

Yarrow

*The Pathology.
Complications
and Connections
of Rheumatism*

Thomas Yarrow.



Pathology of Rheumatism.

Many different theories of the pathology of this affection have been entertained at various periods.

The Ancients appear never to have described this disease either by the term (rheumatism) or by any other to which the array of symptoms are applicable. The term, however, does occur in their writings, but it does not denote the present malady, being applied by them to those diseases considered to be characterised by humoral defluxions, especially where mucous or pituitous discharges were seen.

The earliest writer who describes it is J. Begier of Geneva. Tract. de Catarrho Rheumatis - no. 1620. — (Flepland's Medical Dictionary)

Dr Thomas in his book has placed it among the inflammatory fevers. There is no doubt that it is an inflammatory affection; but something more is to be added, it is an inflammatory fever depending on a constitutional specific cause.

Dr. Farr in the most recent nosological arrangement has placed it among the miasmatic order of diseases. It is indeed often to be found in connection with the specific fevers, and the damp and noisome districts in which malaria abounds are a prolific cause of it. But the opinion most generally held is, that the poison originates within the body and not from any external source.

It is placed now among the Diathetic Order of Constitutional Diseases, in which the blood is in some manner altered. The rheumatic diathesis manifests itself in a variety of ways. There is in almost every case a great tendency to the inflammation of the joints on the slightest irritation.

That it is a constitutional disease is shown by numerous facts, amongst which the following are the more important. Persons of this diathesis are apt to perspire which perspiration is acid in its character, having often a peculiarly foetid smell. This perspiration is most marked

at the feet and anscilla. Sometimes the stockings are soaked and have often to be changed. — A functional derangement in many cases precedes the attack. In at least three cases I have seen acid dyspepsia precede it. Dr. Horace Dobell says, that the rheumatic attack is almost invariably preceded by acid dyspepsia, and if we remove the acidity, we prevent the disease (Rankins Abstracts Vol 41). — A change of habit with respect to regimen and diet has been followed by this disorder. This has been remarked by a considerable number of observers. — Persons of this diathesis are liable to suffer from every change of the weather, pains of a peculiarly knowing character are apt to come on in the limbs, often accompanied by distressing neuralgia of the face. — The hearts of such persons are remarkably irritable and very prone to take on morbid processes from very slight causes. — The urine of persons of this diathesis immediately after being passed is clear, but on standing deposits clouds of urates and lactates,

when no local manifestation of the disease is present.

From such facts it appears certain that rheumatism is a constitutional disorder.

The blood is altered in some manner. This appears true from the following facts. — The constancy of the primary fever with the many local symptoms and implication of important internal organs points to an altered condition of the blood.

The symmetrical implication of the joints takes place — to-day the knee of one side is affected — tomorrow the knee of the opposite side suffers. Metastasis, when it does occur which is seldom, shows that the blood is altered. A series of observations by Chlomei (Leçons de Clinique Médicale) show, that internal inflammations in rheumatism as well as those in typhus, scarlatina and the like, are caused by a vitiated condition of the animal fluids and more specially of the blood itself.

The fibrin is increased enormously in this disease, from the average of 2.2 per thousand

to 10.2 in extreme cases. The fat also at the same time is found in greater abundance. The corpuscles are greatly decreased. Analyses by Simon would show that there is a similarity in the composition of the blood in rheumatism and wasting diseases as Phthisis.

Thus - In Rheumatism. - Albumen 100. Corpuscles 74.

- In Phthisis. - " 100 " 78.

These numbers show a striking similarity in composition, and also that rheumatism is an anaemic disorder or tends to become so. In the worst cases the venous blood has a bright arterial colour.

Many opinions are in circulation as to whether the morbid material in this disease has been found or not.

Dr. Parkes' researches would lead him to believe that it is an organic substance rich in Sulphur.

Dr. Craigie and Watson are of opinion that rheumatism implies inflammation.

Dr. Watson says further — "Rheumatism is a blood disease, the circulating fluid carries along with it a poisonous material which, by virtue of some mutual or elective affinity, falls upon the fibrous tissues in particular, visiting and quitting them with a variableness which appears caprice, but is ruled, no doubt, by definite laws to us unknown."

Of the most recent enquirers into the nature of rheumatism, Garrod, Fuller, Attkin, among many others, believe that it is produced by some morbid action within the body, but that, as yet, no morbid material has been found or proved to exist.

