ON SOME
OF THE
CAUSES OF PERICARDITIS,
ESPECIALLY
ACUTE RHEUMATISM,
AND
BRIGHT'S DISEASE OF THE KIDNEYS;
WITH INCIDENTAL OBSERVATIONS ON THE FREQUENCY AND
ON SOME OF THE CAUSES OF VARIOUS OTHER INTERNAL
INFLAMMATIONS.

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IN inquiring into the causes of pericarditis, as well as into many other particulars in its history, it will be found practically important to divide the cases into the two following classes :—

1st. Those occurring in persons previously in good health, or in the course of some sthenic acute disease, as acute rheumatism : and,

2nd. Those occurring in persons previously in bad health, or in the progress of some chronic disease.

The examples of pericarditis which I shall examine more particularly, are twenty-five in number ;

and of these, *fifteen* belong to the first, and *ten* to the second, of the two classes just described.

1. *Of the observed causes of pericarditis.*

Thirteen out of the *fifteen* cases, in the first class, occurred in the progress of acute rheumatism ; in a fourteenth case, *slight swelling* and *redness* of one or two of the joints of the fingers appeared for a *short* time only, and several days after the pericarditis (which was both *severe* and *fatal*) began. In the remaining case, there was no *obvious rheumatism* ; but the patient had been twice the subject of acute rheumatism, some years previously ; no exciting cause for the present illness was assigned, and he had profuse perspirations (whether of a sour odour or not, is not stated) ; whence we may, I think, infer the *possibility* (which facts subsequently to be noticed will perhaps raise to a *probability*) that this was an example of *rheumatic fever without arthritis*. (Vide p. 519). In the fourteenth case we have seen an example of severe and fatal pericarditis, the rheumatic character of which was shown only by the most *trifling* and *transient articular* affection, which might have been easily overlooked. Why, therefore, may the last case not be an example of the same kind, in which the articular affection was either *altogether absent*, or too insignificant to attract attention ?

Among these cases, all of which, with the above explanation, were complicated with rheumatism, there were none in which any other cause for the pericarditis could be assigned. One of these conse-

quences, therefore, seems necessarily to follow, viz., either the internal inflammation must be ascribed to the rheumatism, or it must be ascribed to an unknown cause. In the latter case, the rheumatism and the pericarditis may have been wholly unconnected; or they may have been *distinct* effects of this *unknown* but *common* cause.

Out of the *ten* cases contained in the *second* class, *six* had Bright's disease of the kidneys, and a *seventh* had *probably* the same disease, for he had been losing flesh during several months previously; he drank both ale and spirits habitually, and to excess; and just before the attack of pericarditis he was intoxicated, and in that condition got wet, and kept on his wet dress. The urine was not tested, but the kidneys were evidently *diseased*, being increased considerably in volume and weight (nearly 7 oz. each); the distinction between the medullary and cortical portions was less obvious than usual, and the left kidney was lobulated.

In *three* there are no facts enabling me to determine what was the condition of the kidneys. One of these patients had acute rheumatism, and this is the only example among the ten cases of this class in which acute rheumatism existed together with, or near the time of, the pericarditis: it is likewise the only one of the cases in which any other cause than the disease of the kidneys could be assigned for the pericarditis.

There was no evidence of the existence of renal disease in any of the fifteen cases of the *first* class.

In *seven* of them, the *absence* of any such disease was *ascertained*; in six others, the *probable* absence can be shown; and in the remaining two, there is nothing stated that can lead to a suspicion of the kidneys being affected.

In respect to the causes of pericarditis then, a most important difference is observable between the cases which have been grouped in the first, and those in the second class. Two-thirds of the latter were *known* to be complicated with Bright's disease of the kidneys, and *all* of them *may* have been; but *one case* only was complicated with acute rheumatism, whereas *all* the cases in the former class were complicated with acute rheumatism, and none of them, so far as is known, with renal disease. These facts, which I shall afterwards confirm by others, seem to require us to recognize precisely the same relation between Bright's disease of the kidneys and pericarditis in the one class of cases, which we have already recognised as existing between acute rheumatism and pericarditis in the other class.

