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ON THE NOSOLOGICAL RELATIONS OF CHRONIC RHEUMATIC (RHEUMATOID) ARTHRITIS.

Being an Introduction to a Discussion in the Section of Medicine.

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THAT a debate should be opened on the subject of rheumatoid arthritis at a meeting of the British Medical Association in Ireland, seems to me peculiarly fitting. And when it is remembered that this town is not only the most flourishing centre of Irish commercial intelligence and enterprise, but also the seat of one of its most active and successful academic institutions, the discussion of this question has no common interest attached to it. Two reasons, at least, should make a stranger like myself, who can claim no Irish blood in his veins, particularly chary of introducing such a subject on Irish soil to such an audience as is now before me. The first is that the malady in question is exceedingly common in this part of the Queen's dominions, and, therefore, familiar in no ordinary degree to the profession in Ireland; and the second reason is, that no men have done so much to elucidate and make this disease truly classical as Irish physicians and surgeons. I, therefore, naturally feel some diffidence in coming before you to-day. It occurs to me, however, that the fact of my being a stranger will enable me to do that justice to the subject which the natural modesty of an Irishman might prevent his claiming for his own countrymen, and therefore it is that I begin by saying that the labours of Robert Adams, Robert W. Smith, of Colles and Wilmot, of Dublin, and of that eminent Irishman, Robert Bentley Todd, of London, have, in relation to this malady, been greater and more useful than those of any other workers elsewhere. Nor should I, on this spot, be unmindful of the valuable researches of Peter Redfern into the abnormal conditions of articular cartilage, a subject intimately related to the question before us. Let us venerate these great names to-day, and try to follow up, with all becoming modesty, their successful search after truth.

The time at my disposal forbids me to enter upon even a brief summary of the work done on this subject, nor shall I attempt to enumerate in any detail the particular and minute pathological conditions which make up the whole morbid entity everywhere, or almost everywhere, recognised as rheumatoid arthritis. This disorder is now so well known and distinguished from other articular affections, that it seems well-nigh an useless task to discuss the special characteristics of it. And yet I think those who know most about the malady would be the first to aver that we want both more knowledge of the whole subject, and also more light thrown upon the relations which the disease bears to other forms of arthritis.

In this address, then, my endeavour will be to treat of the malady as a whole, and in particular to discuss its relation to other forms of arthritis, whether of rheumatic or of other origin. At the outset, I think I may affirm that London, as a sphere of observation, affords, perhaps, the largest opportunities for study of all forms of articular trouble. We see all forms, and have no lack of instances of each. We see the joint-troubles of all nationalities; we have a large field for observation amongst the Irish, who form a considerable part of our hospital and workhouse inmates and attendants. We see, without any doubt, the largest number of gouty cases anywhere met with on the habitable globe. We have scrofulous cases in abundance, and no lack of unequivocal rheumatism. We see more than this in the comminglings and coalescence of all these forms of disease; and some of us, at any rate, do not fail to take note of these. We see, what is very interesting and important, the influence of London life upon persons who come to us from Ireland, Scotland, and provincial districts, from the colonies and elsewhere, and who bring with them their peculiar heritage and morbid tendencies, to be not seldom modified, more or less, by the peculiarities of life in our vast metropolitan wilderness. An honest observer, seeking the truth in London, may rest assured that he has a large and fair field for his study of arthritis in all its forms.

In approaching the study of rheumatoid arthritis, it is necessary, in the first place, to have a clear idea of what is sought; and we must start with well defined conceptions as to the significance of certain symptoms and physical signs. Some might here join issue with me at once, and differ as to the limits of such differentiation as I might lay down. I cannot expect to collect a consensus of opinion in favour of the views I may express; but, as I am only concerned to be dogmatic upon the points which experience and much consideration have made plain to myself, I must ask your indulgence for what I set forth. I confess myself familiar with rheumatoid arthritis as it is recognised in its purest form in Scotland and Ireland. I have seen it in the hospitals of Edinburgh and Dublin, and studied its morbid anatomy on the shelves of the museums there.

I have good reason for taking as typical such a case as would be at once recognised in Scotland or Ireland as characteristic; and my reason is that, in these countries, there are probably fewer influences at work than in England to modify the natural course of the disorder; and, in particular, there is practically an entire absence of gout amongst the classes who furnish the commonest subjects of rheumatoid arthritis. It may be partly for these reasons that some of the best studies respecting the disease have been conducted in Ireland; and I think we cannot seek a purer source of information, unless, indeed, it be the exact contributions of the Parisian school to this subject, especially those of Cruveilhier, Trousseau, and Charcot.

It may be certainly affirmed that in France there is less gout than in England, and in America gout is, as yet, hardly recognised. So, too, in Holland, in Germany, and in Russia, true gout is amongst the rarest of diseases, and rheumatoid arthritis in all these countries is a common malady. It is not unimportant to note this fact, because it is certain that the descriptions of the disease given by foreign writers better agree among themselves, and also with those of the Irish and French schools, than they do, for the most part, with some of those of the English school, particularly as represented by London.

I am aware that this is an absolute statement, but it contains some grains of truth which are highly significant, and demand our attention to-day. It may, I think, be fairly said that, but for English observations, we should never have had the term "rheumatic gout."

Let me define very briefly the characters of rheumatoid arthritis as commonly recognised. This is, I conceive, necessary to our purpose; although, in attempting it, I may incur the displeasure of Mr. Jonathan Hutchinson, whose name stands prominently forwarded as a brilliant contributor to our knowledge of this disorder, and of arthritic disease in general.¹ He has stated that it is a "vice of clinical study" to select a few well marked and probably exaggerated cases, giving to them a special name, and then proceeding to describe and classify the disease so named, as if it were essentially distinct, and needed only acumen in diagnosis for its recognition. He thinks that this method has led to the prevailing perplexity as to the relationship between the different members of the great arthritic family. Of this family, more anon.

By rheumatoid arthritis I mean an essentially chronic form of joint-disease, affecting both small and large, one or many, articulations. It may begin insidiously, with pain and swelling gradually increasing, or it may begin by more acute local symptoms. The tissues of the joint are affected by a chronic, and often progressive, inflammation, beginning first in the synovial membrane, affecting next the articular cartilage, and this, perhaps, in most cases more severely than any other texture; then the ligamentous structures; and, lastly, the ends of the bones.

The morbid anatomy varies according to the intensity and duration of the disease, the simplest expression of it being Heberden's nodes, or "end-joint rheumatism," in which there is no more found after death than an enlargement of the natural phalangeal tubercles, slight synovial thickening, and expansion of the articular cartilage. (And here I may interpolate the remark that so-called Heberden's nodes are sometimes significant of gout, and quite unconnected with any tendency to rheumatoid arthritis.) In its gravest form there may be profound change in all the structures of the joint, with effusion into it, ulceration of cartilage, eburnation of bone and bony outgrowths.

Rheumatoid arthritis implies more or less deformity and crippling. The term, as I understand it, covers all cases known as arthritis deformans, osteo-arthritis, monarthritis (e.g., malum coxae senile), nodular rheumatism, and nodi digitorum.

But the type of the malady varies as it is more or less acute, more

¹ "A name which seems to have been invented to cover the difficulty of finer discrimination." *Letter on Rheumatism and Gout, addressed to Sir George Baker* By John Latham, M.D., Physician to St. Bartholomew's Hospital, p. 69; London, 1796. Haygarth alluded to nodosity of the joints as commonly called "Rheumatic Gout." See *Clinical History*, p. 185, 1805.

