Notes on rheumatism and its allies in childhood : introduction to a discussion in the Section of Diseases of Children / by Thomas Barlow.

Contributors

Barlow, Thomas, Sir, 1845-1945
Bryant, Thomas, 1828-1914
Royal College of Surgeons of England

Publication/Creation

London : British Medical Association, [1883]

Persistent URL

https://wellcomecollection.org/works/dhwy3pbu

Provider

Royal College of Surgeons

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

Bryant with Mr Thos Barlow's kind regards

NOTES ON RHEUMATISM AND ITS ALLIES IN CHILDHOOD.

Introduction to a Discussion in the Section of Diseases of Children.

BY

THOMAS BARLOW, M.D., F.R.C.P.,

Assistant-Physician to University College Hospital, and to the Hospital for Sick Children, Great Ormond Street.

[Reprinted for the Author from the BRITISH MEDICAL JOURNAL, Sept. 15th, 1883.

LONDON:

THE BRITISH MEDICAL ASSOCIATION, 161A, STRAND, W.C.

NOTES ON RHEUMATISM AND ITS ALLIES IN CHILDHOOD.

14

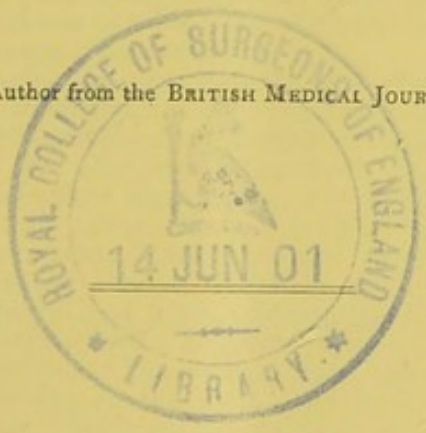
Introduction to a Discussion in the Section of Diseases of Children.

BY

THOMAS BARLOW, M.D., F.R.C.P.,

Assistant-Physician to University College Hospital, and to the Hospital for Sick Children, Great Ormond Street.

[Reprinted for the Author from the BRITISH MEDICAL JOURNAL, Sept. 15th, 1883.]



LONDON:

THE BRITISH MEDICAL ASSOCIATION, 161A, STRAND, W.C.

NOTES ON RHEUMATISM AND ITS ALLIES IN CHILDHOOD.

Introduction to a Discussion in the Section of Diseases of Children.

By THOMAS BARLOW, M.D., F.R.C.P.,

Assistant-Physician to University College Hospital, and to the Hospital for Sick Children, Great Ormond Street.

THE fundamental difficulty in discussing rheumatism consists in defining what we mean by it. A systematic definition seems impossible, until we know more of the pathogenesis. The rough and ready classification of joint-diseases into those in which suppuration occurs, viz., the strumous and pyæmic, and those in which suppuration does not occur, viz., the rheumatic, is inaccurate with regard to adults, and carries us a very short distance with regard to children. For there are in children many affections of joints, and of structures around joints, which do not suppurate, and yet are not rheumatic; and there is much rheumatism in children which does not affect joints. In our present ignorance, it would appear that the best way of arriving at a clinical conception of rheumatism is, in the first place, to agree on what we consider a typical case of rheumatic fever; to study, in such a case, the relapses, the sequelæ, and the recurrences, especially the slighter ones, of that affection. Then we ought to compare such a typical case with a series of others; and, by keeping records of the life-histories, antecedent as well as subsequent to the febrile attack, and of the ailments which are unduly frequent, when compared with their average incidence on the whole population, we may hope to elicit not only what is common, but what is special to the cases investigated. Thus, although we may be ignorant of what some people are pleased to call the entity of the disease, yet we shall be able to say that such and such affections are prone to occur in a person who has had acute rheumatism; or, conversely, that one who has such ailments is prone, under certain conditions, to get rheumatic fever.

It is in this provisional sense that the term rheumatic affection is used in the following paper. But, even on the threshold of the subject, it seems desirable, on practical grounds at least, to enumerate some of the affections in children, of bones and joint-structures which simulate rheumatism, but which are not strictly rheumatic at all. In young infants, it is not a very rare occurrence to have an insidious acute inflammation of one joint, especially the hip, but sometimes the knee or the ankle, which may go on to suppuration, but rapidly heal after evacuation. Such cases may, no doubt, occur, associated with suppuration along the track of the umbilical vein, of which I have seen at least one example; but very often there is nothing of the kind, and the source of infection remains a mystery. Most commonly, only one joint is affected. The distress and constitutional disturbance are often less than might be expected; the temperature may be not more than 100°; and yet the child often dies rather suddenly.

There is a characteristic affection of the ends of the shafts of the long bones in syphilitic children about three months old, in which there is inflammatory softening of the junction-area of the

shaft and epiphysis, associated with a variable amount of perichondritis and periostitis. The extremities of the limbs in a typical case lie helpless and immobile, whilst there may be almost no actual swelling. The disease is often symmetrical, and successive bone-ends may be affected. In most cases, the lesion is confined to the regions above mentioned; but now and then there is a concomitant single or multiple arthritis, and the effusion may be either serous or purulent.