Besides the cases of pericarditis noticed above, I have notes of a few others not included in this analysis—e. g. 1. Of several slighter and of two severe cases, all occurring in the course of rheumatism. 2. Of two other severe ones unconnected with rheumatism, but complicated with Bright's disease. 3. Of *one* case complicated with malformation of the heart, and consequent cyanosis. This patient died at the age of eight months, and there was neither

rheumatism nor disease of the kidneys. 4. In the year 1841 I witnessed, accidentally, the inspection of the body of a female who died in University College Hospital whilst under the care of my colleague, Dr. Williams. In this case there was found abscess of the left lobe of the liver, with adhesion of the liver to the diaphragm, pericarditis, pleurisy and pneumonia. There had been no rheumatism, and there was no evidence of disease of the kidneys. The urine had not been examined. The inflammations within the chest were considered by Dr. Williams, and by others, to have proceeded by extension from those of the liver and diaphragm.

These are *all* the cases of pericarditis into the causes of which I have had an opportunity of making *personal* inquiry. They are thirty-one in number (exclusive of slighter cases), and the result may be summed up as follows :—

- 18 were complicated with rheumatism.
- 9 Bright's disease.
- 2 *may* have been complicated with Bright's disease : if not, the cause is unknown.
- 1 was complicated with malformation of the heart and cyanosis.
- 1 proceeded from the extension of inflammation from a texture with which the pericardium was in contact.

* Since the remarks in the text were written, I have seen seven additional cases of pericarditis. Of these, two occurred in

There are some circumstances *common* to two out of the four causes just enumerated, and which it may be worth while to advert to.

1. It appears to be an established fact, that in the course of Bright's disease, the function of the kidneys is seriously disturbed, and that there is less urea, and less of other solid matters excreted with the urine, than in health, and a consequent accumulation of urea, if not of other matters in the blood.

2. There is also in such cases a great proneness to the occurrence of inflammation in various internal organs (*vide* p. 543); and this proneness seems to bear a proportion to the imperfect action of the kid-

acute rheumatism, one with Bright's disease and pleurisy, and one with empyema of the left side, and *some* renal disease. In this case the appearances proved the empyema to be of longer standing than the pericarditis. A fourth had well-marked chronic inflammation of both kidneys, with a diminution of their volume, and also with malignant disease of the bladder. A fifth had *some* renal disease, but probably not Bright's disease.

The sixth case may or may not constitute an exception to the remarks upon the causes of pericarditis, made in this communication. It occurred in a delicate boy, the subject of old disease of the mitral valve, and of considerable enlargement of the heart. There was no evidence, during life, of renal disease. There were pains in the limbs, but no swelling or redness of the joints, nor other proof of *acute* rheumatism. There was pneumonia in the upper lobes of both lungs, and pleurisy on the right side. The pleurisy appeared *after* the pericarditis, but whether the pneumonia did or not is uncertain. There was evidence of *some* disease producing condensation of the upper lobes of the lungs, especially of the right, *before* the pericarditis appeared, but the *proof* that *pneumonia* existed, was posterior to the seizure of the heart. The boy died, but no examination of the body could be obtained.

neys, and the consequent imperfect depuration of the blood (p. 563). 3. The internal inflammations in these cases seem to be generally and justly referred to the morbid condition of the blood, because there is seldom any other assignable cause for them, and because they are often associated with other morbid phenomena similar to those which supervene in animals after extirpation of the kidneys.