² *Trans. Internat. Med. Congress. Sec. Medicine* p. 94. 1887.

or less general, and somewhat according to the age and sex of the patients; and its forms have been clinically well described as acute, chronic, and irregular. Both sexes are affected, but females in larger proportion. The acute and general form is more common in young persons, is met with even in childhood, and especially in women, and then assumes the characters of a severe constitutional disease in more marked form. At the menopause, too, the disease is apt to be acute and rapidly progressive. The smaller joints, especially of the hands, suffer more in this form. The chronic form, of more insidious origin, is met with more often after middle life and in the male sex, affecting more especially larger and often single joints. This is often excited by local injuries. Many exceptional cases, however, are met with. In by far the great majority of cases, there are no associated visceral lesions. In the exceptional instances, these may often be traced to antecedent true rheumatism. I forbear to describe the more minute changes set up by the disease. Enough has been stated to distinguish the malady from other forms of arthritis. Many negative symptoms also avail to distinguish it. I have given the typical characters, and with these we are in a position to prosecute further study. At this stage of the inquiry, it is nothing to the point to affirm that such a malady is in relation to other forms of arthritis; it may be, and I believe is, in such a relation, but we must have a recognised type for comparison at the outset, and so far most authorities are agreed. It will not be contested that the only possible methods for study of any disorder must proceed on the lines, first, of accurate clinical observation; and, secondly, on those of morbid anatomy. We get but incomplete knowledge by the pursuit of either method alone, and it may be taken as an axiom in pathology that coincidence of structural change, as found in the dead-house, by no means implies identity of process leading up to it. I would say that some of the difficulty attending this subject has come from a forgetfulness of this. Although both lines of study, clinical and pathological, have been followed in respect of rheumatoid arthritis, neither the precise nosological position nor the exact clinical relations of the disorder have as yet been accurately determined. The whole question is a very difficult one. The following are the opinions that have been entertained as to its pathological origin.

1. That it is chronic rheumatism.
2. That it has no direct relation to rheumatism, but only a likeness to it; that it may exist with or without a rheumatic or gouty tendency, and is in no way antagonistic to either, partaking rather of the nature of a senile change, induced by wear and tear.
3. That it is closely allied to rheumatism, yet, presenting some features of gout, is neither rheumatic nor gouty, but "intermediate between the two," presenting some characters of both, and therefore well named rheumatic gout.
4. That there is an arthritic diathesis, or peculiar condition of tissue-health, involving tendency to inflammation of joints and fibrous structures, and that upon this as a foundation may be built up, under the influence of special causes, a tendency to gout, rheumatism, or any one of their various modifications and combinations; that rheumatoid arthritis is to be included under the term rheumatism; that rheumatism is an almost universally spread tendency to arthritis in connection with catarrhal nerve-disturbances, and gout is a tendency to arthritis in connection with blood-disorder; that these two classes of causal influence are not antagonistic, but are, on the contrary, often met with mixed together, and that thus the term rheumatic gout is completely justified; further, that most cases of this disease seen in practice represent, not a simple mixture of these two causal influences, but the modified result of such in former, perhaps in many, preceding generations. Hence the inseparable blending of the two often witnessed.
5. That the disease is of nervous origin, and due to irritation of nerve-centres.
6. That it is neither of rheumatic, gouty, scrofulous, nor in any way of specific origin, but "is a lesion common to several kinds of ailment," and "not justly separable as a disease of independent character." It is, according to this view, always symptomatic.³

If these affirmations fairly describe the state of opinion at the present time on this subject, you will all admit, I believe, that the Medical Section has done well in arranging a fresh discussion of it to-day.

My task seems now to resolve itself into a critical review of the several opinions I have enumerated, and I shall address myself to it as concisely as possible.

1. Is it, or is it not, the case that rheumatoid arthritis is nothing else than a form of chronic rheumatism? I confess to some dislike of the latter term. It has been, and still is, a much abused one, too often a

cloak for ignorance, and used without exactitude for many different conditions. It is too vague. It implies at once an origin of unequivocal rheumatic nature, and fairly presupposes an acute attack as a necessary antecedent in the case. In this sense alone I would retain the term, and only apply it to cases, not perhaps very common, in which the joints have not recovered after rheumatic fever, and show a tendency to enlargement and thickening. It is probable, I believe, that some of these cases pass on to become indistinguishable from rheumatoid arthritis, and thus the difference is reduced to a question of terms for this minority. There should be no insuperable difficulty in ascertaining whether rheumatic fever is an antecedent of rheumatoid arthritis. But a practical inquiry on this point I find very difficult. It is easy to elicit a history that will suffice to satisfy superficial inquiry, but the answer thus obtained is far removed from the position of a medical fact. Thus, it is common to get a history of an acute attack which lasted weeks or months, which happened either decades of years previously, or only just before the obvious symptoms of rheumatoid arthritis began. Stress is laid upon the occurrence of migratory pain and sweating as leading and confirmatory symptoms, but these are not really trustworthy in most cases. Of far greater importance is the fact, admitting of no doubt, of cardiac damage in any case. This may fairly be taken as unequivocal evidence of previous rheumatic fever, and it is met with in a small percentage of cases. This being so, we may confidently affirm that these patients are of rheumatic habit. But how is the argument for the proposition that rheumatoid arthritis is evolved out of acute rheumatism affected by the results of careful inquiry into this point? Most materially, as I think, and in a sense contrary to that view. It is not often that the joints are examined in the bodies of those who have suffered from rheumatic fever. For some time past, my colleague Dr. Norman Moore, our Demonstrator of Morbid Anatomy, has habitually made this examination, and he informs me that he can find no evidence of any kind to indicate the previous influence of rheumatic fever on the joints. The rule is, that the process subsides completely, leaving all the articular structures in a natural condition. The cardiac damage, if any, remains; the joint-mischief is, as a rule, temporary, and passes off completely. As Dr. Moore examines the joints in nearly every *post mortem* investigation he makes, his evidence is obviously of the greatest value.

Judging of these facts—namely, the extreme difficulty of securing trustworthy history of past acute rheumatism, and the absence of joint-mischief in cases that have had it unequivocally—we are in a position to affirm that the opinions of those who believe rheumatoid arthritis to be an evolution of rheumatic fever in many instances is erroneous. The most that can rightly be said is, that in a small proportion of the cases there is evidence of past rheumatic fever. As I shall show later on, this evidence is not without value, and aids us in a proper conception of the malady in question. It is probable that the illness often described as rheumatic fever was an acute beginning of the disease now well advanced. I could array a list of eminent names in support of this first proposition, and of others who regard it, with myself, but as only occasionally true.

If this view be held on the understanding that rheumatic fever, as a rule, is but a rare antecedent in the disease, I have otherwise not much objection to offer to it. I consider the term chronic rheumatism insufficiently expresses all the peculiarities of this disease, and I would rather call it a *form* of chronic rheumatism, since the true nosological relation of the disorder is thus expressed. Still, I think, a better definitive term may be found.

2. The second view is, that rheumatoid arthritis has no direct relation to rheumatism, but merely resembles it in some points; that it has no relation to gout, may exist with or without any rheumatic or gouty tendency, and is not antagonistic to either, partaking rather of the nature of a senile change, and induced by wear and tear of joints. I cannot accept this doctrine. I have already adduced some evidence of a relation to true rheumatism, though it is true this relation is not proved to be direct, save in a few instances. The resemblance, then, can only be in respect of the arthritic affection; but I have shown that, beyond the fact of inflammation, in the one case acute and temporary, and in the other chronic and persistent for the most part, with acute phases, there is nothing in common between the two conditions. I agree to this view, which has been very ably set forth by so careful a thinker and observer as Dr. Pye-Smith, only in respect of its recognition of this disorder as a distinct one, and not in direct relation to either rheumatism or gout.

That it exists without any rheumatic or gouty predisposition or tendency, I dispute. If by this be signified that the ordinary characters of acute rheumatism, or of true gout, are not present in the ordinary forms of the disease, I agree; as I do also cordially to the further

³ The miasmatic theory of rheumatism has not been applied to this disease.

statement, that rheumatoid arthritis is not antagonistic to the occurrence of true rheumatism, or of true gout. That the specific changes induced by the disease have the characters of senile degenerations in joints, is a fair proposition; but a proper conception of the whole disorder includes the articular disorganisations known as *malum senile* and single-joint rheumatism; and many premature textural degenerations in the body may be termed *senile*—to wit, atheroma in a child's artery. From this point of view, we get no light in this inquiry. We must make larger and deeper generalisations.