I have known at least two cases of that rare disease of children, multiple periostitis of long bones, with some necrosis, mistaken for rheumatism. The successive implication of different bones, and the occasional involvement of the joint, give a certain parallelism; but the joint-affection, when it occurs, is always secondary.

In hæmophilia, there occur sometimes arthritic attacks, in which effusion takes place into joints, especially the knees. This effusion has been proved, in some cases, to be blood, and occasionally, after repeated occurrence, appears to seriously damage the joint-structures.

But sometimes there is effusion into the structures around the joint, which effusion is serous. The temperature may be elevated (I have known it as high as 102°), and slight sweating and pains in the limbs may occur. But morbus cordis, I believe, has never been known to occur in such an attack, or in the subsequent history of the disease; and there are, I think, some reasons for connecting it with gout rather than with rheumatism.

It would be foolish to mention simple rickets as a disease likely to be mistaken for rheumatism; but the curious spasmodic affection to which Trousseau gave the name tetany, and which, when it occurs in children, is almost confined to rickety children, deserves a passing reference: for this reason, that sometimes, at the onset of a sharp attack, there may, for twenty-four hours or so, be very decided swelling and some redness about the back of the wrist, associated with the characteristic so-called accoucheur's posture of hand. Swelling and redness may in like manner be found on the dorsum of the foot, when spasmodic contraction of the toes and the sole occur. To this occasional redness and swelling the term rheumatic has been applied by some German writers; but, whatever may be the explanation of this transient condition, there is nothing in the progress of the affection which will justify the use of the term rheumatic.

Some of the cases, described in Germany as "acute rickets," in which, with much general marasmus, there is a condition of immobility of limbs and more or less deep-seated swelling, extending for a varying distance along the shaft from the junction of the shaft with the epiphysis, have been regarded by other writers as rheumatic. The true nature of these cases, when associated with spongy gums, was pointed out by Dr. Cheadle as scorbutic; and I have been able to prove, on *post mortem* examination, that the swelling is due to subperiosteal hæmorrhage. It is doubtful, I think, whether the joint proper becomes involved in these cases; but, at all events, there is no justification for calling them rheumatic, in spite of the characters of tenderness, immobility, and successive involvement of different members which obtain in the clinical picture of the affection, and produce a *simulacrum* of rheumatism.

In the commencement of some cases of infantile paralysis, there is occasionally much to suggest an attack of rheumatism; and in not a few cases of the corresponding affection in adults, the mistake of confounding it with acute rheumatism has been made by able physicians. Early in the affection in a child, there may be great tenderness in the back and lower limbs, and intelligent mothers

have assured me, in two cases, that there was swelling of one knee. I have now under treatment a child in whom, for more than a fortnight, there was extreme tenderness, a little redness and heat, and considerable swelling of the dorsum of each foot, in an unquestionable case of infantile paralysis; and I have had one example under my care of effusion into one joint in an adult spinal paralysis of this type.

About the foregoing there can be little difference of opinion; but we come now to consider an affection as to the nature of which there may be very great difference of opinion, viz., scarlatinal rheumatism. It is common to speak in the text-books of rheumatism as a sequela of scarlet fever; and it is true that not unfrequently, during the early days of convalescence, undoubted rheumatic fever supervenes. Such attacks I have known characterised by arthritis passing to successive joints, endocarditis giving rise to persistent murmurs, and followed by permanent damage to the heart; the attacks themselves being the first of a series recurring from time to time, and in no way distinguishable from ordinary acute and subacute rheumatism.

But scarlatinal rheumatism is more often a complication than a sequela. Towards the end of the first, or the beginning of the second week, but, as I can testify, occurring as early as the third day, swelling in the sheaths of the tendons on the back of the wrists may appear, with redness, tenderness, and slight moisture of skin; and often along with or succeeding this there may occur pain and stiffness of the neck. Such mild attacks are not uncommon. But other joint-structures may be implicated, and there is a very definite subsidence under the influence of salicylate of soda, and a curious tendency in some cases to relapse.

In very rare cases, the effusion in one joint at least becomes purulent; and I have known cases of hip-joint disease develop as the result. Further, along with the joint-symptoms, there sometimes concur distinct cardiac murmurs both at the apex and at the base. It must, however, be stated that these murmurs sometimes develop without any joint-symptoms. Probably some of them, especially in the albuminuric cases, are the result of cardiac dilatation; but I doubt whether all of them are so. It is remarkable how many of them disappear entirely within a few months' time.

There is also in scarlet fever sometimes an affection of serous membranes parallel to what we find in rheumatic fever—viz., pleurisy and pericarditis; but I do not think this is more common in the arthritic than in the non-arthritic cases. It is important to remember how often (contrary to what is found in ordinary rheumatism) these scarlatinal effusions become purulent; and, if empyema be detected after scarlatina, how necessary it is to bear in mind, the possible involvement, though perhaps in less degree, of the opposite pleura and of the pericardium. Now, with respect to the affections of the joints and serous membrane affections, two, if not three, views seem tenable. We may look upon the joint-trouble as a scarlatinal arthritis—the scarlatinal poison, whatever that be, affecting the joint-structures just as it may affect the throat, the skin, and the kidneys. Or we may consider that it is due to purulent absorption —a form of septicæmia, perhaps dependent on the state of the throat, etc. But it must be remembered, in passing, that it is by no means necessarily in accompaniment with *severe* throat-affection that joint-symptoms occur. Thirdly, we may consider that scarlatinal rheumatism is due, not to purulent absorption, but to accumulation and retention of some of the waste products of the

scarlatinal process. This would bring it into some kind of parallelism with the doctrine of rheumatic fever, which makes acute rheumatic manifestations depend on an accumulation of so-called "fatigue-products" in the blood; and also with the remarkable observations of Dr. Foster relating to the appearance of arthritic manifestations during the administration of large doses of lactic acid.

