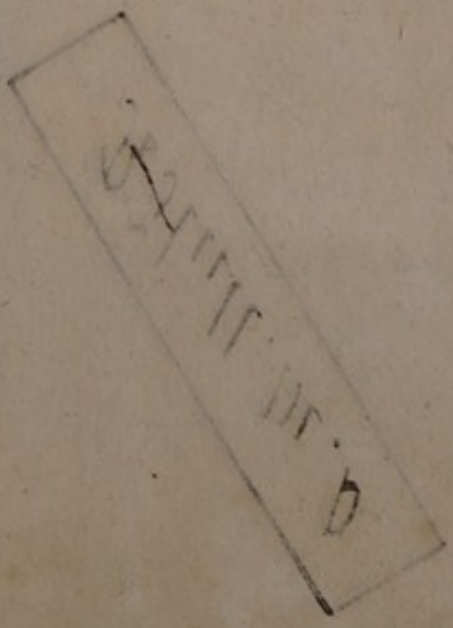
Rheumatism, and some diseases of the heart and other internal organs / [Francis Hawkins].

A. Hull: M.D.



RHEUMATISM,

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CONSIDERED IN THE

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MAY, 1826.

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BY FRANCIS HAWKINS, M.D.

FELLOW OF ST. JOHN'S COLLEGE, OXFORD, AND OF THE ROYAL COLLEGE OF PHYSICIANS; AND ONE OF THE PHYSICIANS TO THE MIDDLESEX HOSPITAL.

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TO

SIR HENRY HALFORD, BART. K.C.H.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS,
AND PHYSICIAN TO THE KING.

My dear Sir,

I WAS *particularly anxious that these Lectures should appear before the public under the sanction of your name, because my principal motive for printing them was the desire, which you have been pleased*

to express, that the custom which formerly prevailed of publishing the Gulstonian Lectures should be revived upon this occasion. I beg to return you my grateful thanks, therefore, for allowing them this high advantage and distinction.

And, indeed, upon delivering the first Lectures which have been read in the Theatre of our new edifice, I could not but feel strongly our obligations to the President under whose auspices the building has been reared, and whose talents and influence have been exerted with signal zeal and success in promoting the welfare and dignity of the College.

I rejoice, therefore, in an opportunity of expressing my sense of our common obliga-

tions, and of presenting at the same time my warmest acknowledgements for many favours and acts of personal kindness.

I have the honour to be,

My dear Sir,

Your much obliged,

And very faithful Servant,

FRANCIS HAWKINS.

16 Great Ryder Street, St. James's.
May 30, 1826.

CONTENTS.

membranes;—points in which they resemble or differ from the larger serous membranes,—rheumatic affections of the synovial membranes. Of the cartilages.

Rheumatism divided into I. Rheumatism of the fibrous membranes; 1. of the tendons, fasciæ, ligaments &c; 2. of the periosteum; 3. of the nerves. II. Rheumatism of the synovial membranes.

On the utility of pathological distinctions.

LECTURE II. On the particular Forms and Modifications of Rheumatism.

Exposure to cold the only exciting cause. Rheumatism a *specific* inflammation. Lymphatic theory. Predisposing causes of a debilitating nature. Distinctions between acute and chronic rheumatism,—tumour of the affected parts not the true criterion.

I. *Rheumatism of the fibrous membranes*;—description of the first species in its acute and chronic forms—opposite plans of treatment;—2. rheumatism of the periosteum—syphilitic and mercurial pains—treatment;—3. rheumatism of the nerves—sciatica—hemicrania—tooth-ach.

II. *Rheumatism of the synovial membranes*;—its symptoms and progress, in what respects different from those of fibrous rheumatism—treatment of synovial rheumatism—dropsy of the synovial membranes—diagnosis between ulceration of the cartilages of the knee and inflammation of the synovial membrane.

Recapitulation of the distinctions between fibrous and synovial rheumatism—their occasional combinations—choice and application of remedies.

LECTURE III. On Rheumatic Affections of the Heart and other Internal Organs.

Difficulty of determining whether such affections occur as primary disorders—on the pathological differences between common and rheumatic inflammation.

Rheumatism of the heart and pericardium first observed by Pitcairn—not generally known until mentioned by Baillie—this probably owing to the obscurity of the symptoms rather than to the novelty of the disorder—cases in which this obscurity prevailed—observations on the same subject from Corvisart and Laennec. On the constitutions liable to rheumatism of the heart—its production by metastasis from the *fibrous* membranes—description of it, 1st in its acute, 2ndly in its chronic form. Morbid appearances discovered upon dissection—*enlargement of the heart*—this may be either simple dilatation, or combined with hypertrophy—examination of cases with the view to determine which kind of enlargement is the more common—causes and symptoms of each kind of enlargement. Treatment of rheumatic affections of the heart and pericardium.

On the occurrence of pleurisy or peripneumony after rheumatism—pleurodyne—diaphragmitis—hepatitis.

Metastasis to the *head* from the *synovial membranes*—triple affection of the synovial membranes, urethra, and tunica conjunctiva—*rheumatic ophthalmia*.

Recapitulation and concluding observations.

THE

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MAY 1826.

LECTURE I.

ON RHEUMATISM, AND ON SOME DISEASES OF THE HEART AND OTHER INTERNAL ORGANS.

WHILE the subject of Gout has engaged the attention and exercised the ingenuity of physicians in all ages, that of Rheumatism has been comparatively neglected. This has probably been owing to other causes in addition to the one commonly assigned;

namely, that Gout is the disorder of the rich and the learned. Yet it must be allowed that Rheumatism, which occurs more frequently than the other, which affects a larger class of mankind, and may be said to spare neither sex nor age nor condition, is no less deserving of regard from him who seeks to alleviate suffering,—to relieve

> "The *heart-ache*, and the thousand natural shocks
> That flesh is heir to."

Nor is it less interesting in a pathological point of view, on account of the variety of its phænomena, its occasional severity, and its connexion with the diseases of vital organs.

Many and various are the affections which have passed under the name of Rheumatism. In the words of Heberden, "Multi dolores, quibus nomina nondum propria imposita sunt, quanquam inter se distent, ex causis longè diversis orti, tamen

ad Rheumatismum pariter referuntur." But besides this manifestly improper application of the term, one general name has hitherto been employed with too little discrimination to designate disorders, which may indeed be generically the same, but yet are in many respects essentially distinct.

Is there not reason to suspect that this indistinctness has in part arisen from a want of attention to the local seat of the disorder,—to the particular texture which is in each case the point of attack, and rendered subject to pain and the other effects of morbid action? What can be more vague or more unphilosophical than the common definitions of rheumatism?—such as, "pain about the joints, following the course of the muscles, attacking the larger rather than the smaller joints." The poet's expression,—"joint-racking rheums," is scarcely less precise in re-

spect of pathology than such definitions. In other cases we have attempted greater accuracy of distinction. We observe that the phænomena and terminations of common inflammation vary according to the texture in which it prevails: we assign one class of symptoms to inflammatory affections of the great investing tunics of the thorax and abdomen, and another to those of the mucous structures of the bronchial and intestinal canals; and practical advantage has been derived from such observations. It is true that there are several impediments to an accurate knowledge of the seat of rheumatism. Amongst them may be enumerated, the very variable and shifting nature of the disorder; the rare occurrence of obvious morbid changes of structure, and the still greater infrequency of opportunities of examining them by dissection. But still there are circumstances

which now render our investigation of the seat of this, as of every other disease, more encouraging than formerly, and which particularly invite us to the prosecution of this path of inquiry. New views have been opened of General Anatomy, and a better classification established of the structures which compose the animal frame. In this department of science it may almost be said of the celebrated Bichat, that he first laid the foundation and considerably advanced the superstructure. The publication of the "Memoir on the Synovial Membranes," which was soon followed by a more complete and finished work, the "Treatise on the Membranes," tended greatly to correct and extend our notions of pathology; and a large proportion of the doctrines laid down in those works have stood the test of time. Hence the success which has followed the cultivation

of general anatomy, and the practical conclusions to which it has led, render it reasonable to hope that the more closely we attend to the structure and physiological relations of parts which are the subject of disease, the more we shall contribute to the understanding of the disease itself, and consequently to its proper treatment.

Upon entering into an inquiry as to the true seat of rheumatism, the first question which meets us is, whether the muscles are themselves affected by it. In common language the terms *muscular pain* and *rheumatism* are nearly synonymous: it has been sufficient, however, to give rise to the common expression that rheumatism is the disease of the organs of motion; for it is certain that those parts which may be termed the appendages of muscles,—as the tendons, fasciæ, ligaments, and other struc-

tures which belong to the apparatus of the joints,—are at least more frequently affected than the muscles themselves.

The "Clinical History of Acute Rheumatism" by Dr. Haygarth, which is valuable as a collection of general facts, although it does not attain to accuracy of description, nor attempt to distinguish the particular structure which was in each case the seat of disease,—may be consulted with advantage on a point of this nature. He states that out of 170 cases, in 9 only did the muscles appear to be the exclusive seat of the disorder, and in 33 more the muscles were affected in conjunction with the joints.

It is necessary, however, to examine the structure of muscles somewhat more minutely. After many fanciful and many contradictory accounts of the natural composition of the body of a muscle, microscopic

observers appear to be at length to a certain extent agreed. It would seem that the smallest fibres visible to the naked eye into which this structure can be divided, exhibit in all muscles nearly the same form and thickness: they may be seen, by means of a transverse section, to be of a prismatic form, pentagonal or hexagonal, never cylindrical.

Their length, according to Prochascha, is always equal to the whole interval between their two attachments; although others, as Haller, and Albinus, maintained a different opinion; but the latter opinion does not appear to be equally well supported: this point as to their length is so far curious in connexion with our present inquiries, as it may be thought to illustrate the manner in which the pain of rheumatism radiates along the course of the muscles.

The fibres which have been described are divisible again and again into others which can be seen only with the aid of the best glasses: these are finally composed of opaque globules, disposed in a linear order, and united by a transparent gelatinous medium; these globules have been said by Sir Everard Home and Mr. Bauer to be identical with the globules of the blood deprived of their colouring matter; and their observations have since been corroborated by those of Prevost, Dumas, and others.

The muscles themselves are enveloped in sheaths of cellular membrane; similar but finer sheaths envelope the portions into which some muscles are divided; others invest the bundles of fibres; and others, infinitely fine, envelope the smallest fibrils. The fleshy fibres, which are thus composed, are so closely united to their cor-

responding tendons, that they have been asserted to be actually continuous with them. This, however, is not the fact; for the tendons may be separated from the muscle by boiling, and may be resolved by maceration into cellular texture; moreover, the fibres of the tendinous expansions have often a different direction from that of the fibres of the muscle.

Is then the proper structure of the muscles to be considered as a primary seat of rheumatism or not? By many pathologists it is believed not to be so. But there are certain arguments which, although they are not wholly conclusive, appear to me to render the opposite opinion probable.

1. In the first place, the peculiar property of muscles, their contractility, is in some cases of acute rheumatism absolutely annihilated. Again, in some chronic cases their

functions are impaired, so that the muscles become almost paralytic. Hence chronic rheumatism has been correctly stated to be nearly allied to paralysis,—a disease which it will not be denied affects the muscular fibres themselves, and in some instances and to a certain extent would appear to affect them independently of their nerves; for it has been observed that some muscles, as the levator palpebræ superioris, may be partially or completely paralysed, whilst the other muscles supplied by the same nerve are not at all affected. It is a further instance of resemblance between these two disorders, that in some cases of palsy arising from the poison of lead, muscular pains are experienced which can hardly be distinguished from those of rheumatism.

2. Secondly, as regards the situation of the pain in rheumatism, it is sometimes felt, or at least appears to be felt, in the belly of

the muscle; and there is tenderness from pressure over the same part. If it be said that the pain and tenderness belong here to the fascia of the limb, they would then be more general, and not confined, as to a certain extent they often are, to the course of particular muscles: or if it be contended that these pains are propagated from the tendons along the cellular sheaths of the muscular fibres, we should in that case have reason to expect the usual accompaniments of inflammation of the cellular membrane; namely, a greater effusion of serum than we ever find to accompany rheumatism, or even the secretion of pus.