Again, in acute rheumatism, there is,—1. A great proneness, not only to the occurrence of pericarditis, but also, as I shall prove (p. 508), of inflammation of various other internal parts, especially the lungs and pleura. 2. I shall presently adduce facts to show that the rheumatism is not the *cause* of these internal inflammations, because *they* may appear *first* and the *rheumatism* afterwards, and also because there is no general relation between the severity of the two, either of them being in some cases very trifling, whilst the other is very severe. 3. There is seldom to be discovered *any external exciting cause* of the inflammation complicating an attack of rheumatism. 4. In the number of parts attacked, and in the mobility of the affection, in its comparatively unmanageable character, as well as in other points of its history, there seems to be a great difference between rheumatic and common inflammation of the joints. 5. The peculiarities just mentioned, together with the profuse sour perspirations, the characters of the urine and of the blood, the occasional occurrence of rheumatic fever without arthritis, the tendency of symmetrical parts to suffer together, (more

especially observed however in the chronic form of rheumatism,) and other facts which I need not now enumerate, seem to assimilate rheumatic fever to the class of diseases which are acknowledged to depend upon a morbid condition of the blood.—(Vide p. 520, note.)

The facts I have referred to seem to render it highly probable that the immediate cause of the pericarditis and other internal inflammations, which so often complicate Bright's disease and acute rheumatism, as well as of the articular affection itself in rheumatism, is a morbid condition of the blood:

The case of pericarditis complicated with cyanosis seems rather to support than to invalidate the conclusion I have just arrived at, seeing that the blood is manifestly in an unnatural state in this disease.

Whether the morbid state of the blood be *essentially the same* in rheumatism and in Bright's disease, we have no sufficiently precise knowledge to enable us to decide: but in many respects the blood in these diseases obviously differs.

In Bright's disease we *know* there is an excess of urea in the blood, to the influence of which the internal inflammations have been generally ascribed. In many cases of rheumatic fever examined in University College Hospital, there has been found a very considerable excess of urea in the *urine*, especially in the earlier and more active periods of the disease. There *may* therefore be an excess of urea, and perhaps also of other irritating principles, in the *blood*, (from which they pass in excess into the urine,)

leading to some results similar to, and to others different from, those which we observe in Bright's disease.* There are, further, some points of resem-

* The test of this excess of urea was the formation of abundant crystals of nitrate of urea, by the addition of a considerable proportion of nitric acid to the urine, in the state of dilution in which it was voided. In some of the cases (although, from the great abundance of the crystals, I am persuaded not in all) this excess of urea may have been *apparent* only and dependent on a diminution of the proportion of *water* in the urine, in this as in most inflammatory diseases. Becquerel, who has well exposed this source of fallacy, (*Sémeiotique des Urines*, Paris, 1841, p. 30 to 42,) has also found the total quantity of urea excreted in the urine, *in twenty-four hours*, to be much less in acute rheumatism, and in some other inflammatory diseases, than in health. He further states that the quantity of urea contained in the urine passed in the whole twenty-four hours, very rarely exceeds the physiological limits; it may do so in some cases of polydypsia, or in cases in which the urine is very abundant. He has never observed this increase, and he thinks that if it do exist it is very rare. This result would equally accord with the view taken in the text. If the quantity of urea voided in the twenty-four hours be *increased*, the increase may *arise from* an excess of this principle in the blood: and if the quantity voided be *diminished*, this circumstance (as perhaps in Bright's disease) may *cause* an *accumulation* and a consequent *excess* of urea in the blood.

A more accurate chemical examination of the blood, and of the urinary and other secretions in various diseases, is much to be desired, and seems calculated to yield results of great importance in pathology and practical medicine. I have observed a great excess of urea in the urine (judging by the test above given) in diseases of very various character; especially I think in acute rheumatism, erysipelas of the face, pneumonia, and some other febrile diseases, and also in diseases quite unaccompanied by fever, e. g. in *lepra* in one or two individuals apparently otherwise in perfect health, in internal cancer, in dyspepsia, and even occasion-

blance in the *causes* of rheumatism and of Bright's disease. 1. The only *known* external *exciting* cause of rheumatism is cold, or cold and damp, and this is one of the most common and most influential causes of Bright's disease. 2. In very many cases of rheumatism (a large proportion even) no immediate *exciting* cause can be discovered, and I fully adopt the opinion of Chomel and of others, who believe that in general the exciting cause is the least important of those concerned in the production of the disease; often only the last link in a long chain. I believe the really efficient cause to be such a change in the constitution of the body, chiefly perhaps of the fluids, as is more or less slowly induced under the influence of circumstances unfavourable to health, but often operating imperceptibly, and discovered only by very careful investigation. I allude more

ally in anæmia. Its presence may often be *suspected*, by finding the urine of high sp. gr. at or above 1030 without its containing any sediment, or being deep-coloured, or exhibiting other obvious indications of the presence of other foreign matters in excess, or of a deficient proportion of water.