Dr Fuller believes, that the hurtful material is a natural excretion of the skin which accumulating in the system produces its characteristic symptoms.

He holds this opinion on the following grounds — When persons (especially advanced in life) have their perspiration interfered with pains of a rheumatic character are apt to arise, — And that the means Nature adopts to cure

the disease, indicates some relation between the poison and the excreta of the skin. "No sooner, says he, is a person attacked by the disease, than excessive perspiration is set up, as if with the view of getting rid of some peccant matter, and the secretion is most profuse at the very part where local inflammation is taking place."

Dr. Prout first suggested, that a superabundance of lactic acid in the body might be the cause of Rheumatism. Since this time this view has been adopted by very many authors. It is at present, exciting controversy.

Dr. W. B. Richardson performed experiments in order to discover whether lactic acid would give rise to any of the pathognomonic symptoms of rheumatism when it was introduced into the body. He, at last, resorted to the injection of a solution of lactic acid in water into the peritoneal cavity of animals. He injected into the peritoneal cavity a solution of lactic acid in water, the animal experimented on being a

healthy cat. In two hours the heart action became excited and irregular; after the lapse of six hours it was left for the night and in the morning was found dead.

On dissection there was found no peritoneal mischief, but marked endo-carditis of the left side of heart. The mitral valve was found swollen and coated on its free surface by a firm fibrinous deposit, and the whole inner surface of ventricle was intensely vascular. He repeated the experiment on two healthy dogs.

In the first case, as before he found no peritoneal mischief, but there were marked signs of endo-carditis. The tricuspid valve was found swollen to twice its natural size, and the aortic was inflamed and coated on its free edge by fibrinous beads. The whole endocardial surface was generally red from vascularity; the pericardium was dry and impaled; and there was marked scleritis of the left eye. No joints were affected. In the last instance not only was the heart attacked, but there were marked affections of the joints.

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Eleven years before, according to Dr. Brinton, Simon performed a similar series of experiments with a like result.

Virchow and others deny that lactic acid does influence the heart or free surfaces. Dr. Ranch injected lactic acid either into the jugular or abdominal veins in eight animals. In all of them changes took place in the endocardium and gelatinous thickening of the valves occurred, even in so short a time as eight hours after the injection. He carefully examined these thickened valves, and found the substance to consist of a kind of mucous tissue with an increase of the connective tissue corpuscles. There was an epithelial lining covering this mucous tissue. Ranch takes exception to Dr. Richardson's statement that this is the result of an exudation.

This, according to Virchow, at a later period undergoes fatty regeneration; and he has found it often in the human subject. Ranch comes to the conclusion that lactic acid does not influence

the free surfaces, and this the more readily as the right side of the heart was not much affected in his experiments.

Dr. Möller regards the swelling and redness of the valves as a post mortem appearance, occurring immediately after death in animals.

Both Ranch and Möller detected an irregular rhythm and a murmur of the heart after the injection of lactic acid. This point was supposed by Möller to be anaemia; while Ranch thought it depended upon lesion of the valves.

Dr. G. Keyser, a German Physician, encouraged by Virchow, examined dogs that were killed in other ways than by lactic acid. Hydrocyanic acid and carbonic acid to enter the veins were used as the quickest means of inducing death. Thirty-two dogs in all were thus killed and their ages varied up to nineteen years. Immediately after death, the heart was opened. On opening the first heart, that apparently of a healthy dog, he found the same thick

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- enings of the valves as had been previous-
- ly observed by Richardson and Rankin.
In all the dogs, thus treated, were found
the same changes in a greater or less de-
- gree, unless in foetal hearts. Moreover,
on injecting lactic acid into the peritoneal
cavity, in which case the animal died in
twenty hours, he found no trace of acute
but of chronic endo-carditis.

Vichow in an article denies that
lactic acid has any influence on the
heart, and adds that dogs are naturally
subject to this thickening of the valves.
(Rankins. Abstracts. Vol. 35.)
And here the matter rests at present.

However, I think that looking at
these experiments of Dr Richardson, we
cannot doubt that lactic acid had some-
thing to do with the cardiac mischief.
The rapidity with which irregularity of the
heart's action came on, in the case of the cat,
coming on within two hours after the injection,
strengthens the hypothesis that lactic acid
does give rise to cardiac inflammation.