3. Thirdly, there are certain muscles, particularly those attached to the integuments, which have fleshy insertions, and are wholly devoid of tendinous structure. And although such muscles may not be seen to be distinctly and individually af-

fected by rheumatism, yet they appear at least to be involved in general rheumatic affections.

4. Fourthly, the morbid effects of rheumatism upon the muscular fibres are as great as can be expected to be exhibited by parts so little susceptible of change of structure. For by the adhesive and suppurative inflammations, the cellular sheaths of muscles alone are altered, and there does not appear to be any change in the muscles themselves. But after certain cases of rheumatism it is stated by Béclard, that a gelatinous fluid has been observed within the cellular sheaths, and surrounding the fibres themselves.

Portal has also observed after cases of rheumatism a similar gelatinous effusion, or what he has termed a thickening of the muscular serosity; together with concretions of various forms and appearance de-

posited in the interstices between the muscles, or between the portions into which they are divided, or even between their smallest fibres. He has likewise observed the muscles that have been affected by rheumatism condensed in their substance, or displaced from their natural situation.

Lieutaud relates a case of dissection after rheumatism of long standing, in which the muscles were rendered dry and tough and almost tendinous, and contained osseous concretions in various parts of their substance.

Such are the arguments drawn from the functions of the muscles, the pain that is felt in them, their natural structure, and the alterations effected by disease, which appear to me to render it probable that they are sometimes themselves the seat of rheumatic affections. Whether such affec-

tions arise in them primarily, or are of secondary origin through sympathy with contiguous parts, it is by no means easy to determine. It would be singular, however, as has been observed by Dr. Carmichael Smyth, who has gone so far as to define rheumatism an inflammation of the muscular fibres, if parts so plentifully supplied with nerves and blood-vessels should not be the occasional seat of pain and inflammation. The muscles in fact are more abundantly supplied with nerves than any other part except the skin and the organs of sense: such is the case at least with the external muscles, although the internal muscles have in general fewer nerves than the former.

As we have spoken of pains following the course of the muscles, and as this character has been admitted into the common definitions of rheumatism, it may be as well

to consider in this place, how far it is strictly true, that the pains of rheumatism do thus shoot along a particular tract. The truth is, that the course of the pain is not often exactly limited: but yet it will sometimes be observed to affect chiefly an individual muscle, as the deltoid or biceps flexor cubiti, especially when that muscle is called into action. This character therefore of rheumatic pains, though not to be understood in too strict a sense, is generally sufficient to distinguish them from the pains which are felt along the branches of nerves, and from the general aching and soreness which occur at the commencement of fever.

The difference between pains which "seem rather to take the course of nerves than of the muscular fibres," has been noticed as a diagnostic mark between rheumatism and another disease, in an ad-

mirable paper in the 4th volume of the "Medical Transactions:" in which are drawn to the life, by the hand of a master, the fading form and contracted features of climacteric decay.

But whatever doubts may be entertained as to the manner and degree in which the muscles are affected, there can be none whatever that the fibrous and tendinous structures are the chief seat of the disease which we are considering*. It is in this quarter of our frame that rheumatism makes its most frequent invasions, that it exerts its most violent and most extensive influence, and too often establishes a permanent dominion. That such is the fact we have sufficient evidence

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* That rheumatism is the inflammation of fibrous membranes, was asserted by Dr. Elliotson in his Inaugural Dissertation, published in the year 1810. Dr. Scudamore has also ably contended that the fibrous textures are the chief seat of rheumatism.

from the situation, character, and effects of the pain which the patient suffers. In whatever part there exists the greatest quantity of this fibrous texture, it is that part which ordinarily is most affected in acute rheumatism. The pain which is there felt is precisely the same in character with that which is excited when tendons or ligaments are affected by their peculiar irritants. For these structures, as Bichat has observed, evince little sensibility to other modes of irritation, but are most acutely so whenever they are twisted or distended.

With relation to morbid changes and the effects of disease, they are not so conspicuous and well marked in these structures as in others which are more vascular. Inflammation of fibrous membranes is unattended with the evident opacity and increase of thickness, the adhesions and formation of false membranes, or the effusion

of thick and milky serum, which attends the inflammation of serous membranes. But we find in acute rheumatism, in all those parts which surround the affected tendons, that such effects are produced as would be likely to arise from the contiguity of inflamed structures: namely, first, an elastic puffiness which arises from a distention of vessels, and finally a slight œdema.

Although the great similarity which exists between the ligaments and certain other structures had been previously remarked by others, it was reserved for Bichat first to collect these different parts under the general name of fibrous tissue, and to consider collectively their structure and functions, their sympathies and pathological conditions.

They are frequently divided into two classes. 1. Those which serve to connect parts together: and 2. Those which divide and envelope particular organs.

To the first class belong the tendons and ligaments, and aponeurotic expansions of tendons.

To the second the muscular fasciæ and enveloping aponeuroses; the periosteum; the fibrous coats of the nerves; the membranes which have on one side a serous lining, as the dura mater, and pericardium; also the fibrous sheaths of the tendons and capsules of those joints which are provided with fibrous capsules, and the ligaments surrounding the other joints: to these may be added the membranes which have a mucous covering spread over them; such as the portions of the periosteum which line the palate, the nasal sinuses, and other internal cavities; and finally, the capsules of particular organs, as the sclerotic coat and cornea of the eye, the tunica albuginea testis, and the capsules of the kidneys, ovaries, &c. All these parts, with the exception of the capsules of the solid organs,

appear to be the frequent seat of rheumatic affections.

Of the tendons, there are none which are not liable to be attacked by rheumatism. It has been established by well authenticated cases, that the diaphragm is sometimes affected; and it is probable that the tendinous centre of that muscle is in such cases the seat of disease. When we consider the situation of the tendons, we can hence understand why rheumatism should principally affect the joints. Dr. Haygarth speaks thus of the cases of which he had preserved records: "Out of 170 cases, 154 are noted, in which one or more joints were inflamed; the enumerated instances amount in all to 388. No joint is probably exempted from this disease; 15 different kinds are particularly specified*." It is to

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* Clin. Hist. p. 34.

be regretted that this statement does not proceed to specify the particular structure which was in each of the enumerated instances especially affected.

Of the ligaments, those are frequently attacked by rheumatism, which being situated externally are directly exposed to its exciting cause: others, to which the synovial membrane is immediately subjacent, are for that reason liable to secondary attacks of rheumatic inflammation.

The aponeuroses, whether serving for attachment or envelopement, and the muscular fasciæ, are closely connected with the tendons, and exactly similar to them in structure; and indeed in most situations have the appearance of being nothing more than flattened tendons. These afford an ample field for the invasion and extension of rheumatism, to which they are frequently liable from their situation, which is in some

parts external and exposed, and from their connexion with many muscles the pain is aggravated continually by motion.

That the periosteum is occasionally the seat of rheumatism, we learn from the occurrence in such cases, of the symptoms which attend inflammation of the periosteum when it arises from other causes: particularly from the deep-seated character of the pain, appearing to affect the substance of the bones themselves. A thickening of the membrane, or a deposition within it of osseous matter, are not uncommon consequences of a continuance of the disorder. Rheumatism of the periosteum is marked by local and constitutional symptoms so different from those which belong to other cases, as to constitute a distinct modification of disease, the peculiarities of which I shall endeavour to describe when we are considering the forms and varieties of rheumatism.

There is another very peculiar modification of rheumatism, in which the nerves are principally attacked. And here a question arises, whether the nervous filaments themselves are the seat of disease, or the sheath which covers them ;—for the nerves have universally a fibrous tunic, which Bichat has described under the name of neurilema. The neurilema is one of the most vascular parts of the fibrous system ; less so indeed than the pia mater with which it appears to be continuous ; but the pia mater, with the prolongation of it which surrounds the spinal column, does not possess the consistency of a fibrous membrane ; it is purely cellular and vascular.

To me it has appeared that the pain in sciatica and other rheumatic cases has wanted much of the character of real nervous pains, which occur in sudden paroxysms and cease as suddenly : for such at least is

the case in certain painful affections of the nerves themselves. And surely, since rheumatism affects the fibrous membranes more than any other texture, and the nerves are enveloped in a fibrous tunic, situated as it is externally, analogy would lead us to expect that of the parts which belong to the apparatus of the nerves, the fibrous portion would be the one most subject to the attacks of rheumatism.

But of all the modifications of structure which have been enumerated, there are none which rheumatism appears to claim more absolutely as its own, than those which have received the name of fibro-serous, from the serous lining which is reflected over one of their sides. Of this kind is the pericardium, although it has often been classed with the serous membranes, without regard being paid to its external fibrous covering. It is now an established fact, on which we shall

hereafter dwell more at large, that no internal organs are more frequently affected by a translation or rather perhaps an extension of rheumatism, than the heart and pericardium. Pathologists have often attempted to account for this by alleging the sympathy which belongs to serous muscles *amongst themselves*, and that hence the pericardium is affected through sympathy with the synovial structures. But we shall hereafter find that this translation or extension of rheumatism to the heart and pericardium takes place not from the synovial muscles but from tendinous structures. It is much more probable, therefore, that the fibrous coat of the pericardium is here the sympathizing part. That which adds probability to such a supposition is the consideration of certain peculiarities in the structure of the heart itself;—of all the internal muscles the heart alone is possessed of tendinous and

ligamentous portions intermingled with its muscular fibres. This may not unreasonably be supposed to render the heart liable to sympathize with external tendinous parts affected by rheumatism. As we are chiefly concerned at present with the natural relations and disposition to disease which belong to the structure of the heart, it is not necessary here to notice the influence which an accelerated circulation and consequent disordered functions may be supposed to have upon this organ, in disposing it to suffer when the constitution is affected by disease.

The dura mater, which borrows a reflected serous surface from the arachnoid membrane, is thus in structure similar to the pericardium. And as rheumatism is in some cases undoubtedly transferred to the contents of the cranium, it is probable that this may sometimes arise from sympathy affecting the dura mater. On the other hand, as

it will hereafter appear that metastasis of rheumatism to the head is a more common occurrence in those cases in which the synovial membranes, and not a fibrous structure, are the primary seat of disease, it is probable that the arachnoid itself is in such cases the first to suffer; and the very rapid and copious effusion of serum which always ensues, tends likewise to prove that the serous membrane is the principal seat of disease.

The next structures which we may notice of similar composition are the fibrous capsules of some of the joints, upon the interior of which is spread the synovial membrane. It is asserted by Bichat, that only a small number of the joints are formed with fibrous capsules, the rest being provided merely with synovial membranes. The chief articulations which possess fibrous capsules are, 1st, that of the humerus with the scapula:

2nd, that of the femur with the os innominatum: 3rd, but less distinctly, that of the carpal and metacarpal bones of the thumb. To the circumstance of their possessing fibrous capsules, I attribute the obstinate and deep-seated pains which are often found to remain fixed for a length of time in the hip and shoulder*.

The lateral ligaments in other joints are similar to the fibrous capsules, for the synovial membrane adheres to them; but as they must afford a small space only for the occupation of rheumatism, the affection in them is seldom so severe as in the former instance.

The only remaining textures of the same class to which we need advert, are the

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* This affection of the fibrous capsules appears to resemble in its symptoms that of the periosteum, which may be accounted for by the circumstance that they are closely connected and interlaced with that membrane.

fibrous sheaths of the tendons, which are lined internally with synovial membranes, and are notoriously affected by rheumatism, more frequently perhaps than any other portion of the fibrous system.

The sclerotic coat of the eye, which was included in the enumeration of fibrous textures, is also liable to be attacked by rheumatism; not strictly as a primary occurrence, but through sympathy as it would appear, with parts already affected. It is remarkable that a metastasis of this kind to the sclerotic coat may take place not only from the other fibrous structures, when they are the original seat of disease, but also from structures of a different class, that is, from the synovial membranes. But in these latter cases I believe that the mucous coat, the conjunctiva, which is more nearly allied in structure to the synovial membranes, may be observed to be previously or at least simultaneously

affected. In so minute and delicate an organ as the eye, containing in a small space and in close connexion so many different structures, it is not surprising that the sympathies which usually prevail should be here somewhat involved and complicated.