There can be no doubt that the function of the kidneys and the composition of the urine, experience important modifications in acute rheumatism. I remember the case of a man *ætat.* 57, admitted into University College Hospital, under the care of my colleague Dr. A. T. Thomson, affected with acute rheumatism. The urine was not albuminous on his admission, but in a short time it became so highly charged with this principle as entirely to assume a solid form on being heated, and its specific gravity at the same time mounted up to 1050. After a few more days, no trace of albumen remained, and the urine had assumed the ordinary appearance and density.

particularly to improprieties—not necessarily gross ones—in diet, clothing, and labour, and to undue habitual exposure to cold or damp, or anxiety of mind, as well as to other agencies which gradually undermine the health. The circumstances in which Bright's disease appears are very similar; those which have appeared to me to be especially influential, being exposure to cold and wet, inadequate clothing, and intemperance. In the chronic form of the disease, which is by far the most common, we rarely discover any immediate exciting cause. The agencies chiefly concerned in its production are those commonly classed under the head of predisposing causes of disease.

Circumstances likely to lead to an imperfect performance of the functions of the skin, would appear then to have a powerful influence in the production both of rheumatism and of Bright's disease; and in both, the functions of the kidneys are materially disturbed. In connection with these facts it may be fairly, I think, assumed that in persons affected with *cyanosis*, the functions of the skin are imperfectly performed, and are more likely than in healthy subjects, to be further interrupted by slight external circumstances.

2. *Of the causes of the pericarditis in cases of old adhesion of the pericardium.*

Having stated what were the causes of the disease actually observed in cases of recent pericarditis, I propose now to inquire into the frequency of the

same causes in cases of adhesion of the pericardium found after death.

Among my notes of *post mortem* inspections, I have found twenty-two examples of old adhesion of the pericardium. Of these, *two* have been considered with the cases of acute pericarditis : there remain therefore for my present purpose twenty cases.

Of these twenty patients, I find that

- 1 had Bright's disease, but had never had rheumatismus acutus.
- 4 had *probably* Bright's disease, and *certainly some renal* disease, but had not had rheumatismus acutus.
- 4 had Bright's disease, and had previously had rheumatismus acutus.
- 1 had *some* renal disease, and had previously had rheumatismus acutus.
- 1 had some renal disease, and had *not* previously had rheumatismus acutus.
- 5 cases do not furnish any information about either the kidneys or rheumatism.

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Thus in every case in which any information was given upon the subject, there had previously been acute rheumatism, or there was found either Bright's disease or *some disease* of the kidneys. There are *five* cases in which there was some renal disease, but I think probably not Bright's disease, and no previous rheumatism ; and in all of these there were old

adhesions of one or both pleuræ. In three of them the pleura pulmonalis and pleura costalis were adherent on both sides, and both again to the pericardium. In one, the left pleuræ adhered to each other and to the pericardium; and in one the adhesions were between the *right* pleuræ. In the last case, it is not said whether the pleuræ and pericardium adhered, but the adhesions of the *pericardium* itself were limited to the portion covering the *right* auricle.

In five other cases there is no information given about the existence of disease of the kidneys, or of rheumatism. In two of these, there were old adhesions of both pleuræ, (it is not stated whether of the pericardium and pleuræ also,) and in one of these two there were caries of the spine, psoas abscess, and old adhesions between the liver and diaphragm. In the three of these five cases remaining, there were no adhesions of either pleura.