3. We come next to the third view, that the disease is neither rheumatic nor gouty, but occupies an intermediate place between the two. I quote now the late Dr. Fuller's well-known opinion. Dr. Fuller employed the term *hybrid* in the first edition of his book, but omitted it subsequently. It was incumbent on him to do so; for a malady could not be a *hybrid*, which, according to him, was "not a compound of the two diseases" in question. For Dr. Fuller,⁴ rheumatoid arthritis was something "essentially distinct from both;" "closely allied to rheumatism, while presenting some of the features of gout." Although denying that the disease had "any sort of connection with rheumatism," Dr. Fuller declared that "he had repeatedly known patients crippled by rheumatic gout, which commenced, in the first instance, as a sequel of acute rheumatism." Surely, this was a grave contradiction. Most careful observers agree with Dr. Fuller's experience, but the deduction is plainly different from his. Dr. Garrod allows that this occasionally happens; but guards himself by adding, that error may arise from mistaking the acute stage of the disease for true rheumatic fever. So far as I know, only two authorities give their experience from the other side. Thus, Sir Benjamin Brodie declared that, in most of the cases occurring in the affluent classes, the disease seemed to be of gouty origin. And Dr. Fuller believed that rheumatic gout might arise in persons who had been, or might become, truly gouty; but that there was no connection with either disease. To justify the term rheumatic gout, I think proof is required that rheumatoid arthritis may be set up as well by gout as by rheumatism. I do not deny this, but I can nowhere find this proof set down. I believe, with Dr. Garrod, that most of Sir Benjamin Brodie's cases were truly gouty in their nature, and not unequivocal instances of rheumatoid arthritis. Dr. Fuller believed also in the existence of a specific poison as the agency of this disease, distinct from, though allied to, that of rheumatism and gout. He further described cases in which lithates of soda and lime were deposited on the cartilages, as instances of rheumatic gout, in which the symptoms had been gouty during life. To sum up, Dr. Fuller believed that rheumatoid arthritis was a specific disease, and that it might coalesce with rheumatism or with gout.

He strongly insisted on the aptness of the term rheumatic gout, remarking that "the titles of diseases are seldom used to indicate their pathology, but rather as a means of establishing their identity." We may hope for better things at the present day in this respect, and our effort is plainly to discover first what is true, and to apply the best name we can find to express the knowledge we have acquired. The reasons for my objection to this term will appear in discussing the next proposition.

4. The fourth view is that which has been set forth by Mr. Jonathan Hutchinson, who indicates the use of the term rheumatic gout as exactly expressing the nosological position of the disease in question. For him, the whole matter is extremely simple. He affirms that rheumatism and gout may mix in any proportions, as may spirits and water; and that the common malady rheumatoid arthritis is in most cases actually such a mixture. I cannot accept this teaching, and regret to join issue here with one for whose genius and clinical powers I have the deepest veneration. In combating this view, I take first, as illustrations of the disease, cases occurring in Ireland, Scotland, Holland, or indeed anywhere but in England proper, and I ask, Where is the gouty element or factor forthcoming in such patients? Gout is all but unknown in these countries, and the deduction necessarily follows, that here, at any rate, there can be no mixture of the two diseases. Mr. Hutchinson's reply to this objection is, I believe, that we have no right to affirm that uratic deposit is the only significant token of unequivocal gout. This is, however, the doctrine of the schools. When such deposits exist, we have unmistakable evidence of true gout. Now, in the majority of cases of pure gout, this evidence is only forthcoming in the dead-house. The researches of Dr. Moore prove that the deposits are often present when unsuspected, and that only very careful search will sometimes find them. No outward token of arthritis is present in many cases; certainly no indications of rheumatoid arthritis are found, as a rule, in such instances.

If it be declared that uratic deposit is no longer the criterion of true gouty disease, we embark at once in great confusion on a sea of

difficulties. For my part, I think we are not at present in a position to affirm more than this, that, in a given case of gout, we may find uratic deposit in certain joints and parts, and evidence of more or less arthritis, such as erosion of cartilage and everted articular edges, in other joints.⁵ I am quite convinced that uratic deposit is not the sole token of gouty arthritis, for I recognise ulceration of articular cartilage as almost equally significant in the same joint, or in others, without deposit; but I also maintain that gouty arthritis, which, be it remembered, is only one of the manifestations of gouty disease, never produces all the specific lesions of rheumatoid arthritis.⁶

It may sometimes closely simulate them during life, and render the diagnosis difficult, and at times impossible. Thus, there may be every external sign commonly recognised as peculiar to rheumatoid arthritis: knotty and dislocated joints, with and without effusion; crackling, eversion of fingers to ulnar side; and not only the signs, but the symptoms of rheumatoid arthritis. Such patients as have suffered both from gout and rheumatism can, however, usually tell of a difference in the respective pains and symptoms of each. I have met with such patients, and Scudamore gives particulars of one.⁷ I believe firmly that cases of true gouty arthritis are frequently mistaken for rheumatoid arthritis and Dr. Fuller's later experience led him to a similar opinion.⁸

The converse error is, perhaps, less frequently fallen into. Hence, for a correct determination in any case, that clinical acumen which Mr. Hutchinson so much deprecates, and which he thinks only leads us into error, must be applied. Until we have more knowledge, we must hold by certain symptoms and signs. Gout must signify the presence of uratic deposit somewhere in the body—I do not say necessarily or only in the joints; rheumatoid arthritis must signify destruction of synovial membrane and cartilage, ulceration of bone, eburnation, and osteitis; and acute rheumatism must be held to do no permanent damage to joints affected by it. I referred just now to Heberden's nodes as a form of rheumatoid arthritis. I have met with them in cases of pure gout. On dissection, I have found no uratic deposit in the joints, but only a small quantity in the investing ligaments. There was no appearance of tophi. The phalangeal tubercles were enlarged exactly as in cases of rheumatoid arthritis. The gouty nature, suspected only during life, was made certain after death, and hence I cannot accept Heberden's dictum that they are never gouty.⁹ Clinical study of gouty and other forms of arthritis, carried on with an open mind, has convinced me that gouty disease will often simulate some forms and phases of rheumatoid arthritis, and I do not require to invoke any element of the latter malady to explain all the phenomena. I am aided in my diagnosis by other clinical considerations. The dead-house is not my only appeal, for it can only tell me a part of the whole story. In any given case, Mr. Hutchinson would say, all that is not obviously gouty is rheumatic. He remarks also that it is very difficult to say how far rheumatism pure can go. I would add, "and equally difficult to say how far pure gout can go." This difficulty as to the gouty element has never much troubled clinical inquirers out of England. This is surely a significant fact, and I might add, further, that it has never much exercised clinical inquirers outside London. Now London is the head-centre of gouty disease, and, without question, there is more gout and goutiness in London than in other other spot on the globe. Hence our peculiar difficulties and perplexities in eliminating its influence in the arthritic affections we have to deal with. It affects our poor as much as our affluent classes. Scottish, Irish, and foreign immigrants come to London innocent of all gouty taint, and grow gouty in the great metropolis. This is unquestionable, and we can show cases of unequivocal uratic gout in these persons, which we may firmly believe would never have developed in their original countries. London life and habits have to answer for this, be they what they may. The result of this has been

⁵ Bristowe, *Theory and Practice of Medicine*, chapter, Gout. W. Gairdner declared that he had seen many cases where urate of soda did not remain as enduring evidence of each attack of gout, but, as no *post mortem* evidence is given, no value attaches to this statement.

⁶ Virchow has lately expressed the opinion that the one has no connection with the other. (On Nephritis Arthritica, *Berliner Klinische Wochenschrift*, 1884, No. 1.)

⁷ This case is very important, and worth quoting. A man, aged 30, had two attacks of rheumatic inflammation of ankle-joints, with flying pains in different parts of the body. Two months afterwards, being in improved circumstances, and having lived indulgently, gout came in one great toe and instep, with shiny skin and swelling, deep red, then purple colour, and finally desquamation. No intermission in the pain was experienced in the rheumatic attack, but in the gout, the worst pain was felt from 12 to 3 a.m.; and about 5 he procured sleep. The character of the pain differed in the two disorders. The man's father was gouty; his only sister suffered severely from chronic rheumatism. Scudamore on *Gout, Gravel, and Rheumatism*, p. 168, 3rd edition, 1819.

⁸ *Op. cit.*, p. 44.

