1st the pulse was noticeably irregular, with occasional missed beats. The cardiac impulse had its maximum in the fifth interspace one inch outside the nipple line, the deep dullness extending from this to the right angle of the sternum. There was a faint blowing systolic bruit at the apex. It could be traced to the pulmonic area, where it was both louder and rougher. The second sound at the base was

¹ THE LANCET, June 5th, 1915, p. 1169.

slightly reduplicated, but the valves appear to close well. There was no apparent anæmia. No pericardial friction sounds were audible. The patient undoubtedly had an attack of acute pericarditis, and the cardiac condition was indicative of some degree of endocarditis of the mitral valve.

Taken in conjunction with the state and progress of the joints and the general history of the case, there can be little doubt that the cause of the cardiac lesions was acute rheumatism.

The case followed the usual rather tedious course. On the eighteenth day the right wrist was affected, this being the first, and only, time the upper limb was affected. It was most striking, because by that time both ankles had quite returned to normal and the patient and his attendants thought the trouble was nearly over, when he suddenly woke up one morning to find his right wrist swollen and so painful that he could not even attempt to feed himself.

Convalescence was slow, and it was only after nine weeks that he could be discharged from hospital, and even then, as shown by Dr. Skae's notes, the heart condition was far from satisfactory.

The diagnosis is simplified somewhat in this case by the youth of the patient. The disease for which it would be most easily mistaken is probably gonorrhœal arthritis. This boy has not yet reached puberty, as evidenced by the absence of secondary male characteristics. There has never been any infection of urethra or eyes. None of the joints commonly attacked by gonorrhœal arthritis, and rarely by rheumatism, were involved. Again, a gonorrhœal synovitis of this degree of intensity would not be likely to give rise to cardiac complications. The clearing up of one joint with the transference of inflammation to another is also not what one would find in gonorrhœal arthritis. General pyæmic infection is negatived by the course of the disease and the absence of suppuration. Rheumatoid arthritis would show bone deformity and lipping of cartilages, which were not present. Tuberculosis would have shown persistent temperature, and there would not have been the changing from one joint to another. Hereditary syphilitic arthritis is unaccompanied by fever or cardiac complications, and the affection is stationary in the joints first involved. There is no stigma of syphilis about the patient or his parents, all of whom were examined. Specific treatment, which was tried, had no influence on the condition.

It should be remembered that in later childhood, as in this case, the syndrome of acute rheumatism is modified in the most outstanding features. Thus Luff² says: "The profuse acid perspirations, so marked in adults, are not common in children." Baginsky³ says: "Careful examination of the blood does not show any special findings." Ibrahim⁴ says: "The joint pains are seldom so intense as to cause complete immobility." The same author also says that the temperature follows no particular type.

In view of the above facts I cannot see how this disease can be regarded as anything else than acute rheumatism, and I think the tropical practitioner who is called upon to treat a similar case—and they are not uncommon—will be well advised to diagnose acute rheumatism, and to institute at once the treatment and precautions suitable to that very serious malady.

Sungei Siput, Perak, F.M.S.

² "Acute Rheumatism," Gibson's Text-book of Medicine.

³ Pfaundler and Schlossmann's Diseases of Children, vol. ii.

⁴ Ibid.

THE RADICAL TREATMENT OF RHEUMATOID ARTHRITIS.

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It has long been surmised that the condition to which the name rheumatoid arthritis has been attached is of a toxic nature, and the evidence in favour of this view has of late years accumulated to such an extent that I need not here recapitulate it or discuss the various arguments with which it has been supported. Although, however, the toxic theory of the condition may be said to have gained very widespread, if not general, acceptance, it is a striking fact that the logical inference from it is only too rarely drawn—viz., that the treatment should above all be directed towards discovering and remedying the infective focus from which the pathogenic toxins have been absorbed. Anyone who has had the occasion to consider the matter extensively from this point of view must have been impressed, as I have been, by the prevailing neglect of this apparently simple principle, a neglect that entails most distressing consequences for the patient. If only this principle is taken quite literally and concretely valuable results can be achieved in the treatment of a malady that has hitherto proved singularly refractive to therapeutic effort.

There is no doubt that the usual line of treatment of rheumatoid arthritis by means of drugs, hydrotherapy, massage, electricity, radium, and so on is one charged with disappointment for both the patient and the physician, nor does the fact of its being carried out at a spa make the profound difference that one might be led to hope. After watching some hundreds of cases I have yet to see one in which the relief afforded has been other than either temporary or slight.

This unsatisfactory state of affairs I would attribute to the unambitiousness of the aims of such treatment, which is altogether palliative and does not attempt to remedy the pathogenic factors on which the morbid condition depends. I wish it to be clearly understood that I am not here referring to the acute destructive type of disease, the so-called "pyæmic" type, where there is a definite infection of the joints with micro-organisms. In the ordinary rheumatoid arthritis cases where the course is, on the whole, a chronic one punctuated by irregular exacerbations, I have invariably found that the fluid taken from the joints is sterile, as also is the blood. The disease is a toxic one and is due to the absorption of toxins, which first affect the nerve-supply to the joints and surrounding muscles; clinically it is found that disorganisation of the joints themselves is always a later phenomenon, often much later than the weakness and wasting of the muscles and the characteristic nerve pain. The obvious indication is, therefore, to search for, and deal with, the source of the toxic absorption.

There are certain predisposing causes to the onset of this disease, such as heredity, injury, exposure, worry, and malnutrition.

I may shortly comment on the result of my experience in the investigation of the cases from this point of view. The commonest foci of infection are enumerated below in the descending order of

EDITORSHIP OF THE "MILITARY SURGEON."—

With the new year this American journal is to be edited by Lieutenant-Colonel Edward Lyman Munson, well known as an author and as an investigator of matters of military hygiene.