THE BOWMAN LECTURE ON THE RELATION OF CERTAIN DISEASES OF THE EYE TO GOUT.

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By JONATHAN HUTCHINSON, F.R.S.,

Senior Surgeon to the London Hospital; Consulting Surgeon to the Royal London
Ophthalmic Hospital.

GENTLEMEN,—At the request of your Council, I have the honour this evening to deliver the first Bowman Lecture. This lecture has been instituted with the design of gratefully commemorating the services of Sir William Bowman to science, and more particularly those which he has rendered to this Society in his capacity as its first President.

It is intended that the lecturer shall on each occasion undertake the investigation of some special subject in connection with ophthalmology.

I do not think that any more appropriate method could have been devised by which to pay respect to the character of one of our very foremost workers. For myself, I can only say that I feel deeply the responsibility of the yet very agreeable duty which has been devolved upon me, and could heartily wish that your Council had selected some one more capable of doing it justice. Having made this personal apology, I feel that I shall best honour the name of Bowman by trying to imitate the example of his life, and proceeding at once, to the best of my ability, to deal with the subject in hand.

I take for the subject of my lecture the relations which exist between certain Diseases of the Eye and Gout. We shall have to classify several different forms of disease—for the most part, but not exclusively, inflammations of the iris; to describe their peculiarities, and to examine the evidence which is forthcoming as to their real connection with gout. The inquiry is an important one, for a gout-taint is of extremely common occurrence in a large proportion of the British population. The investigation is also, in many of its ramifications, one of great intricacy and difficulty. Certain facts we shall, I trust, be able to establish with clearness, but, respecting many others, we shall not be able to get further than the stage of more or less confident inference. I had at one time intended to bring before you a good deal in the form of attempted proof—that is, of statistical or tabular statements of fact. I have found, however, in the preparation of the lecture, that the time at my disposal will not permit more than a brief sketch of the whole subject; and I shall, therefore, on compulsion, spare you much of the detail. It is, however, only just, both to you and to myself, to state that my arguments and assertions this evening will be based upon the careful examination of a long series of recorded cases. A large part of these will be found given at length in volumes vii and viii of the *Ophthalmic Hospital Reports*, and the remainder I have in type before me, although not yet published.

Definitions of Gout and Rheumatism: Inherited Gout.—Before we proceed to inquire whether gout may be deemed to be the cause, in some instances, of such diseases as hæmorrhagic retinitis, recurring iritis, glaucoma, and others, it may be well to state that I wish to keep a clear distinction between gout and rheumatism. This distinction is in practice often very difficult, and sometimes quite impossible, to draw; but, for all purposes of accurate clinical pathology, we must insist upon its existence. By gout, I shall mean all states of health which are, whether directly or remotely, connected with the accumulation of lithate of soda in the blood, as the result of overfeeding or defective assimilation.

Under the laws of inheritance of morbid tendency, it may easily be the fact that a person may feel the effects of this condition in his parents, who may yet himself never exhibit it. We may have a form of inherited gout which is not associated in the patient with either lithiasis or lithæmia. Hence, as I shall have to show presently, some very peculiar forms of morbid action.

Thus it may, perhaps, be conveniently laid down that there are two fundamental conceptions of what gout is. They are not antagonistic, but rather in mutual coexistence. In practice, the two methods of influence constantly modify each other.

What I may call the primitive conception of gout, regards it as due to a state of the blood, induced in part by errors in feeding, and in part by defects in assimilation and depuration; it has regard to the food, the digestive power, the habits as regards exercise, and the integrity of the kidneys. In this form of dietetic or humoral gout, the stage of lithæmia is essential, and the final product of deposit of urates in the tissues almost equally so. We must, however, seek a wider vision than this.

As an introductory stage, let us imagine the condition of a man who, many years ago, was subjected for a long period to the ordinary causes of primitive or humoral gout, but who, for a considerable series of years, has carefully avoided them. In such a person it is easy to see that, although his blood may have been long kept free from excess of urates, yet, as the consequence of conditions of long duration in the past, his tissues may have received modification, and may be prone still to suffer in a peculiar manner when exposed to the ordinary exciting causes of diseases. In particular, they may be liable to grow old on a peculiar type. Not only are his tissues in general modified, but those of his nervous and vascular systems have probably been especially influenced. Hence the power of control over any process of inflammation, by whatever cause it may have been initiated, is peculiar and defective. If such a man sprain a joint, it will not recover in the way it would have done had he never had gout, yet the joint may nevertheless be very far from assuming a typical gouty state. There may be no tendency whatever to the deposit of urates. Now, let us take another step in the attempt to give reality to our conceptions of the hidden influences under which the every-day phenomena about us are produced. Let us imagine that such a person as we have supposed, one who has suffered severely and through many years from humoral gout, becomes a parent. His offspring will inherit his tissues, his tendencies as regards digestion, kidney-excretion, skin-elimination, and all the rest. These will, no doubt, give a greatly increased proclivity to common typical gout; should the causes of it come into play. They may, however, do much more than this. They may render their subject liable, quite independently of exciting causes, or with but little help from them, to forms of inflammation or of degraded nutrition, which are not unequivocal gout, but which are yet the direct consequence of it in predecessors. The modification which is here inherited is, I repeat, of the tissues and not of the blood, though it is obviously very easy that the two may complicate each other. The subject of tissue-modification from inherited gout may easily become the victim of humoral gout as well.

