Notes on rheumatism / by Julius Pollock.

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regards.

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NOTES ON RHEUMATISM

NOTES

ON

RHEUMATISM

BY

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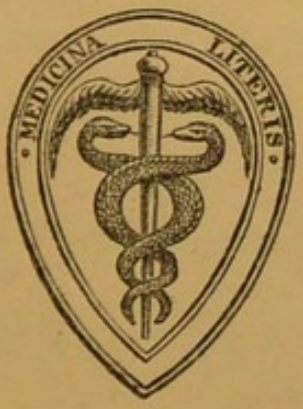

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PREFACE.

PART of the following "Notes" has already appeared in the pages of the *Lancet*, but it is now re-written and enlarged.

There is probably little that is new or original in my remarks, and only the great interest that has lately been taken in the treatment of articular rheumatism with the salicylate of soda and its congeners justifies their publication.

I have studied to be brief, and perhaps in that, if in nothing else, I may have been successful.

J. P.

85, HARLEY STREET, W.
May, 1878.

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NOTES ON RHEUMATISM.

CHAPTER I.

INTRODUCTION.

RHEUMATISM—TWO ACKNOWLEDGED FORMS, THE ARTICULAR AND MUSCULAR—PROBABLY THEY ARE DIFFERENT DISEASES—THEIR CAUSES, SYMPTOMS, ETC., CONTRASTED.

THERE can be little doubt that under the general term "Rheumatism" several distinct and different diseases have been grouped together, and in many instances described and treated of as if they were only varied manifestations of the same morbid condition.

It cannot be denied that there is a considerable resemblance — a strong family likeness—between the several forms of what

we call rheumatism, but when carefully examined many differences will be found. Leaving out of the question rheumatoid arthritis and other diseases of doubtful rheumatic origin, let us contrast the two acknowledged forms of the disease, the articular and the muscular.

Articular rheumatism is, for the most part, a disease of early adult life, commonly acute or sub-acute in character, affecting the synovial membranes and the somewhat similar serous membranes, especially those of the heart, and has a strong tendency to get well in a certain time. It is not preceded nor followed by muscular rheumatism; the two disorders in no way run into one another; on the contrary they occur quite independently, and a predisposition to the one is rarely accompanied by a predisposition to the other.

Muscular rheumatism is most common in middle or advanced life; it is usually chronic in form, and if left to itself may continue

for an almost indefinite period. The parts attacked are not really the muscles, but the white fibrous tissue that forms their aponeuroses and tendons, the different fasciæ and ligaments. There is no tendency whatever to heart mischief, and life is not threatened, though it may be embittered, by the disease.

Difference of occupation, errors in diet and mode of living, which are such powerful predisposing causes in muscular rheumatism, scarcely seem to affect the liability to the articular form. Thus, although to save the very objectionable plan of giving new names to familiar disorders,* we still apply the term rheumatism to both diseases, it is obvious that they are essentially distinct and separate, and should be treated as two different complaints. It is thus that I propose to deal with them, and I shall speak of articular rheumatism first.

* In the translation of Ziemssen's new work, articular rheumatism is spoken of as "Polyarthritis Rheumatica."

CHAPTER II.

Articular Rheumatism—Its Forms—Course—Causes, Predisposing and Exciting.

Articular rheumatism occurs in three distinct forms—the acute, the sub-acute, and the chronic ; of which the two first appear to be the most common. The acute and (when at all severe) sub-acute forms are often called rheumatic fever.* The disease when left to itself, or when uninfluenced by remedies, has an average duration of about six weeks, though mild cases may be over in a fortnight, and severe ones linger on for eight or ten weeks. As far as the mere affection of the joints is concerned, articular rheumatism

* To save tiresome and tedious repetition of the same terms I shall use the name rheumatic fever indifferently with acute and sub-acute rheumatism.

tends to complete recovery, but life may be threatened by the immediate or remote effects of heart disease, when that organ is implicated, or by meningitis, or by the supervention of hyperpyrexia. The causes of articular rheumatism may be divided into predisposing and exciting. The most important predisposing cause appears to be the presence in the blood of a morbid material, the result of some peculiarity in the patient, which is often inherited. In some persons there is such a strong tendency to the disorder, that the slightest exposure to wet and cold, or to cold only, will bring on an attack, and occasionally no exposure at all can be traced. Such individuals get an attack of rheumatic fever early in life, and suffer from the acute or sub-acute form at various intervals, until, if they live long enough, age rids them of the predisposing cause. Other persons are much less liable to articular rheumatism, and only the most disastrous circumstances — the

strongest application of the exciting cause—will produce the disorder; whilst a large number of the community escape the disease altogether, no matter to what amount of wet and cold they may be exposed.

Youth is reckoned among the predisposing causes of articular rheumatism, and probably with reason, for the *materies morbi*, the existence of which in the blood is necessary to the production of the disease, appears to be present in most cases only during that time of life which is included between the period of puberty and middle age. No doubt acute rheumatism sometimes occurs in very young children and sometimes in old persons, but I speak of the rule.

In some diseases, measles for example, youth *appears* to be a powerful predisposing cause; but, in reality, why measles almost always occurs in childhood is on account of the universal liability to the disease, and the widespread sources of infection. Older per-

sons do not get the measles, simply because they have had the disease early in life, or, more rarely, because they are proof against it. *Mere* age is no protection. But it appears to be otherwise in articular rheumatism, for persons may and do outlive the tendency to the disease.

Some authorities place a previous attack amongst the predisposing causes, but, I venture to think, without sufficient reason. To my mind the previous attack simply shows the liability to rheumatism — indicates the diathesis of the individual; and that it should be followed by other attacks illustrates the "*post*" rather than the "*propter*" *hoc.* A tendency to articular rheumatism exists in certain persons, just as there is a tendency to snow-storms in the winter, or gales of wind at the equinoxes; but we do not think of one snow-storm or one gale of wind that it predisposes to others, but merely that it indicates the presence of certain proclivities

in the weather: and so with one attack of rheumatism. Sex, occupation, errors in diet, do not seem to exercise much influence on the production of articular rheumatism; but loss of health or debility in any form certainly increases the liability to the disease, probably by bringing any latent predisposition that may exist into activity.