I do not exactly understand what Klawch means, but I think his experiments go so far to prove that lactic acid has some influence on the heart, whether the free surface of the endo-cardium or not, being a matter of no moment.

I performed three experiments with acetic acid to see whether it would give rise to any cardiac affection. I was unsuccessful in all three. The animals experimented on were rabbits; in two I failed from not making the opening valvular enough, and in the third the rabbit died before the experiment was completed from an overdose of chloroform. In the other two I opened into the peritoneal cavity and injected a dram of acetic acid in half an ounce of water, but the solution escaped to a great extent from the opening. It had no effect, the animals being alive, when I left four days after the experiment. I lack time else I should continue these experiments.

Another theory has been advan-

ced as to the *materies morbi* of this affection, that it is phosphoric acid. In the urine of patients labouring under acute rheumatism, there has been found a diminished quantity of this acid. Experiments, performed by Dr. J. A. Macdonald for his thesis last year, showed that phosphoric acid when injected into the body gave rise to marked endocarditis.

I am of opinion that the peccant material in this affection is acid in character; and the following circumstances show that acid is excreted in very great quantity during an attack. — The Saliva in health is alkaline, but in the worst forms of this disease it is distinctly acid in reaction. — The perspiration, although naturally acid in a slight degree, is intensely acid, and is much increased in quantity during this affection. — The urine, normally acid, has its acidity greatly increased, depositing clouds of urates and lactates, in persons suffering under an attack.

The poison appears to accumulate in the system from the Starchy Principles of the food not undergoing their customary changes. The starchy food is first converted into Dextrin, then into grape sugar, then into lactic acid, and ultimately into carbonic acid and water. But, from some cause known not, this conversion of the starch proceeds no further in the scale than lactic acid. The conversion of the lactic acid into carbonic acid and water should take place in the lungs, but, from not doing so, it accumulates in the system, and passing into the circulation gives rise to its local symptoms, as the affection of joints and the heart. This hypothesis gains ground from the experiments of Dr. Richardson; the right side of heart being often affected the blood carrying the poison directly through the inferior vena cava to that side; while in natural rheumatism the right side is scarcely ever affected, the blood surcharged with the poison coming direct from the lungs to the left side of the heart and a.

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there giving rise to inflammation

Many circumstances may conduce to the retention and production of the poison within the system

It may be produced from the faulty metamorphic changes of the albuminoid tissues. Great waste of these occurs from the inflammation attacking parts in which the protein compounds exist. This may also account for the increase of fibrin in the blood as observed by Simon.

Any circumstance, which tends to increase the amount of lactic or other acids in the system or produce great waste of tissue without appropriate means of repairing this waste, helps the accumulation of the poison within the body.

It occurs most commonly in those people who live on too great quantities of food in which starch abounds, and who at the same time are exposed to the vicissitudes of the weather and excessive fatigue, and thus great waste of tissue

occurs without the appropriate means of repairing it.

It would be needless for me to note the divisions of rheumatism, and, therefore, I will pass them over.

The rheumatic inflammation attacks the fibrous and fibro-serous tissues in particular; and is scarcely ever found to attack the other tissues unless the fibrous element be present. Wherever these tissues abound, there rheumatism commits its ravages. Thus it attacks the capsules of joints, the aponeuroses and tendons of muscles, the neurallemma of nerves, the pericardium of bones, the pericardium and endocardium, the sclerotic coat of the eye, the meninges of the brain and spinal cord, and many other parts.

The inflammation seldom goes on to suppuration or gangrene. Cases of termination in suppuration are mentioned as occurring in joints, — Chomel three, Moreau one, Poiry two, Cruveilhier three, several by Billard and Macleod, and I have seen one. This termination has also.

been observed to occur in muscles.

The inflammation attacks the large rather than the small joints. Joints that have been injured are more liable to become the seat of it than those that have not been injured. The joints repeatedly and excessively exercised suffer from it in a much larger proportion than those little used. Those joints which are more exposed to atmospheric influences are more apt to suffer from it, than those that are well protected by clothing. The joints more commonly affected are stated differently by various authors. They are here mentioned in their order of frequency of attack. — The ankles, knees, elbows, wrists, shoulders, hips, the joints of hand, the joints of the foot, and lastly the lower jaw. The heart may be considered as a large moving joint and as such it suffers in a large proportion of the acute cases.