⁹ "Nihil certe illis commune est cum arthritide, quoniam in multis reperitur, quibus morbus ille est incognitus." *Commentarii, De Nodis Digtorum*.

⁴ Fuller, *On Rheumatism, etc.*, edit. 3, 1860, p. 331.

to complicate cases of rheumatoid arthritis, and to lead many observers in England into errors which have not misled observers elsewhere.

Can there, then, be no mixture or coalescence of gout and rheumatic disease? I reply, yes. It would be very remarkable if there were not. Such a mixture, a veritable hybrid, does occur. Clinical observation and *post mortem* search prove this. Museum-specimens, not many in number, however, attest the fact.¹⁰ Gout may supervene on rheumatoid arthritis, and rheumatoid arthritis may come on in a gouty subject, and plain tokens of both will be manifested. There is no antagonism, as most good observers have remarked.

Mr. Hutchinson appeals to the experience of those stores of clinical information, the London workhouse infirmaries, which has convinced him of the co-existence of rheumatic and gouty disease. I have also availed myself of this experience; but I read the story differently, and would venture the opinion that even in London practice it is possible to make exact diagnoses in the majority of these cases. I feel sure that the frequent occurrence of various forms of gouty arthritis in London has led to error, and to the inclusion of purely gouty cases in the category of rheumatoid arthritis. I do not agree with Mr. Hutchinson that it is proper to call all that is not plainly gouty, rheumatic.

Gouty arthritis will produce lips on the ends of bones, crackling, chronic synovitis, and other features commonly—but erroneously, as I believe—supposed to be alone significant of rheumatic disease. As I have already remarked, observers in Dublin and elsewhere have fewer of these difficulties. These peculiar perplexities are rather of English origin, and, without doubt, more cases of rheumatic and gouty coalescence are met with there.

I am entirely in accordance with Mr. Hutchinson's views as to the basic, so-called arthritic, diathesis, on which these two maladies rest, and accept the teaching of our common preceptor, Laycock of Edinburgh, on this point. This has been further elaborated by Charcot. And with respect to the modifications induced by the comminglings of these states, or of other diatheses, such as the strumous, all of which must always be taken into consideration of a large question such as this, I am also in accord with Hutchinson, and think his view most suggestive and philosophical. The teaching of Laycock and of Paget on this point has not yet had its full recognition.

It must be remembered, however, that a trustworthy ancestral history of either rheumatism or gout is most difficult to secure, and often fallacious in all classes of patients, especially in the lower orders. It seems certain, as Paget has shown, that latent tendencies often exist. Death may supervene before they are manifested, or they may only come out very late in life. The offspring will inherit the parental or ancestral tendency, and may develop it early. Or, again, far distant ancestral tendency may only come out in later generations.

Again, Mr. Hutchinson affirms that, so long as an arthritic person has sound digestion and healthy kidneys, his rheumatic manifestations will be free from gout; but once let him fail in these respects, and it is scarcely possible for him to have a rheumatic inflammation which is not modified and made gouty by the previously existing peculiarity of his blood. My belief is that many of these cases continue free from gouty development in spite of failing renal and digestive organs, and that gout is not always, or often, waiting on rheumatism.

Heberden remarks, "it must be owned that there are cases in which the criteria of both are so blended together that it is not easy to determine whether the pains be gout or rheumatism;" and again, "these two distempers, though of the same family, etc. (*Hos morbos, cognatos, sane.*" "*De Arthritide.*")

With respect to the humoral theory of rheumatoid arthritis, I think we have as yet no evidence of the hypothetical specific poison conceived by Dr. Todd and Dr. Fuller, as the causative agent in this malady. So far as we have gone we have established a place for rheumatoid arthritis outside rheumatic manifestations, and outside gouty disease. Is it possible to correlate the three diseases? I believe it is, and in doing so I must bring forward more of the teaching of Mr. Hutchinson and others respecting these disorders in general. Before proceeding to this, however, I must discuss the fifth view which is held.

5. The fifth view, that the disease is of nervous origin, is the latest that has been presented. Mr. Hutchinson's opinion that rheumatism is a catarrhal neurosis, or reflex nervous inflammation, leads up to the stronger expression of neurotic origin here laid down. The evidence for this is based upon the facts that joint-disease has been observed to follow upon lesions of the spinal cord. Thus, effusions and painful arthritis have been noticed in cases of hemiplegia with descending degeneration in the cord, and a well marked form of arthritis has

been recognised in connection with *tabes dorsalis*, sometimes described as Charcot's disease.

Sceptics in medicine, who, by the way, seldom advance any theories or suggestions of their own, may scoff, if they please, at the attempt to connect the two conditions last mentioned, or decline to make up their minds while opinions oscillate between humoral and neurotrophic theories of rheumatoid arthritis; but I think it is proved to the conviction of most impartial clinical observers, certainly amongst physicians, that there is a form of degenerative arthritis associated with *tabes dorsalis*. This is not the place, nor have I the time, to adduce all the arguments in favour of the specific connection, and I shall do no more than meet with a denial the assertion that the joint-disease of *tabes dorsalis* is commonly due to local injury. I am firmly convinced of the existence of the disease as a special form of arthritis; and I would ask whether it was in any degree likely that the man who did some of the best clinical work on the subject of rheumatic and gouty arthritis, five and twenty years ago, would at a later period fall into error on a matter of observation forced upon him by larger and more special experience. It is noteworthy that surgeons have mostly refused credence to Charcot's views. This is perhaps not unnatural. Here, however, I am only concerned to note that the characters of spinal arthropathy are clinically different from those of ordinary rheumatoid arthritis, and that the main differences consist in the sudden onset of the disease, the extreme effusion into the joint affected (a character which has been erroneously denied as common in rheumatoid arthritis), the rapid absorption of the ends of the joints, and the remarkable fragility of the bones.

The trophic changes run riot, so to speak, and such alterations as these seem to point plainly both to different etiology and progress.

Opponents of the view that there is any relation between the spinal lesion and the joint-changes, conceive that there is nothing remarkable in the onset of ordinary rheumatoid disease in a certain proportion of cases of *tabes dorsalis*.

Those who adhere to the view that rheumatoid arthritis is a tropho-neurosis refer to its onset frequently after nervous shock, depression, shock, and grief; and the possibility of direct injury to nerve-roots by the mechanical changes induced by spondylitis is also conceived. For my part, while fully recognising tabetic arthropathy as a spinal lesion, I do not find evidence to warrant so large a deduction as that the disease we know as rheumatoid arthritis, owns thus directly and always a similar, or even kindred, spinal lesion. Many features of the common form of the disease are perhaps best explained on a nervous basis, and these will be better taken note of in discussing the sixth and last view.

Not to do more than allude to the fact that in Charcot's disease it is commonly a large joint, such as the knee, shoulder, or elbow, which is affected, I may mention that in these cases we do not readily find the special diathetic characters proper to the rheumatic habit impressed upon these subjects; and for me this is a matter of much significance. I do not think there is any evidence to support the view that Charcot's disease is a new manifestation. I imagine that it had been previously overlooked, and that the specific relations of the disorder had not been recognised.

6. According to the sixth view, rheumatoid arthritis is neither of rheumatic, gouty, or scrofulous, nor of any specific origin, and not justly separable as an independent disease, but is a lesion common to several kinds of ailment. This is the view of Dr. Ord, who has endeavoured to show that this disease is the result of a lesion of the spinal cord set up by peripheral irritation of various forms and degrees, and that a condition of exalted susceptibility and reflex activity of the cord must enter into our conception of it.¹¹ Denying the humoral theory, he proposes a neurotic one, and contends that we meet with the disease as a result of primary lesion in the cord, and as also resulting from such varied irritations as gonorrhoea, simple urethritis, ovario-uterine troubles, traumatism, acute rheumatism, chronic gout, and foreign growths in joints. He proposes to discard the term rheumatoid, and to apply in each case such an one as will express the form of the exciting cause, such as traumatic, blennorrhagic, urethral, rheumatic, hysterical, and myelo-arthritis. He believes, further, that the disease may spread from joint to joint symmetrically by reflex nervous influence. This view is very philosophical, and constitutes a distinct advance in our conception of the disease. It seems sufficiently comprehensive, and it is not easy to controvert. My chief objection to it lies in this, that too little regard is paid to the inherent, and often latent, tendency to some form of arthritic disturbance in certain persons. If there be not something special about the individual, these alleged sources of peripheral irritation, which are sufficiently common, should

¹⁰ Dr. Adams records only one instance in his experience. The preparation is in the Museum of Trinity College, Dublin. *Op. cit.*, p. 309.