It is clear from this argument that we must be prepared to see inherited gout assume very different forms from those in which we are so well accustomed to recognise the primitive type. Permit me now to suggest that it is the clinical, or rather the social, fact that a not inconsiderable proportion of the well-to-do classes of the British population are born under the conditions which I have been supposing. The number of those who are the descendants of parents who have suffered from humoral gout is very large indeed, and, especially in our large towns, it is by no means restricted to the educated classes. We must be prepared, then, to encounter, not unfrequently, peculiar types of morbid action which derive their peculiarities from this association. It is the duty of the clinical investigator to carefully examine the evidence which is forthcoming as regards each before he admits its claim. Certain diseases of the eye, for which this claim is, with more or less confidence, put forward, will form part of our topics for discussion this evening. It may, perhaps, facilitate matters if I express at this stage the belief that most of the varieties of what is called rheumatic gout stand in this relation to true gout. The list would include lumbago, sciatica, neuralgia, crippling rheumatism, arthritic deformans, osteo-arthritis, many forms of iritis, and many cases of glaucoma. I by no means wish to suggest my belief that any one of these is, in all cases, in some degree dependent upon the inheritance of gout. Some of them are, doubtless, in not a few instances, purely rheumatic, and this admission renders it desirable that I should say two or three words as to what our conception of rheumatism ought, for the most part, to be. Let me hint that, from our primitive idea of rheumatism I should like to exclude all causes having reference to food or assimilation, and to count only those which regard climate and weather, and especially exposure to cold and damp. The rheumatic diathesis, like that of gout, may become ingrained, and at the same time modified, by hereditary transmission; and in this connection it is easy to overlook its original causes, and even to believe that it may begin spontaneously, or in consequence of other influences than the true ones. The hereditary diathesis of rheumatism (arthritic susceptibility to weather) may easily co-exist with that of gout (arthritic susceptibility to diet); and each of them, or both together, may combine in endless variety with other forms of morbid tendency, or it fol-

lows that we have to study many hybrid or mongrel types of disease in more or less close connection with them.

"Hot Eye," Irritable Eyes, Quiet Gout, etc.—There is a condition to which, for want of a better name, I have for long been in the habit of recognising as "hot eye." It is one of the many curious phenomena which attend quiet gout. I use the term quiet gout as distinct from acutely paroxysmal gout. In families liable to gout, for one person who becomes the subject of acute attacks of podagra, what is known as unequivocal gout, there are often half-a-dozen who are the subjects of minor symptoms which denote a similar tendency. In them, the tendency never rises to sufficient height to induce a severe and characteristic paroxysm. They are nevertheless liable, after taking beer or wine injudiciously, as to quantity or quality, to experience slight pricking pains in joints, attended by lithic acid in the urine, and other unmistakable signs of the diathesis. In many, these symptoms occur in such invariable associations with the causes suggested, that it is not possible to doubt as to their nature. The liability varies with the weather and time of year, and it often ends, unless precautions be taken, in a sharp attack in the great toe. The term suppressed gout, or, better, undeclared gout, is often used in reference to it; but, since it is simply a minor form of the disease not in any way suppressed, and certainly not to trained observers undeclared, I prefer the term quiet. Amongst the frequent occurrences which denote its presence are repeated short attacks of congestion of the eye. Usually, one only is affected, but sometimes both. The conjunctiva becomes red, and the eyeball feels hot, and pricks, as if sand were in it. The attack may come on within half-an-hour of the meal which has disagreed, and it may last a few hours, or a day or two. Sometimes, owing to interference with the ciliary muscle, vision is slightly dim, and all attempts at accommodation are usually painful. Those who are liable to hot eye, not unfrequently in the end suffer from iritis; indeed, it is not unfrequently an introductory stage to that disease. On the other hand, many are liable for years to very frequent attacks of it, without apparently any risk of its assuming more serious proportions. In the intervals of the attacks, the eye is usually quite well; and it is indeed its definitely paroxysmal character, its sudden development, and very complete and rapid disappearance, which especially marks its arthritic relationship.

In connection with this subject, it may be noted that, not unfrequently, those who suffer from unequivocal gout experience shoots of sharp pain in the eyeballs, the nature of which they well understand. A man, William B., aged 51, who had suffered much from gout, and whose father and four of his father's brothers had all complained much of this kind of pain, yet had never had iritis. When he was gouty, he said, he frequently had "darts of pain through the middle of each eyeball," and occasionally across the bridge of the nose.

A further practical note I must ask leave to make. It is to the effect that many cases of irritable hyperæsthetic and easily tired eyes in young persons are in association with inherited gout. I feel sure that, in some of these cases, we are in the present day in danger of pushing the recommendation of spectacles to an excess. Some slight degree of hypermetropia may be detected, and it is assumed to explain the irritability of the eye. Yet glasses do no good, and, in fact, only increase the irritation. In such cases, very often, the real malady is inherited gout.

Transverse Calcareous Bands of the Cornea.—I must admit, in the commencement of our investigation, that little or no evidence exists as to the deposit of urate of soda in any of the structures of the eye. I doubt whether it has ever been proved in any single case, although several observers have suggested its presence. I trust, however, that we are long past the stage of belief which regards such deposit as essential to a gouty inflammation. The nearest approach to proof of gout-deposit has been made probably in the case of what are known as the transverse calcareous bands in the cornea. Sir William Bowman, in the year 1848, was, I believe, the first to publish cases of this kind; but the earliest case had been observed by Mr. Dixon. Valuable information respecting the disease has recently been collected and studied by Mr. Nettleship. I believe I may fairly sum up the present state of our knowledge, by saying that no one has yet proved that the salt deposited is that of gout. It is usually calcareous. The disease occurs in persons very likely to suffer from gout, and sometimes with a gouty history; but we are not as yet justified in holding that this earthy deposit is in direct connection with that diathesis.