To sum up, it seems possible that there may be at least two different forms; but, at all events, with regard to many of the cases occurring during convalescence, and with regard to the mild relapsing cases occurring towards the end of the first week, we must consider that, if not identical, they are indistinguishable from true rheumatism.

Let us now ask, what is meant by a typical case of acute rheumatism? By a typical case, I mean an illness lasting a fortnight or more, with temperature not generally more than 102°, with painful migratory effusions in the large joints, with profuse acrid sweating and eruption of sudamina and miliaria, and with variable implication of the pericardium and endocardium, of the lung and of the pleura. It is true that, occasionally, children suffer from such an illness; but, as a rule, it is quite otherwise. The duration of the fever is not so long; and, although in general, pyrexia is more easily set up in children than in adults, yet, in the rheumatism of children, this gives cause for little anxiety. In spite, also, of their great arthritic susceptibility, the joint-effusions are much slighter in amount and in number, and there is less pain. The sweating is decidedly less marked, and often amounts only to a little moisture of palms and soles. The acrid smell of the perspiration is either very slight or absent. But the pericardium and endocardium suffer, as all acknowledge, to a much greater extent.

Thus much in general terms; but, in order to get a surer footing, let us return once more to the consideration of adults, and, by recalling from our experience a series of cases in which all will admit that acute rheumatism occurs, note some few of the variations in symptoms and groups of symptoms to be met with. First, let us note the frequent occurrence of tonsillitis, either ushering in the fever, or preceding it by a week or two; also, the severe muscular pains, which may precede, but almost invariably succeed it; the stiff neck, which gives rise to some suffering during the attack, and often to still more after it; and the deep-seated backache, sometimes associated with such absolute helplessness, and tenderness on pressure, as to suggest —though we cannot prove it—that the joint-structures of the vertebræ may themselves be involved. What may be called the unstable period, just after the pyrexia has subsided, is, indeed, most worthy of patient study. The proneness to relapse, it may be in less typical form, though sometimes with greater severity so far as the viscera are concerned, is very noteworthy.

In this unstable period, which might justly be styled the *status rheumaticus*, we may have an erratic pyrexia, an insidious pericarditis, a fresh endocardial murmur, without any joint-manifestation whatever. During the initial attack, we frequently note, in the neighbourhood of affected joints, circular red patches on the skin. Such patches are probably coincident skin-lesions, rather than inflammatory redness due to extension from the joint-trouble. In what I have called the unstable period, these erythematous areas may appear on the limbs and on the trunk, either as imperfect circles, or as round slightly elevated patches, without any concurrent joint-affection.

Further, in the course of a moderately severe case in adults, even

in strong men, it is by no means rare to note, with the onset of pericarditis, the occurrence of distinct, though slight, choreic movements of the hands and face.

In the unstable period, and in early convalescence during the anæmia which is so striking a feature even after a slight attack of rheumatic fever, a slight degree of chorea affecting the fingers is not a very rare condition in young women, and can often be found, if it be looked for.

Other nervous phenomena may become dominant during the course of rheumatic fever. They often precede or accompany the hyperpyrexial attacks; but they may occur without hyperpyrexia.

In some of the hyperpyrexial attacks, we have the most conspicuous examples of the alternation, or, as the old writers called it, the metastasis of symptoms; for the joint-affections may entirely vanish, the patient throwing his limbs about in the most violent fashion; and the skin, instead of being bathed in perspiration, may become dry and pungent.

The tendency to recurrence of rheumatism is almost as marked a feature as that to relapse, and the after-attacks of rheumatism are as worthy of our consideration as the relapses. How often these consist of a day or two's inconvenience only, with slight effusion into a joint or the structures round a joint, or some vague muscular pains!

In the cases in which the heart has suffered, we are too apt to think of the patient's subsequent progress as depending on the mere mechanical considerations of cardiac compensation. But, in many of the febrile attacks of old rheumatic heart-cases, the solitary insidious intercalation of just one small joint-effusion may remind us that we have once again to deal with a rheumatic fever, the principal incidence of which is on valves or pericardium.

There are other recurrent attacks, and even primary ones, in which there may be acrid perspiration and pericarditis without any arthritis; and others in which slight pains referred to joints without any effusion are followed by pleurisy on one side, pneumonia on the other, and fresh heart-mischief.

Now I believe that a survey of the rheumatism of children will show, in addition to the general statements previously formulated with respect to the initial typical attack, that those manifestations which occur in adults as relapsing and recurrent forms, may appear in children as still more isolated and even as initial phenomena; but, when we study the entire life-history, subsequent as well as antecedent, we find very often that these are not really isolated phenomena, but only members of a series. Thus, without being unduly fanciful, we may, I think, regard the initial complete febrile attack occurring in an adult, as analysed into separate factors in a child, these factors being appreciable at different periods—some of them intensified, and others minimised.