¹¹ BRITISH MEDICAL JOURNAL, January 31st, 1880, p. 155.

surely affect indifferently all persons exposed to them; but this is not so. The specific changes of rheumatoid arthritis are only induced in the diathetically predisposed of the community.

There is an inherited something, or a superinduced something, which favours the particular evolution in the particular person. It is this specific vulnerability which, in my view of the matter, marks off the individual for an onset of arthritic trouble; just as much so, indeed, as does the special vulnerability of a person of strumous or tubercular tendency lay him open to the onset of active strumous or tuberculous trouble, when specially exposed. Hence, I join issue with Dr. Ord in discarding the term rheumatic or rheumatoid in this disease; holding, as I do, that these manifestations are implanted on persons with specially impressed vital tendency. I do not believe that the rheumatic diathesis is universal, as has been alleged. Some persons will never develop rheumatism in any form, however much exposed to exciting causes.

I can, therefore, conceive an imaginary person, of perfect health and constitution, upon whom no one of the indicated peripheral irritations shall reflexly set up such changes as we recognise in rheumatoid arthritis.

I think the evidence is strongly in favour of Dr. Ord's view, that extension of the disease, and symmetrical implication of joints, is often of a truly reflex character; and, if this be a true explanation, it favours a tropho-neurotic theory of the disease.

Amongst less well recognised causes leading to these changes, are chronic dysentery and arterio-capillary fibrosis with contracted kidney, the latter connection having been pointed out by Lancereaux, but this has not yet been observed, perhaps because not looked for, in this country.¹²

And now to sum up. To what view of the nosological relations of this disease are we led by a consideration of its characters? I find some of the best thinkers confess themselves baffled for the present in the attempt to settle the question. Shall I venture to step in where men whom I venerate dread to advance? Much as I could wish to lay down a theory that would command universal acceptance, I fear I can do no more than help to clear the way for further observation. I think we are only now in a position to advance with more rapid and certain steps than our predecessors. We have the advantage of an exact anatomy, we have fairly well determined the characters special to definite forms of arthritis, and we have now to gather facts in family and clinical history which shall put us on the way to the goal we seek to reach. Collective investigation, properly conducted, will do much to help. Family life-histories, accurately recorded, will do more. But is this all? I think there yet remains the modern study of the modifications and transformations of disease, the effects of time, of locality, of habits of life. And this large question meets us here as we try to form a true conception of rheumatoid arthritis as we meet with it to-day. We may say that in a majority of cases we find the same changes induced now as were met with in ages past; but it may be that forms of arthritis occasionally come before us which differ from those observed by our predecessors, and that forms long suppressed may again crop up, as it were, and be with difficulty relegated to their proper place. And so disease in a pure form may come sometimes to be modified, and give rise to varieties for which no place is readily found. It seems only too likely, for example, that in England the coalescence of rheumatic and gouty diseases has produced a mongrel type of malady in many instances—not a mere mixture—but a new type which may propagate itself, and thus may arise some of our perplexities.¹³ Such propagation, we may believe, may not be enduring. If hybrids do not breed, mongrels certainly may. There are, however, facts to support the belief that, while distinct types prove stable and enduring, mongrel progeny is not so; and hence we may fairly conceive that a strongly marked and distinct disease, such as rheumatoid arthritis, owning a much older ancestry than gout, will constantly tend, even amidst potent modifying conditions, to revert to its pure type. Still, we must be prepared to meet in practice with mongrel forms of disease. The immunity from chronic rheumatism enjoyed by light haired men, if it be true, demands attention and close study. Careful and prolonged observation alone will help us here; but nothing will so avail as accurate note of the clinical features and habit.¹⁴

It is remarkable that we should still be ignorant of the measure of

heredity of this disease. The difficulty, of course, is to get trustworthy family-history, and to go back far enough for this evidence. My own experience has furnished in most cases a clear history of rheumatic ailments in the ancestry, or, as I would rather state, the case, of arthritic disease. I have observed, and Dr. Garrod and others inform me their experience is similar, that the daughters of gouty men not unfrequently become the subject of rheumatoid arthritis. What is the proper explanation of this? Is this a transformation of gout in the female, or only a separate manifestation of the arthritic diathesis? The latter view alone commends itself to me; and, to explain the fact, it would be necessary to secure a family-history extending over many generations. Until I can secure this, I prefer to accept the theory of a basic arthritic diathesis, which explains a relationship, though indirect, between the two disorders. The facts elicited by study of the heredity of rheumatoid arthritis, though somewhat perplexing in themselves, tend strongly, in my opinion, to support the view that the disease is a manifestation of the arthritic diathesis. Objection is made to the inclusion of gout as a branch or offshoot from the parent arthritic stem, because many of the manifestations of it are non-articular. I am most firmly convinced of this latter truth, but I venture to think that the arthritic phenomena of gout are so strongly impressed on the subjects of it, that objection to the view suggested cannot fairly be raised. The idea connected with an arthritic diathesis implies tendency to disturbance of motor structures and the nervous centres regulating them; and hence physiologists conceive the possible existence of a trophic nerve-centre, or centres, for joints. The differentiation of Charcot's joint-disease has lent support to this conception, and, so far, there is no evidence to disprove it. Minute examinations of the spinal cord have yet to be made, in order to certify the existence of any definitely associated lesion in rheumatoid arthritis or other arthritic diseases.

As a rule, I think it may be affirmed that rheumatoid arthritis is commonly seen unassociated with other diseases. Dr. Sutton has called attention to cases met with in young persons where this disorder seems to be associated with phthisis and insanity in the family, and believes that there is some special relation between these conditions. He is further of opinion that there is relation, not as yet recognised sufficiently, between rheumatoid arthritis, rheumatic arthritis with heart-disease, also gouty arthritis, and insanity. He thinks these diseases have been too much regarded as definite entities, and that thus we have been blinded to their correspondence.

Charcot has noted the not unfrequent association with scrofula and pulmonary phthisis in the family and collateral relatives of patients; also the frequent coexistence of Heberden's nodes with mammary and uterine cancer. In all these coincidences, I see no more than the bleedings and inevitable coalescences of diathesis.

The strumous condition may readily modify the arthritic, and the arthritic determinations of the former are sufficiently well recognised. M. Charcot's and Dr. Sutton's cases may be explained, I think, by the occasional coalescence of other taints, such as struma or cancer, or of other inherited neuroses with the arthritic predisposition.

The association of diabetes is certainly rare. Garrod has recorded one case, and informs me he has seen others in which glycosuria occurred, and he conceives that this may aid the development of the rheumatic affection. Dr. Ord and I¹⁵ have recorded instances. Lancereaux has observed the coincidence but rarely. The association of glycosuria in the gouty branch of the arthritic stock is, on the contrary, well marked, and constitutes a determining symptom.

I have not observed a frequent occurrence of psoriasis with rheumatoid arthritis, as has been noted by Dr. Garrod, though the skin-disorder is certainly in itself a manifestation of arthritic disposition.

The views concerning rheumatoid arthritis which commend themselves to me may be set forth in the following series of propositions which I now ask you to discuss.

There is a basic arthritic stock, or diathesis, from which arise as branches two main classes of disorder, commonly recognised as rheumatism and gout. This is Charcot's theory.

Rheumatoid arthritis is one of several manifestations of this diathesis, and should be regarded as a rheumatic branch of this stock, and, therefore, a true rheumatism.

This nosological position necessarily entails indirect relation with all forms of rheumatism and gout.

Although the disease has indirect relations with other branches of the arthritic family, its occurrence is not, at any period, antagonistic to the onset of other phases of rheumatic and gouty disorder. Albeit, the disease is commonly met with in a pure form, and uninfluenced by other arthritic manifestations.