Arthritic Iritis.—It will be admitted without dispute from any one that there are several forms of iritis which are arthritic in origin. In other

words, they occur to those who are liable to attacks of inflammation of joints, and the inflammations of the eye occur under conditions similar to those which excite the inflammations of the joint. Both are in some cases prone to occur in an acute but transitory attack. Both are very apt to recur after periods of complete immunity, whilst in other cases both may assume a chronic, persisting, and destructive form. With such features of similarity, we are justified in assuming, as indeed is done by all authors, that they are due to the same causes. The problem which I have to consider to-night is, whether these causes belong to gout or to the rheumatic class; whether they are sometimes the one and sometimes the other; and, lastly, whether they are not, in some cases, of a hybrid or mixed nature. Permit me briefly to state some of the peculiarities which are to be observed in different types of arthritic iritis, and to ask respecting each what evidence we possess which would connect them with the tendency to gout. Let us take first the common form in which the iritis occurs in acute transitory paroxysms. Of this, good typical examples will be in the memory of us all. Its subjects are usually men, and often of vigorous health, and past middle life. The iritis scarcely ever affects both eyes at the same time, but occurs first to one and then to the other, sometimes keeping to the same eye during several successive attacks, and then leaving it to assail its fellow. The attacks are often acute, beginning very suddenly, and attended with great pain. When they subside, they subside completely, and leave the eye without the slightest degree of irritability. The duration of the severity of an attack may vary greatly at different times in the same patient. The tendency to form adhesions is extremely great. It is very remarkable how, in most cases of this class, the disease restricts itself to the iris, and shows no tendency to disorganise the globe. Thus, a patient in whom, in consequence of repeated attacks, the pupils may be occluded, with the exception of mere pin-hole apertures, may yet continue to enjoy very fair sight. I by no means wish to imply that this is usually the case. The case of Dr. Curry, as recorded by himself in the *Medico-Chirurgical Transactions*, is a good form of this disease. I may cite, however, as a good type-illustration of the class, that of a gentleman whose friendship I had the privilege to enjoy during a long period of my early life. He was a florid, fair complexioned man, of vigorous habits, a large eater, and through life accustomed to drink beer. He inherited rheumatism, but there was no known history of gout. He had suffered in boyhood, in consequence, as he believed, of too free bathing when hot, from rheumatic fever. When I knew him first, he was about five-and-forty, and, from that time onwards to his death, at the age of sixty, he had a variety of arthritic complaints—lumbago, sciatica, chronic arthritis of the knees and other joints, and recurrent iritis. Both his pupils were closed, with the exception of very small apertures, through which, however, he still continued to see enough to follow an occupation in which everything depended on good sight. I attended this gentleman year after year, usually in the early part of February, for most severe attacks of iritis, never affecting both eyes at once. He was benefited by large doses of iodide of potassium, and the free use of blisters. At length his attacks ceased to occur, and, during the ten years preceding his death, I believe he had not had any. I made a *post mortem* examination of his body, and found no proof of gout. His knees contained loose cartilages, and there were patches where the articular cartilage was wearing away, but there was no urate of soda.

I have the record of a considerable number of cases in which the liability to these recurrent forms of iritis occurred in those who were the subjects of unequivocal gout. But there were a far larger number in which the concomitant symptoms were of rheumatic arthritis, and not of true gout. The question remains, however, whether this form of rheumatic gout, although unattended by lithate of soda deposit, be not, in reality, a hybrid disease possessing, in addition to an unquestionable share of rheumatism, an admixture also of gout-tendency. The unfrequency of the disease in women, the age, the habit of body, and the mode of life of those who are usually its subjects, seems to me to strongly support this view; so does, also, the extreme severity of the attacks, and their rapid and complete subsidence when once the point is turned. When this form of iritis does occur to women, it is never, I think, so acute or so paroxysmal as in men; and it almost always happens to those whose relatives have suffered from gout.

Various Forms of Arthritic Iritis.—Next to this form of recurrent iritis, and including perhaps some of its examples, I have to mention the iritis which occurs in connection with gonorrhœal rheumatism. All observers will admit, I think, that iritis associated with ordinary rheumatic fever is infinitely rare. So also is it in connection with that type of arthritis to which the name of crippling rheumatism may be given. In other words, iritis, in asso-

ciation with either acute or chronic rheumatism is a thing that we scarcely ever observe. In men, however, the rheumatic affections, whether acute or chronic, which are induced by gonorrhoea, are not unfrequently accompanied by iritis. This iritis is less distinctly paroxysmal, and much more liable to persist and be destructive, than is the case in the form which I have just described.

My explanation of this is easy. The reason why gonorrhoeal rheumatism so often causes iritis, is because it occurs usually to the subjects of inherited gout.

A third form of arthritic iritis is one which affects women more frequently than men, which not unfrequently attacks both eyes at once, which is apt to spread to the ciliary region and choroid, to persist, and to prove destructive. In a very considerable proportion of the women who suffer from this form, there is a history of gout in former generations.

Another group of arthritic iritis might be constituted of cases in which the malady happens to young patients, and proves but slightly, if at all, liable to recur. These single attacks of iritis, without history of gonorrhoea or syphilis, and occurring in young persons, usually, I think, affect the male sex, and almost always there is the history of gout in relatives.

I must just mention, in order to complete my classification, although it is but of little clinical importance, the group of cases in which iritis occurs in association with glycosuria. In these, according to my experience, the patient is almost always the subject of gout also.

To sum up then, I would say that, although in many individual cases of arthritic iritis there may be no proof of liability to gout in either the patient or his relatives, yet the tendency of the evidence in general is in favour of the conclusion that, when iritis occurs, there is in reality some gout-complication. The more purely and definitely is the case one of rheumatism, the less the probability that iritis will happen. When iritis occurs, the complications are always invariably those which suggest what we call rheumatic gout, rather than rheumatism pure and simple; that the smaller joints are often affected and *nodi digitorum* present, whilst sciatica, lumbago, and neuralgia are frequent complications. I have elsewhere tried to prove that gonorrhoeal rheumatism occurs in nine cases out of ten to those who inherit a gouty constitution, and that it is chiefly this inheritance that gives this proclivity to it. I cannot stop now to recapitulate the evidence on which this belief rests; but if it be trustworthy, it offers an explanation of the fact that iritis is so frequently met with in association with this type of rheumatism.

In certain cases of iritis with arthritic associations, a very peculiar condition is observed. I allude to the filling of the anterior chamber with a soft gelatinous jelly-like mass. This material, which produces an appearance most alarming to the uninitiated, concealing the pupil, and suggesting entire destruction of the cornea, is susceptible of very rapid absorption, and may, in the course of a very few hours, clear right away. I believe that, in some cases of syphilitic iritis, this peculiar form of appearance has been noticed; but, if I were to speak from my own experience, I should cite it as a symptom very strongly indicative of gout. I would make the same remark, though with less confidence, respecting the rare cases of iritis complicated with hæmorrhage.