It is only the life-history, and especially the succession or coincidence of symptoms, which will enable us to surmise that a given symptom, which by itself would be indeterminable, is in a child truly rheumatic. For example, again and again, cases of organic heart-disease in children are brought under our observation, and no rheumatic history is forthcoming. Excluding the cases due to congenital malformation, which it is generally possible to do, it is certainly wrong to rush to the conclusion at once that such cases of organic heart-disease are not rheumatic. When we recall how slight and brief the pain and swelling of a rheumatic joint may be in a child, we can readily understand how, especially amongst the poor, it may have escaped attention along with the concomitant initial

heart-trouble, which gave but little sign of its existence. On watching the further progress of some of these cardiac cases, we may find evidence—slight, but indubitable—of rheumatism; as, for example, the occurrence in a febrile attack of a transient inflammation of a single joint.

In connection with these rheumatic inflammations of single joints, I may also note the proneness in the members of a rheumatic family, which sometimes is very striking, to a simple synovial effusion, either in a single joint or in a tendon-sheath after some excess of muscular exercise, without any actual strain or blow. It is interesting to observe how a long day in the country, in the shape of a school-treat, will pick out the rheumatic children in the direction of swollen ankles or swollen knees. In the absence of previous history, which is often more or less unsatisfactory, are there any signs which will help us towards establishing the existence of rheumatism in doubtful cases? I believe there are. I may, perhaps, refer to some observations made by Dr. Warner and myself on a form of subcutaneous nodules found in children and rarely in adults also, and which we take to be a rheumatic manifestation.

These small masses, which are generally inconspicuous and painless, occur mainly in the neighbourhood of joints. The back of the elbow, the malleoli, and the margins of the patella, are the commonest sites. But other spots where they ought to be searched for are the neighbourhood of the vertebral spines, of the spine of the crista ilii, along the line of the clavicle, the extensor tendons of the foot and hand, the pinna of the ear, the temporal ridge, the superior curved line of the occiput, and the forehead. In the last three mentioned situations they are sometimes very abundant, and here, as elsewhere, often more palpable than visible. The size of these nodules varies from that of a pin's head to that of an almond; they are sometimes discrete, sometimes occur in groups, and are often symmetrical. They are subcutaneous, the skin generally being freely movable over them, and in most cases they are slightly movable on the deep fibrous structures with which they are associated. They are rarely painful, for which reason the patient and the patient's friends are often unaware of their existence.

A solitary nodule may be present, or crops of nodules may appear simultaneously in different parts of the body. Some may grow whilst others subside, and they may all disappear in a few weeks, even in a few days, or may, in rare instances, persist for many months.

Successive crops, with more or less complete intervening subsidence, are not unfrequent. We have notes also of recurrence of such nodules after one or more years' interval in the same individual. We have found that, structurally, these nodules differ but little from the deep areolar tissue around the tendons and aponeuroses with which they are associated. From some sections of one of these nodules made by our friend Mr. R. W. Parker, it was found to consist of wavy bands of fibrous tissue, with caudate spindle-shaped nucleated cells and abundant vessels. Some others which we have since examined, are very slightly vascular, and much more fibrous.

With regard to the clinical associations of these lesions, we have found that they occur in the course of, or as a sequel to, unquestionable rheumatic fever, with typical effusions in joints, etc.; but we have not seen these nodules developed around a joint in which at that time there was actual effusion. Very often only the history of pain in the joint and limb can be obtained, without any evidence of swelling.

There has frequently been observed in these cases the occurrence of erythema marginatum, and several of the patients developed chorea. Out of twenty-seven consecutive cases investigated, there was reason to believe that some morbid cardiac condition obtained in every one. In several, pericarditis developed under observation; and in two the existence of old pericardial adhesion was subsequently established *post mortem*. In nearly half the cases, the cardiac disease was seriously progressive; that is to say, valvular murmurs altered, and dilatation increased, and the use of digitalis and the enforcement of rest seemed of no avail. Necropsies were obtained in five cases; in all these, there was mitral disease, with dilatation; in four, there was disease of the mitral and tricuspid valves; in three, of the mitral, tricuspid and aortic valves; in four, pericarditis.

From their connection with the fibrous tissues, from their spontaneous tendency to more or less complete subsidence, their proneness to relapse and recurrence, their clinical association especially with heart-disease, we think it will not be denied that these nodules are truly rheumatic lesions. It is probable that their recognition in a given case, where the history of joint-affection and even of pain is equivocal, may assist us by pointing out the tendency to rheumatism. Further, as their evolution is often unattended by pyrexia, they may be of interest, as forming a link between certain forms of rheumatoid arthritis on the one hand, and, on the other, the acute and subacute forms of rheumatism, which have this in common, viz., the proclivity to heart-complication. If it be permitted to speculate as to the homology of these nodules, I should like to suggest that, considering their structure and natural history, they may perhaps correspond with the inflammatory exudation which forms the base of a cardiac vegetation, on the top of which latter a cap of fibrine may or may not become deposited. If that be taken as a provisional hypothesis, I think it helps us to picture to ourselves the possibility of the occurrence of some thickening of the ostium of a valve, which may afterwards disappear, or may become the starting-point of a slow fibrosis. As a final observation, I may mention that, in one of my cases, the pericardial adhesions in some places had a distinctly nodular character; and that Dr. Angel Money has recently found, in a case of rheumatic nodules where there was extensive pericardial adhesion, a distinct nodule invading the heart-substance, extending from the pericardium inwards.