Of the twenty cases of adhesion of the pericardium, therefore, there are *three only* in which the previous existence of pleurisy, or of rheumatism, or the *actual* or *probable* presence of Bright's disease, was not *ascertained*, and the *absence* of all these diseases was *ascertained* in *no one case*. With one exception, the adhesions of the pleuræ were either *double*, or on the *left* side; and in this exceptional case the adhesion of the pericardium was over the *right* auricle only. The pleuritic adhesions were almost always very extensive and thick (in some cases exceedingly so; in two, e. g. *one inch* thick at

least, and universal). In four out of the seven cases of adherent pleuræ, the pleura adhered to the outer surface of the pericardium also ; in the other three, it is not said whether the pleura and pericardium were adherent or not. There were adhesions of the pleuræ in some of those cases also in which there had been rheumatismus acutus, or Bright's disease, or both ; but the proportion of these I have not at present ascertained.

The conclusions respecting the causes of pericarditis, which were deduced from an examination of the recent examples of the disease, are therefore strongly corroborated by this corresponding examination of the cases of old adhesion of the pericardium. The actual or possible existence, now or formerly, of rheumatismus acutus, or Bright's disease, or pleurisy, has been proved in every case.*

The proportion of cases of old adhesion of the pericardium, in which pleurisy appears to have been the probable cause of the inflammation, is greater, both *absolutely* and also relatively to the other two causes inquired into, (*viz.*, probably five, and possibly seven out of twenty,) than in the cases of recent pericarditis. This may be explained on the very probable supposition, that of the cases of

* In a later part of this paper (p. 544, and Note to p. 549), some reasons have been given for thinking that Bright's disease may have little to do with the production of the *former* attacks of pericarditis, of which the old adhesions are the results. The cases of old adhesion of the pericardium have, therefore, been re-examined, in order to ascertain in how many of them the other two causes above-named may have been present. The following is the result : Number of cases of old adhesion of the pericardium, twenty-two ;

pericarditis produced by Bright's disease, and by acute rheumatism, a larger proportion prove fatal in the *acute* stage, than of those due to pleurisy. The cases not proving fatal, i. e., *all* those leading to *adhesions*, must on this assumption be due in greater proportion to the last, than to the two first of the three causes under consideration.

3.—*Of the causes of the pericarditis in cases of white spots on the pericardium.*

I shall now examine into the frequency with which the same causes were present in examples of

of these, six were subject to rheumatism, three had never had rheumatism. In one, no information could be *obtained*, and in twelve no information has been given.

Of the same twenty-two cases of adhesion, there were found old adhesions of the pleura in eighteen, and the state of the pleura is not mentioned in four. Of the eighteen patients having adhesions of the pleura, four had also been subject to rheumatism. The pleuritic adhesions were found on both sides of the chest in ten cases: on the right only in three, on the left only in four, and in one case no information on this point is given.

The result, then, as it regards the two causes of pericarditis under immediate consideration, in this place, is as follows:—

Of twenty-two cases of old adhesion of the pericardium,

In 6 cases there had been previous attacks of rheumatism.

— 14 cases there were old adhesions of the pleura, and there had been no previous rheumatism (besides four in which there had previously been rheumatism).

— 2 cases the state of the pleuræ is *not mentioned*, and there had been no rheumatism.

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In two cases *only*, therefore, *could* one or other of these causes have been absent, and in *no case* was both causes proved to have been absent.

white spots on the pericardium without adhesions. The cases of this description which I have collected, are eighty-three in number.

Of these,—

20 { sixteen had previously suffered from acute,
and *four* from chronic rheumatism.

10 were found *distinctly* to have Bright's disease.

12 were found *probably* to have Bright's disease.

24 were found to have some disease of the kidneys, the nature of which was not — always known.

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If we deduct from these sixty-six cases, six in which there were at the same time both rheumatism and Bright's disease, and two in which there were rheumatism and *some* renal disease, there remain fifty-eight (out of eighty-three) in which there was found either Bright's disease, or some other renal disease, or in which there had formerly existed acute or chronic rheumatism.

In twenty-three cases there is no information given respecting either rheumatism or renal disease.