There is a remarkable tendency to the symmetrical implication of joints.

The inflammation instead of shifting to a joint of the same side, migrates to the same joint of the opposite side of the body. This has been noticed by a good many observers.

One of the most curious phenomena, when it does occur which is but seldom is metastasis. It is, however, well marked in some few cases, and these are generally of a severe type. It is not generally a true metastasis when the heart becomes affected but merely an extension of the disease.

The most common termination of the rheumatic inflammation is in the effusion of serum and lymph.

The serum is thrown out sometimes in very large quantity. It is seen in the pericardium from a few drams to many ounces even up to twenty, and a case is mentioned of sixty being found. It is also effused into the synovial cavities of the joints giving rise to distinct fluctuation, best seen in the knee.

The lymph appears at first in the serum as flocculent masses, rendering the fluid opaque. But, as the serum is absorbed it becomes organizable and solid. It varies much in quantity from a few shreds up to many ounces or a pound or even more. Sometimes it is thrown out in such quantity as to cover the whole surface of the heart, being half an inch in thickness. The lymph, as it becomes organized and vascular, often produces changes in the part. Tendons may be bound down; the opposed surfaces of joints may be connected firmly together, thus there may arise ~~stiff~~ or perfectly immovable joints. Sometimes the tendons and ligaments may become eaten through by ulceration.

Perhaps, the most curious change occurs on the synovial membrane at the part around the neck of a bone papillae of various sizes arise, which are red and vascular, resembling the papillae on the tongues of flesh eating animals. These papillae dip down into the joints and give

rise to great inconvenience by impeding their movements. They may cause irritation which ends in total disorganization of the joints and also ankylosis. They always give rise to much trouble and are very chronic, yielding with the greatest difficulty to treatment.

By repeated or long continued attacks of the inflammation the cartilages of the joints may become completely absorbed. When this occurs, remarkable changes take place on the heads of the bones, which become enlarged from ossific deposit, their shape at the same time being remarkably altered, when they also become bumpy or warty-like. The places of the cartilages are often taken by porcelainous deposits. These changes are most commonly seen in old persons of the rheumatic diathesis.

These lesions constitute chronic rheumatic arthritis. The joints become curiously enlarged and twisted in various ways. There is a remarkable symmetry in the deformities, if I may use such a phrase. I saw this most remarkably exemplified

in two ^{cases} in which the joints of the fingers were the seat of the malady. In both the central joint of the middle finger was affected equally on both sides of the body, while the other fingers were drawn towards the ulna. The small joints are most commonly the sufferers from this disease, but any joint, however large, may be the seat of it as well. Even when the large joints are attacked, the same law is observed in the deformity, it being equal on the opposite sides of the body. The joints in time may become completely ankylosed, which is too often the termination.

There is a great tendency to ossific deposits in the tendons and ligaments; to such an extent may this proceed, that there is not a movable joint in the body. This extreme ossification but rarely occurs. Preparations of this extreme case to be seen in some museums. These deposits neither have the structure nor the composition of true bone, consisting mainly of carbonate of lime.

Rheumatism, when acute, most commonly attacks, the capsules or the tendons in the neighbourhood of the joints, the inner membrane of the heart with its external envelope, the arachnoid membrane of the brain, the bronchi, the lungs and sometimes the liver; when chronic it attacks, the sclerotic coat of the eye, the different muscles, the uterus, the neurilemma of the nerves, the periosteum of the bones, and many other parts. These parts are often affected when the ~~case~~ is acute, complicating and protracting it.

When the sclerotic coat of the eye is the seat of the attack, Rheumatic Ophthalmia results which readily gives way to the rheumatic remedies.

Chomel mentions a case in which the patient squinted while the disease lasted. The laryngeal muscles are affected in some few cases, complete aphonia being the result. The muscles of the neck sometimes suffer, giving rise to spasmodic contraction of the sterno-mastoid muscle the neck being drawn to one side. The

lumbar muscles are often attacked, the disease extending to the ligaments of the vertebrae and sacrum. When the recti muscles are affected, the seat of pain is most commonly at their insertion into the crista ilia. When the diaphragm suffers from the disease most urgent dyspnoea results from the spasm of the muscle, which must be quickly relieved. Pleuradynia is the name given when rheumatism attacks the intercostal muscles.

