

Shaw's

Rheumatic Fever  
or

Acute Articular Rheumatism

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1 North Hill Street

Ann Arbor

Michigan

1890

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Thesis

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The common occurrence of this disease, its helplessly painful character, its protracted course, its extreme gravity, (when we consider the serious mischief which so frequently results to the covering and valves of the heart, and through the latter to other vital organs by the transmission of emboli, thereby plugging up main arteries, and causing insanity, sudden death, chorea, brain softening and paralysis), its unsettled pathology, together with its variable and opposite treatment, <sup>are</sup> my only justification for choosing it as the subject of my thesis.

It is chiefly, however, in the light of the new treatment, (salicin and its compounds), the virtue of which I have lately had a modest opportunity of testing myself, that I would look at it, with the view of estimating the relative value it bears to some of the older and more acknowledged remedies. In order that my object may have as much concurrence as possible, I propose, first, briefly to glance at the manner in which the disease behaves itself in the individual affected.

Although there is every probability that Rheumatism has afflicted mankind from the earliest time it was not till after Cullen's day in the eighteenth century that it was acknowledged to be a different disease from Gout.

What is known now as Rheumatoid Arthritis, however, continued still to be confounded with Rheumatism and Gout under the name of Rheumatic Gout. Sir Benjamin Brodie clearly separated the two diseases, and Dr Garrod in 1858 gave it the name of Rheumatoid Arthritis.

Usually the first symptoms in Acute Articular Rheumatism are numbness and fever, with stiffness and aching pain in the limbs, brought on by damp and exposure to cold, or other depressing influences. Soon the fever increases. The joints, in pairs, or one after another, become swollen and intensely painful. The skin is bathed in a profuse acid perspiration. The pulse is full and hard. The temperature is several degrees above the normal. The tongue is coated with a white fur, but moist. There is loss of appetite, great thirst, and usually constipation of bowels. The urine is high coloured and scanty, with a copious red precipitate of urates, or lithates of lime, soda, or potash. The uric acid is increased. Both the deposit of urates, however, and the augmentation of uric acid in the urine, is common to many other febrile affections. The patient may continue in this condition, one joint, or set of joints being affected today, another tomorrow, when under no special treatment, from 12 days to a month, or even double that period sometimes. By and by, however, after a varying term of suffering, the pain and swelling leave the joints. The pulse and temperature falls to their normal standard.

The perspiration ceases. The thirst abates. The appetite returns. The urine clears, and in a short time the patient (if the disease, as frequently happens, does not glide into its subacute form) is restored to health, with, of course, a wasted frame, great debility, and stiffness and weakness of limbs.

Such is a brief outline of the symptoms of a case of Acute Rheumatism, but unfortunately, as before hinted, the disease does not always confine itself to the joint structures. In a large proportion of cases inflammation of the pericardium, and endocardium takes place. The pleura, peritoneum, and meninges of the brain may become affected with Rheumatic inflammation, the symptoms being the same as when these textures are affected with other forms of inflammation.

Chorea is apt to occur in young people after an attack of Rheumatic Fever complicated with heart disease. Drs Dickinson, Hughlings Jackson, Charlton Bastian, and others have started a very interesting enquiry as to the etiology and pathology of this disease. Viewed, however, in the light of other causes, as fright, there cannot be said to be sufficient evidence either for adopting the embolic theory, or the hypothesis of thrombosis.

An attack of Rheumatic Fever, unlike other fevers, instead of protecting against future attacks, only renders the patient more susceptible to them. However frequent the attacks of Rheumatism there is no evidence (from a consideration of its morbid anatomy) to conclude that any serious alteration takes place in the structure of joints as is seen in Rheumatoid Arthritis.

The Pathology of Acute Rheumatism at the present day may still be said to be shrouded in comparative mystery. The ancients were of opinion that it had a humoral origin, hence its name.

Cullen held that it was simply an inflammation of certain fibrous and serous textures; and such is the view, with slight modifications, entertained by many writers of the present day. The predisposition to this Rheumatic inflammation is said to consist in a deficiency of healthy tone in the textures connected with joints and muscles, rendering them liable to be acted on by cold, or a sudden reduction of temperature, operating through the vessels and nerves near the surface; and so producing the painful train of symptoms designated, Acute Articular Rheumatism, which are so far peculiar in their nature and behaviour that we consider it a specific disease.