The most important *exciting* cause, perhaps the only one worth considering, is exposure to cold, and especially to cold and wet. Sleeping in a damp bed with insufficient clothing,* remaining in wet clothes, sitting in a draught of cold air when heated, in fact getting a "chill" in any way, will often induce acute rheumatism in those who are predisposed to it. Possibly it is the check thus given to the eliminating func-

* It may be well to mention here that it is wet *and* cold that are so injurious, and if any one find himself in a damp bed he may minimise the mischief, perhaps save himself from any harm, by heaping on plenty of clothes, or by getting rid of the sheets, and sleeping between the blankets only.

tions of the skin that determines an attack of the disease.

The climate of the temperate zones is more productive of rheumatism than the colder or hotter regions of the world ; for it is in the temperate zones that we get the combination of wet and cold that is so fruitful of the disorder.

CHAPTER III.

Rheumatic Fever—Its Symptoms—The Tendency to Inflammation of the Serous Membranes—Hyperpyrexia—Chronic Articular Rheumatism.

Rheumatic fever generally begins with symptoms of having taken cold and with fever, which are quickly followed by the appearance of inflammation in one or more of the joints. In some cases, however, the joint affection occurs simultaneously with the constitutional symptoms. The inflamed joint is red, swollen, painful, and very tender, so that the least pressure gives great pain. As a rule, the larger joints are more commonly affected—the knee, ankle, elbow, and wrist; less frequently the shoulder and hip; but in many cases the smaller joints, those of the hand and fingers, participate in the disease.

Sometimes one or two joints only are attacked, sometimes a large number; and it is a remarkable feature of the disease, clearly indicating its constitutional character, that the inflammation occasionally rapidly disappears in one joint and as rapidly appears in another. This is spoken of as metastasis.

Along with the joint mischief there is, in severe cases, considerable constitutional disturbance, indicated by an increased temperature, a full rapid pulse, a hot skin, a thickly coated tongue, constipated bowels, and scanty, high-coloured urine, often very acid, which deposits on cooling a copious cloud of red lithates. In the acute and subacute cases the temperature will range from 100° to 105° Fahr.; and when hyperpyrexia supervenes the thermometer will indicate a temperature still higher, varying from 106° to 110°, or even more.

The tongue is thickly coated, but not red nor feverish looking at the tip and edges

It differs in this from the tongue of early continued fever, and is pale and rather swollen, like the tongue of quinsy or an acute stomach attack. There is generally complete loss of appetite. Another symptom, one that is rarely absent, is a constant drenching sweat, bathing the patient from head to foot, and having a peculiar acrid odour, which is very characteristic of the disease. In most cases this sweat is intensely acid, turning blue litmus paper to a bright scarlet, but when it is very profuse the great acidity is less marked.

With few exceptions, the mind is entirely unaffected, and delirium is rare, but the pain of the inflamed joints sometimes deprives the patient of sleep. The slightest movement, when the articulations are severely affected, is productive of great agony, and the sufferer lies helpless and motionless, paralysed by pain.

It would be well if the description of

acute rheumatism could end here, but, unfortunately, the disease often involves other and important structures. Serous membranes are closely allied to synovial in their formation and functions, and share with them the liability to be attacked by rheumatic inflammation. The pericardium, the endocardium, the pleuræ, the peritoneum, the meninges of the brain, may, one or more of them, be involved in the disorder; but the first two far more often than any of the others, so much so that some German authorities look upon cardiac mischief as the very essence of acute rheumatism. Be this as it may, there is no doubt that peri- or endo-carditis, or both, are very frequently associated with rheumatic fever, and more especially when it occurs in young persons. The earlier the age at which the disease makes its appearance, the more likely is it to be accompanied by cardiac mischief; which would seem to show that the impli-

cation of the heart is due, at any rate in most cases, to a strong rheumatic tendency. When the heart is involved the constitutional disturbance is generally much aggravated, and accompanied by the special symptoms of cardiac inflammation, into which, however, I do not propose here to enter, since the phenomena are the same, whether the carditis be the effect of rheumatism or any other cause; and this may also be said of any of the other serous membranes when they happen to be involved. Rheumatic meningitis is, happily, rare, and I have only seen one well-marked case of it, which proved fatal.

But there are other dangers besides those attending carditis or meningitis. Every now and then—fortunately not often—rheumatic fever assumes a form for which I think the term "malignant" is the most appropriate. In such cases, without any apparent reason, the temperature

begins to rise, and may ultimately attain the height of 110° Fahr., or even more; the joint affection subsides, pain is no longer complained of, and the patient often expresses himself as better just as the most serious symptoms are coming on. The profuse sweating ceases, the skin becomes dry, harsh, and intensely hot to the touch; very frequently a crop of sudamina breaks out upon the neck, chest, and abdomen,* the tongue becomes dry and brown, there is great thirst, complete loss of appetite, the breathing is rapid, the pulse very quick and generally weak, the patient is tremulous and restless, with a suffused and "ferrety" appearance about the eyes, delirious at night, but often pretty sensible in the daytime. The delirium is generally of a low, muttering kind, not unlike that of delirium tremens, though occasionally

* I have learned to look upon this as a very unfavourable sign.

there is some excitement. Unless the disease takes a favourable turn or relief can speedily be given, death ensues in a day or two, apparently from mere hyperpyrexia.

Pericarditis not unfrequently occurs in connection with hyperpyrexia; but it is by no means always present, and it does not seem to be necessary to the existence of the abnormally high temperature. When the two conditions are present in the same case, the pericarditis, like the joint affection, often passes into abeyance.

I am aware that high temperature is not peculiar to rheumatic fever—that it may arise in continued fevers, in diseases of the brain and spinal cord, in pneumonia, and other disorders; but it is in acute rheumatism that it has attracted most attention, and is most frequently encountered. Curiously enough it is not only the more severe attacks of the disease that drift into hyperpyrexia; comparatively mild and sub-acute

cases, which appear to be doing well, will now and then take this remarkable course.