¹² *Transactions of the International Medical Congress*, London, 1881, vol. i, p. 364.

¹³ Mr. Hutchinson has directed attention to various maladies affiliated with what he terms rheumatic gout and gout, but differing somewhat from both, and these include various eye-troubles, such as iritis, hæmorrhagic retinitis, and some forms of glaucoma, dumbago, sciatica, chronic rheumatoid arthritis, Heberden's nodes, and possibly hæmophilia.

¹⁴ Statistics published by the American War Office in 1875, under the direction of Dr. Baxter, and quoted by Mr. Francis Galton.

¹⁵ See "Diabetes in Relation to Arthritis," *St. Bartholomew's Hospital Reports* vol. xviii 1882, p. 371.

Rheumatoid arthritis occurs specifically in more or less grave form, and may also be developed symptomatically by certain special agencies.

Arthritically disposed persons are peculiarly vulnerable and sensitive to changes of temperature, soil, and climate, and manifest this for the most part by certain trophic changes in the joints.

Gouty manifestations may supervene independently in the subjects of rheumatoid arthritis, or may coalesce with rheumatic conditions; and, in the course of many generations, transitional modifications may occur, and give rise to unusual forms of arthritis whose place is not quite readily determined.

Some of these irregular forms may be due to coalescence with other inherited diathetic states.

Accurate family and clinical histories are essential for accurate diagnosis in any case.

Arthritic persons are more than others sensitive to urethral irritation, gonorrhoeal and perhaps some other specific poisons, and also liable to certain forms of inflammation of the eye; but these troubles are distinctly more common in the line of the gouty than in that of the rheumatic branch.

Heredity is a strongly marked feature of the arthritic diathesis, and gouty or rheumatic affections may supervene in the descendants of either rheumatic or gouty persons.

Local forms of rheumatic disease plainly indicate the underlying rheumatic habit of body, which may have previously been latent.

There are, probably, allied forms of rheumatism, with various manifestations; for example, that state expressed merely by the occurrence of nodules in the skin, fasciæ, and periosteum, sometimes with, and sometimes without, associated carditis.

Although there is an indirect relationship between rheumatism and gout, the two diseases are remarkably distinct, and each from rheumatoid arthritis.

The nervous system is markedly implicated in the arthritic diathesis, and many of the features both of rheumatic and gouty diseases point to the probability of there being a trophic centre for the joints situated in the spinal cord; and a morbid or unstable condition of this centre may result in a definite neurosis, which may be either inherited, acquired, or modified.

It is not necessary to conceive of the perverted chemical conditions, so far as they are discoverable, in either rheumatism or gout, as other than epiphenomenal, and constituting but a part of the dynamic state induced by these maladies.

The term rheumatic gout should be expunged from our nomenclature, and chronic rheumatic arthritis, the term proposed by Robert Adams, be employed in its stead.

In this Section I should lay myself open to reproach if I made no reference to our efforts to treat this disease. There is more agreement here than on the question of nosology. Whatever is good for rheumatic manifestations anywhere is, I believe, good for chronic rheumatic arthritis. The principles of treatment must vary somewhat with the exciting and determining causes in each case. Attention must be paid to the presence of any cross-taint. Little good will be gained till a better condition of general nutrition and of the nervous system is secured. All causes of exhaustion and depression must be removed. Hence, in addition to good and varied dietary, including free use of foods containing sulphur, such as onions, cruciferous vegetables, and especially mustard, a sheltered, dry, and somewhat high locality should be sought. For drugs, I like best cod-liver oil, iodide of potassium, pushed to ten or fifteen grain doses, iron, arsenic, and sulphur. Lemon-juice is well thought of, I am told, in Dublin. Counter-irritation in the early stages is much neglected, and smart blistering, Corrigan's thermic hammer, and the actual cautery, will save much subsequent trouble. Proper employment of hot sulphureous waters and of Turkish baths is, without doubt, of the highest value. For those who can afford it, I believe that a residence for some years in tropical and semitropical climates will often avail to prevent incurable crippling, and to arrest the disease in an early stage. I attach high importance to early treatment, exercise of the joints, and a vigorous resistance to incipient deformities. The salicylates are valuable for the worst pains at the outset, while opium and the bromides do most for the weariness of those in the advanced stage.

The CHAIRMAN (Dr. A. Davidson), in inviting discussion on the paper, suggested that, as it had reference mainly to the intimate pathology, or the essential nature, of rheumatoid arthritis, the discussion, as far as possible, should be restricted to that point.

Dr. BALTHAZAR FOSTER (Birmingham) said the thanks of the Association were very much due to Dr. Duckworth for his very elaborate and carefully prepared paper, which was a most exhaustive summary

of various views which were taken of the affection. He had come to the Section to speak rather on the therapeutical aspect of the question, which was that in which he was most interested. But, as the Chairman had ruled that remarks on that side of the question would be out of place, and he (Dr. Foster) was called away to other business, he should leave other members to address the Section, who were entitled to speak with authority as to the pathology of the affection.

Dr. ORD (London) expressed his impression of the great value of this paper, as it appeared to him that Dr. Duckworth had treated all the opinions on the subject very widely and exceedingly temperately; and, personally, he was very grateful to Dr. Duckworth for the very full notice he had given to some of his (Dr. Ord's) views on the subject. When, however, Dr. Duckworth spoke of him as disregarding diathetic influence, he must have a little overlooked a paper he (Dr. Ord) had written, some years ago, on the relation of uric acid to gout, and had probably not seen another and more recent paper of his on hyperpyrexia, in which he had discussed diathetic influence. In the one, he had pointed out what, he supposed, was well known to most physicians who had been long in practice, the tendency of this disease to run in families, just as, among other instances, the tendency of acute rheumatism did. He had pointed out that the tendency to take acute rheumatism, to take enteric fever or quinsy badly, to suffer from scarlet fever readily and badly, would run in one family; and, very often, it was the same kind of family that showed the tendency, which was expressed by the word diathesis, to take on inflammation of the joints on comparatively slight provocation. He had tried to discuss this question; but at present he had not a very clear idea as to what the ultimate meaning of the word diathesis was—whether, on the one hand, it was a difference of chemical constitution of the salts and fluids of the body in those who were from those who were not so affected—a difference, if one might so say, on the large scale like that which existed between the rabbit and man; or whether, on the other hand, it meant, again, a difference in the nervous system, a different reaction to outward influences, dependent upon a different reactive power in the central nervous system. Just as mental peculiarities and mental powers, and physical peculiarities, were said to be handed down from generation to generation, so nervous sensibilities and the resulting reactions would follow lines of descent. But these were only suggestions that came before him at the moment; and, while admitting the existence of the condition, he was less inclined, perhaps, to talk about it than otherwise, for the reason named. Dr. Foster said he had come prepared to speak on the therapeutics of the affection. Well, it was in view of the therapeutics largely that he (Dr. Ord) had tried to indicate the opinion that arthritis was a symptom. Instead of using a common word for a number of, in his own mind, diverse conditions as regarded causation, he had rather tried to discard the word rheumatic, not even necessarily using the word chronic, but to strongly indicate by the adjective the probable causation of the disease. That was to say, he thought there was one condition in which the disease was, as Dr. Duckworth had said, one of the forms in which acute rheumatism might leave a chronic lesion. Again, he saw it with gout; then, again, of spinal source; and again, a reflex affection from various organs. It seemed to him that, if this were once admitted, the basis of an intelligent therapeutics of the disease would be got. And so, in time past, he had protested against the common blood-treatment of the joint-affections, such as was too often seen in baths and watering-places.