Another set of pathologists account for the phenomena of Rheumatism by the presence of some abnormal ingredient in the blood, or the augmentation of some normal one.

Dr Prout first pointed out that lactic acid <sup>might be</sup> was this ingredient, and this theory has found many supporters. Dr Richardson injected lactic acid into the peritoneum of dogs, and the post mortem appearances found seem to directly favour this belief, but it has yet to be shown whether the same phenomena would not be produced by the injection and absorption of kindred acid substances, such as acetic and formic acids.

suggested the idea

has been shown

It is argued by the supporters of the lactic acid theory that bad or insufficient nourishment leads to an increased formation of this acid, hence increasing the predisposition; and that the skin being the chief eliminator of this same lactic acid, and that cold (the chief exciting cause in Rheumatism) acting on the skin checks its excretion, and leads to its accumulation in the blood.

If this view of the action of the poison in the production of Rheumatism were correct we should expect only the badly, or insufficiently fed to become victims to the disease, whereas we frequently find it attacking those who are both well fed, clothed, and lodged. We know, too, that as soon as Rheumatic fever is fully established profuse perspiration is set up, and that large excretory surface, the skin, once more available for the escape of the imprisoned lactic acid from the blood, yet in spite of that the patient shows not the least sign of recovery.

Diagnosis. The observant practitioner is not likely to be in much difficulty in recognising Acute Articular Rheumatism, unless, indeed, he mistake it for some of the acute forms of the diseases with which it used to be confounded, such as Gout and Rheumatic Arthritis; or perhaps he might mistake it for Pyaemia affecting the joints, or acute Gonorrhoeal Rheumatism. By carefully separating, however, such symptoms as are peculiar alone to the different diseases mentioned, he will readily arrive at a correct opinion.

The Prognosis is favourable to recovery, though, as we

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have already seen, it may lay the foundation of the most serious disease of the heart and other vital organs. When death does take place during the progress of the fever it is nearly always due to cardiac complication, or to cerebral disease, or to hyperpyrexia.

The Treatment of Rheumatic Fever has both been various and opposite in its character.

We might truly say of the drugs which have been employed and vaunted as cures, as was said of the such of Abraham, they are as the stars in the firmament, or the sands of the sea shore, which cannot be numbered. Bleeding, Blistering, Emetics, Purgatives, Diaphoretics, Opium, Calomel, Colchicum, Antimony, Quinine, Iron, Iodine, Alkalies, Acids, Salines, Heat, Cold, Aconite, Guaiacum, Iodide of Potassium, Ergot, Digitalis, Carbolic Acid, Chloral Hydrate, Podophyllum, and last, but not least, Salicin, Salicylic Acid, and Salicylate of Soda, have, among many others, been employed at different times as remedies for Rheumatic Fever, and each has been extolled as more powerful than all the rest.

The reason of this multitude of vaunted cures arises, no doubt, from the fact that Rheumatic Fever when left alone to cure itself often gets well in a very few days, hence the difficulty of deciding on the merits of any particular drug until we have instituted comparisons of different remedies covering a large area of cases.

There has always been a firm rooted notion in the medical mind that disease must not be left to take care of itself. It must be treated with drugs,

whatever comes of it. How many people died from the (now) mad treatment of delirium tremens before Dr Hood of Kilmarnock and Dr Waring of America pointed out that this formidable disease if left to itself could get well without either Opium or Brandy? In like manner Dr Sutton and Gull, with mint water on the one hand; and Dr Savard, with coloured and camphor water on the other, conferred a great boon on mankind by pointing out to the profession that Rheumatic Fever treated on this expectant plan gave results which compared very favourably with those remedies already in the field extolled as specifics.

It would be impossible in the present paper to review all the modes of treatment which from time to time have been employed for Rheumatic Fever. Nevertheless, it will be necessary to glance at those remedies which have found most favour with the profession, in order to arrive at some just estimate of 1<sup>st</sup> how far treatment influences the disease at all, 2<sup>nd</sup> what treatment exerts most influence, or comes nearest the idea of a specific, if, indeed, we are yet very near that same.