I use the term "malignant" for this condition in the same sense that it is used for those terrible cases of smallpox, scarlet fever, or cholera, in which the chief force of the disease seems to fall upon the nervous system, overwhelming the patient; and I think it not unlikely that the hyperpyrexia of rheumatic fever is in some way connected with the implication of the nervous system in the specific inflammation. Certainly "malignant" is not too strong a term for these cases, for in my own experience and that of others the greater number prove fatal in whatever way they may be treated.

After a while, varying with the severity of the disease and the effect of the remedies employed, rheumatic fever tends to get well. The fever subsides, the inflammation in the joints disappears, and (if the heart has not been implicated) the recovery is generally

complete; for, beyond some temporary relaxation of the synovial membranes and weakness of the joints, no ill effects are left behind. It is otherwise, however, when the heart has been affected, since although the recovery of the patient may appear to be complete, and he may think himself well, there is more or less permanent mischief left, which often leads to further trouble; and most of the severe cases of cardiac disease, with their train of hypertrophy, dilatation, congestion, dropsy, and death, are the legacy of acute rheumatism.

Probably we see more of rheumatic fever in its sub-acute form than in any other, especially in hospital practice. I would call those cases sub-acute in which the temperature does not exceed 101° Fahr., or thereabouts, and in which only a few joints are affected, and the constitutional symptoms are comparatively slight. This form of the disease differs from the acute chiefly in

degree, all the symptoms being less severe, and the liability to heart mischief not so great. But it is quite as tedious in its course as the more acute form, and relapses are not uncommon.

Chronic articular rheumatism is, I believe, not unfrequently confounded with other diseases of the joints. There is little or no fever or constitutional disturbance, and sometimes not more than one joint is affected. It may arise independently in persons with but a slight predisposition to articular rheumatism, or it may be the sequel of a more acute form of the disease. There is a good deal of swelling and some tenderness of the affected joint or joints, but no redness, and not much pain when the patient is at rest, nor is there any marked sweating. The disease may last for some few weeks under ordinary treatment, but disappears rapidly when salicylate of soda is used.

Disease, like nature, delights in variety, and there is a curious and rare form of rheumatic fever, if one may so call it, in which there is no joint affection at all. Dr. Graves mentions having seen several such cases, and in persons who were liable to attacks of the ordinary articular form. I have met with but one instance, and that was some years ago. The patient, a lad of sixteen, had symptoms exactly resembling those of acute rheumatism, the fever, the constitutional disturbance, the profuse sweating, and peculiar odour, but no joint-disease whatever. In the course of ten days or so he got quite well.

CHAPTER IV.

The Pathology, Morbid Anatomy, Diagnosis, and Prognosis of Articular Rheumatism.

The pathology of articular rheumatism is confessedly obscure and difficult. That the inflammation in the joints is not common inflammation, but due to the presence of some morbid material in the blood, is now pretty well recognised. What, then, is this morbid material? Is it introduced into the body from without, like the poison of small-pox or typhoid fever, or is it manufactured within the system, like the poison of gout? Is it exhausted or used up for a while by an attack of rheumatism, as happens in gout; or is it always present, but requiring from time to time a fresh application of the ex-

citing cause? These are very interesting questions, but not easy ones to answer.

It is curious that Dr. Maclagan was induced to try salicin as a remedy for rheumatic fever, in consequence of a theory that the disease was malarious in its origin—a theory, however, that is scarcely borne out by the natural history of the disorder. We see that the liability to acute rheumatism is confined to a certain number of persons, many of whom have inherited their undesirable proclivity; and that cold is its chief, if not its only, exciting cause; which seem to indicate that the elements of articular rheumatism exist in the system of those who are predisposed to the disorder, ready to start into activity upon the application of the necessary stimulus. According to this view the pathology of rheumatic fever would more resemble that of gout than ague; and so it does to some extent. Both diseases may be inherited, both are liable to recur, there is a certain

similarity in their symptoms, and each when left to itself comes to an end in a somewhat variable time. But here the resemblance ends. Articular rheumatism is a disease of early adult life, gout is most common after middle age. It is doubtful whether a predisposition to rheumatic fever can be acquired by vicious habits, improper food, or the abuse of wine and beer, which are such important factors in the production of gout. Dr. Garrod's researches have clearly shown us that the poison of gout is urate of soda, but up to the present time no examination of the blood, urine, or sweat in cases of rheumatic fever, has given any clue to the nature of its *materies morbi*. That it might be some acid seemed probable, and Dr. Prout suggested lactic acid. Dr. Richardson's experiments will, I dare say, be remembered. He injected a solution of lactic acid into the peritoneum of a cat and a dog, and after death, in each case, distinct endocarditis was found. Dr.

Silver has expressed himself very clearly on this subject in a paper read before the Clinical Society on the "Use of Veratrum Viride in Rheumatism." He says:—"It has been roundly asserted that the immediate cause of rheumatic fever is lactic acid—at all events an acid of some kind. Were this so it would be folly to seek a remedy in veratrum viride or any other neurotic: neutralise the acid and the disease would cease. On this theory depends the alkaline treatment of rheumatism. Against its validity several weighty arguments may be adduced. In the first place, it has to be proved that life is possible with an acid blood. In the second, admitting a blood poison of an acid kind, its effect might be expected to be equally visible on both sides of the heart; but we know that the right, not differing from the left in intimate structure, is not attacked, while the left is so frequently. But it is especially in its application to practice that the theory fails us, for

we may admit the alkaline treatment to be in a certain degree successful, and yet reject its supposed basis. Nay, did the theory and practice exactly coincide, it is plain that the disease should be arrested, except in so far as the pathological processes already set up were concerned, as soon as the blood resumed its normal alkalinity—that is, before the urine became alkaline. Yet it is a matter of experience that the disease may go on days and weeks after that event" (*Trans. Clin. Soc.*, vol. iv., 1871).