Statistics as regards Arthritic Arthritis.—My report on arthritic iritis, published in the *Ophthalmic Journal* of 1872-74, contains the narrative of 104 cases which are suitable for our present purpose; for various reasons I omit a few, on account of doubts as to their nature or imperfections as to the narrative.

The report comprises cases of all varieties in which either rheumatism or gout, or the two together, were supposed to have been the causes of inflammation of the eye. They were collected from my note-books, both from hospital and from private practice, up to the date mentioned. It is right to state that at that time my opinions as to the influence of true gout were less advanced than they are at present, and that my knowledge as to the means of recognising it was also less. The notes of many of the cases had been taken many years before they were published, and thus many inquiries which I should now carefully make were unfortunately omitted. On this account, I have no doubt that we must consider that the report does not show the influence of gout so strongly as it would have done, had the cases been taken with better knowledge. Out of the 104 cases, I find a positive history of gout having occurred in the patient in only 18 cases, and only in 29 was there the history of positive gout in near relatives. It is to be observed, however, that these numbers take cognisance only of what has been termed "unequivocal gout;"—namely, in those in which an unmistakable attack of inflammation in the great toe or other single joint had unquestionably occurred. It omits altogether

the much larger number in which the gouty tendency had remained undeclared, or had been manifested only in what we may term its quiet form. Any one who will examine for himself the narratives to which I refer, will, I feel sure, agree with me in this opinion. In a very large proportion, there was, I think, good reason for believing that a taint of gout existed where the narrative mentions rheumatism only; the arthritis had constantly been of the chronic type, and had very frequently presented exceptional conditions. If we may count such maladies as sciatica, lumbago, neuralgia, *nodi digitorum*, gonorrhoeal rheumatism, rheumatic gout when affecting the smaller joints, as being for the most part indications of gout rather than of pure rheumatism, we shall then find that facts at any rate suspicious of gout are present in nearly all the cases. It is, I think, decidedly exceptional for rheumatism, pure and uncomplicated, to show any tendency to attack the tissues of the eye. Iritis in conjunction with rheumatic fever of the ordinary form is almost unknown; and even in cases in which people suffer from repeated attacks, as is sometimes seen, the eyes usually remain free. So soon, however, as changes of type occur, the disease shows a tendency to attack the smaller joints, or to affect only single joints, or to pass into the chronic form; then we get the liability on the part of the eye to suffer. On this point, my own experience is quite in accordance with that previously expressed by an acute and zealous clinical observer, the late Dr. Fuller. Dr. Fuller, in his first edition, speaking of rheumatic gout, stated that in 11 out of 101 cases which he had tabulated when Medical Registrar to St. George's Hospital, the eye had suffered more or less severely, and in 14 out of 193 cases which had subsequently been under his own care in the hospital. In a second edition, he stated that he had so far modified or developed that opinion, that he had come to believe that many, if not all, of the cases in which this complication occurred, were examples of obscure gout, or else of gonorrhoeal rheumatism; adding, "this at least is certain, that, since my attention has been specially directed to this question, I have been enabled to have a gouty or venereal" (meaning, I think, gonorrhoeal) "taint in every case in which the eye has been inflamed in connection with presumed rheumatic gout." This is strong testimony—stronger, certainly, than I am prepared to give; but I doubt whether it much exceeds the truth.

Among other authors who have distinctly recognised gout as a cause of diseases of the eye, and appear to have referred a considerable proportion of those diseases, when arthritic, to gout rather than to rheumatism, I may mention Dr. Jacob, Mr. Weller, Mr. Middlemore, Dr. Copland, and perhaps Mr. Wardrop. Mr. Middlemore goes so far as to think that he has seen, in one or two cases, the pupil occupied by calcareous concretion of a gouty nature. None of these observers have, I think, recognised another special disease as connected with gout than recurrent iritis. Almost invariably I find scleritis all put down as rheumatic.

Insidious and Destructive Iritis from Inherited Gout.—I must now enter upon one of the most important topics of my lecture. It is the attempt to prove that there is a very peculiar form of destructive iritis, occurring for the most part in young persons, which stands in all cases in direct relation with the inheritance of a gouty constitution. It does not occur to those who themselves suffer from attacks of gout, but to their descendants.

It was in 1863 that I first saw, at Moorfields, a girl named Mabey. She was then about 18, tall, well formed and florid. She was too florid; and the circumscribed areas of colour in her cheeks varied in tint from bright red to slightly livid, according to the coldness of the day. She was the subject at the same time of a most peculiar form of arthritis of the last joints of all her fingers, and of double iritis. Her right eye was lost and painful, and I accordingly excised it. Her left was saved only by repeated iridectomies and, finally, by extraction of the lens. After the last operation, she continued for five years to enjoy good sight, and was free from relapses. Her fingers also got well. At the age of 26 she became the subject of phthisis, and died, I believe, at about 30. I showed this patient at the Hunterian Society, and drew attention to the unusual features of her disease. Some one present, looking at her hands, remarked, "Surely this is gout!" I took the hint, inquired into her family history, and found that, in all probability, it was gout. Her father had suffered repeatedly from that malady in an unequivocal form, and he had tophi in his ears. I show you drawings of the state of the girl's fingers. In order to ascertain whether there were urate deposits in connection with the swellings, I cut into one of the largest, and obtained only a soft jelly-like substance. When, after some years, the swelling subsided, the terminal joints were all left disorganised, and the last phalanges were more or less displaced. There appeared reason to believe that a

feeble state of the circulation combined in this case with the gout-inheritance.