Cannabion is never employed now. There is no witness that it did more than give relief to pain of joints; and to weigh in the scale against that, it weakens the patient, causes the joint affection to linger, and favours relapses.

Mercury is still used to treat the cardiac complication, but experience shows that the joint affection gets well

sooner without mercury than with it; hence if the inflammation of the cardiac membranes is the same as that of the joint structures, it is difficult to see how mercury should be of service in the one and not in the other.

Opium is invaluable as a palliative, but there is no evidence that it acts directly on the progress of the disease.

Antimony is only a diaphoretic, and has the disadvantage of being a depressor of the heart.

Colechicum though greatly employed and lauded, no doubt from its efficacy in Gout and the belief that Rheumatism and it were the same disease, really possesses no influence over the progress of Rheumatic Fever.

Alkaline Treatment. Although an apparently over acid state of the body and an increased amount of fibrin in the blood in Acute Rheumatism would naturally suggest the value of Alkalies as remedial agents, it was not till the year 1847 that they were systematically employed by Dr Wright. Since then Dr Fuller and Dr Garrod have made a full trial of them. The plan consists in administering a dilute solution of the Bicarbonate of Potash, 30 grain doses every 4 hours till the joint symptoms and febrile disturbances have completely subsided. The Alkaline Bicarbonate is said to act on the heart as a sedative, reducing the pulse 40 beats in the minute, but not causing any faintness. The blood is distinctly altered, and the coagulation of fibrin takes place more slowly when once the patient is fully under the influence of the drug.

In 57 cases treated on this full alkaline plan by Dr Garrod the average duration of the disease under treatment was from 6 to 7 days compared with from 9 to 10 days under the mint water, and the total duration 13 to 14 instead of 17. Dr Garrod also states that the heart was never affected after the patient had been taking the remedy for 48 hours. But Drs Dickinson, Stewart and Wilks record a different experience, which with other comparisons show that the heart is as often affected under one treatment as another. Besides, in the mint water cases the freedom from complications were as marked as in Dr Garrod's alkaline cases.

Perchloride of Iron has been strongly advocated by Dr Russell Reynolds. He records his treatment of 65 cases in which he shows that it quickly relieves pain and brings down the pulse, but the average duration of the disease before pain is abated and fever gone is fully one half longer than in Dr Garrod's alkaline treatment. Indeed, the mint water treatment was as successful as the Iron; and as regards cardiac complications much more so; but, then, there is always a difficulty in estimating the value of treatment in preventing cardiac complications, as they have frequently taken place before the patient comes under treatment. It is contended, too, by some writers that the employment of Iron would increase the tendency to formation of clot in the blood.

Quinine looked at alongside of salicin, with which it has kindred antipyretic virtues, one would be inclined to argue well of its value in Rheumatic Fever. It has been largely used in France in doses varying from

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15 to 90 grains in the 24 hours, and spoken of with as much favour as any of the treatments yet reviewed. It is not regarded in this country in the same light. Probably the expense entailed in using such large doses has prevented it from getting a fair trial.

Quinine and Alkaline is a combination which has been employed by Dr. Garrod. He finds it was more efficacious than the simple alkaline treatment. He says there is less tendency to relapse, and that the fever leaves the patient in a much more satisfactory condition.

13 | Blistering. (reviewed by Dr. H. Davis). In this plan blisters are freely applied near the inflamed joints, the theory being that the discharge from the blisters affords a vent for the Rheumatic virus. It has been contended that the joints are quickly relieved; the pulse becomes slower, and the heart is safe. In the experience of others, again, it is affirmed that it only removes the inflammation from the joints without exerting any control over the progress of the disease.

Salicin and its compounds. The introduction of which medicine for the cure of Acute Rheumatism by Dr. McTear of Dundee has marked a new era in the treatment of this disease.

Salicin and its compounds are powerful antipyretics in all fevers, and acute inflammatory diseases as Pneumonia and Pleurisy, but they only lower the temperature and pulse without checking the progress of the disease, as they distinctly do in Rheumatic Fever.