We may next proceed to that different class of structures, the synovial membranes, which are acknowledged to be very frequently the seat of rheumatism: but, as might be expected, its symptoms and effects, when so situated, differ in many respects from those which belong to the disease of fibrous membranes.

The synovial structures have been usually classed with the serous reflected membranes of the head, the thorax, and the abdomen; to which in many respects they bear a close resemblance: but as in other respects they differ from them, there are some persons

who, dwelling chiefly upon the points of difference, have thought them improperly comprehended under the same generic denomination. The common and the distinctive properties of the larger serous and of the synovial membranes have thus been summed up by Bichat. They are alike, 1st, in being all formed in the shape of a sack without any aperture; 2nd, in the simplicity of their natural composition, which is but slightly changed from that of cellular texture; and 3dly, in the reciprocal processes of exhalation and absorption which are carried on in all.

But they differ, 1st, in respect to the fluid which lubricates them; 2nd, because the dropsies which simultaneously affect the pleura, peritoneum, &c. do not extend to the synovial membranes; 3dly, because the dropsy which occurs occasionally, though rarely, in the synovial capsules of the joints

and sheaths of the tendons, does not affect the serous linings of the great cavities of the body.

The synovial membranes may be subdivided into,—1st, the subcutaneous bursæ, to which the epithet mucosæ has been most improperly added; 2ndly, the bursæ or synovial sheaths of the tendons; and 3rdly, the synovial capsules of the joints. These are all of them subject to the attacks of rheumatism; and when it occupies these structures it may be recognised by the situation, the degree, the character, and the form of the swelling. The swelling is much greater in degree, and occurs much earlier after the commencement of the attack, than that which is caused by an affection of fibrous structures. The character of the swelling is that of an elastic circumscribed fluctuating tumour; and its form is that of the distended synovial membrane, modified of course by the surrounding ligaments

and tendons, according as these confine or admit of its free distention and protrusion.

Another point of difference between rheumatism of the synovial and that of the fibrous membranes, which may be here briefly alluded to, is, that the fever and constitutional disturbance are much greater in proportion to the degree of local inflammation in the latter, than in the former case.

Again, it may be mentioned, that of internal organs, the heart and pericardium are chiefly prone to sympathize with an affection of fibrous structures; but the brain and its meninges, with that of the synovial membranes.

It is true that in some cases of rheumatic affection of the heart, the joints have appeared to be the primary seat of the disorder; yet I have found upon further examination that there has been no swelling, no effusion, within or around the joints, and

consequently no affection of the synovial membranes, and that the disease has in fact been confined to the tendons and fibrous structures.

With respect to another kind of structure which enters into the composition of a joint, namely, the cartilages, there is no proof that they are ever primarily affected by rheumatism; the contrary might rather be expected, because they are less exposed than other parts of the joints. But that they are secondarily affected through sympathy with the contiguous structures, is probable, on account of the morbid alterations which are found to take place in them after a long continuance of arthritic complaints. It is also not improbable that the more deep-seated pains of rheumatism may sometimes exist in them, from the close resemblance which they bear to an affection which is certainly so situated;

for pathologists have observed, that the pain which attends incipient ulceration of the cartilages, is on the other hand exactly similar to that of rheumatism.

Upon a review of all those parts which are ordinarily affected by rheumatism, we find that, with few exceptions, they may be referred to two kinds of textures: they belong either to the great class of fibrous structures, or to that of the synovial membranes. Corresponding with this division it will be found that there is a distinction in the symptoms and character of the disease, and that a broad and definite line may be drawn between the affections of the fibrous and those of the synovial membranes. Rheumatism of the fibrous membranes may further be subdivided into certain forms distinguished likewise by the texture in which the disease is situated. In the first,

it attacks the tendons, fasciæ, ligaments; and it is in these, if in any cases, that it also attacks the muscular fibres. In the 2nd, it is confined to the periosteum; and in the 3rd, it affects the nerves or their fibrous sheaths.

It will be the object of the succeeding Lecture to endeavour to describe the general and diagnostic symptoms of these forms or modifications of rheumatism, and to trace and explain their separate appearances and also their occasional combinations.

If to any one, divisions of this kind should appear to be a needless refinement, it should be recollected, that at least they are not likely to be practically injurious; and that a distinction without a difference is less to be dreaded than an attempt to associate in forced alliance, phænomena which do not naturally agree. Hasty combinations and the desire to generalize, have

surely been productive of more evil in the study of Medicine, than the humbler attempt to divide and analyse; and hence nosological systems, constructed in a synthetical form, have comprehended and blended together very opposite diseases under the same genus: and as in politics the multitude may be led by a watchword, or deceived by a name; nosologists have sometimes influenced our practice, and caused us to apply a similar treatment to diseases which ought not to have received the same denomination.

But accurately to distinguish the forms and varieties of disease, even to their minutest shades of difference, is not merely a harmless task, but one in the highest degree useful. If it be sometimes of advantage in medicine to observe resemblances or to seize an analogy, it is much more frequently so to perceive distinctions. We

may here apply the trite observation, that many things appear at first sight similar, which a more intimate acquaintance discovers to be widely different; as an experienced shepherd can recognise the peculiarities of every individual in a numerous flock. It is needless to add, how much room there still is for improvement in the discrimination to be made between cases, and the choice to be exercised amongst remedies, which remain as yet apparently similar.

To conclude in the words of a sensible and elegant writer,—"Neque semper *similitudo* aliquid confert; et si quando confert, tamen id ipsum rationabile est inter multa *similia* genera et morborum et remediorum, cogitare, quo potissimum medicamento sit utendum."

LECTURE II.

ON THE PARTICULAR FORMS AND MODIFICATIONS OF RHEUMATISM.

In the preceding Lecture it was laid down as an axiom, that rheumatism, like other diseases, might be expected to be modified by the texture of the part affected. An attempt was then made to enumerate and describe the structures in which rheumatism is found to prevail; and from a consideration of their properties and relations, it was assumed that rheumatism might be divided into two distinct species: first, that of the fibrous; and secondly, that of the synovial membranes: the former species was also subdivided into, 1st, rheumatism of the tendons and fasciæ; 2ndly,

rheumatism of the periosteum; and 3rdly, rheumatism of the nerves.

It will be the object of the present Lecture to illustrate and confirm these distinctions, by a description of the properties and differences, the causes, symptoms, and effects of each of these species of disease.

But before we enter upon this part of our subject, it will be right to advert briefly to the opinions which have been entertained respecting the nature and essence of rheumatism in general.

In the analytical examination of any disease, almost the first question which occurs to the mind, relates to the *Exciting cause;* and the answer to it is usually the most obvious of all the circumstances connected with the production and progress of disease. This is more especially the case with rheumatism; the connexion of which with an external exciting cause is so close, that

upon this subject there has never existed the slightest difference of opinion. With more than common uniformity rheumatism has always been attributed to, and does in fact proceed from, exposure to cold: the efficacy of cold is greatest when it is combined with moisture; and as these agents must exert an especial influence over the body when the pores of the skin are relaxed without increase of arterial action, it is thus that a damp bed, for example, has always been the prolific source of rheumatic affections.

There being in fact then only one exciting cause of rheumatism,—but this being not invariably, that is not in all subjects, nor at all times, followed by the assigned effect,—our attention is called to the predisposing causes which exert a previous influence: with the consideration of these are involved the more intricate questions

of the proximate cause and intimate nature of the disease itself.

From the strong arterial action evinced by a full and bounding pulse, and from the other constitutional symptoms which attend an attack of acute rheumatism, it is generally admitted that the disorder is of an inflammatory nature; nor are the local signs of inflammation less evident, from the pain and sometimes from the swelling and redness perceived in the part affected. But it is to be observed that the inflammation is not of a simple kind; for it wants the common tendencies to adhesion, suppuration, or ulceration,—it is what Mr. Hunter has called "a specific inflammation." In what the difference consists we are not able fully to comprehend: but with respect to a similar specific inflammation, namely, that of Gout, the author of the "Treatise on the Blood and Inflammation" has thrown out

the idea that the pain arises "probably from the *action* of the vessels, not from their *distention* as in the suppurative inflammation." It is incorrect therefore to define rheumatism simply, as some have done, inflammation of the muscular fibres, or of the tendinous structures, or of any other part; for in the words of Hunter,

"All inflammations attended with disease have some specific quality, which simple inflammation has not; and in such cases it is the *specific quality* which is the disease, and not the inflammation."

I am aware that a different view of this subject has been taken by one whose authority I greatly respect, who has expressed an opinion that "neither Gout nor Rheumatism are at all connected with the doctrine of Inflammation;" but has placed their seat in the "exquisitely fine and slender radicles of the lymphatic vessels."

He supposes "that the common causes producing rheumatism,—such as the sudden application of severe cold to the body when greatly heated, and more especially of cold and moisture at the same time,—affect all the different series of the lymphatic system, by occasioning a preternatural constriction of the vessels, and consequently diminishing their diameters;" and that, when from preternatural distention the lymphatic vessels have been not only weakened for the present, but deprived of the power of discharging their duty afterwards, or when the actual rupture of a lymphatic has taken place, that there remains a liability to similar attacks in future.

For further information on this subject, I must refer to the original letter addressed by the late president of the College of Physicians to Sir George Baker, and published in the year 1796.

Although I admire the ingenuity with which the lymphatic theory has been supported, yet I confess myself inclined to adhere to the phraseology of Hunter.

The expression, however, that the disease is a specific quality, adds nothing, it may be said, to our knowledge of its nature: but it tends to impress upon the mind its constitutional origin, which some have improperly disregarded, and have gone too far in attributing to it a local character. If such views were just, why should some constitutions be so much more liable to the disease than others after a similar exposure to the exciting cause? why should the same person exhibit a greater proneness to it at one time than at another? why should a constitution which has once been occupied by it, continue long as it were subject to it, and suffer many a relapse, not only in the accustomed part, which might be attributed

to local weakness, but in new and various situations? It has always been readily admitted that Gout is a constitutional disorder; not only because the predisposition to it is often manifestly hereditary, but because its exciting causes are not, as in rheumatism, external, but generally of an internal and constitutional origin. Nevertheless the external exciting cause of rheumatism must meet with a constitutional predisposition in order to become effectual. Such at least must be the case whenever the disorder exists in its full extent, although there may indeed be confined and partial cases of this disease, and even of gout itself, which approach more or less to the character of a local complaint.

The nature of the predisposing causes which tend to create and strengthen that peculiarity of constitution which we have supposed, has not been exactly ascertained.

They would appear to be almost contrary in their nature to those which predispose to gout: for amongst the latter are arranged all circumstances which encourage corpulence and plethora; but the former would appear to be chiefly such as induce debility. Of this kind was the occurrence which Dr. Heberden has noticed as having acted as a predisposing case. His words are as follows: "Memini gravissimum rheumatismum in quendam incubuisse paulo post ingentem sanguinis ex naribus profusionem, quæ hominem pene exhauserat, et vitam in summum discrimen adduxerat. Idem propemodum alteri quoque contigisse novi*."

There are also many local accidents, as strains and contusions, which may become predisposing causes of attacks of rheumatism. Any circumstance in short may have

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* Gul. Heberden Comment. p. 345.

this effect which either reduces the system generally or is productive of local weakness.

Although acute rheumatism has thus evidently the character of an inflammatory disorder, yet there has always been some difficulty with respect to the nosological arrangement of the chronic forms of the disease: in these we are so far from having an increase of arterial action, that they are attended with coldness, relaxation, and weakness; or with rigidity and torpor approaching to those of paralysis. But similar difficulties attach to other diseases, and to inflammation in general; the chronic or passive kind, as it has been called, of inflammation, being in its character so unlike the acute, that the fact of their passing and repassing into each other by insensible gradations is almost the only reason for regarding them as differing in degree

rather than in kind, and for referring to a common cause effects which are almost contrary.

Remote as are the extremes of Acute and Chronic rheumatism, yet no definite line can be drawn between them. They are shaded into each other through many intermediate degrees and sub-acute forms.

It is observed that a lingering chronic complaint is sometimes the distressing sequel of an acute attack; but more frequently the chronic form is itself of primary origin.

The real distinctions between the two species are, first, the presence or absence of fever; and next, the degree in which it exists in each instance. In the most acute cases the febrile symptoms rise to the greatest height, but gradually decline, until in the purely chronic they wholly disappear.