I have repeatedly mentioned Mabey's case in public, and with it others which came under my notice subsequently, and I must content myself on the present occasion with a short summary of the facts. In 1872, I gave a lecture at Moorfields on this disease, and was able to cite four well-marked examples of it. In 1880, I gave, at the London Hospital, a second lecture, in which I added seven additional cases, making eleven in all. Of these eleven patients, four were females and seven males; but it happened that the most typical and severe forms of disease occurred in females, a fact which my subsequent experience has fully confirmed. In all cases, both eyes ultimately suffered, but only in one were both affected simultaneously. In three instances last-joint arthritis, that is to say destructive inflammation of the last joints of the digits, occurred. In all the cases, vitreous opacities, as well as iritic adhesions, were developed. In most of the cases, the eye which was last attacked suffered most, and a decided tendency was shown for the disease to come to an end as the patient advanced in life. In several cases, the eye was saved by repeated iridectomies; and in one or two, change of climate seemed to be very beneficial.

In all the cases but one the family history of gout was clear and strong, and in the exception the patient was the son of a brewer's man, and his father had died early, so that it was very possible that his proclivities had not declared themselves. In several of the cases, the patient had been reduced almost to blindness. In three, one eye had been excised, and in one, both were quite lost. In all excepting two, the disease had begun between puberty and the age of 25; and it would appear to be the fact that, the earlier it begins, the more severe it is. Such, then, was the state of my facts in 1882, when I put my last lecture into print. I think you will allow that I was justified in avowing a strong belief that inherited gout was the real cause of this peculiar form of iritis.

That I may add a little more colour to my picture, I will ask your permission to state briefly the facts of three cases which have come under my notice since the date referred to. They are all cases of great interest, and two of them illustrate a fact which I had previously only once or twice noticed, namely, that there is a tendency to the formation of cataract.

The last case which I have seen is that of a Miss D., aged 30, the daughter of a surgeon in the country. She was brought to me with the left eye quite destroyed, and the right nearly so. In the left, an opaque lens had undergone spontaneous absorption, and the iris was everywhere adherent to the opaque capsule. In the other, the lens was half opaque and the iris extensively adherent. I was told that I had myself seen this patient ten years before, and had then recognised only commencing cataract in both. The patient's father, an intelligent medical man, was astonished when I told him that there had been extensive iritis, and assured me that his daughter never had had any attacks of inflammation. The patient herself said that she had never noticed more than that the eyes had sometimes been red and hot, and would prick a little. We have here, then, a good instance of the very insidious course of the disease. In the left eye there was no perception of light, and very probably the vitreous body was affected. I found, on inquiry, that in Miss D.'s family there had been much gout. She herself appeared to be in good health.

Mrs. O. is a young married lady, who has borne three children, and, during lactation, in each instance suffered from a chronic form of almost painless iritis. Both pupils are almost excluded. Her father had suffered from gout, and so also have several other near relatives. She is of feeble circulation, and liable to chilblains.

I have kept one of my best cases to the last. Miss L., aged 22, is the youngest of a family of eight, and was born after the death of a father who had suffered much from "chalk-gout." Her eldest brother has had both gout and rheumatism, and there is rheumatism also on her mother's side. Miss L. began to suffer in her eyes at the age of 12, and at first it was simply redness and irritability, with "black specks," "balls," and mist. At the age of 14 she had a severe attack in both, and was several months under Mr. L.'s care, almost blind. From this she recovered, but at 18, a surgeon in Liverpool performed an iridectomy on the left eye on account of exclusion of the pupil. A little later, Mr. O. did an iridectomy in the right eye. Neither of these operations resulted in any improvement of sight. In 1880, a surgeon in Leeds removed a soft cataract. The eye was lost, and Mr. O. excised it a few months later. Miss L.'s present condition is that, with the one remaining eye, she can just puzzle out 10.

Could I possibly produce before you a more marked example of an insidious destructive disease, progressing in spite of the most highly

skilled assistance to its melancholy end? Yet it is only a fair example of half those included in my series.

Relapsing Cyclitis.—There is a peculiar form of chronic inflammation of certain parts of the eyeball, which clinical observers have recognised under the name of relapsing cyclitis. It is a cyclo-kerato-iritis, involving the ciliary region of the sclerotic, the adjacent part of the cornea, and the iris. Sometimes one of these structures suffers more than another, but usually all are involved. It seldom damages the pupil itself much, seldom invades the centre of the cornea, or only very late in the disease, and it does not show much tendency to involve the choroid or vitreous. It usually begins in one eye, and only affects the other after a long interval, and the last one usually suffers more severely than the other. It may begin in early life, but often does not do so till middle periods. When once it has begun, it never wholly leaves its victim, but continues either to persist with slow chronicity, or recurs over and over again, after intervals of health. It causes scars in the ciliary part of the cornea, thinning and discoloration of the ciliary region of the sclerotic, and ends either by inducing staphyloma or by making the whole cornea dull. It may occasionally become needful to excise the eyeball, on account of the persisting irritability, combined with great impairment. It affects, I think, women more frequently than men. It is a very peculiar type of disease, and it would not be difficult to place side by side a group of examples of it all exactly alike. I know of no treatment short of a complete change of climate, which does much to benefit it. In this respect it is much like the form of iritis which I have been striving to prove to be a direct result of inherited gout. Yet I am by no means in a position to produce before you, respecting relapsing cyclitis, such evidence in reference to its gout-origin as that which we have been discussing. I dare not, indeed, do more than suggest that it is very probable that, in some cases, the constitutional cause of this destructive and persisting disease may be gout. I have found a gout-history in some of my cases, but in others it has been absent. The last case which I have seen has been the one in which this suspicion was the strongest.

Miss D. is the daughter of a medical friend. She is now 40, and she has suffered all her life from her eyes. She was treated, when two years old, by Mr. McMurdo for what was then called strumous ophthalmia, and which proved very intractable. Since then she has had numberless relapses, and in both eyes the cornea, at its edges, has become extensively opaque. Her left eye is the worst, and has recently been so troublesome that I was inclined to recommend its excision. It is by no means a blind eye, but the cornea is so hazy that it is of little use. Now, say that we have here a case in which strumous ophthalmia has persisted through life, let us ask what is the constitutional peculiarity which has conducted to this exceptional result. The lady has been well cared for all her life; she shows no other signs of struma, nor are such present in any of her relatives. Her father is a robust man. Mark that both eyes have suffered; and that, in both, it is the peripheral parts of the cornea which have been chiefly involved. Now, this lady's maternal grandfather, and two of her maternal uncles, suffered severely from gout; her mother had an attack in her great toe; and even she herself has, on one occasion, had an attack of it. This strong gout-history is certainly by far the most definite fact which I can obtain as explaining the peculiarities of her eye-disease.