Salicin when taken inwardly in large doses frequently

produces noise in the ears, deafness, giddiness, nausea, vomiting, delirium, and collapse. It likewise produces abundant perspiration, and not unusually a cutaneous eruption. It is quickly eliminated by the kidneys, and may be detected by its reaction with Potchloride of Iron giving a purplish-brown precipitate. On account of its speedy elimination it is recommended by M. Ser of Paris to be given in small doses very hour. Acting on the normal kidneys it is said to increase the quantity of urine, and on diseased kidneys to decrease it. If this view is correct its employment would be contraindicated in congested states of these organs, but it might cause uraemic poisoning. Indeed, it is just possible that some of the sudden deaths, due to the drug, may have arisen in this way.

There have been a variety of declarations as to the relative value of Salicin and its compounds in the treatment of Rheumatic fever. The examination of all the cases recorded in last years British Medical Journal leads me to the opinion that we are not warranted in concluding, with the data before us, that any one of the preparations is more potent than the others. The precedence, in the main, however, has been given to the acid. M. Ser, who first introduced it into Parisian Practice, and who, moreover, has had most marvellous results from its employment, not only in Rheumatic fever, but in Gout and Arthritis, thinks the acid superior to its compounds. He considers it a valuable medicine, but thinks there is not sufficient grounds for ranking it as a specific.

X This would have been a most valuable contribution  
to the subject. Why is it withheld?  
It should have been, I should judge, given as an appendix.

Dr. E. M. Skerritt (Brit Med Journal July 28<sup>th</sup> 1877) shows from an examination of 70 cases treated with Salicin and its compounds, that, if anything, the acid was the most successful. He also points out that small doses (in preference to those larger ones subsequently recommended by Dr. McEgan and others on the publication of failures with the drug) gave in the cases in question better results than with larger doses. His figures further show that ~~Rheumatic fever~~ <sup>after Rheumatic fever</sup> this new treatment surpasses in value any of the others already discussed. Instead of the disease having a duration of from 9 to 10 days, as under the mint water treatment, it lasted little over four days, which is from 2 to 3 days less than with Dr. Garrod's Alkaline treatment, and from 4 to 5 days less than with Dr. Reynolds's Iron treatment.

I have taken the trouble to verify Dr. Skerritt's results by examining some 200 cases collected from the medical journals, and the average duration of the disease, or time from commencement of giving <sup>the</sup> drug till fall of pulse and temperature to normal, and cessation of pain of joints, was from 3 to 5 days.

All those who have written on this subject have pointed out that relapses are frequent under this treatment, therefore, they recommend that the drug should be continued for some little time after cessation of acute symptoms, but in diminished doses. It has also been clearly shown that relapses frequently occur while the patient is under the fullest influence of the drug, when the dose has never been lowered,

which proves that salicin, however valuable, has no claim to be ranked as a specific, any more than those remedies which have preceded it.

If salicin was a specific in Rheumatic fever we would expect that, besides, cutting short the disease and preventing relapses, it would prevent heart and other complications, which are part and parcel of the disease; but from an examination of a great number of recorded cases we see Pericarditis, Endocarditis, Bronchitis, Pleurisy, Pneumonia, and Hyperpyrexia frequently occur, no matter how much the drug is pushed.

The presumption is, however, that in proportion as salicin, beyond any other remedy, shortens the disease, so will it, in the same proportion, lessen the complications.

What is the *modus operandi* of salicin and its compounds in Rheumatic Fever? They probably act simply as antipyretics.

They are known to have a marked effect in other febrile disorders. This disease, however, is different from Typhus, Typhoid, and Pneumonia, inasmuch as we have, in addition to high temperature, a severely painful inflammation of structures connected with joints; and the question naturally arises, how does an antipyretic act in removing this joint affection? We would reply by diminishing the circulation in those localities by acting on the blood vessels through the nervous system, thus rendering the parts anaemic. We have a confirmation of this theory in Professor Esmerich's treatment of Rheumatic Fever with ice applied to affected joints, which speedily removed pain; and in Dr Wilson Rose's successful treatment of the same

disease with cold water baths, which is the most powerful antipyretic of all, and has been frequently found within the last eighteen months to lower temperature in Hyperpyrexia of Rheumatic Fever when Salicin pushed in full doses failed.