The distinction so often repeated, that the pain of Acute rheumatism is aggravated, but that of Chronic rheumatism relieved by warmth, we know to be true only to a certain extent. In cases attended with much fever, external heat must of course be prejudicial, and must as certainly be grateful to the limb that is cold and almost lifeless from deficient circulation. But in other cases, what can be more variable and uncertain than the feelings in this respect of different patients?

Nearly the same may be said of perspiration artificially excited, which brings with it no relief in acute and violent inflammation, but in other cases is for the most part beneficial.

The diagnosis between acute and chronic rheumatism has been rested upon a different criterion in a paper upon this subject in the 4th volume of the "Transactions of the

College of Physicians." Dr. Haygarth has there contended that chronic rheumatism is never attended with any tumour of the affected parts. But I am of opinion that such a position will be found to confer no practical advantage, if not to be wholly untenable. This truly able and practical physician appears to have been led into it from the contemplation of a number of cases, of which the records preserved were somewhat imperfect, but in which it might have happened that the rheumatic affection stopped short of the degree necessary to produce swelling. As a general rule, however, the criterion can hardly be considered just: for not to mention that it is inapplicable to all cases whatsoever in which the synovial membranes or bursæ are affected, (for these, whether cases of chronic or acute rheumatism, are invariably attended with some degree of swelling, and

indeed to them Dr. Haygarth seems to have been scarcely inclined to concede the name of rheumatism),—yet every part or structure which can be the seat of rheumatism has been occasionally found to be thickened by that disease, not only by its acute and violent attacks, but also by a long continuance of the chronic form. Moreover, as Dr. Haygarth would allow that acute rheumatism is capable of exciting tumefaction, what name should we assign to those cases that are occasionally met with in which, though the febrile symptoms have entirely subsided, yet the tumour previously excited has not by any means disappeared?

Difficulties such as this will be avoided by adopting the distinction first stated between the terms Acute and Chronic as applied to rheumatism, according to which they are understood to express the presence

or absence of febrile symptoms. And this distinction is one that is truly applicable to practice.

Of the four kinds into which rheumatism was formerly divided, according to the texture in which it is situated; namely, the three kinds of Fibrous rheumatism and that of the Synovial structures, each may occur in an acute and also in a chronic form, but not with equal frequency in both, as we shall have occasion to observe hereafter.

The most acute form of the disease, which is attended with the greatest constitutional disturbance, and to which the name of Rheumatic Fever is commonly given, is that which attacks the tendons, fasciæ, ligaments, and possibly also the muscles. It usually commences in the immediate neigh-

bourhood of one of the larger joints: not in the joint, but near it. And here, with the view to diagnosis, it is particularly necessary to attend to the situation of the pain, and to the form, appearance and character, of the swelling.

Let us suppose, for instance, that the wrist is the part affected. All the tendons, more especially those of the extensor muscles, become exceedingly stiff and painful: the pain becomes general in the annular and lateral ligaments, and in the numerous ligamentous bands connecting together the carpal as well as the metacarpal bones: thus the whole of the back of the hand is rendered exquisitely tender to the touch. There is little or no redness, much less than we observe in gout. At first there is no swelling, but after the pain has been of some duration, there is a puffiness around the parts affected, which appears to be caused by a

fullness of the surrounding vessels; this extends along the course of the fibrous sheaths of the tendons, and for a short distance up the forearm. As yet there is no appearance of *pitting* upon pressure, but after a time there is sometimes a slight œdema which does in some degree exhibit that appearance. In all this there is not the slightest resemblance to the distended state of a synovial membrane; not the smallest fluctuation is perceptible; there is nothing like the tense and elastic tumour which has the form of the synovial membrane, except where it is confined by the surrounding ligaments. In other joints, as in the knee and ancles, where there are greater interstitial spaces for the free expansion of the synovial membrane, the difference which we are describing is still more remarkable.

From the foregoing symptoms we derive

the most convincing proof that this form of the disease has its seat in the tendinous or ligamentous structures.

Meanwhile the constitutional symptoms, the violent inflammatory fever which attends the onset of a severe attack of acute rheumatism, are well known. It is important to observe, that infinitely more constitutional disturbance, in proportion to the local inflammation, is excited by genuine fibrous rheumatism, than by the affection of the synovial membranes. It is chiefly in the former species that we meet with the kind of pulse which has been described as characteristic of the disorder. Unlike the wiry pulse of serous inflammation, or the fuller but more compressible pulse of the inflammation of mucous membranes; different even from the hard and rapid pulse of phlegmon and of simple inflammatory fever; the pulse in the rheumatic fever is peculiarly round and full and bounding.

The appearance also of the tongue in this form of the disease is highly characteristic: its whole surface is at first white and slightly rough; but afterwards becomes covered with a smooth, thick, uniform fur, of a shade intermediate between brown and yellow: it does not become blackened, as in the course of continued fever.

From the commencement of acute rheumatism the urine is high-coloured, and soon begins to deposit a copious sediment; which, as Dr. Haygarth has correctly observed, is not so red as that which appears in gout, but much more like the lateritious sediment which is common in cases of ague.

It is only in this form of rheumatism that the profuse spontaneous perspirations break out, which exhaust the patient's strength without alleviating his sufferings. The acid nature of these perspirations is very remarkable: they exhale a peculiar odour, which will often indicate the nature

of the complaint at a considerable distance. This very distinctive symptom is one proof of the existence of a specific constitutional affection. Since the patient may thus be bathed in perspiration without relief, it is clear that until the inflammatory symptoms have abated, no good, but rather evil, must result from the prosecution of a sudorific regimen. That practice has accordingly been discontinued, and miliary eruptions which formerly were often found to accompany acute fibrous rheumatism, are now of less frequent occurrence. It is a further improvement of modern practice in this disorder, that the patient's feelings are allowed to be consulted with regard to the temperature of his room and of his bed.

It has been usually stated that chronic rheumatism is a frequent sequel of the acute form of the disease. There is reason to believe that this unmanageable termina-

tion of the disorder is not so common as it might have been formerly. After no complaint, it is true, is the patient more liable to a relapse than after acute rheumatism: yet these relapses are still accompanied with a degree of fever; and when the tendency to them has been subdued, the patient's recovery is generally complete. The chronic complaint is more frequently of primary origin, and it occurs in old persons, or in those whose constitutions are naturally weak, or reduced by accidental causes.

The change in the usual system of practice, which has before been alluded to, may perhaps be one cause of the present comparative infrequency of chronic rheumatism as a sequel of rheumatic fever; for no persons are more liable to fall into the chronic complaint, than those who have been greatly weakened by a long continu-

ance of forced and artificial perspirations. When the feeble and emaciated patient who has been thus treated rises at length from his bed, he will be free indeed from inflammatory fever, but will be the victim of chronic pains which are aggravated or renewed by the slightest variations of temperature. Excessive bleeding, which has been another error in the treatment of acute rheumatism, may likewise protract the disorder, as has been observed by Dr. Willan amongst many others; but it is perhaps still more likely to give rise to those metastases of inflammation to internal organs which will be the subject of our consideration hereafter.

There is no disorder for which more opposite plans have been recommended and even sanctioned by high authority, than for acute rheumatism. Whilst some have trusted to the lancet alone for the

cure of the disorder, others have given bark from its very commencement, in its most violent and inflammatory stage. The former plan was pursued by Sydenham; the latter has the sanction of Morton, Hulse, Fothergill, and Haygarth. But Sydenham lived to correct his earlier practice; and since the latter plan has often failed, few will now venture to make trial of bark before the abatement of the febrile symptoms. Truth seems at length allowed to settle midway between the extremes. In full and strong habits when the onset of the disease is violent, the propriety of bleeding is generally admitted; but moderation and caution as to its extent and repetition are properly enjoined; for it would seem to be a peculiarity of rheumatic fever, that it will not bear bleeding so well as any other of equal apparent excitement. Until however the strong arte-

rial action has been reduced, and the burning heat of the skin allayed, the exhibition of sudorifics would at least be useless, and that of bark positively injurious. The important objects appear to be to diminish fever without too much reducing the patient's strength, and not too long to delay the use of bark. When the tongue becomes moist though not clean; when the pains are less severe, the pulse softer, and the skin relaxed; the aid of bark will contribute powerfully to subdue the remains of the disorder and to render the recovery perfect.

We may now advert to those modifications of rheumatism, in which the affection is chiefly confined to other parts of the fibrous system: these may be said to occur only in a chronic form, or at most are accompanied with only a slight degree of fever.

The first of these is characterized by a dull, constant, deep-seated pain; unattended with redness or evident swelling, but greatly increased by pressure against the bone of the affected limb: it occurs most commonly in the leg or forearm. The constitution in these cases is always much impaired: there will often be a small but rapid pulse and a furred tongue: after a time the muscles waste, emaciation ensues, and the countenance bears marks of suffering and of great constitutional distress.

The situation of the pain and the manner in which it is increased by pressure, show clearly that the periosteum is the seat of this affection. A slight degree of thickening of that membrane may sometimes be felt; and the same effect has on some occasions been ascertained by dissection.

In close alliance with this form of rheumatism are the deep-seated pains which

sometimes continue fixed in the shoulder and sometimes affect the hip. They are aggravated by any motion in the joint in any direction; which renders it probable that the fibrous capsules with which these joints are provided, are here the seat of pain; and these capsules, as has been before mentioned, are closely interlaced with the periosteum.

It is often extremely difficult to distinguish rheumatism of the periosteum from syphilitic and mercurial pains. The previous history of the case furnishes the chief grounds of distinction; but certain other marks may serve to assist the diagnosis. Rheumatic pains have generally a local situation more decidedly than the other kind, being confined to a single limb; or if they exist in several, it will be usually in parts of them only; whereas the pains which arise from a specific poison, are from the

first more generally dispersed, seldom confined to a single limb, and scarcely ever to a particular part; or at least not until a node has arisen or is beginning to be formed. Again, the nocturnal exacerbations of pain which characterize the secondary symptoms of syphilis are much more marked than in rheumatism; and the nature of the former will often be disclosed by their being accompanied at the same time by less equivocal symptoms of syphilis occurring in the soft parts, or in those which Mr. Hunter has called the First Order of parts affected.

From the state of constitution which prevails in the species of rheumatism which has just been described, it may well be expected to be of an obstinate and intractable nature. It is very little under the power of local remedies, although when the inflammation is more than usually acute,

some good may be effected by the local abstraction of blood. Of the numerous narcotics which have been tried and recommended, not one has been found capable of producing uniform and permanent relief. Sometimes the disorder has been cured by slightly affecting the system with mercury; but more may be hoped from restoring the powers of the constitution, when that can be effected by the use of sarsaparilla, by tonic remedies, and by attention to regimen.

Another form of rheumatism is characterized by pain of a very different description: it is a sharp and darting pain, which follows the course of particular nerves. The rheumatic character of this affection has never been doubted; since it arises in similar constitutions and from the same exciting causes as the other forms of rheumatism, and often occurs simultaneously

with chronic cases of rheumatism affecting the fibrous system.

The most familiar instance occurs in the branches of the sciatic nerve. The pain in sciatica is particularly excited or aggravated by motion: in this respect it scarcely differs from neuralgic affections, but its paroxysms are not so sudden nor so transient as those of true neuralgia. The symptoms, as Mr. Brodie has observed, sometimes strongly resemble those of incipient ulceration of the cartilage of the hip: several of such cases he found to be relieved principally by the application of blisters over the trunk of the nerve. A method which seems to be often practised on the continent, is to apply blisters to the outer and lower part of the knee.

The plan of treatment for sciatica which Dr. Fothergill so strongly recommended in his paper in the "Medical Observations and Inquiries," is very often resorted to, but

certainly does not always succeed. His plan was to administer small doses of calomel every night, sometimes increased until the mouth became slightly tender, with the addition of an anodyne and antimonial draught.

The sub-carbonate of iron has not appeared to me to be of any service in the treatment of sciatica; an observation which, if well-founded, tends to confirm the distinction between neuralgia and rheumatic affections of the nerves.

It is not to be denied that the term Sciatica has been indiscriminately applied to various forms of disease,—not unfrequently to a synovial affection, or that of the bursæ in the neighbourhood of the hip and spine.