Thus in the face of the very doubtful benefit obtained by the alkaline treatment in rheumatic fever, and the marvellous results obtained from salicylic acid, it is difficult to believe that the essence of the disease can be an acid at all, though its operation may in some way produce great acidity.

We may hope that one day something will be ascertained with regard to the poison of

acute rheumatism, but it must be remembered that we are still entirely ignorant of the morbid matter that exists in the blood in many, indeed in most, of the specific diseases. No analyses, no investigations, have led to the discovery of what causes small-pox, measles, or typhus fever; nor are we able to isolate the subtle marsh poison that produces remittent and intermittent fevers. All we know of them is from their effects upon the human body, and it may be this is all we shall ever know of the morbid material that produces rheumatic fever. Whatever it may be, it is a remarkable fact that it exists, or is in a state of activity, only during a certain period of life, but of the reason for this we are quite ignorant.

The drenching sweats, with their peculiar odour, suggest that the poison of rheumatism may be eliminated by the skin, and such a view is strengthened by the fact that the cessation of these sweats often precedes, and

always accompanies, the unfavourable forms of the disease.

The morbid anatomy of rheumatic fever throws no light on its pathology.

It is not often that we get an opportunity of investigating the condition of the joints during an attack of the disease. Every now and then, however, a case proves fatal, through the occurrence of severe cardiac mischief or hyperpyrexia, and then we find that the affected joints are more or less vascular, especially about the synovial fringes, and coated with a sticky, altered synovia. Sometimes there is actual effusion, more often not, because the joint mischief is apt rapidly to subside upon the supervention of fatal complications. No ulceration of the cartilages takes place in true articular rheumatism, even after repeated attacks of the disease (Garrod). When death has been caused by heart disease, or any other complication, the post-mortem appearances will be in accordance.

After death from hyperpyrexia, we may or may not find pericarditis. I should say that it will be present in about half the number of cases. Besides the morbid changes due to the heart disease, if it exist, the appearances after fatal high temperature are the following: — The brain and meninges are rather vascular, the lungs are dark and congested, the liver and spleen friable and easily broken down, and the kidneys apt to be congested. The blood is tarry and fluid, but the muscles are remarkable for their bright red colour. The odour of such cases, even when recently examined, is most offensive.

The diagnosis of articular rheumatism is not generally very difficult. We may take into consideration, in forming our opinion, the probabilities of the case as well as the actual symptoms. Thus, the age of the patient, a previous attack of rheumatism, a history of exposure to wet and cold, will help us to arrive at a conclusion. The symp-

toms of acute rheumatism may be mistaken for those of acute gout, of acute rheumatoid arthritis, of pyæmia, and of gonorrhœal rheumatism. With the exception of pyæmia, the constitutional symptoms of acute rheumatism are much more severe than in the other disorders. The copious sweats, with their peculiar odour, the number of joints affected, and the tendency to metastasis and heart disease, are all very characteristic of rheumatic fever, as is also the trivial injury to the affected joints, which are so damaged in pyæmia and in gonorrhœal and rheumatoid arthritis.

The sub-acute and chronic forms of articular rheumatism somewhat resemble chronic gout, chronic rheumatoid arthritis, and other chronic joint affections; but a careful study of the disease, with its history, will generally clear up any doubt as to the nature of the attack.

Were it not for the liability to heart disease, with its present and future dangers, and

the possible occurrence of hyperpyrexia, the prognosis in rheumatic fever would be very favourable. As it is, but few patients die of it directly, and none from the mere joint disease. But if the immediate perils of cardiac complications or high temperature are escaped, the former too frequently leaves permanent mischief, which subsequently proves fatal. The prognosis, therefore, in rheumatic fever, must of necessity be guarded; not, indeed, so much with reference to its immediate, but to its remote effects. Heart disease is more liable to occur in children than in adults; hyperpyrexia in adults than in children. In the chronic forms of true articular rheumatism, the prognosis is very favourable.

CHAPTER V.

THE TREATMENT OF ARTICULAR RHEUMATISM: BY ALKALIES —BY QUININE—BY OTHER DRUGS—LOCAL TREATMENT— SALICIN—SALICYLIC ACID AND SALICYLATE OF SODA— THEIR VALUE—HYPERPYREXIA.

THE treatment of rheumatic fever has lately undergone a complete revolution, which has happily placed it on a much more satisfactory footing.

But a short time ago, a tolerably severe case was pretty sure to last six or seven weeks, almost uninfluenced by the remedies employed. Some put their faith in alkalies, some in quinine, some in various drugs, and some did nothing, with very much the same result.

Sir William Jenner himself, when President of the Clinical Society, spoke of the doubt

and uncertainty with which he used to approach the treatment of articular rheumatism under the old *régime.*

It has been claimed for the alkaline treatment that it diminished the liability to heart mischief, but about this there is, I think, some doubt. If, however, it is thought desirable to try it, from fifteen to thirty grains of the bicarbonate of potash, with or without five grains of the nitrate of potash, may be given in some peppermint water, or other suitable vehicle, every four hours, or three times a day. The potash produces no disagreeable effect, and may be continued for any length of time. It always diminishes the acidity of the urine, and sometimes makes it neutral, or even alkaline. Under this treatment, which I have seen largely used, the disease will take its departure in from three to six weeks or more, according to the severity of the case and the tendency to relapse.

Let me here say that in all cases of

articular rheumatism of an acute or subacute form, it is necessary that the patient should be kept in bed, with warm but light clothing, in a well-ventilated room, the temperature of which should be about 64° F. The bowels, which are generally constipated, must be kept gently open; but it is needless to purge for mere purging sake, especially as the movements necessitated by any action of the bowels are attended with considerable pain in severe cases. The diet should be light, consisting chiefly of slops. Stimulants are not necessary as a matter of course, but will be required every now and then, and must be administered with tact and judgment. As the disease is an exhausting one, it is well to feed up the patient in reason as soon as good nourishment can be taken.

My late colleague, Dr. Hyde Salter, was in the habit of using quinine in the treatment of rheumatic fever, and I have had

many opportunities of observing the result, but without coming to the conclusion that the drug had any real influence over the disease.