Professor GORDON (Belfast) said this was an affection he had been observing for over thirty years, especially its morbid anatomy. He had had exceptional opportunities of studying it from this point of view; and the conclusion at which he had arrived was that it was a senile degeneration. That it had anything to do with rheumatism, he could not admit; for the simple reason that, while there would be a hundred subjects during the session in the dissecting-room, mostly persons advanced in life, there could be found not a single one out of the hundred but would show traces of this morbid condition. The next question he had asked himself was this. Going from table to table, and finding the disease present, could he find any uniform lesion in the liver, spleen, heart, or other organs? The condition of the liver varied very much, of course; but he could find nothing to point to any alteration of that organ, as the result of the lesion in the joints. His colleague, Dr. Redfern, had gained a great knowledge of the subject before he came to Belfast, and he had looked upon it as a decline in advanced life. He (Dr. Gordon) had said that, if a very careful examination were made before there were any outward traces of the lesion, perhaps only some slight pains about the joint, they would see in the same individual evidences of the condition in other joints. What was the first evidence of it? It was an increased vascularity in the synovial membrane around what

might be called the corona of the articulation, then fibrous degeneration of the cartilage, removal of the fibrous element till only a portion of it remained on the compact tissue forming the head of the bone; then these deposits began to be poured out, varying in degree in the different parts of the same subject, and in some cases being concentrated almost to one joint, so that it would be supposed that other joints were free from it. But such was not the case, and thus it went on. In persons between 70 and 80, not one joint was there that was not affected by the change. The points of which he had spoken were amply borne out by the collection which he showed to the Section. He called attention, for instance, to a section of the heads of one of the femora, which showed the compact tissue of the original head; the cancellated tissue of the head was not affected. He had made hundreds of sections to find out the arthritis, or the osteomyelitis; and he had never been in one single instance able to find it. He never could find anything like arthritis, nothing like inflammation of bone, but only a simple chronic alteration, progressing as the person advanced in life. So common was it, that at the beginning of the session he got a specimen of the first stage of it for his students, and then the other stages as the session advanced, and subjects were brought into the dissecting-rooms. In this way, the subject would be before the students at least a dozen times before the session ended. Now, this condition had no relation, he believed, with rheumatism or with gout. Then, what was it? He did not know. But as age advanced, it became more frequent, and progressed *pari passu* with senile degeneration of the arteries, and was frequently associated with fatty degeneration of the tissues. He had never known it associated with acute rheumatism and mitral affection of the heart. That was a very remarkable fact. He had never met with an instance of acute rheumatism and heart-affection where he could trace it in the joints. It was also a remarkable fact, which he showed in numerous specimens, that it was possible to trace in the sections the original head, and see what was really deposited externally to it. What was the action or what was the modifying influence which determined this or that joint to be affected, he knew not. All he had observed were merely its effects. There was another remarkable fact, that the fibrous structures about the joint, especially in the shoulder-joint, the supraspinatus and infraspinatus, were usually affected. There was another peculiarity about the condition. In persons who were affected with it in the early stage, there was a good deal of infiltration of a soft gelatinous substance in the palm, and the moment the hand was grasped, it could be felt that there was something wrong with it. He could not admit that interstitial absorption took place in these cases, with wearing away of the neck or shortening. There was a shortening of the limb, perhaps from wearing away of the head to a certain extent; but the neck was not seen only because of the large deposit growing back upon it, as was clearly shown in one of the specimens on the table. This was a remittent affection. The patient would become comparatively free from it for a long period; and then it would recur with increased, as it were, virulence. The great place for finding the condition was the Union Workhouse. Some might say, therefore, that poverty was probably the source of the condition; but gentlemen with abundant means, and living well, were also affected with it; so that it was not confined exclusively to the poor and overworked. It seemed to be more frequent in Ireland than in England, but no part of the world was free from it. He had thought that, if any part of the world were free from it, it would be Australia; but he knew a gentleman who had been there thirty years, and who told him it had commenced and was increasing there, although it was not so frequent as in Ireland.

The CHAIRMAN said there were many things which might be spoken of in the discussion, but he should confine himself to one line of remark. The spinal origin of rheumatic arthritis was a theory, and as yet only a theory, but it could not but be very attractive to many, especially to those who had devoted much attention to spinal diseases; and, for himself, he was very much disposed to believe in it, as far as one could give faith to a thing not yet proved or established. It had seemed to him that one difficulty that many had in admitting the connection between affections of the spinal cord and these affections of the joints was, that chronic rheumatoid arthritis was still by many associated strongly with rheumatism, or with rheumatism in its typical form—acute rheumatism—which he thought that most associated far more with changes in the blood than the nervous system. It would be some time before existing theories or views as to the connection between acute rheumatism and the presence of certain morbid products in the blood could be subverted; but it was quite impossible to deny the nervous system a very powerful influence even in ordinary acute rheumatism itself. It was impossible to explain the clinical pheno-

mena of it solely by the changes in the blood; and, if they were to allow a greater share on the part of the nervous system in the production of that disease, they would be more ready to associate rheumatoid arthritis with affections of the spinal cord. He mentioned a case of acute rheumatic fever where the first symptom, before any pain or swelling of the joints, was temporary paralysis of the lower limbs and of the sphincter ani.

Dr. LORIMER (Buxton) said that a typical instance of acute rheumatism, of gout, and of rheumatoid arthritis, with the final changes which affected the joint, were so different that one would hesitate to pronounce their identity. There was one feature, however, in common; there was an arthritis. The first two had been referred to morbid matters in the blood; the last had been classed as intermediate between the two former; and, probably, no definite idea had been entertained in regard to its proximate cause. The first was now referred to malarial origin, and regarded as due to a micro-organism, the presence of which had not yet been demonstrated. The latter had been held due to the presence of uric acid in the blood. Recently this doctrine had been questioned. Cullen held gout to be a disease of the nervous system; and, not long ago, Dr. Dyce Duckworth, in the *Journal of Neurology*, had ably pleaded for the same pathology. That an observer so acute as Cullen should have lent his weight in regard to the neuropathic origin of gout, was a fact which had been too hastily forgotten and displaced by chemical discoveries. There was, however, a liability, on the other hand, to be too much influenced by the brilliant announcement of arthritic conditions in spinal disease, and revert too hurriedly to the other extreme. What was the evidence that rheumatoid arthritis was a disease of neuropathic character? 1. Certain diseases of the nervous system were associated with arthritis. 2. Arthritic affections were found in connection with organs in intimate relation with the nervous system. 3. Certain signs which indicated diseased states of the spinal cord were common with them to rheumatoid arthritis. 1. Under the first class might be mentioned the ataxic arthropathies. They differed from the changes in rheumatoid arthritis in this, that the atrophic processes were increased, and there was no tendency to deposition of bony stalactites. Were they to be regarded as coincidences, due to local origin, and their course and end modified by the diseased state of the cord? If not coincidences, should they not be observed more frequently? The speaker had, during the past thirteen years, collected from his own observation 170 cases of locomotor ataxy, and had found ataxic arthropathy present in four cases only. In order to arrive at a right estimate of the percentage, cases should be observed during their whole life-time; and, in an asylum like the Salpêtrière, which kept cases under permanent observation, the more frequent occurrence of arthropathies, which M. Charcot alleged, was explained. In progressive muscular atrophy, arthritis was sometimes found. In fifteen cases he had observed, arthritis was present in three, affecting the wrists and phalangeal joints. This disease was not common, and probably a larger and longer observation of cases would show whether they were to be regarded as cause and effect, or as mere coincidence. Spinal injuries were sometimes followed by arthritic affection. In hemiplegia, a form of arthritis affected the joints of the affected side. Attention was long ago directed to this by Dr. Scott Alison. It was frequently confounded with rheumatism; but Dr. Lorimer's own observation led him to believe that in this it was similar, that it did not proceed finally to disorganisation of the joint. So much for the evidence from arthritis in diseases of the nervous system. 2. The organs of generation were in close relation to the nervous system, and intimately related with it, and affections of the former were followed not unfrequently by arthritic conditions. That arthritis might result from urethritis without gonorrhœa, had been shown by Elliotson; while the term arthritis implied no theory as to a rheumatic character. Gonorrhœal arthritis was thought to be less frequent in the female; perhaps it was not so; but that arthritis and leucorrhœa were frequently associated, his own experience in many hundred cases fully confirmed. The rheumatic dysmenorrhœa read of in books he suspected to be, in many cases, arthritis dependent on morbid uterine states. The frequency of rheumatoid arthritis occurring in young women with disordered menstruation, in women with menstrual troubles at the menopause, afforded strong presumption in favour of a relationship between the two. Considering the large number of cases of gonorrhœa which never suffered from arthritis, and which were a large majority, the arthritis might even be regarded as a coincidence; and certainly it might be asked why it occurred only in some and not more frequently. He believed that those attacked with arthritis had an arthritic tendency or weakness. It was not unfrequent to find urethral arthritis in early life, followed, after many years, by acute rheumatism. As a connecting link between the two conditions,