Having considered these subcutaneous lesions, let us pass to the skin proper. First, with regard to the erythema group. Erythema nodosum, it is well known, is associated with severe pains in the limbs and some fever, and is sometimes followed, as rheumatism is, by considerable anæmia. But I have never been able to assure myself of the production of an organic cardiac murmur in this disease, nor of any intercurrent arthritis, however slight; and it seems possible that the pains in the limbs may be accounted for in great measure by the effusions which, though limited in amount, often occur in spots which do not readily yield, as on the front of the shin. There is certainly proneness to recurrence in the same individual. Nevertheless, until we get evidence of the initiation of heart-disease in an attack, or of the liability of persons who suffer from erythema nodosum to subsequent undoubted rheumatism, I think we ought to hesitate before saying that erythema nodosum is closely related to rheumatism, much less convertible with it, although in some respects it runs parallel with it. But, with respect to erythema marginatum and erythema papulatum, the case is, I think, often more satisfactory.

I have already referred to the occasional occurrence of these skin-affections in the adult acute attacks; and in children they are very common indeed, especially on the limbs, but on the trunk also. I have seen them several times appear simultaneously with pericarditis when the joint-affection has been slight or absent. A young lady who had had rheumatic fever some years previously, leaving a diseased mitral valve, had a subsequent illness, for which I attended her. This began with very slight pains, referred to the ankles, but there was no swelling and no tenderness on pressure. There were some patches of erythema on the lower limbs. The attack was attended with pyrexia, not ranging throughout higher than 103°. But her month's illness included some fresh endocarditis, some pleurisy on one side, and pneumonia on the other. Now, although no arthritis occurred and there was very slight sweating, there can, I think, be little doubt that this was an attack of acute rheumatism.

I may also refer to the case of a girl who had had previous rheumatic endocarditis, and who was admitted into hospital with erythema marginatum. Within three days there were developed subcutaneous nodules on the dorsal spines, subsequently others on the scalp; then she had chorea, and finally fatal pericarditis, but no joint-effusion.

Finally, I may quote the case of a boy who first came under observation with a number of subcutaneous nodules, and with extensive heart-disease, probably the result of a rheumatic attack. The nodules disappeared, and nearly two years afterwards he again came under treatment with erythema marginatum. This was the beginning of a fatal illness, of which the features were fresh pericarditis and fresh endocarditis, an insidious arthritis of one knee, and a new crop of minute subcutaneous nodules on the scalp.

There are some other skin-diseases which appear to have an occasional relation to rheumatism, and must be mentioned; but in so many cases they are entirely devoid of such relation, that they are of less value for our purpose than the erythema group. I refer to urticaria and purpura. Sir William Jenner was in the habit of quoting, in his clinical teaching, the case of a young subject who had pericarditis, with at first no clue to its cause. In a day or two an eruption of urticaria appeared, and then it was suspected that the pericarditis was rheumatic. This was proved to be so by the subsequent occurrence of sweating and typical joint-effusions, and the further progress of the case.

But besides its undoubted association with what may be called cases of acute food-poisoning—especially, I think, in children of gouty inheritance—we have to recall the occasional occurrence of urticaria in septicæmia. Hence, I think, we ought to be guarded in taking this skin-affection, apart from other manifestations, as a rheumatic symptom.

With regard to purpura, we must of course set aside a vast number of cases in which spots appear more on the trunk than on the limbs of anæmic children suffering from splenic enlargement and other causes of marasmus, in which rheumatism does not for a moment enter into consideration. Further, there are obscure cases of a more active type, in which, for several weeks, a child suffers from successive outbreaks of purpura, especially on the lower limbs, nearly always made worse by getting up, and sometimes accompanied by severe gastro-enteritis, with hæmorrhage from the bowel, and occasionally by hæmaturia. In such cases, I have known children to complain of very severe pains, especially in the lower limbs, for a day before the purpura has appeared; and with the purpura, when extensive, there is often to be seen a slight general swelling of the

lower limbs. It has appeared to me possible that the pain has been due to the overdistended small vessels about to rupture, and that the slight subsequent general swelling has been due to the presence of serum in the areolar tissue after the innumerable ruptures and minute extravasations have taken place.

Whether these cases be rheumatic or not, I cannot say; but there are some others, of which I have seen at least two, in children where the eruptions of purpura have been accompanied by distinct effusions into the sheaths of tendons and into joints. Occasionally, also, slight purpura appears near the joints during what has been called the unstable period of early convalescence from rheumatic fever, just exactly as erythema appears during this period; and in some cases it is difficult to say whether the spots are erythema or purpura.