Dr. Garrod has combined the quinine and alkaline treatment, using a mixture made by rubbing up the quinine with bicarbonate of potash, a little mucilage, and some aromatic tincture, in such proportions that each ounce and a half of the mixture contains five grains of quinine (in the form of carbonate) and thirty grains of bicarbonate of potash. This dose is given to an adult every four hours, and continued as long as may seem desirable. Dr. Garrod speaks favourably of this combination.

Iodide of potassium has been a good deal used in rheumatic fever, and though of but little use in the height of the disorder, it is often of service later on, helping us to "speed the going guest." Guaiacum is another drug which is sometimes successful

in relieving the pain of the joints in the more chronic forms of articular rheumatism.

Of the treatment of rheumatic fever by bleeding, mercury, colchicum, antimony, it is unnecessary to say more than that modern experience has found such agents powerful only for evil; but opium* is often most useful, alleviating the pains in the joints, and enabling the patient to get some sleep. In cases where there is pericarditis opium is of the greatest service.

Reference must be made to the external means of treating or assisting the treatment of articular rheumatism. Of these the chief are, the hot-air bath, and the application of alkaline lotion, cotton wool, iodine paint, or blisters, to the inflamed joints. The hot-air bath has seemed in some instances to relieve pain, and its diaphoretic effects may be of

* Under the term "opium" I include, of course, morphia and its salts, which may frequently be used with advantage hypodermically.

service in eliminating the morbid material of the disease. But in a complaint like rheumatic fever, where the temperature is liable to range high, the application of external heat cannot be made without some risk, and the permanent benefit appears to be doubtful. Besides which the excessive pain that attends any movement in the height of the disease would make it difficult, if not dangerous, to apply the remedy. The application of warmth, however, to the affected joints individually is mostly grateful to the patient, and wrapping them in cotton wool or flannel generally relieves the pain. The use of an alkaline lotion may prove beneficial in some cases. Blisters or iodine paint are scarcely applicable in the acute stage of the disease, but are often of service subsequently, by hastening the absorption of any fluid that may linger in the joints, and toning up the weakened parts. Blisters should be applied

a little above the affected joint rather than over it; and iodine paint must be used with caution, as in certain persons it produces such an inflammation of the skin as amounts almost to erysipelas.

Towards the end of any case of rheumatic fever, no matter what the previous treatment has been, tonics are required; and nothing answers better than a combination of steel and quinine, or steel and strychnine.

Up to a few years ago little could have been added to the foregoing sketch of the treatment of articular rheumatism; but in 1874 Dr. Maclagan struck the key-note of a better mode of treatment, which has since been followed up with the greatest success. This physician published a paper in the *Lancet* (March 4 and 11, 1876), "On the Treatment of Acute Rheumatism by Salicin," from which it appeared that having been struck by some analogy between that disease and intermittent fever, Dr. Maclagan con-

ceived that acute rheumatism might be of malarious origin, and receive benefit from the alkaloid derived from willow bark.

Without entering into any discussion of the theory which led to the experiments, there is no doubt that they were more or less successful, Dr. Maclagan detailing several cases of true rheumatic fever which, under the use of salicin, became convalescent, on an average, in four days. The first case treated was in November, 1874, and there is no doubt that Dr. Maclagan was the first person to draw attention to the value of salicin in rheumatism. Subsequently to the publication of the paper in the *Lancet*, large numbers of cases of the disease were treated with salicin, but with somewhat varying results, and in my own cases, I confess, without much success. The dose given was generally from twenty to thirty grains, or more, every two, three, or four hours, and large amounts were required

before much benefit was obtained. Such was the demand for salicin that the price of the drug rose from 1s. 6d. to 10s. or 12s. an ounce; and at one time there was an absolute famine, and wholesale dealers would quote no price for it.

In the meantime German physicians had been trying the effect of the derivatives of salicin—salicylic acid and the salicylate of soda. The second number of the *Lancet*, of January, 1876, contains a notice of the observations of Dr. Reiss, in the Berlin Metropolitan Hospital, on the use of salicylate of soda, chiefly in regard to its action in reducing abnormal temperatures. Now, although salicylic acid and its soda salt may be valuable antipyretic agents in many cases of high temperature, independently of the nature of the disease, it was more particularly in the hyperpyrexia of rheumatism that they were used. As a result of this it soon became apparent that they exercised a great control

over the disease. This led to the extensive use of salicylic acid and the salicylate of soda in ordinary cases of rheumatism, and with the most satisfactory results. Some observers preferred the acid, some its soda salt. It is probable that the salicylic acid is the active agent in either case, just as the iodine is the active agent in iodide of potassium; but crude iodine is seldom given now, and in a short time I believe the salicylate of soda will be used in all cases where the action of salicylic acid is desired internally. It is very soluble, which the acid is not, and it is far less liable to give rise to unpleasant symptoms. I give the preference most decidedly to the soda salt as at present advised, though it is quite possible, indeed likely, that combinations of salicylic acid with potash, ammonia, and iron, may turn out to be very valuable. In experimenting with salicylate of soda, it was of course desirable that the drug should be used alone, lest there should be any question as

to the results. And there was no difficulty about this, as the salt is freely soluble in cold water, and not very disagreeable to the taste. Subsequent experience, however, has shown the advantage of giving the drug in combination, and I now commonly order two or three grains of carbonate of ammonia with the salicylate in an ounce of camphor water. Some tincture or syrup of orange may be used instead of the ammonia and camphor, and in that case orange flower water makes a very agreeable vehicle. Where there is intense acidity some alkali, five or ten grains of the bicarbonate of potash, is a very useful addition. The dose of the salicylate of soda will vary from ten, fifteen, or twenty grains, every two, three, or four hours, according to the severity of the symptoms. As a rule, the good effects of the drug are apparent after eight or ten doses, though it may be two or three days before the full benefit is obtained. The temperature falls