and illustrating the sympathy between the nervous system and the organs of generation, might be cited urinary paraplegia. In arthritis from gonorrhoea and arthritis from leucorrhoeic dysmenorrhoea, the joints were symmetrically affected. Was this fact to be regarded as implying the intervention of nervous influence? 3. Certain signs were common to rheumatoid arthritis and to diseases of the spinal cord, and it seemed reasonable to refer them both to a common cause. These were muscular atrophy, and alteration in muscular contractility and in tendon-reflex. The muscular atrophy in rheumatoid arthritis resembled that in wasting palsy in the arm; the extensors were more affected than the flexors; in extreme cases, both were equally diminished; and the thenar eminences passed away. The wasting proceeded so rapidly as to dismiss the idea that it was due to disease, and the symmetrical arrangement would seem to point to a deeper cause. Inflammation of a joint might be followed by wasting of muscle. It seemed reasonable to assume that the cause of muscular atrophy was identical. In the case of progressive muscular atrophy, the lesions in the spinal cord were found to affect the grey matter of the anterior cornua, and apparently were sometimes negative. He was not aware that the spinal cord had been made the subject of careful examination in well marked instances of muscular atrophy in arthritis, and a large body of accurate evidence, when it could be obtained, would be a valuable desideratum. There was nothing unreasonable in assuming that a trophic centre might, in both cases, be implicated, and that the joint-trouble might be the starting-point. In both wasting palsy and in the wasting of muscles from rheumatoid arthritis, the muscles were less sensitive to the galvanic current, and it had been alleged that fibrillar tremors were observed in both. Fibrillar tremors he had observed only in a small minority of the latter cases, and of fifteen cases of wasting palsy in only three. The tendon-reflexes in atrophy consequent on rheumatoid arthritis were said to be exaggerated. His experience was not in harmony with that statement. The normal and natural tendon-reflex of each case had first to be settled; before it was thought to be increased in disease. He had observed muscular debility precede arthritis, and, on the other hand, muscular debility and wasting succeed the arthritis; the latter was in his experience more frequent. A case recently occurred to him where muscular debility and some wasting occurred first; arthritis in the joints of the hands succeeded. During the arthritis the wasting of muscles proceeded with a rapidity and to an extent almost incredible, leaving the arms practically useless. Improvement proceeded slowly and surely, which led him to believe that the atrophic condition was not progressive. As regarded the question whether rheumatoid arthritis did or did not succeed acute rheumatism, he believed it difficult to obtain accurate histories. He suspected, in many cases, the alleged acute rheumatism was an acute or subacute attack of rheumatoid arthritis; but that rheumatoid arthritis might follow acute rheumatism, his own experience confirmed. With regard to the heredity of rheumatoid arthritis, his experience led him to believe that the parents might suffer from gout or from rheumatism. Very frequently there was no antecedent hereditary history of either. His experience was negative as to the direct heredity of rheumatoid arthritis. It had been said to be a senile change and a process of decay. He had known it in a child three years old, without hereditary history of arthritic taint; and in a child two years old, with gouty ancestry. In its early stage, its progress might be arrested; the most that could be done for senile changes was to render them stationary. With regard to the association of fatty heart, he thought that the advanced age of the cases from which the necropsies were made might explain the circumstance. Something was said about a case of acute rheumatism succeeding a partially paralysed state of the limbs, and that this was probably due to the relation of acute rheumatism with the nervous system. Acute rheumatism affected fibrous tissue; and the coverings of the spinal cord might have been affected first, and subsequently the articulations. The structures affected by rheumatism made a community of origin in the embryo.

Dr. TAYLOR (Edinburgh) said that one of the most valuable side-lights for the elucidation of the subject was derived from the field of surgery. Even a perfectly healthy finger, if put up in splints and not used, would become ankylosed. There was nothing in those ankyloses of joints that partook of the character of rheumatism that differed, as far as he knew, structurally from ankylosis of a joint kept in position, and not used. The part which rheumatism played in the process, as it seemed to him, was to produce pain so as to make the patient avoid movement. He instanced the case of an old lady who had rheumatic gout in the finger, and whose threatening ankylosis was averted by her having the courage to submit to regular movement of the joints, notwithstanding the pain it caused her.

Dr. MYRTLE (Harrogate) said he found rheumatic gout becoming

more and more frequent among his patients, and real gout and true rheumatism less and less so. He frequently had letters from medical men asking his opinion in cases in which they could not say which element predominated. He was, therefore, he thought, quite entitled to think that there was really and truly a distinct mongrel form of disease here. Another thing which he had to observe was that the symptoms were not so amenable to treatment as were those of the other two conditions. The principal cases were found among women, and they could easily understand why it should be so, seeing that women were more subject to depressing influences, and much more given to the consumption of tea. He looked upon the enormous consumption of tea as one of the principal elements in inducing this condition. The cases he had met with had presented features differing both from rheumatism and from gout in this way, that they had very much less pain, but a great deal more weakness. He thought that weakness and irregular soft swellings of joints were the principal features of this condition in the wrists, knees, and ankles.

Dr. DYCE DUCKWORTH was obliged for the kind criticism bestowed on his communication. The subject was a very large one, and could not be discussed from all points in one meeting. He felt that the views he had endeavoured to set forth had not been fully met in the debate. It was easy to point out, on a series of dead bones, lesions which appeared to indicate the ravages of rheumatoid arthritis, but this was not always unequivocal evidence of the existence of the disease during life. Thus, with reference to remarks of Professor Gordon and another speaker, changes in the nutrition of joints ensuing from prolonged disease and other causes could not rightly be called rheumatic in any sense, and he would again direct attention to the fact that coincidence of pathological change by no means indicated identity of process leading up to it. The clinical features must be known and recognised, and the personal factors in each case be brought out. He would venture to accentuate the conclusions at which he had arrived respecting the disease, that it was a specifically true rheumatism, occurring in persons of a rheumatic habit of body; that it could be set up indiscriminately in all persons; that it undoubtedly occurred as a sequel of true rheumatic fever in a small percentage of the cases; and that the conception of it as a mixture of rheumatism and gout, or a hybrid malady, was for the large majority of cases an unwarrantable error. He was firmly convinced of the existence of a rheumatic habit of body, and accepted the view that gout and rheumatism were both evolutionary manifestations in persons of the arthritic diathesis. Dr. Duckworth exhibited a hand taken from the body of a woman who presented marked examples of Heberden's nodes, believed to be rheumatic during life, but shown to be, as he believed, solely due to gouty and uratic arthritis.

FIFTY CASES OF COMPLETED OVARIOTOMY, WITH BRIEF NOTES OF NINE OTHER CASES OF ABDOMINAL SECTION.

By W. A. MEREDITH, M.B., M.C.,

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THE accompanying record, which includes the whole of my ovariectomy work up to the end of March 1884, offers, I think, some points worthy of note in view of the advances recently made in this department of abdominal surgery.

All the operations, with the exception of one of the fatal cases (No. 14 in the series), were performed with strict antiseptic precautions, including the use of the carbolic spray; and I cannot but feel that the success attained has been largely due to the consistent employment of Listerism.

It has not, as yet, fallen to my lot to witness the alarming results which have been stated to follow occasionally upon the free use of carbolic acid in peritoneal surgery; and this, after a considerable experience of antiseptic operations, now amounting to more than five hundred cases, exclusive of my own work in this department. That both difficulties and dangers are to be met with in the application of the method, is by no means to be denied; but, with care and experience in its use, these may be surely overcome or avoided; and, for my own part, I would far rather incur such risks as there may be than leave any loophole open for what I firmly believe to be the far more real dangers of septic influences.

With regard to the spray, I still consider it an essential part of the antiseptic method, believing that its use enables us to dispense with drainage in many cases where, but for this safeguard, such a procedure would be deemed advisable, even after an operation in other respects strictly antiseptic. The chief objection to it lies in the fact that it