Can Gout cause Neuritis.—Although, from time to time, strong suspicions have been expressed as to the occurrence of gouty affections of the nervous system, I believe the question has seldom been definitely put, "Does gout cause neuritis?" We know that gout can cause the tissues of a joint to inflame, and that cedematous effusion, with cell-proliferation, in fact, the ordinary phenomena of inflammation, are its results. I shall be much disappointed, also, if it be not regarded as proved, that it can cause the tissue of the iris to inflame in a precisely similar manner, and with like results. Can it attack any of the structures of which the nervous system is composed? Can it cause inflammation of ganglia, of nerve-trunks, or of their investments, or may it indeed attack the central organs? Without venturing to suggest that any of these occurrences are common, it is yet difficult to deny a possibility, or even probability, in exceptional cases. We can understand the influences that are likely to localise gout; its exciting causes may come into play less frequently in reference to the nervous system than to the joints, or even to such an apparently exposed part of the organism as the eye. Still, if we admit that, in the gouty condition, inflammations may attack the cellular tissue in any part of the body, it is difficult to suppose that the cell-elements which enter into the formation of nerve-trunks, for instance, will always escape. I am

glad to note, in the progress of neuro-pathology of the last few years, that there seems an increasing tendency to recognise the possibility that not a few nervous affections may be due, not to central disease, but to primary inflammation of the connecting trunks or of the peripheral organs. We know for certain that chronic neuritis, probably beginning peripherally, is a part of leprosy. It is highly probable that it is often a part of syphilis, and quite possible that it occurs also in locomotor ataxy. How else explain many of the transitory forms of ptosis, etc., which occur in the two latter diseases?

Gouty Neuritis of the Optic Nerve.—The question which I now wish to put definitely is: Are there any cases of inflammation of the optic nerve, or of any of the motor nerve-trunks of the eyeballs, the direct cause of which is the existence of a gouty constitution? The decision is of importance, not only in reference to diseases of the eye, but because it would throw much light on certain other obscure affections met with in this disease. Is sciatica really a neuritis of the sciatic trunk or its sheath? Are any of the forms of gouty neuralgia really produced by gouty neuritis. If the optic nerve can inflame from gout, why not the pneumogastric, or the phrenic? I am sorry to say that I have exceedingly little evidence to bring forward in answer to these important questions.

I will mention briefly one or two facts which are suggestive, and which, I hope, will prove sufficiently so to induce a more careful investigation of the subject. In two or three cases, I have attended young ladies, of families in which gout had been prevalent, who suffered from attacks of ptosis, with the other group of symptoms referable to paralysis of the third nerve, for which I could find no other more plausible explanation than that they were caused by gouty neuritis. In one of these the attacks were transitory and recurrent, several having occurred within a period of a few years. I must not venture to trouble you with details of these cases, but feel myself obliged to speak rather more at length concerning one in which the optic nerve itself was inflamed, there being, I think, fair reason to suspect that the cause was inherited gout. A young lady aged 16, was brought to me from Ipswich, on account of blindness of one eye, in July, 1879. She had no other symptoms whatever, was florid, and appeared to be in good health. The ophthalmoscope showed nothing but what was quite normal; and had it not been that her pupil dilated more widely when the other was covered, I might have suspected that she was feigning. A week later, the changes were conspicuous, the disc being much swollen, and its margin concealed. Under treatment by mercury, combined with quinine, in the course of a few weeks the attack had passed away, but the disc was left pale. Four years later I saw this patient again, with similar symptoms in the other eye, and I was now told that she had several times suffered from transitory attacks, which always occurred during spring. Her health remained perfect. There was a strong history of gout in the family, both her parents having suffered repeatedly. It seems to me not at all improbable that these recurrent attacks of transitory neuritis were really of a gouty type. In saying this, I have regard to the entire absence of the more ordinary causes and concomitants of optic neuritis, to the recurrent nature of the affection, its want of symmetry, and the exceptionally strong family-history, both parents and many other near relatives having suffered.

I cannot call to mind any other case of recurring optic neuritis, with gout-history, which I could at all fairly place side by side with this one. I have, however, several times seen optic neuritis occur in women who were of gouty family, without any of its ordinary accompaniments, and clear away entirely under treatment. In none of the cases of which I am thinking did any recurrence take place, and, in most of them, both eyes were simultaneously attacked.

Other Forms of Gouty Neuritis.—Before quite taking leave of this important question as to the possible occurrence of gouty neuritis, I must trouble you with yet one other case.

A lady, aged 56, came under my observation, in whom for several weeks the left facial nerve had been quite paralysed. I observed at once that she had had two large iridectomies, done downwards and outwards, and, on inquiry, found that she was nearly blind. It was twenty-three years since she had first noticed cobwebs before her sight, and fifteen since she had last been able to read. The iridectomies had been done six years, with what object I do not know; for, although she said that she had once had rheumatic inflammation of her eyes, there did not appear to be any adhesions. In each eye the lens was partially opaque, and in each there were extensive choroido-retinal changes, with pigment-deposits and waxy atrophy of the discs (a peculiar form of retinitis pigmentosa). The patient told me that she had a sister who also had "amaurosis." I persuaded her

to bring her sister, and may now state the family-history which belongs to them both. One of their brothers suffers not unfrequently from attacks of unequivocal gout, and a sister is crippled by rheumatism, but their parents died aged, and are not known to have suffered. The elder of the sisters, aged 69, has herself had gout, and describes her great toes graphically as having been swollen and red, like tomatoes. This sister, after her first confinement, aged 27, had an attack in her eyes, which lasted several years, attended by great pain and intolerance of light. Her recovery from it was very gradual; but finally it was almost perfect, and I could now find no material changes. For several years she has been very deaf, and she has suffered severely from neuralgia, and chronic arthritis of the wrists and fingers. Once she was told by Mr. Critchett that she had "gout in the eyes." The younger sister describes, ten years ago, an attack of shoulder-neuralgia attended by torticollis, which kept her in bed six weeks, and was accompanied by agonising pain, as if her arm were in the fire. She also has suffered most severely from neuralgia on many occasions.