I now subjoin notes of the only 2 cases I have had an opportunity of trying the new treatment on, the results of which quite bear out the high opinion entertained of it.

### Case I.

Was called to see Isabella G —, a stout fresh girl, age 16, on Nov<sup>r</sup> 14<sup>th</sup> 1877 at 10 P.M., and found her suffering from Acute Articular Rheumatism. Pain in left shoulder, and pain and swelling over small joints and ankles of both feet. Pulse 120. Temperature 103. Urine scanty, high coloured, and depositing urates, Tongue slightly coated with a white fur, but moist. Bowels confined. Some thirst and loss of appetite, scarcely any perspiration, very restless. Had only been taken ill some 24 hours previous to my visit. Put her on a milk and soda water diet, ordered her a Potash Bicarb. mixture, (as was my usual custom hitherto) 3j doses every 4 hours, and a saline aperient.

Nov<sup>r</sup> 15<sup>th</sup> 11 A.M. Never slept any all night. Pulse 120. Temp 102-3. Skin moist, no acid odour. Bowels had moved. Pain and swelling of joints much more severe. Right knee also affected and opposite shoulder. Ordered her to continue her mixture, and a lotion of Opium to affected joints.

Nov<sup>r</sup> 16<sup>th</sup> 12 A.M. said she never slept any all night. Pulse 128. Temp 103. Perspiring more freely, Pain and swelling of affected joints worse. One elbow and both wrists badly affected. Resolved

To try the new treatment, and ordered her 10 grains of Salicylic Acid dissolved in carbonate of soda every 4 hours, and 10 grains of Dover's powder at bedtime.

Nov 17<sup>th</sup> 10 AM, General condition much the same. Joints of feet less painful. Pulse 112. Temp 102. Ordered medicine to be taken every two hours.

Same day 10 PM, Pulse 112. Temp 101. Pains easier. Stools lighter. Ordered her other 10 grs of Kalo-Spice C at bedtime, and mixture every 3 hours.

Nov 18<sup>th</sup> 11 AM, Patient feels and appears much lighter. Pain and swelling vanishing from joints. No new ones invaded. Pulse 104 & Temp 99 in spite of a restless night in which she had been sick and retched a good deal (probably the effects of the medicine). Ordered her still the same diet (Milk and Soda), and a saline aperient, and her 10 grs of Acid Salicyl every 4 hours.

Nov 19<sup>th</sup> 2 PM, Had slept comfortably all night. Pains almost gone from affected joints. No new ones invaded. Pulse 88. Temp 98. Tongue moist and cleaning. Patient speaks quite hale and blithe. Stools hungry. Ordered her some beef tea, and to continue her mixture every 4 hours. There has been no heart complication all along.

Nov 20<sup>th</sup>, Still progressing. No pain to speak of. Pulse 72.

Nov 21<sup>st</sup>, Improving rapidly. No pain whatever. Pulse 64.

Nov 22<sup>nd</sup>, Up and going about. Pulse 64. Still taking the 10 grs of Acid Sal three times a day with Quinine. Has a good appetite.

For a week or two after this there was a tendency to the pains coming back very slight in the wrists or other joints if the medicine was entirely discontinued. Kept her on it for a week or two in diminished doses, and is now quite well.

The only thing worthy of notice observed when she was on the medicine was her constantly complaining of a feeling of draughts of cold. On account of this she could scarcely be prevailed on to leave her bed sometimes, though she was quite well and eating heartily.

Case II

Was called to see John C —, a tall spare young man of light complexion, age 22. On Jan'y 12<sup>th</sup> 1878. He was suffering from severe pain in lumbar region of back, which was aggravated whenever he moved. Not appearing to be otherwise ill, and attributing his malady, himself to a twist he had received in lifting a heavy burden, (he was a porter in a Grocer's warehouse) I ordered a large Belladonna plaster to be applied to his back, and rest in his bed.