The peritoneum is believed often to be a sufferer from the poison of rheumatism (Copland).

When the uterus is the seat of the inflammation abnormal presentations of the foetus are apt to occur from spasmodic contractions of the muscular fibres. It is also enumerated as a cause of protracted labour, the uterus contracting irregularly. By not a few, a certain form of dysmenorrhoea, in which flakes of membrane occur, is considered to depend wholly on rheumatism.

Old people of the rheumatic diathesis

are liable to fibroid degenerations of many important viscera, as of the lungs, liver and kidneys; and these occur the more readily if the persons are intemperate.

Complications of Acute Rheumatism

This disease is often complicated by pericarditis and endocarditis, frequently by hepatic congestion, rarely by inflammation of the arachnoid. Bronchitis, Pneumonia and pleuritis often occur during an attack. There is always more or less irritation of the kidneys during an attack. These are its most important complications.

I do not intend to enter fully into these complications, but merely to give a short description of their more important points.

Heart Lesions. The rheumatic inflammation scarcely ever occurs as a true metastasis but is just an extension of the disease to the heart. Cases are recorded, in which, with the constitutional symptoms, fever, etc., the heart affection was the only local symptom present. (Grimes, Hache, Taylor, and others).

In some cases pericarditis was the only local symptom present for some time, and then the joints became affected. (Watson Graves, and others). It appears, however, in most cases that although rheumatic carditis does occur after the implication of the joints, still no alleviation of the joint affection takes place on its onset.

This complication takes place more frequently in the young than the old. Dr Watson says - "That in only two unequivocal cases before puberty, did rheumatic carditis not occur." Women suffer in a greater proportion than men. Those exhausted by any cause, as chronic wasting diseases and discharges or from large bleedings are more likely to have an attack of carditis, than those otherwise robust. Rheumatic carditis appears to have occurred more frequently at one time than now from the treatment then in vogue.

There appears to be a diversity of opinion with regard to the cases in which

it is most likely to occur. Those ~~cases~~ of severe type, in which the fever runs high and many joints are attacked, are most frequently thus complicated. The synovial variety is less often ~~attacked~~ than the fibrous. Drs Latham and Watson believe it to be present equally in the mild as in the severe cases. However, the experience of Dr Fuller would lead to expect the complication rather in those cases of severe type, where the tongue is coated with a thick white fur and the perspiration is intensely acid and foetid, than in those of milder character.

Thus in every 6.3 cases of the acute form one case of carditis occurred, while in every 66.5 persons affected with the sub-acute variety only did one case of the complication occur. Bouillaud says that one-half of the cases are thus complicated, Macleod one-fifth.

There is a question as to whether pericarditis or endo-carditis is of more frequent occurrence. Dr Watson believes that pericarditis never occurs without.

endo-carditis. He therefore proposes the name of "Rheumatic Carditis."

Vegetations are apt to occur on the inner membrane of the heart in rheumatism without the intervention of inflammation. Testimony to this has been given by Fuller, Kirkes and Crocker. These vegetations are apt to be carried into the circulation and block the arteries of important organs, or the limbs. When the arteries of the brain become obstructed sudden death may take place or white softening of the brain may ensue, accompanied by paralysis.

Hepatic Complication

The liver, especially in persons of intemperate habits, is sometimes inflamed during an attack of rheumatic fever.

Dr. Sidney Ringer had a fatal case in which hepatic lesion occurred. It is recorded in Dr. Atkins's book. On post mortem dissection, the liver was found to be much enlarged and weighed eighty ounces. The left lobe was enormously increased while the right was diminished.

Its surface was deeply notched, giving a lobulated appearance to the organ. On being cut into, it was found to be firm and rather pale, the lobules being large and distinct from each other. By the microscope, there was seen to be an excess of the fibrous tissue around the lobules, the cells of which were pale and free from granules.

Dr Watson mentions one or two fatal cases in which hepatic lesions were seen.

Vegetations, arising during an attack of rheumatism on the valves of the heart, may be detached and obstruct the hepatic artery, thus giving rise to secondary deposits and inflammation of the liver.

Arachnoid Complication.