Here, then, is a family so definitely gouty, that a brother and sister have each had true gout, and several other sisters are crippled by rheumatism; one sister has become almost blind with neuro-retinitis, and has suffered from neuralgia, torticollis, facial paralysis, and an attack which was probably neuritis of the brachial plexus. Another sister is deaf, has been all her life liable to neuralgia, had a several years' attack of pain in her eyes, which was called "amaurosis," and, in later life, one which was named "gout in the eye." It seems highly probable that we have here an instance of gout, affecting, at different periods of life in each sister, different parts of the nervous system, and attended by true neuritis of various nerve-structures.

Glaucoma in Relation with Gout.—I had intended to have said a good deal as to the nature of glaucoma, and the evidence as to its connection with gout. The subject is, however, too important to be discussed hurriedly, and I have not time to attempt to do it justice. I must therefore content myself with the mere expression of opinion, that, in the production of this extraordinary disease, a gouty tendency often takes a large share. More particularly would I suggest this in the exceptional cases in which glaucoma shows itself in early life; and I could, if time permitted, bring before you some important cases illustrating this point.

Retinitis Hemorrhagica and its connection with Gout.—There is yet another definite and well characterised affection of the eye which claims conspicuous mention in connection with our subject.

Retinitis Hemorrhagica is very rarely indeed seen, excepting in those who are themselves gouty. It is a disease of middle life, or of advancing years, and in its more typical forms is never seen in the young. It seldom happens to both eyes at once. It is attended by great swelling of the disc and adjacent parts of the retina, by such turgidity of the central vein that I was at one time tempted to believe that it depended primarily upon thrombotic phlebitis of that vessel. It is possible, however, that such is not its true pathology, and that the venous distention and stasis, perhaps in some instances thrombosis, are really secondary to the neuritis. If this be the fact, and neuro-retinitis be the primary condition, then we have in retinitis hemorrhagica an instance in proof, that acquired or humoral gout may become the cause of neuritis. It is not, I think, ever seen in association with the inheritance only of a gouty constitution, but is found with lithæmia in free livers, who have usually experienced unequivocal attacks. The case which Jäger took for his beautiful plate in illustration of the disease, was that of a tavern-keeper, of plethoric habit and bloated appearance. Nothing is said as to gout, but it is fair, in such a man, to assume that there was a tendency to it. In order to determine statistically, as far as practicable, the association of retinitis hemorrhagica with gout, I have tabulated 24 cases, with the exception of the one of Jäger's, all from my own note-books. In twelve of these, exactly one-half, the patient had suffered definite attacks of gout, and in five others, there was strong presumptive evidence of a gouty constitution. In seven, there was no proof of gout. This last group comprises two in which diabetes was present; one in which albuminuria existed, and two in which the retinitis was not very well characterised as of the hemorrhagic group. If I had kept more closely to the type of cases illustrated by Jäger's portrait, I should have been able to make yet stronger statements as to the almost invariable association of the disease with gout. It may be of interest to state a few other facts deduced from my table. Thirteen of the patients were men, and eleven women. The youngest was 45. In seventeen cases, only one eye was affected, and in seven both. In some cases, there were hæmorrhages only, with little, if any, evidence of neuro-retinitis.

Summary.—I must now bring my lecture to a close; and, in doing so, may, I think, venture to assume that it has been shown to be probable that there are many different forms of inflammation of the eye, or of parts of it, which are in connection with gout. Some of these are very peculiar and specialised types of disease, and have already been accorded distinctive clinical names; others, quite as distinct, are not as yet so well known, and of others we may say that they are to be distinguished from other inflammations of the same structures, not so much by their features, as by their cause. Of all, we may assert that they are unfrequent; some, if we confine ourselves to well marked types, are distinctly rare. We have divided these different affections into two groups: (1) those which go with acquired, humoral or renal gout; and (2) those which depend upon the inheritance of structures damaged, or at any rate specialised, by gout in predecessors. It is needless to repeat that, in almost all cases of acquired gout, there is inheritance also; and that in many, in which the disease is chiefly caused by inheritance, some modification and increase may have been derived from personal habits. Still, the difference between the two classes of affections is very marked. In the one, attacks of a transitory nature are the rule, and these attacks are often acute, and attended by much pain. In the second group, although a tendency to temporary recovery and recurrence is often observed, yet there is a great proneness to chronicity and persistence. The invasion is often insidious, but the disease is usually in the end destructive. In the former group, we have placed hot eye, scleritis, recurrent iritis, and retinitis hæmorrhagica. All these are diseases of adult life. In the second group, we have insidious disorganising iritis, relapsing cyclitis, certain forms of soft cataract, and, perhaps, some of primary optic neuritis. Not only are there clearly marked clinical differences between the two classes of affections, but the difference in treatment is equally marked. In the first, the well known measures against gout must be taken; a restricted regimen, alkalis, colchicum, and aconite, and liberal counterirritation. In the second, we must use tonics; and although counterirritants are here, also, often valuable, we cannot trust to any measure as really curative, short of complete change of climate.