Jan'y 14<sup>th</sup>. (2 days after first visit) Pain entirely gone from back, but now very severe in joints of limbs, which were swollen. Pulse 120. Temp 102-4. Tongue coated with a brown moist fur. Great thirst. No appetite. Urine scanty, high coloured, with a brick dust coloured precipitate. Bowels confined. Profuse perspiration, acid odour. Complained of great weakness. It was plain now that he was suffering from Rheumatic Fever, and I ordered him 8 grains of the Salicylate of Soda (not the acid this time) every 3 or 4 hours, and a milk diet.

Jan'y 17<sup>th</sup>. (3 days after 2<sup>nd</sup> visit) Much about the same as far as pain and swelling of joints were concerned. Pulse 124. Temp 103. Complained of great weakness, declared the mixture was sweating him to death, notwithstanding which I put him on 15 grains every hour. The truth was he had not been taking the mixture regularly for the last 3 days at all, though he seemed to think differently. Patient also

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complained of a little tightness and pain over the region of the heart. On examination a distinct systolic bruit was heard an inch below the nipple of left breast, ordered a few warm poultices.

Jan 19<sup>th</sup>. (2 days after 3<sup>rd</sup> visit) By the way my patient was jealous of his medical attendant making too many visits, if things could be managed with few. Pains entirely gone. Still perspiring profusely. Pulse 108. Temp 101. Cardiac murmur the same, though the uneasiness was relieved. <sup>Went out</sup> ~~Went out~~ <sup>for this</sup> now and again in his mind. Blamed this on the medicine, ~~and~~ ordered him to get it only every 2 or 3 hours. Learned afterwards, however, that they had been giving him whiskey.

Jan 20<sup>th</sup>, Finger joints only a little swollen and painful today. Pulse 92. Temp 100. Medicine to be continued as on previous day.

Jan 21<sup>st</sup>, Pulse 88. Temp 99. Cardiac murmur same as on first examination. Finger joints still a little swollen and painful. Patient declares that it is the 1<sup>st</sup> time he really felt better.

Jan 22<sup>nd</sup>, Patient sitting up out of bed dressed when I called, says he feels so well. Pulse 92. Temp 98.

Jan 24<sup>th</sup>, Pulse 88. Temp 98.2. Says he feels well though in bed. Pain returned into shoulder today, and aggravated in finger joints. Had not been taking his medicine as ordered. Promised not to neglect it again.

Jan 25<sup>th</sup>, Patient walking through house dressed. Pains completely gone everywhere. Had taken 3 $\frac{1}{2}$  of the Soda Salicylate within the last 24 hours.

Jan 28<sup>th</sup>, Patient was out and had a walk on the 26<sup>th</sup> (weather foggy) but none the worse for it. The cardiac murmur is as pronounced as ever, but causes him no inconvenience. Says

the medicine, which he is still taking in diminished doses, is purging him, ordered a few drops of opium to be taken with it. In some few days after this he had returned to work, though feeling very weak. I still continued to see him for some weeks later when he would call at the surgery to get his bottle renewed, which he only did when the pain would return into some joint. He said a few doses always banished it. I saw him in the latter end of February & examined his throat. The cardiac murmur had not improved, though he had both gained flesh and strength, and continues at his work every day.

Remarks

In the first of these cases it will be seen that the symptoms began gradually to decrease after the commencement of taking the medicine, so that in little more than a duration of 3 days the pains had all but gone, the pulse and temperature become normal. The total duration of the illness from the time she began to take the medicine till she was out of bed and going about quite well might be said to be 10 days.

In the second case from commencement of taking medicine till cessation of pain, and fall of pulse and temperature to normal was about 4 days. The total duration being about 11 days. I feel certain that in this later case both the periods of time would have been shortened had the patient been properly nursed, and received his medicine more strictly.

In both the cases there was a tendency to relapse, in the second especially so, which could always be

combated with the medicine. The relapses would not have been so marked in the later case had the patient allowed himself to have been put fully under the influence of the drug, and kept more or less under it till the crisis was fairly over.

It would be presumption in me to draw sanguine conclusions from 2 solitary cases, still, remembering my frequent doubtful success with the alkaline treatment, I cannot help feeling that in Salicin and its compounds we have, though not a specific, a valuable remedy which will carry us to the helpless bedside of our Rheumatic Fever patients with a measure of confidence and hope hitherto unknown to us.