rapidly to normal, or even a little below, the pain, redness, and (later) the swelling of the joints disappear, and the patient is practically convalescent in a few days. It is important, however, to keep up the action of the remedy for a week or so, as relapses are liable to occur if it be discontinued too soon; but smaller doses at longer intervals may be given. In very rheumatic subjects it will often be necessary to give the salicylate again and again before the disease is subdued, and these cases have been used as an argument against its efficacy. Some persons will not admit the value of mercury and iodide of potassium in the treatment of syphilis, and others question the protective power of vaccination against small-pox. All new remedies have to encounter opposition and prejudice, but the evidence in favour of salicylate of soda in the treatment of articular rheumatism is becoming so overwhelming, that its great value must shortly be thoroughly established. No doubt

every now and then the drug produces disagreeable symptoms—sickness, deafness, tinnitus aurium, and sometimes a peculiar cerebral disturbance; but these quickly vanish on a discontinuance of the medicine, leaving no ill effects behind, and seldom re-appear upon the resumption of the salicylate after a short interval. These unpleasant symptoms are much less common now than formerly—indeed they are rarely met with; and this is probably due to the greater purity of the salt. Dr. Murchison has suggested, in an able paper read at the Clinical Society in May, 1877, that the disagreeable effects of the remedy are due to the suppression of the function of the kidneys, and he has found albumen in the urine of patients who were taking the salicylate of soda, even when the drug was quite pure. This may be so, but up to the present time I have in no instance been able to detect albumen in the urine of those who were under the influence of the salicylate.

A case of "acute rheumatism, followed by necrosis of the tibiæ and left radius during treatment by salicin and salicylic acid," was published by Dr. Herbert Lilley in the *Lancet*, of October 27, 1877; but with regard to this case I may quote a portion of a leading article in the same journal (November 3, 1877) with which I entirely agree. The writer observes that:—"Necrosis of bone does not appear to have complicated cases of rheumatism under this treatment, and it is possible that in Dr. Lilley's case the necrosis may have been in some measure connected with the strumous habit of the child." That the use of salicylate of soda in acute rheumatism does not prevent the possibility of cardiac complication is unfortunately pretty clear; but it lessens the chance of its occurrence by controlling the disease.

With reference to the forms of articular rheumatism to which the salicylate treatment is most applicable, I would say, to *all*. It has

been suggested, I am aware, that sub-acute and chronic cases—cases in which the temperature does not exceed 101° F. or thereabouts—are less influenced (if at all) by the drug than the more acute forms, but to this I cannot agree. It has appeared to me that the sub-acute and chronic kinds of articular rheumatism are quite as favourably influenced by salicylate of soda as the more severe forms, and in this view I am glad to be confirmed by Dr. Cavafy.

It must be borne in mind that the salicylate is not an absolute specific for rheumatism—that it fails to relieve, or cannot be tolerated, every now and then. But this is no more than what happens with quinine in ague, or iodide of potassium in syphilis.

In cases of hyperpyrexia the drug seems to produce little or no effect. This is the more curious that it was originally introduced as a remedy for high temperature.

With regard to the treatment of hyper-

pyrexia, when once that condition has been established, but little that is satisfactory can be said. It is most disappointing that in these severe cases, where most we want its aid, the salicylate of soda should help us so little. It probably does something to diminish the chances of hyperpyrexia, as it does those of cardiac mischief, by cutting short the rheumatism, but more than this can scarcely be said for it. In this "malignant" form of rheumatic fever no remedies seem to have much permanent effect. All drugs are more or less useless, and we are driven into trying to reduce the temperature by means of the cold bath, the cold douche or affusion, or packing in wet sheets. In a certain small number of cases one or other of these remedies has been attended, or followed, by favourable results; but we must remember that hyperpyrexia, though a most perilous condition, is not inevitably fatal. Dr. Cavafy has recorded a case in which

recovery took place under careful feeding and the judicious use of stimulants only. We must also bear in mind that the reduction of the temperature by cold is not unattended with danger. If it be thought desirable to try the application of cold in the hyperpyrexia of articular rheumatism, it should be done with the greatest care and judgment.

CHAPTER VI.

Muscular or Fibrous Rheumatism—Its Forms and Causes.

Muscular rheumatism, although a common and painful disease, seems scarcely to have received the attention which its importance deserves; certainly the accounts of it in medical works are comparatively scant and meagre. And yet as a disease it has much interest, notwithstanding that it does not appear to shorten life in any way;* and intractable as it often is, much may be done to alleviate, if not to cure, the discomforts to which it gives rise. The disorder is met with in various forms, of which perhaps the best known are lumbago, stiff neck, and intercostal rheumatism;

* Neither the heart nor any other important organ is liable to be attacked in this disease.

but there is scarcely a muscle in the body that may not be affected by it. Although I adhere to the old term "muscular" rheumatism, I have already indicated that the mischief, whatever it is, seems to be situated in the fasciæ or tendinous extremities of the muscles, rather than in the muscular tissue proper. And we find in consequence that the seat of the pain is round and about the joints and the insertions of the muscles. Rheumatism, moreover, is not confined to the fibrous tissue in connexion with muscle. It attacks the periosteum sometimes, the sclerotic coat of the eye, and other parts.

It is commonly met with as a chronic disease, but may be acute in form, in which case, however, it is but rarely attended with any fever, the term acute applying rather to the duration and the pain, which is often most severe.

The chief factors in the production of muscular rheumatism are, (1) some morbid

condition of the blood, the result of mal-assimilation, (2) some strain or over-exertion, and (3) cold, or wet and cold.

Probably the first stands in the relation of a predisposing cause to the other two, but when sufficiently strong it seems able to induce an attack of rheumatism by itself.