Portal states that in a man who had long suffered from sciatica, he found the tendon of the obturator internus covered with synovial concretions. (Anat. Med. ii. 472.)

Sciatica and lumbago occur not unfrequently in conjunction, although the latter is properly an affection of the ligaments and fasciæ of the spine. Here we have an instance of that which we shall presently notice,—the occasional coincidence of different modifications of rheumatism. The treatment of such cases is not found to vary from that of other cases of sciatica: in all of them blisters are generally the most efficacious remedy. In some very obstinate cases of this nature I have found the extract of stramonium productive of signal benefit. When other narcotics have failed, it has immediately relieved the pain; and sometimes the relief has been even permanent.

The name of Hemicrania is sometimes given to a rheumatic affection of the pericranium and tendinous expansions of the head. When chiefly confined to one side, as it not unfrequently is, the pericranium and the tendon of the occipito-frontalis are some-

times found thickened in consequence of it. But hemicrania is a name more appropriate to a rheumatic affection of the cutaneous nerves which is still more strictly confined to one side of the head. The periodical character of this disorder is sometimes very remarkable, its exacerbations and remissions continuing to recur with great regularity of interval. There is no remedy which possesses more power over these cases than cinchona;—cinchona, which appears to be possessed of specific virtues in almost all disorders, whenever they assume an intermittent form. The benefit which is sometimes derived in hemicrania from valerian and other antispasmodics, whose agency is principally on the nervous system, is an additional proof that the nerves are chiefly affected in this form of disorder.

The tooth-ach has been classed by nosologists as a species of rheumatism,—impro-

perly so, it must be confessed, in many instances, in which it is the immediate effect of caries of the tooth : but in other cases the former view of its pathology may be correct ; for there is no reason to suppose that the nerves of the teeth are exempt from the influence of rheumatism, and it is certain that a fit of the tooth-ach will often precede or usher in a severe attack of rheumatism. The pain would sometimes appear to arise from a rheumatic affection of the periosteum covering the roots of the teeth.

We have thus taken a view of the most usual forms of rheumatism as we meet with it attacking the fibrous structures. We may now turn to the corresponding affection of the synovial membranes, which has been very often confounded with the former species, although the points of difference between them are numerous and

striking. How in fact could it be expected that the diseases should be exactly similar of organs which differ widely in their structure and functions? the synovial membranes being much more vascular than the fibrous, and being engaged, which the others are not, in the process of secretion.

Rheumatism may attack the synovial membrane of any of the joints; but it occurs more frequently in the knee than in other joints, which like the hip and shoulder are better defended from the cold by the surrounding muscles. The pain with which it commences cannot last long before some degree of swelling is perceptible, together in most instances with a slight redness of the skin. The swelling and redness are very similar to those which accompany gout, but are not in general so sudden or so severe: but in fact the diagnosis between this species of rheumatism and gout is de-

rived principally from the constitutional symptoms.

It is particularly necessary to attend to the situation, character, and form of the swelling, This is at first produced solely by an increase of the natural secretion of the synovial membrane: the fluid which is thus effused is consequently contained within that membrane; and in the superficial joints, when both hands are applied, fluctuation may be distinctly felt. Thus when the knee is the seat of disease, the fluid upon which the patella appears to float, will be found to fluctuate from one side of the ligament of the patella to the other; and a similar undulation may be perceived upon the anterior and lower part of the thigh. The form of the swelling is not that of the articulating extremities of the bones, but arises from the protrusion of the distended synovial membrane through

the spaces which intervene between the tendons and ligaments by which it is in other parts bound down and restrained. In the knee, therefore, the principal protrusion takes place upon each side of the ligament of the patella, and under the extensor muscles of the thigh. In the ancles it takes place upon either side between the lateral ligaments and the anterior tendons.

After a time, although the joint may still remain swelled, the fluctuation of a confined fluid becomes less perceptible. This arises from a thickening of the synovial membrane, or from a deposition of coagulable lymph upon its interior surface. The form of the swelling is also in some cases altered; and when the fluid which had been effused is absorbed, and there remains only a thickening of the membrane, its form is the same with that of the joint,—that is, of the articulating ends of the bones. In other

cases there is an effusion of serum or of coagulable lymph into the cellular texture which surrounds the joint, by which the peculiar form of the synovial membrane is lost or obscured.

The appearance and progress of the swelling, when the bursæ or the synovial sheaths of the tendons are the seat of the disease, are precisely similar to those which are observed when the synovial membranes of the joints are affected.

The effects of inflammation in general upon the synovial structures have been closely studied and admirably described by Mr. Brodie in his "Pathological Observations on Diseases of the Joints," where he has also given a most perfect delineation of the form and appearance of the swelling.

There does not appear to be any essential difference between the symptoms and effects of rheumatic inflammation of the

synovial membranes and those which are observed when the same structures are affected with inflammation arising from other causes. But the rheumatic cases do not usually last so long nor proceed so far as when the disorder is local and confined to a single joint.

The foregoing description will serve to illustrate the difference which exists between the swelling that attends this species of rheumatism,—whether situated in the synovial membranes of the joints or in the bursæ or sheaths of the tendons,—and that degree of swelling which attends inflammation of the fibrous structures, and which has been described as a slight puffiness or œdema surrounding the inflamed tendon or fascia. When fluid can be felt in the distended synovial membrane the diagnosis is perfectly obvious. But even in the advanced stages, when fluctuation is scarcely perceptible, yet still the two kinds of

swelling are generally sufficiently distinct. When the affection is situated in a deep-seated joint, it is sometimes difficult to determine whether it belongs to the fibrous or synovial structure; if to the latter, there will often be at the same time effusion into some of the smaller superficial joints; a circumstance which will serve to assist our diagnosis.

Another material point of difference is, that synovial rheumatism is attended with much less fever, in proportion to the degree of local inflammation, than that of fibrous structures. The commencement of the synovial disease is often severe and acute, and attended with some degree of inflammatory fever; but this usually subsides in a very few days, when the disorder assumes a more chronic form, and may run on for a considerable time with a clean tongue and a quiet pulse.

It usually attacks several joints at the

same time, or in quick succession, and extends to the neighbouring bursæ and sheaths of the tendons : and it often shifts from one part to another, and returns to that which was first affected in a very capricious manner.

The patient recovering from this disorder, no less than from fibrous rheumatism, is particularly prone to relapse. One attack seems strongly to predispose to another ; and it is long before the constitution once affected appears to shake off thoroughly the rheumatic diathesis.

With respect to the principles upon which this species of rheumatism should be treated, it is important to observe that topical remedies are much more admissible here, than when the fibrous membranes are affected. They appear to be even of greater efficacy than the constitutional treatment. Of all the medicines which

have been administered for the latter purpose, none have been found more frequently beneficial than colchicum in its various modes of preparation. Calomel and opium and sarsaparilla are in this form of disease of inferior value. When the inflammation is acute, local blood-letting must be practised. And if the tension of the parts be great, it may be relieved by poultices; otherwise, evaporating lotions are of greater service. Even the chronic form of the disorder may require the repetition of topical bleeding; and a better effect is generally produced by cupping than by leeches. There are no means of promoting the absorption of the effused fluid, and often of relieving chronic pain, equal to the application of blisters; of which a succession should be applied at a short distance from the joint affected, if it be superficial; but immediately over one that is

deep-seated. Stimulating liniments possess some power, though inferior to that of blisters, in removing a slight remaining swelling: but the stiffness which arises from a thickening of certain parts of the joint, is best relieved, when wholly free from inflammation, by exercise and by the various modes of friction.

In some cases of repeated and long continued attacks of the disorder, it has not hitherto been found possible to prevent a deposition of earthy matter within the synovial membranes; and the same may be deposited in the cellular membrane around them, and spread over the articular cartilages. By this process, as has been observed in many cases of gout, the cartilages may at length be absorbed, their place occupied by this earthy deposit, and a perfect anchylosis of the joints may be the consequence.

The synovial membranes are subject to

another affection, which can hardly be confounded with rheumatism, although the external appearances are somewhat similar. Sometimes, though rarely, they become distended with fluid, without the occurrence of any previous pain or inflammation. This may arise either from diminished absorption, or from increased secretion; and it is similar to other cases of encysted dropsy. Such a state of the synovial membrane of a joint has sometimes improperly passed under the name of White Swelling; a term which has been applied with little discrimination. Amongst the cases which have been described under this name by Dr. Akenside, in the first volume of the "College Transactions," and in which blisters were found to have been highly beneficial; some appear to have been simply cases of inflammation of the synovial membranes, whether from rheumatism or other causes.

The diagnosis between the symptoms of

ulceration of the cartilages of the knee, and those of inflammation of the synovial membrane, has been placed by Mr. Brodie in a striking point of view: "The pain in the former is slight in the beginning, and gradually becomes very intense, which is the very reverse of what happens in the latter*." The former also, is unattended by swelling until it has existed for a considerable time. But as rheumatism seldom produces an inflammation confined to a single joint, the symptoms of which might resemble those of ulceration of the cartilages, the foregoing distinction relates rather to surgical than to medical practice.

The distinctions which it has been intended to establish between fibrous and synovial rheumatism are briefly these. The former is attended with much less swelling

* Observations on Diseases of the Joints. p. 155.

than the latter: the kind of swelling in each case is very distinct in its character and in its form: in the one, there never is any fluctuation; in the other, there is no appearance of *pitting;* the one is diffused, the other has the form of the synovial membrane, restrained and modified by the surrounding ligaments. The fever also which accompanies the acute form of fibrous rheumatism, is much more intense than that which is usually met with in conjunction with the latter species.

I cannot conclude this part of my subject without acknowledgements to a physician under whom I had the happiness to study at St. George's Hospital, from whom a portion of the foregoing distinctions, and probably the soundest portion of them, has been derived, and which all the subsequent observations which I have been enabled to make have tended to illustrate and confirm.

To the line of distinction which has been drawn between the two species of rheumatism, though nowhere clearly laid down in books, popular language bears testimony; for to the synovial species the name of rheumatic gout has been commonly given. Against this term strong objections have been made, particularly by Mr. Hunter, who argues on the incompatibility of two diseases at once. Others indeed have contended, that although two diseases may be incompatible in one part at the same time, yet that they may co-exist in different parts of the body; and that the term Rheumatic Gout should therefore signify such co-existence of gout and rheumatism. But if the expression be understood, as it well may, to mean only that this synovial affection, though different both from fibrous rheumatism and from gout, is yet allied to each of them; that it is intermediate, as it

were, between *rheumatismus acutus* and *arthritis podagra*,—it will then signify no more than what is probably the fact, and will cease to be an objectionable appellation.

It is by no means intended to deny that the different kinds of rheumatism may sometimes be met with in combination. Inflammation of any kind in any texture, when long continued, is apt to induce by contiguous sympathy that of the different surrounding textures. In this manner, inflammation of tendons, fibrous capsules and ligaments, will sometimes bring on that of the synovial membranes and bursæ; and the converse will also occasionally happen. The combination of different varieties of fibrous rheumatism is still more frequent: that of lumbago with sciatica has been already mentioned; and inflammation of the periosteum will sometimes accompany either of the other kinds.

But if there be any one who has not hitherto attended to the distinction between the two principal species, he will be surprised to find that it is almost invariable, at the commencement at least, of the disorder.

But it may be said that pathological distinctions are of small utility, unless followed by improvements in practice. Such distinctions, however, have at least a tendency to give a surer aim and direction to the application of remedies. On what does the apparent uncertainty which attends the administration of medicines more depend, than on their indiscriminate use in cases which are not exactly similar? Hence the ever-varying and contradictory reports which are continually made concerning the properties of the same medicinal substance, which one extols as an all-powerful remedy, whilst in the hands of another it is found of far less efficacy. Some advan-

tage of this kind has already been obtained in the choice of remedies for the treatment of rheumatism. It has been ascertained that colchicum is almost specifically adapted for the cure of the synovial species; but that it more frequently disappoints our expectation in fibrous rheumatism, the acute form of which yields most readily to calomel and opium in considerable doses, with the interposition of occasional purgatives, and followed up by moderate sudorifics; and finally, by the administration of cinchona. Topical remedies, as has been mentioned, are chiefly proper for articular rheumatism; but blisters have also a good effect in lumbago, and sciatica, and deep-seated pains of the joints. Sarsaparilla and alteratives are required for chronic and cachectic cases, particularly for affections of the periosteum.