I may, perhaps, so far digress as to mention the case of a young man, aged 23. Large purpuric patches about one knee, and small purpuric spots on the trunk, with a temperature of 101°, and a little hæmaturia, had been preceded by a fortnight's *malaise*, with pains referred to the knee and to one shoulder, and also by a little diarrhœa. He was kept in bed on expectant treatment for a week, and became a little worse. He complained of pains in the elbows, calves, and ankles, but there was no effusion. There was slight relapse of the purpura, and a little blood appeared in the stools. The temperature ranged about 100° to 101°. He was rather torpid, and once at least was delirious; he sweated somewhat, and for a day or two there was a sour smell about the perspiration. After a week's expectant treatment, he was given three twenty-grain doses of salicylate of soda; the next day his torpor had disappeared, and with it all his other anomalous symptoms; and in a day or two he was convalescent.

Let us now consider some other minor affections which have rheumatic affinities. I referred in the earlier part of this address to the occurrence of stiff neck as a frequent sequela of acute rheumatism in adults, and I believe it may often be taken in children, when occurring apparently as an isolated phenomenon, as an indication of rheumatism. For example: a girl of eight years was brought, complaining only of stiff neck. There was no pyrexia, no glandular enlargement, no tonsillitis, and no reason to suspect cervical caries. The suspicion that rheumatism might be at the bottom of it led to the examination of the joints and heart, and it was found that there was a slight latent effusion in the left knee, which had given the child no trouble, and of which she was not aware; and that she had mitral disease, probably left after a febrile illness from which she had suffered twelve months before. To this illness but little attention had been given; but, from the history, it was probably a slight attack of rheumatic fever.

The life-history of children who suffer from an attack of simple serous pleurisy, and in whom tubercle can be excluded, is well worthy of note, especially in regard to the question of the subsequent or antecedent appearance of typical or atypical rheumatism. A girl who, at thirteen, had an attack of rheumatic fever, at the age of fourteen developed fatal double pleurisy with considerable effusion, first on one side, then on the other. She had no arthritis, but had profuse perspiration. She had no pericarditis, and no valvular disease; but there was found, after death, some cardiac dilatation, probably of older standing than that of the fatal illness.

A child, six years old, whilst convalescing from serous pleurisy, developed a latent effusion in one knee, there being no bruise or

strain to account for it. A boy, whilst suffering from serous pleural effusion, developed a copious eruption of erythema marginatum. These examples are not conclusive: they are mentioned only by way of suggestion, and are to be considered in conjunction with the well-known occurrence of serous pleurisy as one of the manifestations of adult acute rheumatism.

In regard to the mucous membranes, we are confronted with the question whether there is any real connection between catarrh in general and rheumatism. It is certain that there are many points of resemblance in their natural history; but, in the period of childhood, at all events, I doubt whether there is sufficient evidence of the interchange of catarrh with rheumatism, or of the subjects of catarrh in childhood being specially liable to rheumatism in later years, to justify us in saying that there is any actual connection. Thus far in regard to catarrh in general; but there is one catarrhal affection, viz., tonsillitis, which, in children as well as in adults, occurs so frequently at the onset of undoubtedly rheumatic attacks, or with a short interval before them, that some have been tempted to consider that it has a causal relation to the rheumatic attack. A similar hypothesis has been held with regard to scarlatinal rheumatism. It may perhaps obtain in some cases, but certainly does not in all; and, as we know that tonsillitis may arise from many causes, and as it sometimes occurs before or during rheumatism, it seems possible that, so far from starting the rheumatism, it may be one of the expressions of the rheumatic poison, whatever that may be. That many children who are prone to rheumatism are also prone to repeated attacks of acute tonsillitis, there can be no doubt; but the converse does not always obtain. Chronic enlargement of tonsils points often to struma, as Heberden noted long ago.

At length, we come to consider the relation, if there be one, between chorea and rheumatism. But let us admit, at the outset, that no explanation of chorea can be complete which does not take cognisance—as a physiological basis of the affection—of the mobile temperament of children, of the wider range in them than in adults of what may be called expression in the movements of the limbs, upon which Dr. Sturges has justly insisted. We must remember, too, its frequency in the middle and later periods of childhood, its predominance in the female over the male sex, its occurrence in bright intelligent children in greater numbers than in stupid ones. On the other hand, its occasional appearance as a very grave affection in young pregnant women, and also sometimes in young men, must be remembered. Also, we cannot ignore the abrupt and sudden onset of the affection, in some cases almost immediately after a severe emotional disturbance, and the fact that occasionally (I do not think it is very common) there is to be found a marked tendency to neuroses in some members of the family of the choreic patient.

It seems possible that climate and race may each also take a place as factors. The association of chorea and rheumatism has been much more frequently observed in France than in Germany; and I believe that chorea, on the whole, is more common in France than in Germany. No large mass of English statistics is, I think, yet available; but it is certainly the fact that a considerable number of severe and fatal cases of chorea have occurred in the midland counties. How far this is exceptional remains to be seen; and we shall hope, on this as on many other points, for much enlightenment from the Collective Investigation returns.