The Proofs of Gout.—It may be, perhaps, convenient to say a few words as to the kind of evidence which justifies a diagnosis of gout as the cause of any particular disease of the eye. In the case of humoral or acquired gout, there ought to be the history of one or more definite attacks of joint-inflammation, usually of an acute character, and attended by redness and edema, and followed by peeling; usually the great toe will have been the joint affected. Such patients will often state that they are very susceptible to the influence of beer and wine, and that malt-liquor and some wines almost always cause indigestion, and make the urine muddy. These dietetic disturbances, to which, as a test of gout, attention was, I think, first claimed by Sir James Paget, are very important and valuable. If tophi be present in the ears or elsewhere, they are of course conclusive. In a few cases, we are justified in assuming the existence of humoral gout, although no paroxysm has ever occurred. If the dyspepsia be there, if the joints ache and prick after beer or wine, and if there be gout in relatives, we may confidently believe that it is present, although not yet declared. As regards the inherited form, we may take it as highly probable, whenever parents or grandparents, or any one of them, are known to have suffered definitely. If even uncles, aunts, brothers or sisters, or cousins have suffered from true gout in early life, the belief that a family taint exists becomes very probable. The evidence must always be carefully sifted. It will not do to take the statement of the patient without first carefully informing him as to the scope of the inquiry. Patients will often confess to gout who do not know what the word means, and a far more numerous class will hastily deny its history, although the facts, when correctly obtained, may be most conclusive. If, however, proper care be taken, and the patient, after being instructed, be allowed time for consideration—above all, if the inquiry be repeated after an interval, or if several relatives be interrogated, then I believe that in most cases truthful data will be obtainable.

It may be inquired as to the value of certain affections which may be considered to belong both to rheumatism and gout, as symptoms of the latter. Permit me very briefly to avow my creed. I believe that the subjects of gonorrhœal rheumatism are, in a very large majority of instances the inheritors of a gouty constitution, and that all the conditions usually classed as rheumatic gout are really, in most instances, dependent in a large degree upon like inheritance. Thus, if a patient have had sciatica or lumbago, if he show nodi digitorum (osseous, not tophi), if he have suffered from chronic rheumatism affecting the smaller joints, I should think it fair to allow considerable weight to these facts as pointing to a taint of gout. Even the strictly rheumatic disorders, acute rheumatism itself, if it happen to the

relatives of those who have had gout, lends support to the theory of family tendency to gout. It is an observation as old as the days of Heberden, and confirmed I am sure by daily experience, that the children of the gouty are more liable than others to attacks of rheumatic fever. In this we see another proof of the inheritance of structural proclivities, rather, I think, than of blood-disorder or tendency to it.

Conclusion.—And now, gentlemen, as my last word, I do not know whether I have to defend myself in the eyes of any of you from the charge of "seeing gout in everything." I am well aware that this diagnosis is a very easy one, and seductively ready at hand for the idle prescriber. I submit, however, that it has not been exactly in that temper that I have brought before you the statements which I have made this evening. My desire has been to state the issues explicitly, and to keep close to facts. Where statistics were admissible and obtainable, I have had recourse to them. I may assert that I have said nothing but what has been based, not only upon clinical observation, but upon clinical note-taking, and the subsequent collation of cases. Nor, I contend, have I made any very sweeping statements. So far from my having exceeded the truth, my conviction is that when our clinical pathology shall be more advanced, and diseases more minutely classified, we shall in all probability recognise as gouty yet other maladies, and perhaps not a few beyond what I have claimed. It is a subject upon which scepticism is as irrational as credulity. That the gouty constitution exists, and is very common in our English population, that it is potent in the production of disease, and that it is remarkably hereditary, are facts which no one will doubt. In relation to the multiform diseases of the eye it must have a domain, and that an important one. To discover some of the extensions and limits of that domain has been the object of my best endeavours to-night.

BACUP.—In the compass of a few pages, Mr. J. Brown has contrived to give a satisfactory account of the health and sanitary circumstances of his district during 1883. He records the death of 26 persons from zymotic diseases, and thinks that, as this number includes 11 fatal cases of infantile diarrhoea, the death-rate from these causes—1.01 per 1,000—is satisfactory. Small-pox was totally absent from the district, and but one infant succumbed to measles. Whooping-cough, however, was extremely rife during the greater portion of the year, and proved fatal to five children. Mr. Brown found that the infection was largely spread by carelessness, and that, unless the attack assumed a fatal character, medical aid was rarely sought. In regard to treatment, he recommends the evolution of carbolic acid, which, he believes, would greatly modify the duration and severity of the attack. A considerable number of cases of typhoid fever occurred, nearly all of which were discovered through the agency of the Registrar's returns, and at a time when it was too late for the adoption of measures of isolation and disinfection. The disease was fatal in five instances, inquiry almost invariably revealing the existence of defective sanitary conditions. The general death-rate, which is returned at 17.72 per 1,000, is the lowest recorded by Mr. Brown since his appointment in 1877.

BUILTUP RURAL DISTRICT.—The unusual prevalence during 1883 of whooping-cough and of scarlet fever, which accounted for the whole of the mortality registered from infectious diseases, had the effect of raising the death-rate from these causes to 2.21 per 1,000, as compared with 0.88 in 1882, and 0.29 in the previous year. Mr. J. F. Herring, who, as usual, devotes much attention to the causation and spread of disease, could not trace the source of the outbreak of whooping-cough. Indeed, many cases had occurred and recovered before he was cognisant of its prevalence; and, as this is a disease for which, in its ordinary form, most households have their favourite "nostrum," probably many cases passed over without medical aid, and were consequently lost sight of. As a matter of clinical observation, Mr. Herring found, in his own practice, the best results from a gradual and slow evolution of carbolic acid, keeping the atmosphere of the room occupied by the children (especially during night) constantly impregnated with the vapour. The primary unpleasantness and inconvenience soon pass off, and no complaint is made after the first twelve hours. As might be expected, this treatment is more useful in the earlier than in the convulsive stages, although even in them the attacks are certainly mitigated, if not avoided, as the intervals are longer under ordinary treatment, without the use of the antiseptic. Eleven deaths were recorded from the disease; all of which, with one exception, occurred in children under five. The infection of scarlet fever, fatal in four cases, seems to have been introduced into the district by a convalescent, and subsequently spread by the congregation of a large number of people at a fair. The mortality from phthisis was somewhat high, but diseases of the respiratory organs were less fatal than usual. The general death-rate is returned at 20.12 per 1,000.