There is every reason to hope that if the

varieties of disease are attentively studied and examined, a closer adaptation of means to their cure will be effected. It has been said of the ingenuity of man;

ἐδιδάξατο καὶ
δυσαύλων πάγων ἄιθρια
καὶ δύσομβρα φεύγειν βέλη.
. . . . . .
νόσων δ' ἀμηχάνων φυγὰς
ξυμπέφρασται. (Soph. Antig.)

And it is not unreasonable to expect that the same ingenuity which has learned to avoid and guard against the inclemencies of season and of climate, will not fail to discover remedies for the injurious effects which result from exposure to them.

LECTURE III.

ON RHEUMATIC AFFECTIONS OF THE HEART AND OTHER INTERNAL ORGANS.

Our attention has hitherto been chiefly engaged in tracing the distinctions, derived both from their pathology and symptoms, between rheumatism diffused over the fibrous structures, and the more fixed and local affection of the synovial membranes.

But we have considered the disorder as affecting only the external coverings of the body and the organs subservient to voluntary motion. It were well if it confined its ravages to parts which are not essential to life; we should thus have to treat a painful but not a dangerous disorder. But unfortunately, as the citadel may be in

danger, if the outworks are neglected, so rheumatism, commencing in parts external and exposed, may carry its progress inwards, and turn its attacks suddenly upon the nobler organs.

We shall be engaged on a subject well worthy of further investigation, if we examine under what circumstances and in accordance with what sympathetic connexions the rheumatic affections of internal organs are chiefly liable to occur.

The existence of such affections being granted, are they ever of primary occurrence? If, in a constitution acknowledged to be predisposed to rheumatism, there should be evidence of pain and inflammation within the thorax or the cranium, are such affections to be considered as instances of rheumatism occurring internally?—Whenever such attacks are unaccompanied or not preceded by traces at

least of the disorder in some of its usual external situations, the question cannot easily be answered. Similar obscurity hangs over the subject of misplaced gout, the existence of which is by many persons considered as extremely problematical. Certain it is, that inflammation which has commenced in some of the internal organs is sometimes suddenly relieved by the establishment of rheumatism in the joints or limbs: but whether this depends on the general sympathies of the animal frame, and the common principles of counter irritation, by which one disorder supersedes another, and the disease of any one part relieves that of another; or whether it depends on the still closer sympathies which exist between textures of a similar kind, and on the operation of a more partial law of the animal œconomy, according to which a specific disorder travels from

one part only to another of analogous structure,—is a question which it is not easy satisfactorily to resolve. Nor is this a question of so much practical importance as may formerly have been supposed ; for it seems now to be generally admitted, that inflammation, from whatever cause, of a vital organ, is to be treated in almost all cases with the same prompt and vigorous measures, in proportion only to the severity of the case and constitution of the patient, but without reference to any supposed specific character of the disorder. There is one point only in which the specific nature of the case can justly influence our practice, to which we shall have occasion to allude hereafter, when speaking of the treatment of internal rheumatism. Although it is admitted that the treatment should in all cases be nearly the same, yet still so much has been said respecting the difference between

rheumatic and common inflammation, that it is worth while to consider whether any or what pathological differences exist between the common inflammatory attacks of internal organs, and those which take place when the constitution is evidently under the influence of some specific disorder, as gout or rheumatism. As far as regards the serous, mucous, cellular or parenchymatous structures, when they are the seat of either of the above-mentioned kinds of inflammatory attack, it must be confessed that there is no assignable difference: the symptoms, progress and effects of inflammation, are in each case exactly similar; in each we perceive the same tendency to effusion of serum or of coagulable lymph, or to the formation of pus. But when the diaphragm or the muscular or tendinous structure of the heart is the subject of a rheumatic affection, we are then

able to recognize the peculiar qualities of rheumatic inflammation; of which the most obvious is the absence of all tendency to suppuration. And this corresponds with the analogous affections of external parts, in which we chiefly observe that the inflammation of rheumatism is of a peculiar kind, when it is situated in the fibrous and muscular structures: but when it attacks the synovial membranes, its phenomena and effects differ only in degree from those which belong to inflammation of the same structures arising from other causes.

It is by no means one of the least remarkable circumstances in the history of medicine, that it should have been reserved for Pitcairn, in the latter end of the last century, first to observe the tendency which rheumatism has to attack the heart and the pericardium. This very common cause of enlargement of the heart has not, as far as

I am aware, been noticed as such by Corvisart or by any other systematic writer on the diseases of this organ. Corvisart has indeed thrown out a conjecture that rheumatic and gouty affections may be a frequent cause, among others, of the close and intimate adhesions of the pericardium to the heart, which he erroneously supposed to be formed without any uniting medium. But he has not assigned to rheumatism the place which it ought to occupy among the causes of enlargement of the heart. But after the observation had been made by Pitcairn and promulgated by Baillie, so many distinct cases of this affection have been collected, as to excite an inquiry whether the disease is not entitled to be considered as in some measure a new one, or at least whether it is not of more frequent occurrence than in former times. But whatever may be supposed to be the agency of endemic or epi-

demic causes, in regulating the prevalence of certain disorders at particular periods or places or seasons; whatever influence may be attributed to moral causes or habits of life, in altering the constitution and modifying diseases,—of which there was an instance in the well known and often quoted fact adduced by Corvisart, that diseases of the heart were rendered more common in France by the tumults and distresses of the revolution: yet, admitting the influence of such circumstances, few will seriously believe that the general nature and course of rheumatism,—a disorder which always existed,—could be so changed, as to give it a new and yet frequent tendency to attack a particular organ. It is surely much more reasonable to suppose that the fact in question, though previously true, was nevertheless overlooked; since it has happened with respect to some of the com-

monest phænomena of nature, the separate existence of which was perfectly well known,—that the connexion subsisting between them has escaped observation, until attention has particularly been invited to the circumstance of their being mutually dependent on each other or upon some common cause.

It is remarkable that out of the 170 cases of acute rheumatism recorded by Dr. Haygarth, in not one instance was any affection of the heart noticed, except that in five of them syncope is reported to have occurred; whereas in no less than sixteen cases phrenitis is said to have been a concomitant disease. It is by no means probable, however, that in so many of them there was actual inflammation of the brain or its membranes, as Dr. Haygarth himself admits; and he justly observes, that "in inflammatory fevers it is sometimes very dif-

ficult to distinguish when delirium should be denominated a symptom or a separate disease*."

In a case which a few years since fell under my own observation, a young man had been suffering for some days under a severe attack of acute rheumatism, for which he had been very largely and repeatedly bled. When I first saw him he was in a state of furious delirium. Of all the remedies which were adopted, cold applications to the head appeared to give the greatest relief, and rendered him instantly more quiet and collected; and he relapsed again as often as these were withdrawn. He complained only of pain in his head, and every circumstance conspired to direct the chief attention to that organ. In the course of a few hours he died: and upon ex-

* Clin. Hist. p. 31.

amination there were no traces of inflammation nor even of congestion within the cranium; no effusion of serum, nor any morbid appearance there of any kind: but the pericardium was found to be intensely inflamed; its whole internal surface was covered with coagulated lymph to an extraordinary thickness, recently deposited, and disposed in a reticulated form. The case to which I have alluded may serve to illustrate the remark that delirium is not always indicative of absolute cerebral disease; and that in some instances of rheumatism of the heart or pericardium, the cardiac symptoms are not always the most prominent and obvious*.

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* My friend Dr. Watson has reported to me a case of acute rheumatism which occurred in St. Bartholomew's Hospital, in which the patient was suddenly attacked with furious maniacal symptoms, but no circumstance whatsoever led to any suspicion of cardiac disease. Upon

Corvisart has observed, that towards the close of acute pericarditis there is often a total or partial cessation of the local pain.

Laennec* says also of acute pericarditis, that "there are few diseases attended by more variable symptoms, or of more difficult diagnosis, than this. Sometimes it appears with all the symptoms of a very violent disease of the chest; at other times it proves fatal without leading us in the least to suspect its existence."—"Corvisart," he observes, "attributes the difficulty to the circumstance of pericarditis being almost always complicated with pleurisy, peripneumony, or some other disease of the

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dissection the brain was found in a perfectly healthy state; but within the pericardium there was a copious deposition of coagulated lymph, connecting together the two surfaces of the membrane, and when they were separated having a rough and ragged appearance.

* Treatise on Diseases of the Chest, translated by Dr. Forbes, p. 381, *et seq.*

chest, which masks its peculiar symptoms. These complications, which are very common, must unquestionably have this effect where they exist." But he adds, that the most completely latent affections of this kind which he has met with, "were in subjects whose thoracic viscera were, in every other respect, quite sound, and who had died of disease of the abdomen."

The same author observes, that the signs of chronic pericarditis are of course still more uncertain than those of the acute disease. "Very frequently," he says, he has "found the pericardium full of pus, and in a true state of chronic inflammation, without having been at all led to suspect such an affection."

Admissions of this kind, made by such able pathologists, render it highly probable that pericarditis may have often supervened to acute rheumatism without having been

observed, and may have even proved fatal whilst the patient was supposed to die of the primary disease.

In one point of view it is an encouraging circumstance that the connexion between rheumatism and affections of the heart has been brought to light only by recent observation; for it excites a reflection, which may serve to awaken the vigilance and animate the zeal of the medical inquirer; a reflection, that many paths are unexplored, many facts undiscovered in the almost inexhaustible mine of pathology, and that many important inferences may be drawn from materials of which we are even now in possession.

From an examination of the cases which have been recorded of rheumatism of the heart, it appears that a large proportion of the subjects of this affection were young persons under thirty years of age: in most

of them there were marks of constitutional or acquired debility: many were of a slender and delicate form, and pale and languid in their appearance. In these circumstances we have a strong confirmation of the remark, that excessive bleeding in the treatment of acute rheumatism, or any measures calculated to induce debility, increase the danger of metastasis to the heart and pericardium; and that the exhibition of bark as soon as it can be borne with safety is of considerable efficacy in counteracting this tendency. To the same general principle may be referred the observation, long since made, and well established, that when the pain and inflammation of external or primary rheumatism shift their situation capriciously from one limb to another, they are then most liable to be transferred to some internal organ; for the debilitating treatment before alluded to is undoubtedly

calculated to give to rheumatism this migratory character.

The species of rheumatism which is liable to be translated to the heart and pericardium is unquestionably the diffused rheumatism of fibrous structures. I find a passage in the common-place book of the late Dr. Beddoes, in which, though without intending to assign the structural seat of this species of rheumatism, he has nevertheless accurately described its characteristic symptoms: The passage alluded to is as follows.

"There is a degree of rheumatism, semi-acute, *no redness of joints*, but *some fever*, and *much pain* (increased by warmth), in which there is prodigious dyspnœa, though the intercostal muscles be not painful. Here seems to be some weakness of the muscles of respiration, which, I think, the heart partakes of: and under these circum-

stances I suspect the heart readily enlarges; having known instances of such rheumatics labouring under enlargement of the heart."

If the foregoing observations have been made with any accuracy, the features which Dr. Beddoes has delineated as characteristic of that species of rheumatism which is liable to be transferred to the heart,—namely, the absence of all *redness of the joints*, but the presence of *fever* and of much pain,—mark it as the disease of the fibrous structure, and distinguish it absolutely from the affection of the synovial membranes.

It sometimes however happens that cardiac symptoms supervene during the most acute stage of rheumatic fever. The patient is suddenly attacked with violent pain on the left side of the chest, with a sense of constriction and suffocation in the præ-

cordia, and indescribable anxiety. The heart's action is hurried, and generally violent; the pulse frequent, and sometimes irregular: imperfect attacks of syncope follow, and the patient is utterly unable to bear the recumbent posture. The pain and inflammation of the limbs are occasionally, but not by any means constantly, relieved by the occurrence of internal inflammation. An attack of this nature, when in the severest degree, may be speedily followed by a fatal termination; as in the instance which has lately been related: but sometimes its violence may be mitigated, and followed by a recovery more or less perfect; but the patient will be ever after subject to palpitations and attacks of pain in his chest, alternating with, or more frequently accompanying, a return of rheumatism in the joints or limbs.