Happily this most formidable complication occurs but rarely. It was formerly supposed to be present in a large number of cases, from the occurrence of delirium, which delirium, we know, often accompanies heart lesions. Fatal cases are recorded by Watson and other authors. The inflammation attacks the arachnoid

membrane either ending in resolution or in the effusion of serum and lymph.

It is a very fatal complication. The arteries of the brain may become obstructed by vegetations from the heart lodging in them, either ending in instant death or leading to white softening of the tissue of the brain.

Kidneys. The kidneys are not apt to be often attacked during acute rheumatism, but they are always more or less irritated. In the urine there are often to be found masses of cells collected together. These have been called the rheumatic corpuscles (Leycock).

Old people of the rheumatic diathesis are very prone to a form of Bright's Disease, depending on fibroid degeneration of the parenchyma of the kidneys. Embolism from the valves of the heart may lead to degenerations in these organs, from the supply of blood being cut off, the arteries having been obstructed.

Lungs. Bronchitis, pneumonia, and pleurisy are liable to complicate the rheumatic attack, but are of no special interest.

only in so far that to treat the complication you have to push the rheumatic remedies.

Connections of Rheumatism.

Scarlet Fever. It is often observed in practice that rheumatism and scarlatina have occurred together. Dr Richardson gives the cases of four children in which this combination of the two maladies was well marked. The first notice of this association is ascribed by him to Dr Golding Bird. (Clinical Essays). This connection has been subsequently noticed by many others. A remarkable disorder, occurring epidemically, named scarlatina rheumatica, is considered by many to be a combination of the two disorders. This at least is doubtful, and is questioned by a great number of observers. It appears to be closely connected to the intermittent fevers.

Intermittent Fever.

In malarious countries intermittent fevers and rheumatism frequently occur in the same patient. Dr Copland remarks that they are often met with in conjunction. This combination however is of no special

interest

Rheumatism may be found in connection with any of the specific fevers. I have seen this well marked in one case, where typhus fever and a rheumatism occurred together. The patient was hereditarily predisposed to rheumatism.

Chorea.

There appears to be an intimate relation between rheumatism and chorea; chorea may precede, may complicate or may follow on an attack of acute rheumatism. Chorea occurs very frequently in families with the rheumatic diathesis although the patient may never have had acute rheumatism. Much has been written concerning the rheumatic or humoral nature of chorea. Dr. Copland first called attention to this subject by a case which was published in the London Med. Repository, Vol. xv.

But he did not call special attention to this relation in that case, for the case only with its treatment, and termination were mentioned. Great credit is due to Dr. Begbie of this city, for having wrought

out the subject in so able and systematic manner. He gives a large number of cases illustrative of this relation. The matter has also been worked at by many others, among whom are Drs. Richard, Houser and See. From their labours it is established, that there is an intimate relation between the two diseases.

Without further remarks, I shall give several cases which show this connection.

Dr. Copland's case was this. — He was called in consultation to see a boy nine years of age suffering from chorea, who had but recently recovered from acute rheumatism. Under treatment the boy recovered from the chorea. After an interval of six months Dr. Copland was again called in to see him, when he found him suffering from acute rheumatism the inflammation having extended to the heart. The boy again recovered and went to school for eight months, when Dr. Copland was again called in to see him.

At this time the boy suffered from well marked and extensive chorea of the muscles. The remedies which had proved so

successful during the former attack at this time proved useless. Paralysis of the voluntary muscles came on. The patient lost his speech and died, but he retained his mental faculties to the last.

On post mortem dissection. - There was found in the membranes of the endosperm with flakes of lymph. Fluid was found in large quantity in the pericardium and the liver was congested. The brain was not examined, but Dr. Copland felt confident that it was not diseased from the absence of symptoms during life.

Dr. James Begbie gives the following cases
1st Cases. A hard working man aged 30 years had a second attack of acute rheumatism, when his eldest daughter, aged 5 years, was affected with chorea. This shows the diathetic tendency.

2nd Two sisters of different ages suffered from chorea after each other, from which they recovered. After some time their brother was attacked by acute rheumatism; and after an interval the

youngest sister was also attacked by the same disorder.

3rd. A boy aged 13 years, was attacked by chorea, supervening on a second attack of acute rheumatism, not complicated by heart lesion. An elder brother suffered from repeated attacks of acute rheumatism. A sister of these boys, at the age of seventeen, had been affected with chorea, but had never suffered from rheumatism. The mother of the family had a severe attack of rheumatism shortly after her first delivery. The father was not rheumatic, but described himself as being very nervous.