With respect to the relation between rheumatism and chorea, let

me say at the outset that, in my humble judgment, the embolic doctrine of chorea rather hampers than assists us in our inquiry. It does not explain satisfactorily some of the cases to which I have referred, especially what may be called *par excellence* the neurotic cases; and it leaves out of the reckoning certain cases which are important—viz., those in which chorea is the first event, and heart-disease and rheumatic fever occur subsequently.

For a while, it seems more satisfactory to go back to the lines of inquiry laid down by Roger and the French school, and ask ourselves, what evidence there is for the association of these two affections?

Now, first, with respect to acute rheumatism, the evidence appears to be very strong indeed.

Chorea is a very common sequel to the acute rheumatism of children. I do not know any other acute fever of childhood of which it is a sequel, except occasionally of scarlet fever, with which, significantly enough, rheumatism is apt to occur.

During the progress of acute rheumatism, even amongst adults, it may occur, especially at the onset of pericarditis; also, as Roger pointed out, it may precede the manifestations of acute rheumatism, either immediately or with a considerable interval. Further, manifestations of acute rheumatism may become associated with chorea, the chorea still persisting. The majority of cases of chorea are non-febrile—even very violent cases, when uncomplicated, are often non-febrile; but, now and then, a choreic case becomes pyrexial, even hyperpyrexial, with more or less delirium, dry skin, and endocarditis. When arthritis supervenes, we have no hesitation in saying that there is rheumatism; but, even if arthritis do not supervene, is it not the most reasonable view to suppose that the hyperpyrexia and endocarditis are due to an intercurrent, but latent, form of rheumatism, the counterpart of the adult hyperpyrexial rheumatism?

A girl aged 13 had tonsillitis, with patches of erythema; then most severe nocturnal muscular rheumatism, of the kind commonly called growing pains; then moderate chorea; then severe rheumatism, affecting many joints; then relapse of the chorea, with sudden cessation of the arthritis, and the supervention of fatal hyperpyrexia; the whole illness being comprised within six weeks.

A boy, aged 10, had had pains, referred to large joints, for two months, for which he had attended a medical man. When admitted into hospital, there were multiple rheumatic nodules, slight effusion in one knee, mitral murmurs, and chorea. He was then non-febrile, but in a few days he became febrile, and he continued so for a fortnight; for two days there was hyperpyrexia. During this febrile attack he developed no arthritis, but there was a localised eruption of miliaria rubra, and there was some alteration in the cardiac murmur, besides a suspicion of pericarditis. The chorea and the nodules had almost subsided, when he got a subsequent fresh attack of fatal pericarditis. At the *post mortem* examination, besides pericardial lymph of different dates, and some thickening of the mitral valve, there were found vegetations on both mitral and tricuspid valves, and one of the rheumatic nodules was found. I do not think that there can be any doubt that the febrile attack, which supervened on the chorea, etc., was a true masked rheumatism, of which the crop of miliaria and the fresh endo-pericarditis were expressions, although there was no arthritis.

But, in the second place, there are a number of cases of chorea in which heart-affection exists, and no history of acute rheumatism can be obtained. It has been the fashion to call the choreic murmur functional or dynamic. Upon such murmurs in chorea I can give no

opinion. Setting apart a few cases of cardiac irregularity, my strong impression is that the majority of the murmurs heard in chorea are such as in any other disease we should not hesitate to regard as truly organic, and related to the mitral orifice.

Sometimes there is most extensive heart-disease of both valves and pericardium, without our being able to get a history of typical rheumatism; and the cardiac disease may be rapidly progressive. Also it is not true to say that the choreic murmur always disappears; for, apart from the above cases, there is strong reason to suspect that many examples of mitral stenosis commence in a slow insidious rheumatic process, which accompanies the manifestation of chorea. Whatever view may be held as to the mode of production, it is certain that, in many cases of mitral stenosis which we come across in young women, no ordinary rheumatic history is forthcoming; but very often there is a history of one or more attacks of chorea in childhood. I can testify that, in a few cases of choreic children that I have watched over varying periods, the most careful auscultation has failed to detect a murmur at first; but by degrees this has become manifest and persistent. It is interesting to recall, by way of parenthesis, the preponderance of the female sex in cases of mitral stenosis, and to place this alongside the still greater preponderance of the female sex in cases of chorea. Happily, in a large number of cases of chorea, after a few months, the murmur entirely disappears. But I submit that we have no right to rush to the conclusion that the disappearance of the murmur proves that no organic change had existed. We have occasionally a similar experience even with regard to the murmurs developed in acute rheumatism. A *bruit* which appears in the early days of the fever, long before anæmia has become pronounced, may linger for months, and then pass away. It appears to me, as I have previously suggested, quite in harmony with what we know of rheumatism elsewhere, that some deep thickening of endocardium may have occurred, which by degrees undergoes absorption, but which, on the other hand, may give rise to a slow fibroid change, such as induces mitral and tricuspid stenosis.

I think also, with regard to the cases of chorea in which no cardiac murmur is to be heard, it is important to note that this by no means excludes possible cardiac disease. I can recal one fatal case in which no murmur was heard during life, and in which, on *post mortem* examination, a circle of minute vegetations was found, not at the free edge of the mitral valve, but just within the ostium in a situation that might very easily, if the child had lived, have initiated mitral stenosis.