Such is the most acute form of the dis-

order ; but it happens in a greater number of cases that the palpitations occur more gradually. After a continuance of fibrous rheumatism, generally in the sub-acute form described by Dr. Beddoes, the extent and sometimes the impulse of the heart's pulsations become increased : attacks of more or less pain in the chest are from time to time experienced, during which there is the same variation as in the former case, as to the subsidence or continuance of the articular pains. In these cases the progress of organic disease is sometimes fortunately arrested ; and a moderate share of health may be regained and enjoyed for a considerable period. But in a greater number of instances the attacks become more frequent and the symptoms more severe. After a time there will be œdema of the legs and ancles, followed by general anasarca, and the pale and bloated appearance

which Horace has so well described by the expression "aquosus albo corpore languor:" although this description applies perhaps more closely to dropsy from other causes; since in that which is produced by affections of the heart the countenance is often suffused or of a violet hue.

There is scarcely any state of suffering which it is more painful, more appalling to witness, than the latter stages of organic disease of the heart. Unable to bear any but an upright posture, or one slightly reclining forward, his consciousness seldom impaired, the patient sits with the cup of death constantly before him, which he longs at once to drain. At length, upon some slight exertion or motion of the body, the labouring heart appears to stop, exhausted, and the patient's sufferings are suddenly at an end.

After a fatal case of this nature, we some-

times discover upon examination the marks of acute or chronic pericarditis. The chief of these are, first, a redness more or less deep of the serous membrane lining the fibrous sac of the pericardium. It is commonly slight in the acute disease, but much deeper in chronic cases. Secondly, a sero-purulent effusion, of a pale yellow or brownish colour, which is often considerable at the commencement of the attack, but soon afterwards appears to subside. Thirdly, a thick and concrete albumen, deposited on the whole internal surface of the pericardium. In very violent cases this is found without any effusion of serum, and by it the loose and reflected folds of the pericardium are partially or universally glued together. After a time the albuminous exudation is converted into a false membrane, by laminæ of which, of different lengths, the pericardium is united to the

heart, sometimes so closely as to appear to be intimately adherent to it. In many cases the muscular substance of the heart is found to be pale and soft. This loss of colour was formerly supposed to be a mark of inflammation of the heart itself, but is now more correctly judged to be an effect of pericarditis, particularly of the chronic kind.

Enlargement of the heart is, however, the most common appearance which is found after the transference of rheumatism to internal organs, especially after an affection thus produced has been of some continuance. It would be attended with no small practical advantage, if we could determine the exact nature of the enlargement which is the effect of this species of disease. But every kind of enlargement has been observed in different instances. It is sometimes partial, or confined to one or more of the cavities of the heart; at other times ex-

tending to them all : sometimes attended with thickening of their parietes, in which case the muscular substance is generally harder than in its natural state, and is of a redder colour : sometimes, with decreased thickness of the parietes, when there is generally a remarkable degree of softening of the muscular substance, and a colour either more violet or paler than is usual. These conditions constitute either the "passive aneurism" of Corvisart, and "simple dilatation" of Laennec ; or that which is termed "active aneurism" by the former, and "dilatation combined with hypertrophy" by the latter.

The uncertainty which still prevails as to the kind of enlargement which follows rheumatism of the heart in different instances, may be ascertained from an examination of the cases which have been recorded by different authors.

Sir David Dundas met with nine cases

in the course of thirty-six years, in which disease of the heart succeeded one or more attacks of rheumatic fever. The subjects of these attacks were all young persons, and seven of them died. In six of these that were examined after death, "the heart was uniformly found to be enlarged: in some, the enlargement was much more considerable than in others. In one case water was found in the pericardium, in all the others the pericardium adhered to the heart. The left ventricle in all the cases was most enlarged in size, but not in thickness; and in most of them the heart was found of an unusually pale colour, and very soft and tender in its texture*."

In the excellent paper published by Dr. Wells upon this disease, some account is preserved of the examination of numerous

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* Medico-Chirurgical Transactions, vol. i.

cases after death*. In most of them the heart was enlarged, but unfortunately it is not always stated whether with or without hypertrophy; except that in one in which "the heart was twice as large as natural, its muscular structure was increased in thickness." In another case of enlargement the structure was natural; and in another it is mentioned only that it was flaccid.

In a case of diseased heart succeeding to acute rheumatism, which is well related in the third volume of the Transactions of the King's-and-Queen's College in Ireland, "the heart appeared to be about three times its natural size, and all the great vessels were very much dilated, but not thinner than natural; the left ventricle much thicker in its parietes than natural."

Out of five cases which I have myself

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* Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. iii.

witnessed of enlargement of the heart after rheumatism, in three the parietes of the dilated cavities were attenuated; but in the other two the muscular substance was considerably increased in thickness.

On the whole, it would appear that the tendency of this disorder is to produce simple dilatation without thickening, since the larger number of cases are of that description: and the proportion which they bear to the others will appear the more remarkable, and the peculiar tendency of the disorder be evinced more plainly, if Laennec be justified in asserting, when speaking of diseases of the Heart in general, that "dilatation combined with hypertrophy of the ventricles is much more common than simple dilatation."

It is a singular circumstance with reference to this part of morbid anatomy, that Dr. Baillie's observations led him to a con-

trary conclusion to that of Laennec; for he states, that although "the muscular parietes of the heart are sometimes thickened along with the enlargement, more commonly they are as thin or even thinner than in the healthy structure*."

The conclusions to which we are led from a comparison of the symptoms with the appearances after death are, first, that when an attack of acute fibrous rheumatism is suddenly transferred to the thoracic viscera, the pericardium is immediately affected with inflammation. For when the patient dies under such circumstances, the morbid effects which are discovered are those of acute pericarditis.

But, secondly, in the more chronic cases, in which palpitations often last for several years, accompanying or alternating with

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* Morbid Anatomy.

the pains of the joints and limbs, the heart gradually becomes enlarged. Even in these cases the pericardium is so often found adhering to the heart, either intimately and universally, or partially and by the intervention of laminæ of different lengths, as to induce a belief that the pericardium might still have been the seat of the first attack. We have seen, moreover, that the greater number of instances of rheumatic enlargement of the heart are attended with a loss of muscular substance, together with some degree of discolouration and of softening; which are all circumstances indicating, as Laennec justly contends, the existence of acute or chronic pericarditis, but are no proofs of inflammation of the heart itself.

But, thirdly, we must conclude that rheumatism may sometimes, though more rarely, attack the heart itself; since in some cases of enlargement the pericardium is not at all

affected; and there is sometimes also an increase both of the redness and density of the muscular substance.

The kind of enlargement which is destined to take place, whether active or passive, may be determined perhaps in part by the state of the constitution.

"A sanguineous temperament," says Corvisart, "a robust constitution, vigour of life, and a violent disposition, are the predisposing causes of aneurism of the first species.

"A lymphatic temperament, a feeble constitution, a bad state of the humours, and a timid disposition, are the causes which predispose to the formation of aneurism of the second species*."

Another cause which cannot be without

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* Corvisart on Diseases of the Heart: translated by Hebb, p. 130.

influence in determining the kind of enlargement, may be the existence of certain concomitant affections of the lungs. For as Laennec has observed, " All diseases which give rise to severe and long-continued dyspnœa, produce, almost necessarily, hypertrophy of the heart, through the constant efforts the organ is called upon to perform, in order to propel the blood into the lungs against the resistance opposed to it by the cause of dyspnœa*."

In order to recognize the kind of enlargement which is in each case already formed or likely to be so, it is necessary not only to refer to the general symptoms, and to the state of vigour or of weakness displayed by the constitution, but we may avail ourselves of certain diagnostic marks, relating to the extent, the impulse, and the sound of the heart's pulsation, which Laen-

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* Treatise on the Diseases of the Chest, by Dr. Forbes, p. 260.

nec has accurately described, and which are capable of general application, without the aid of his instrument for mediate auscultation.

The diagnostic marks which he has laid down are; that "The *extent* of pulsation is in the direct ratio of the thinness and weakness of the heart,—inversely, as its thickness and strength." "The size of the organ must also be considered as affecting the extent of its pulsation." (p. 352). Secondly, "The degree of *impulse* is in general inversely as the extent of the pulsation of the heart, and directly as the thickness of the walls of the ventricles." (p. 354). And thirdly, "The *sound* produced by the action of the heart is great in proportion as the parietes of the ventricles are thin and their impulse feeble." (p. 356.)

With respect to the treatment of rheumatic affections of the heart and pericardium, none will deny that acute inflamma-

tion of these organs must, if possible, be subdued by immediate and active depletion, proportioned to the circumstances of the case, but without reference to the specific *i. e.* rheumatic nature of the constitutional disorder. The point before alluded to, in which the treatment of these cases may be allowed to vary from that of carditis when it arises from common causes, regards the propriety of exciting inflammation in the joints. Unfortunately, the internal and external affections do not always relieve each other. But in those cases in which a cessation of external inflammation has immediately preceded the internal attack, there can be no question but that the practice of applying sinapisms to the joints has been proved to be beneficial.

In cases of a more chronic kind, the symptoms which arise must necessarily be combated by leeches and vesicatories of

various kinds; but a seton appears to be the remedy most uniformly efficacious: I have tried the ointment of tartarized antimony, but it has not proved so effectual as a seton.

There are two ways in which the progress of rheumatic enlargement of the heart has been sometimes arrested. First, by the use of remedies more immediately adapted for the relief of rheumatism, as colchicum and calomel and opium. Secondly, by that of antispasmodics, sedatives, and narcotics; such as conium, digitalis, and lactucarium. It appears reasonable that the former plan should be best adapted for those cases which are apparently most connected with external pains; and the latter, for those in which the cardiac affection is left in some measure independent. Thus there are several cases on record in which the palpitations ceased as soon as the external

pains had been relieved by colchicum or opium; and others, in which they yielded to remedies solely adapted to relieve the affection of the heart;—of the latter kind was the plan which proved successful in the hands of Dr. Pemberton, which was as follows: "A seton in the region of the heart, and a pill composed of three grains of the succus spissatus cicutæ and half a grain of the powder of digitalis, three times a day; abstinence from all fermented liquors, and a moderate quantity of animal food*."

In one case of palpitations after rheumatism complicated with the symptoms of peripneumony, I have found the hydrocyanic acid of great service in relieving the cough, allaying the sickness which attended it, and diminishing the action of the heart.

It is highly important to ascertain from

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* Medico-Chirurgical Transactions, vol. i. p. 43.

the symptoms whether the enlargement be of the active or passive kind; since, as Corvisart has justly directed, "a debilitating plan forms the basis of the treatment of the first species:—to cure the second, we must give to the organ the strength which is naturally wanting, or which it has lost."

Laennec has also adduced strong grounds for believing that hypertrophy of the heart may be successfully combated by the method of cure proposed by Valsalva;—a method which has however this objection, that it is difficult to prevent the patient from being wearied "by the extreme severity of the regimen, and alarmed by the frequency of the bleedings." Laennec has mentioned three cases in which he has himself pursued this plan with success. Two of these were young women who presented symptoms of hypertrophy in a high degree. "The privation of one half of their ordinary diet

and some occasional general and local bleedings effected the gradual diminution, and eventually the complete cessation, of all their symptoms*." The third case was no less successful, and still more conclusive; since the patient having afterwards died of another disease, the state of the heart was ascertained by dissection. It was much smaller than usual, but presented evident marks of having been shrunk and reduced from its former size.

In the case of rheumatism of the heart detailed by Mr. Russell in the 10th volume of the Edinburgh Journal, the symptoms yielded to venesection frequently repeated, and to large doses of digitalis.