Another predisposing cause is a continued excessive or over-use of the muscles, and hence we find that rheumatism is the bane of acrobats, athletes, and agricultural labourers. I make a distinction between mere myalgia, the pain of tired muscles, and true rheumatism. The former has been well described by the late Dr. Inman, of Liverpool. Its seat appears to be in the sarcous elements themselves, the fleshy part of the muscle being the most painful. Akin to this and differing also from rheumatism are the pain and stiffness that follow any unusual exercise of the muscles. This is familiar to all, but

is a matter of some interest, as it occasionally gives rise to false alarms.*

There is no doubt, however, that a severe strain will give rise to lumbago, but probably only in those who are of a rheumatic diathesis. That wet and cold, or cold alone, will produce rheumatism scarcely needs any illustration. It is the most common obvious cause of the disease.†

Men are more liable to rheumatism than women, probably from being more exposed to the influences that conduce to the disorder. The time of life during which it is most common is that which is called the "prime," but it may arise at any time between puberty and old age.

* Many years ago the late Mr. Headland was called in to see a young lady, a relative of my own, who was supposed to have some severe inflammation about the abdomen. It turned out, however, that there was no fever, and the pain was in the muscles; the result of somewhat vigorous exertions in a swing the day before.

† Certain atmospheric conditions will often aggravate chronic rheumatism, especially the prevalence of dry, cold, east winds—probably by interfering with the action of the skin.

CHAPTER VII.

The Symptoms of Muscular Rheumatism.

The symptoms of muscular rheumatism are almost entirely subjective, and pain is the chief, if not the only one. In an acute attack of lumbago, the patient feels as if he were suddenly gripped across the loins, and the slightest movement that involves the muscles of the back gives rise to the most acute pain. The recumbent posture is comparatively easy, but any attempt to turn from side to side produces great suffering. In severe cases locomotion is all but impossible, and the patient is of necessity confined to his bed. Not unfrequently rheumatic pains will shoot down the legs from time to time, affecting

even the periosteum of the tibiæ. There is, however, neither swelling nor tenderness, except perhaps just over the seat of the pain in the back. Along with these symptoms the patient does not feel ill—the pain is his only trouble. The bowels may or may not be confined, but the condition of the urine is of some interest. In a large number of cases it will be found pale and clear, looking, in fact, as if there were nothing wrong with it, and unless the weather be cold it will probably throw down little or no precipitate on cooling. But if this pale clear urine be tested it will be found *intensely* acid. As the attack passes off the urine becomes of a darker colour, and loaded with lithates, generally of a reddish tint. In fact this change in the urine is often the precursor of recovery. Should the case be treated with alkalies, this alteration in the character of the urine is less marked, or altogether absent.

An acute attack of lumbago may last from

a few days to two or three weeks, or even longer.

In chronic cases, which are often the sequel of the acute, the pain is much less, and scarcely felt unless the muscles of the back are somewhat strained; but there is always a feeling of weakness, and a sort of constant reminder that a very little would bring on an acute attack. The subjects of chronic lumbago are always conscious of having a back, and if careless about diet, lifting some heavy weight, or exposure to cold, are very likely to get a sub-acute exacerbation of their complaint.

When rheumatism affects the muscles of the neck it is usually more or less acute. After some incautious exposure to cold, such as sitting with the back to a draught, the sterno-mastoid or some other muscle becomes stiff and painful on one or other side, and the patient keeps his head turned towards the affected side (torticollis) to relieve the

pain. This form of the disease usually passes off in a few days.

Intercostal rheumatism is also generally acute in character. It gives rise to great pain during respiration, and any other movements that affect the wall of the chest. It not unfrequently creates a false alarm of pleurisy. The muscles about the shoulder or hip joints are very frequently affected with rheumatism, more or less chronic in character, and causing considerable pain on certain movements.

Rheumatism often attacks the muscles of the head, producing a dull aching pain just above one or other eyebrow or at the occiput. This is the result generally of exposure for some time to a cold wind. Associated with this rheumatism of the head, but sometimes occurring quite independently, is rheumatic inflammation of the sclerotic. Here there is marked congestion of the sclerotic coat of the eye, usually seen as a red patch, rather

circular in form, situated on the outer side of the cornea, and rendered plainly visible by getting the patient to turn the affected eye inwards. The eye feels stiff and painful, it is also rather tender; and certain movements, such as turning the eyeball outwards and upwards, much aggravate the pain. In the course of a day or two the inflammation subsides, but is very liable to return.*

Amongst the occasional symptoms that accompany muscular rheumatism we often find more or less dyspepsia. This is not surprising when we remember that mal-assimilation is a prominent cause of the disorder. Some rheumatic subjects are liable to lowness of spirits—a wretched kind of feeling—between the attacks, which is generally relieved by an outbreak of the disease. Here we have

* I know a gentleman who for some years was troubled very severely with this form of sclerotitis. He had the best advice for it, but in spite of everything it returned again and again. At last the disease seemed to wear itself out, and he rarely has an attack now.

a certain resemblance to gout, and additional evidence in favour of muscular rheumatism being a blood disorder.

Although an over-acid state of the urine is most common in rheumatic attacks, I have seen several cases in which the opposite condition was present. In these the urine was nearly neutral, and became cloudy with phosphates on being boiled. The rheumatism departed as soon as, but not until, the urine became normally acid.

CHAPTER VIII.

The Pathology, Diagnosis, and Prognosis of Muscular Rheumatism.

If the pathology of articular rheumatism is obscure, so also is that of the muscular form. Judging by what we see when the sclerotic is affected it is not unreasonable to assume that parts affected by rheumatism are more or less congested. A violent strain may possibly account for the condition in those cases where the rheumatism is due to that cause, and the effect of cold may produce the same local hyperæmia, but some morbid state of the blood seems to be essential for the production of a rheumatic attack, and what that morbid state is we do not know. It certainly does not seem to be the same

as is associated with the articular form. The acid condition of the urine that is so frequently present, and the value of alkalies in the treatment, would indicate the probability of some acid being the *materies morbi*, but more than this we cannot say. If lactic acid were the cause of any form of rheumatism we might expect that disease to have been freely developed in the experiments of Dr. A. Auerbach, who has lately been giving large doses with the view of producing sleep, but it is not recorded that any rheumatism resulted.* The pathology of muscular rheumatism, then, is still involved in great obscurity, and of its morbid anatomy we literally know nothing.