And now it may be said, granted organic heart-disease is present in a given case of chorea, if the history of acute rheumatism be not forthcoming, what evidence have you to offer that the chorea is rheumatic? It was said in the old time, that no man is happy until he dies. Certainly, in the light of many cases in which chorea comes first, and after a considerable interval, unquestionable rheumatism, it may be maintained that the subsequent as well as the antecedent history ought to be obtained before pronouncing a negative.

But in a great many cases we are not dependent upon the future, nor, indeed, upon the unsatisfactory statements of friends who are only too ready with answers to leading questions. If you admit the probable rheumatic character of some of the symptoms which I have discussed in the earlier part of this address, you cannot deny their value when present in a case of chorea. Now, careful observation will often establish the existence of some of these symptoms,

either alone or in groups, in cases of chorea where no rheumatic fever history can be obtained. Such symptoms I may recapitulate as slight pains referred to limbs, but little complained of, perhaps for a day or two associated with effusion into one joint, or into tendinous sheaths near a joint; subcutaneous nodules appearing in crops; stiff neck and severe backache; erythema marginatum attended with a little pyrexia; intercurrent tonsillitis, during the existence of which the choreic spasms may remit; and finally, perhaps most definite of all, changing murmurs with signs of increasing dilatation, suggesting fresh endocarditis. When such symptoms as these occur separately, much more when they occur in groups, and still more when in successive groups, they lead us to the conviction that our choreic patient is truly rheumatic; and, unless their absence have been established, I do not think a negative ought to be admitted. In all statistics, doubtless, there is a personal equation, and I am somewhat reluctant to add my own to the different series which have been already published. But of seventy-five consecutive cases which I have extracted from my note-books (many of the earlier reports being exceedingly imperfect), I find that in forty-four there is sufficient evidence of rheumatism. I do not doubt that more careful examination in the remaining thirty-one would have established in a considerable number rheumatic phenomena; for in seventeen of the latter there was definite heart-disease often progressive, and some of them were postscarlatinal, in which cases it is by no means unlikely that some rheumatism might have intervened.

Of the evidence from family history, I have taken no account in this list, because the details, especially amongst the poor, are unsatisfactory; but, as a matter of fact, valuable evidence is often forthcoming of family inheritance of rheumatism, and this, in my experience, has been more abundant than a history of family neuroses.

Of the results of the investigation into the minute pathology of chorea, I have said nothing; for, although I am far from underrating their value, I do not think that as yet they are conclusive.

It is time that I should gather these tangled threads into a skein, and sum up my conclusions, which are sufficiently commonplace, with regard to chorea. I will submit that (1) chorea should be regarded as a symptom rather than a disease; (2) that we are no more justified in saying that chorea is always rheumatic, than in saying that delirium and hyperpyrexia are always rheumatic; but that (3) chorea occurs so frequently in connection with rheumatic symptoms, both in combination and alternation, that we are justified in provisionally regarding it as itself often a rheumatic symptom.

Having drawn chorea into the circle of the rheumatic symptoms of childhood, it remains for me briefly to summarise the gist of my paper. I have of set purpose, except in the introduction, limited the scope of my remarks to what I conceive to be the rheumatism which radiates round the typical acute febrile attack of a young adult, and of which one of the special features is the proneness to implication of the heart.

The type designated as rheumatoid arthritis is not without its examples in childhood, and sometimes such examples are rapid, extensive, and severe in their development. There are also rare instances to be met with in children of slowly progressive multiple ankylosing joint-affection without heart-disease, quite comparable with adult cases. But to discuss these rare cases would take too long, and I fear that their consideration would throw but little light on our difficulties as to assigning the true place of these affections in adults. I have already mentioned that I think rheumatic nodules

may help us as an intermediate form between acute rheumatism and some cases of rheumatoid arthritis. This, however, carries us a very short distance, for it seems possible that there may be at least two distinct groups of rheumatoid arthritis. I have been anxious to show that the children's rheumatism which radiates round the central type of the adult acute febrile attack is extremely protean in its forms, but that, when carefully considered, these forms may after all be regarded as the several factors of the acute adult attack, which have, so to speak, been analysed in the child's life, and separately manifested at different periods.

I have endeavoured to point out that individual symptoms, which, when considered as isolated phenomena, are perhaps indeterminate, may nevertheless deserve to be considered rheumatic when taken in conjunction with the antecedent and subsequent life-history.

What I have to say about treatment can be summarised in a few words. I am far from wishing to disparage the use of the salicin compounds in the rheumatism of childhood. But it must be remembered that the great clinical indications for the apparent beneficial employment of these compounds are joint-effusions with pain and fever. I have shown, however, that a great deal of the rheumatism of children is insidious, being attended with ill-defined joint-affection, slight pain, and little fever. The golden indications for treatment of the rheumatism of childhood are indeed homely enough. Let us not make light, nor allow parents to make light, of the minor manifestations, or of what may turn out to be the minor manifestations of rheumatism. Keeping a child in bed for a day or two for slight rheumatic symptoms may have a tremendous influence on his future; and, when once a tendency to rheumatism, however slight, has become manifest, careful avoidance of fatigue and the maintenance of good cutaneous circulation are of such vital importance, as to deserve the most emphatic directions that we are able to give.