Dr. William Cumming's case. In a family of ten four suffered from acute rheumatism. One girl who had neither suffered from rheumatism, nor neuralgia, was attacked at two distinct periods by chorea; one when at six years of age lasted for four months; the other when at eight lasted for two months.

These cases speak for themselves and it would be needless to comment on them.

Cases are recorded by many observers, as Andral, Bouillaud, Mac-kintosh, Watson, R. B. Todd, Kirkes, and others, in which a diseased condition of the heart, caused by rheumatism, has been associated with chorea.

D^r. Sidney Ringier has observed one or two cases of chorea, in which there was marked elevation of temperature without any joint affection. These he considers as cases of acute rheumatism; and that they may explain how chorea may occur without any history of rheumatism.

I have to add three cases in which the relation is shown. In one chorea complicated, in two it followed an attack of acute rheumatism.

First case is that of fellow student, who related it to me. When quite young, he suffered from acute rheumatism from which he recovered, and subsequently he was attacked by chorea.

Through the kindness of Prof. Mack-
-gan, I am enabled to give the following
case, which is recorded in the journal
of Ward XI.

Mr. S. aet 16, milliner, living in Cann-
-gate, admitted May 15th 1865.

Antecedent History. Patient states that,
with the exception of a slight attack of
chicken pox and measles, she has always
enjoyed good health. She was conscious
five weeks ago of having caught cold
while running about the house bare-
-foot, and during the day she felt severe
pains in her legs. Three days after this,
the pain increasing and spreading from
her ankles, which were first affected, to her
knees and this being accompanied by
severe headache, she kept her bed, and
was seen by Dr. S., who gave her some
powders and applied warm salt to
her joints. A fortnight after this feel-
-ing much better, she rose from her
bed and went to the window, but
the day being damp, she caught fresh
cold, the pains returned, increased, in the

severity, and again confined her to bed until her admission here.

On admission. Complaints of great pain in most of her joints, with great pain and stiffness in her joints on awakening in the morning. She has considerable choreal twitchings. Her knees are puffy and somewhat swollen.

Digestive system. Tongue slightly coated. Bad appetite. No abdominal tenderness. Hepatic and splenic dulness normal. Bowels slightly constipated. No piles.

Respiratory system normal.

Circulatory normal, with the exception of an accentuated second sound. Pulse 85 good.

Integumentary system. Choreal twitchings most marked on the left side.

Nervous system normal.

Genito-urinary system. Urine amber coloured, acid in reaction?, slightly phosphatic, chlorides abundant.

No albumen. Spec. Gravity 102?

Menstruates irregularly since she has

been ill.

She was ordered Bicarbonate of Potash.
May 16 Does not sleep well, does not feel so well.

May 17.th Does not feel so well to-day, she has slept badly last night, has got a bad headache. Pains in the joints worse.

Ordered Scammony and Calomel.

May 19th Ordered Tinct. Aetere. Nacemosae
The powder, ordered formerly, acted freely.
The bicarbonate of potash. was stopped.

May 20th Pains in the joints no better.

May 22nd Feels much better this morning, but she still complains of want of sleep.

May 23rd Feels better this morning, she slept better last night. Chorea twitching less, power of hands greater. She complains of pain in the second finger, the second phalanx of which is considerably swollen.

May 24th Feels better, but does not sleep.

May 26th Still improving. She got up for a short time yesterday. Ordered Tinct. Arseniculi.

May 29th Great pain in the right hand, the fingers and wrist of which are much swollen.
Ordered again Tinct. Aetere. Nacemosae.

May. 30th Ordered Mel. Boracio and a small opiate of Morphia.

June 1st Night wrist improved. no pain in it now. She can move it freely, and feels altogether better.

June 2nd A slight systolic murmur perceived.

June 5th No pain felt in any of her joints. Chorea twitchings much less. Systolic murmur getting gradually more audible.

June 7th Feels much better, but the systolic murmur has greatly increased.

June 10th Systolic murmur not so harsh.

June 14th She was up for a short time yesterday. Complains of pain in her shoulders this morning. Systolic murmur more audible.

June 16th Ordered. Sulphate of magnesia.

June 17th The medicine acted freely.