On the other hand there is reason to believe that in cases of enlarged heart attended with loss of muscular substance, an

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* Treatise on Diseases of the Chest, by Dr. Forbes, p. 225.

opposite plan of treatment should be pursued. In some cases of this nature Dr. Ferriar of Manchester experienced beneficial effects from the use of tonic remedies. The cases which have been alluded to, sufficiently prove the possibility of curing or at least relieving the chronic affections of the heart and pericardium. Laennec states that he has attended "several cases which he considered, throughout their whole course, as chronic inflammations of the pericardium, but which almost all were cured." "From one to two years have elapsed before a cure has taken place; and when this has been effected, the action of the heart and pulse has become natural and regular." (*Op. cit.* p. 383.) Dr. Baillie also mentions two cases in which rheumatic enlargement of the heart "stopped at a certain point, the increased action of the heart in a great measure subsided, and the patients acquired a tolerable

share of health." He adds, however, "such a fortunate issue is very rare; but the disease may be generally retarded in its progress by much rest of body, quietness of mind, and a very temperate mode of living*."

There are not wanting relations of cases in which rheumatism was supposed to be translated to the pleura or lungs; but as these are neither of so frequent occurrence nor so evidently connected with external pain and inflammation as the affections of the heart and pericardium, such cases of pleurisy or peripneumony are rather to be considered as the results of an occasional coincidence, than as genuine instances of the metastasis of rheumatism. Dr. Wells indeed mentions that he has seen some fatal cases of peripneumony which had su-

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* Lectures and Observations on Medicine, by the late M. Baillie, M.D. p. 184.

pervened to acute rheumatism; but in most of them the heart was also affected: in these therefore the pulmonic inflammation might only have been of secondary occurrence. It may well be expected that acute inflammation of the pericardium should be communicated to the contiguous pleura and its contents. Indeed, Corvisart goes so far as to say that he recollects no instance of acute pericarditis which was not complicated with pleuropneumonia; and he adds, that it is frequently very difficult to say which first appeared, or whether their commencement was not simultaneous.

Laennec indeed observes, that when "diseases of the heart are found to coexist with *chronic* pleurisy, phthisis, emphysema, and in general with *chronic* disease of the lungs, it will usually be found on close examination that the latter are the primary diseases." (*Op. cit.* p. 261.)

It cannot be doubted but that pulmo-

nary complaints of such a nature may be themselves the cause of disease of the heart: but the enlargement of which we are speaking has its origin from a different source. Laennec himself admits that "diseases of the heart, on the same principle of mutual influence, give rise to several diseases of the lungs." And thus probably are produced the pulmonary or pleuritic affections which are sometimes found in conjunction with rheumatism of the heart or pericardium, for they are generally too slight and too recent to be considered as the primary disease. The morbid effect most commonly observed is a partial adhesion of the two surfaces of the pleura.

Much has been said of the diagnosis between internal inflammation and rheumatism of the intercostal muscles, which has received the name of pleurodyne; and laborious attempts have been made to de-

scribe the exact manner in which the office of respiration is performed in the latter case; of which, however, the distinguishing mark is, that it is performed by the action of the diaphragm alone, with little or no elevation of the sternum: the external tenderness is also particularly great in pleurodyne; and the history and circumstances of the case will generally assist the judgement. But after all, the diagnosis must be allowed to be often difficult; which is however the less to be regretted, since when rheumatism attacks the parietes of the thorax, it is so apt to be communicated to its contents, that the treatment must be nearly similar. To guard in such cases against internal inflammation, blisters should instantly be applied; since these, which are of use in any stage of the disease, have ever been found the best preventive remedy.—In some cases it has appeared that the diaphragm itself has been

affected by rheumatism :—the symptoms observed were violent pain in the præcordia, the most urgent breathlessness and most extreme anxiety. Inflammation of the diaphragm is also accompanied by difficulty or incapability of swallowing ; and the risus sardonicus has been stated to be another of its symptoms. But that it is not always present, Portal has observed. He has mentioned that there was no such symptom in the case of a man who died suddenly after gout had been repelled from the foot by cold applications ; and in whom the right crus and part of the tendinous centre of the diaphragm were found to have been much inflamed. Lieutaud mentions the case of a man who had long suffered from rheumatism, and in whom the diaphragm was found to have been inflamed. Portal has remarked that diaphragmitis is much more common than is

usually supposed, being often complicated with diseases of the abdominal and thoracic viscera: it is relieved, he says, in a surprising degree by blisters applied after sufficient bleeding.

Rheumatic inflammation has been said to have been sometimes transferred to the liver: and the authority of Dr. Odier of Geneva is quoted upon this subject. It is certain that hepatic disease is often found by dissection to have accompanied rheumatism of the heart; but so does it accompany almost every cardiac affection of long standing, and is generally attributed to impediment to the passage of the blood from the vena cava. Corvisart has briefly but clearly described the hepatic congestion and enlargement which are consequent upon disease of the heart, and has noticed how easily they may be mistaken for acute or chronic inflammation of the liver.

Respecting cases of apparent metastasis, such as have just been alluded to, Dr. Heberden has made the following very candid observation :

" Plerumque fit, ut, dum rheumaticorum artus gravissimis cruciatibus torquentur, viscera interea omni dolore vacent. Tamen nonnullos curavi, in quibus rheumatismus fines consuetos transiliens in ventriculum, aut cerebrum, versus fuit. Cum autem inter quamplurimos rheumaticos hoc tam raro evenerit, fieri potest, ut me natura morbi fefellerit"—&c.*

It does not appear certain that genuine fibrous rheumatism is ever translated to the brain or its membranes. Analogy, however, would lead us to expect that the dura mater should not be exempt from such an occur-

* Comment. p. 344.

rence ; especially since the pericranium, with which it is closely connected, is liable to be severely affected by rheumatism.

But there are several well authenticated cases of metastasis to the head, in which the primary affection was situated in the synovial membranes, one or more of the joints or bursæ having been inflamed and distended with fluid. The patient in such cases is suddenly seized with an acute pain in the head : after a short time symptoms of effusion appear, which are speedily followed by coma and death. The rapid effusion of serum, characteristic of this form of disease, points out that its seat is in the arachnoid membrane. Mr. Brodie has related a case of this nature, in which the acute pain in the head returned for some days periodically, and after a week the comatose symptoms ensued. Since the previous synovial inflammation was in this

case confined to a single joint, it may be doubted whether it could be considered as strictly rheumatic. But I have witnessed the case of a patient who had been undoubtedly suffering for several months from repeated attacks of synovial rheumatism, and was suddenly carried off by violent inflammation and effusion in the head. Dr. Fothergill, in a report of the diseases prevalent in the year 1753, has the following passage :—

"Rheumatisms were common, especially among children from four to eight or ten years old : these young subjects generally were seized with pain about the neck, back of the head, or about the shoulders ; from hence it often shifted to the hands and feet and knees, and plainly discovered its nature by the *swellings* it produced : the fever attending it had regular exacerbations in the evening, followed by moderate

sweats, and freedom from pain in the morning; which interval continued with a calm, quiet pulse, till four or five in the afternoon, when the symptoms again appeared. In some young subjects, where evacuations were used too freely, either by bleeding or purging, the disorder proved suddenly and unexpectedly fatal; the pains of the head became violent, either a convulsion or hemiplegia, or both succeeded, and death soon followed*."

The circumstances of the foregoing cases, —namely, the youth of the parties, the articular swellings, the comparative mildness of the fever, and the rapid effusion which ensued,—afford strong grounds for believing that the metastasis in these cases took place from the synovial membranes.

There is another remarkable sympathy

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* *Vid.* Willan's Reports, p. 156.

which exists between the synovial membranes, the mucous lining of the urethra, and the mucous covering of the eye. The affections of all these structures are found to be connected together, sometimes existing simultaneously and sometimes alternating with one another. This triple combination of symptoms was first clearly described by Mr. Brodie. In most of the cases which he has related, the first symptom was discharge from the urethra, arising on some occasions from gonorrhœa, but in other cases indisputably unconnected with infection. This was followed by purulent ophthalmia and inflammation of the various synovial membranes; sometimes purulent ophthalmia was the first occurrence.

It may be asked whether this affection of the joints can properly be considered rheumatic in those cases in which it has derived its origin from gonorrhœa. But

even in these cases it appears to me reasonable to believe that the affection of the urethra has predisposed the synovial membranes to be affected by rheumatism as soon as they have been exposed to its exciting cause. The existence of a mercurial or syphilitic poison in the system acts in the same manner as a predisposing cause to rheumatism of different kinds and of various structures. Such at least is the view taken by many persons of the connexion between rheumatism and mercurial and syphilitic affections ; amongst others, by Dr. Heberden, who says : " Mercurialia medicamenta, sæpe tentata, nunquam non conjecerunt nonnullos in rheumatismum : unde etiam fit ut morbum venereum in quibusdam corporibus semper sequatur rheumatismus*." In one of those triple cases re-

* Comment. p. 346.

lated by Mr. Brodie, slight muscular pains accompanied the affection of the joints; and a proof of the rheumatic nature of this form of disease may be drawn from its appropriate remedies, for none have been found to possess so great an influence over it as the preparations of colchicum.

The extension of rheumatism to the structures of the eye is so frequently observed, that rheumatic ophthalmia occupies a distinct place amongst the diseases of that organ. It is found to occur under different forms; sometimes affecting the conjunctiva first, but extending afterwards to the sclerotic coat; sometimes affecting originally the sclerotic coat and iris; and sometimes confined to the sclerotica and not extending to the iris or cornea. I am of opinion that it will be found that the two latter forms of the disease are connected principally with fibrous rheumatism; and that when the

synovial membranes are the primary seat of disease, the conjunctiva is always the first to suffer from the secondary affection, although the deeper structures may afterwards become involved in its progress. It is thus that purulent ophthalmia,—an affection of the conjunctiva,—is the form of disease which takes place in that triple affection, of the joints, the eye, and the urethra, which has just been described; and thus on the other hand, in some of the cases related by Mr. Brodie, the proper tunics of the eye were subsequently attacked with inflammation.

Mr. Wardrop, in an essay on rheumatic ophthalmia, has expressed his opinion that it is seated in the sclerotic coat; and that it resembles the syphilitic more than any other kind. He observes, "that patients affected with rheumatic ophthalmia, as with rheumatism in other parts of the body, can-

not bear bleeding to a great extent. This remedy should therefore be employed with moderation. Indeed, the little relief afforded by bleeding in this disease may be regarded as one of its diagnostic characters." The greatest benefit is derived from cinchona in small doses, which seems, he says, "to possess as specific an effect in this disease as in ague*."

At the conclusion of the remarks which have been offered in these lectures, the conviction forces itself upon the mind more strongly than at the commencement, that much remains to be done to complete the history of the forms and modifications of rheumatism. It is necessary in each case to observe more accurately the seat of the disorder; to watch the common and the

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* Medico-chirurgical Transactions, vol. x.

peculiar symptoms, and to examine and record the effects of the disease. When this task shall have been well performed, we may hope for improvement in the treatment, and for a closer adaptation of remedies to particular cases. But not till then will the reproach be removed from rheumatism, which Dr. Heberden has expressed in the following terms:

"Nec usus docuit, neque ratio excogitavit certa rheumatismi remedia; quo, non minus quam facie suâ, nimis similis est arthitidi. Hoc licet ex aliquâ parte illis tribuere, qui diversis malis idem nomen imposuerunt*."

It seems at least to be established that there is a wide distinction between rheumatism of the fibrous structures and the same disease affecting the synovial mem-

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Comment. p. 345.

branes; that they may be distinguished partly by the nature of the constitutional affection, and still more certainly by the degree, the form, and the character of the swelling; that some difference also, though less distinct, may be observed according as particular parts of the fibrous system are principally affected; that of these cases, almost all may be referred to one of three separate species: the first being an affection of the muscles, tendons, fasciæ, and ligaments; the second, rheumatism of the periosteum; and the third, rheumatism of the nerves. As the symptoms are different, so also should the treatment vary in each of these particular cases.

With respect to internal affections, it has been seen that fibrous rheumatism is chiefly prone to be extended to the fibrous and tendinous structures of the heart and pericardium; in which case the serous mem-

brane of the pericardium is secondarily affected. But that, on the contrary, the synovial membranes are more closely connected in sympathy with the different serous and mucous structures.

In fine, it must be admitted that the observation which originated with Pitcairn, of the tendency which rheumatism has to attack the heart and pericardium, was one of the utmost value and importance; that it was in short a pathological discovery bearing immediately upon practice. For it has taught us where to look for the attacks, and to guard against the irruption of a sudden and dangerous enemy.

THE END.

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