The diagnosis of rheumatism can rarely be difficult, when all the circumstances of the case are taken into consideration, but we must be careful to discriminate between lum-

* See annotation on the "Action of Lactic Acid" (*Lancet*, March 16th, 1878, page 397).

bago and renal calculus or an attack of gravel; and between pleurisy and intercostal rheumatism.

The prognosis of muscular rheumatism is always favourable as far as life is concerned, but it must be borne in mind that the disease is very intractable, and liable to return again and again.

CHAPTER IX.

The Treatment of Muscular Rheumatism.

In dealing with the treatment of muscular rheumatism, it will be convenient to consider first what measures may be best adopted during an attack, and secondly what precautions should be taken with the view of avoiding the disease. During an attack of rheumatism the best results will be obtained by careful attention to all those matters which are more or less connected with the production of the disease, and hence we may subdivide the treatment into general, dietetic, and the use of drugs internally and locally.

The general treatment is of no small importance, and amongst other things rest—rest to the painful muscles—must be enjoined

when the disease is acute and severe. You cannot "walk off" a sharp attack of lumbago. It may even be desirable to keep the patient in bed. Any way he should be in a warm room, with an even temperature, and warmly but lightly clad. No material is so anti-rheumatic as flannel, and it is popularly supposed that unwashed red flannel is the best. It is desirable that the bowels should be freely opened at the onset, and kept regular subsequently, if needed, by Friedrichshall or Pullna water.

The diet should be light and simple, and any articles of food likely to create dyspepsia should be especially avoided. The same amount of stimulant may be allowed as is taken during health, but beer in any form is inadmissible; and amongst wines, champagne, sparkling hock or moselle, are about the worst. The safest stimulant is whisky and water, but there is no objection to claret, or perhaps a little dry sherry.

With regard to the use of drugs internally, it must be remembered that there is no specific for muscular rheumatism — nothing that answers to the salicylate of soda in the articular form*—and before giving any medicines it is most important that the condition of the urine should be ascertained.

It will generally be found too acid, and in such cases we shall certainly do good—sometimes actually cure the patient—by the administration of alkalies. Of these, the best is usually the bicarbonate or the citrate of potash, and either may be combined with carbonate of ammonia or the liquor ammoniæ acetatis. Occasionally the iodide of potassium is of service. When the digestion is obviously at fault, a few grains of rhubarb should be given with the alkali, and the lowering effects of the potash may be lessened by giving it

* I have given the salicylate a very fair trial in muscular rheumatism, but unfortunately with only negative results.

in some bitter infusion.* The very reverse of this treatment must be adopted in those cases of rheumatism in which the urine, instead of being very acid, is neutral or nearly so. This is a low form of the disease, occurring in pallid, weakly individuals, and the great point in the treatment is to restore the natural acidity, and nothing affects the rheumatism until this is done. Now it is not difficult to render acid urine neutral, but it is not so easy to make neutral urine acid. The best plan is to give rather large doses of mineral acid freely diluted after meals, and to get the patient to drink a kind of lemonade made with nitric acid instead of lemon juice. As soon as the urine becomes natural the rheumatic pains abate, and are quickly got rid of entirely. As recovery takes place a decided tonic form of treatment should be adopted, and quinine or strychnine, with or without steel, will be found useful.

* In certain cases a few large doses of alkali are better borne than a number of small ones.

In the local treatment of rheumatism the application of external warmth is very efficacious, and the hip-bath or hot-water fomentations often give great relief. As a sedative belladonna alone or in combination with opium frequently deadens the acute pain, and may be used in the form of belladonna plaster or as a liniment.

In the more chronic forms of muscular rheumatism we should attend to the general health, and insist upon a certain amount of exercise amongst other things.* Here alkalies are of more doubtful benefit, and many persons cannot tolerate them for any time. The greatest care and attention to the diet will be necessary, as the least imprudence is often followed by an increase of the rheumatic trouble. Where there is no decided acidity some dilute mineral acid with strychnine or calumba, and perhaps some perchloride of iron, may be given with advantage

* Over-fatigue, however, must be carefully avoided.

after meals. Guaiacum is a drug that has a great reputation in chronic rheumatism, and the ammoniated tincture is the best preparation. It may be given with cinnamon water, which conceals, to some extent, its nauseous and burning taste. Where there is no reason to the contrary a Turkish bath may be tried, but I have no great confidence in it myself.

Mere rubbing, if skilfully performed, is frequently useful in rheumatism, and there are professional rubbers who make a livelihood in this way. Galvanism, too, has been tried in chronic cases, or when the acute stage has passed away, with more or less success.*

A visit to Buxton or some of the German watering places is often attended with benefit in chronic rheumatism; the change of air and scene contributing possibly as

* These remedies probably act by improving the circulation in the affected parts.

much as anything else to the improvement of the patient.

In rheumatism of the head, and that which affects the sclerotic, a vigorous alkaline treatment is generally the most successful, and as a local application to the affected eye nothing is so serviceable as a weak solution of atropine.

To avoid muscular rheumatism we must avoid those things that produce it. Hence it is most important to attend to the general health, and especially to the digestive organs. Straining the muscles in any way is very injurious, and liable to bring on an attack of the disease, especially lumbago. Exposure to wet and cold, or to cold only, should be avoided as much as possible; and those who are subject to rheumatism will do well to wear flannel, or some other warm material, next the skin all the year round. It is very useful to have an extra pair of drawers made of red flannel to wear over the ordinary ones

in the winter; and an under waistcoat of the same material with long sleeves is a great comfort in cold weather. The cold bath in the morning, or cold bathing at any time, invigorating as they are to many persons, cannot be taken constantly during cold weather by those who are liable to rheumatism without considerable risk of bringing on an attack.* A tepid bath is free from any objection.

The best beverage for those who are liable to rheumatism is, I am quite satisfied, a good wholesome claret. Most other wines are more or less rheumatic according to the peculiarity of the individual, and beer can very rarely be indulged in, especially if the occupation be sedentary.

* A patient of mine once brought on an atrocious attack of lumbago by sitting for ten minutes or so in cold water with the idea of benefiting external piles.

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