June 21st Much improved.

June 22nd Not so well this morning. Complains of a severe pain in the back of her neck and in her right shoulder. June 24th Much better.

June 28th. Complaints of severe pain in the chest, aggravated by deep inspiration.

July 6th. Improving daily. Systolic murmur still audible.

July 10th 1/65. Discharged recovered. A. P. C.

Dr. Saunders with great kindness has allowed me to take the following case.

Case of Chorea.

M. H. Act, 18 past, Dressmaker, admitted to Ward XV. on the 10th of Feb. 1866.

History. During the month of October, the patient states that she had an attack of rheumatism. This was severe, all the joints being swollen and so painful as to prevent sleep for several nights.

All the joints became well, and her health was restored until her present illness began. The exact time of the present illness she cannot state. (Her friends say, she had been only ill a week before admission). She had been rather overworked about the end of the year. Her meals have been regular and always good.

Present Condition. The patient is very

nervous, weak, irritable and gives a good deal of trouble to the other patients. She is pale and anaemic. There is a herpetic eruption on the lips.

Slight want of power was noticed in the right hand at the commencement of the attack, and the grasp is not so good with the right as with the left hand. Both sides are affected with tossing and irregular movements, but these are better marked in the right arm and leg than in the same parts on the left side. The face is slightly affected. She rolls the eyes, slightly grimaces with the features, and, often during speech or silence, she makes a clicking sound either with her tongue or in her throat. The feet are also jerked about. Her irritability and bad temper are excessive. She abuses the nurses, and the other patients freely. She has risen from her bed several times in a fit of passion; and last night, having risen from her bed, she attacked the nurses and drove them down the ward; then she crept under

one of the beds and defied the attendants to remove her.

Physical Examination. The skin is rather warm and is soft.

Her menstruation is regular.

Pulse 104. Slight roughness heard with the systole over the base of the heart, but it is not propagated along the vessels. Finger nails convex.

Percussion sounds of chest normal. Auscultation also normal.

No appetite for food; tongue large with a little white fur and the teeth mark the edges. She sometimes bites it.

Urine very phosphatic, neutral in reaction. Jan. Feb. 14th it was of the specific gravity 1030, muddy, reddish brown; phosphates present and, perhaps, also urates.

Treatment. Ordered to take a pill containing a grain of Sulphate of iron and Zinc with a $\frac{1}{4}$ of a grain of Extract Hyoscyami three daily, also Tincture of Gentian.

Feb. 16th She has had much better night than the 12th her first night in the Hospital. Passes urine and faeces in bed and is

troubled with diarrhoea. She is at present menstruating.

Feb. 20th. Was able to be up a little yesterday, and to-day the shaking is much improved. Puls very weak.

Feb. 21st. The patient continues to be up. Her memory is not much improved. When asked how long she had been in the Hospital, she answered a fortnight. Her pulse is weak and 104. Shaking is inconsiderable. She still continues to make the sucking noise with her mouth. Bowels open and normal, tongue coated, appetite much improved.

On March 12th completely recovered and left the Hospital.

R. C. C.

From all the cases that have been recorded from time to time there appears to be an intimate relation between rheumatism and chorea. That is to say, in young patients you in many cases find, that they previously to suffering from chorea, had rheumatism, or that after chorea rheumatism attacks them, or that they are character-

-cally predisposed to rheumatism. But it is undoubtedly true that in many cases of chorea there is no history of rheumatism or of the predisposition diathetically. Chorea most commonly depends on some disease of the nervous system either functional or organic. It is often associated with idiocy. It is often caused by some irritation, such as worms, give rise to, being carried to the spinal cord, and from thence reflected to the voluntary muscles. It is an imitative disorder. Should one boy or girl in a school take it, it may spread with great rapidity, and only be checked by the threat of treating the disease by the actual cautery or by some such energetic means. The true nervous chorea is often unilateral, while rheumatic chorea on the contrary is almost always bilateral. I am of opinion that chorea occurs without any rheumatic taint, but that rheumatism greatly predisposes to this affection.

I must now end this imperfect sketch of rheumatism, which is a most impor-

- tant disease, both from its daily occurrence in practice, and from its being a prolific cause of heart diseases with their years of suffering and early death; and I crave the kind indulgence of the Medical Faculty for its undoubtedly numerous imperfections.

Sims