In the *two* remaining cases only was the *absence*, both of rheumatism and of Bright's disease, *ascertained*, and even in these there is room for doubt, and both of them had old adhesions of the right pleuræ.

Exclusive of those cases in which, either the actual or probable presence of Bright's disease, as

well as of those in which the previous existence of rheumatism, was ascertained, and in many of which there were also old adhesions of the pleuræ, I have examined in how many of the remaining cases old adhesions of the pleuræ were found; and the following is the result :—

1st. Cases of white patch on the pericardium, with no previous rheumatism, but with *some* disease of the kidneys, twenty-two. Of these,

17 had old adhesions of the pleura, viz., four of the right, four of the left, and nine of both.

2⁽³⁾ had *no* old adhesions of the pleura, but one of them had *cancer* of the pleura.

3⁽⁴⁾ had *no* adhesions of the pleura *mentioned*.

One of them had tubercles in both lungs, and one had delirium tremens and gan-

— grene of the lungs.

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2nd. Cases of white patch on the pericardium, in which no information was given about the existence of rheumatism, or disease of the kidneys, twenty-three. Of these,

11 had old adhesions of the pleuræ, viz., on the right side, one; left, four; both sides, five; and the side not mentioned, one.

6⁽¹⁾ had no old adhesions (one a case of fever, the other of erysipelas), and in

6⁽²⁾ no adhesions are *mentioned* (one, a drinker, and one having tuberculous cavities in

— both lungs).

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The following summary of the facts just detailed, may render their import more easy to be understood.

1. In *all* the cases in which I have found the white spots referred to, there MAY have been either Bright's disease, or rheumatism, or inflammation of the pleura.

2. In 17 cases only (viz., 6⁽¹⁾, 6⁽²⁾, 2⁽³⁾, 3⁽⁴⁾,*) has the existence of one or other of these affections not been *actually ascertained* from the histories, and even of these, *five* were *found* to have *some* renal disease.†

3. Of the cases in which neither Bright's disease nor rheumatism was *proved* to exist, or to have existed (but in *all* of which, one, or both of them, *may* have existed), eight only were *ascertained* to have no adhesions of the pleuræ, and even in *two* of these *eight*, *some* renal disease was found.

Thus one or other of the three causes under discussion was *ascertained* to exist, or to have existed, in almost every case examined.

* These figures (1) (2) (3) (4) refer to corresponding figures on the last page.

† Among these patients, several others were the subjects of diseases, whose nature and effects are such, that the cases may be adduced in support of the general conclusions, which it is the object of this paper to establish,—e. g., two had tuberculous cavities in both lungs, (and probably therefore pleuritic adhesions,) one had cancer of the pleura, one gangrene of the lungs and delirium tremens, one fever, one erysipelas, and one was a drunkard. These, with the five having *some* renal disease, and noticed above, comprise twelve out of the seventeen cases cited in the text.

As I may not again have occasion to speak in detail of pleurisy, the present may be a fitting place in which to recapitulate my reasons for considering this disease to be *really* a cause of pericarditis.

1. It may be assumed as an ascertained fact, that inflammation does extend from one portion of a tissue to another portion of the same, or to another tissue, (especially of the same anatomical species, e. g., from *one serous* membrane to *another serous* membrane,) in circumstances in which no other cause for the extension can be discovered, except the contact of the part first inflamed with that which subsequently becomes inflamed.

2. In one of the cases of *acute* pericarditis which I have quoted, (and *probably* in another also which I have since seen,) and in several of the cases of adherent pericardium, *no other cause* but this could be discovered.

3. Out of twenty cases of old adhesion of the pericardium, there were seven in which the inflammation producing the adhesion was believed to have proceeded by extension from the pleura. In support of this opinion, I would remark,—(*a.*) That there were adhesions of the *left* pleura in *six* cases, (both pleuræ in five, left one, right one,) and according to my *recollection*, (for I have not *counted* the cases,) the cardiac *adhesions* affected either the *whole* pericardium, or that portion covering the *left* cavities more particularly. In the *single* case in which the adhesions of the pleura were limited to the *right* side, the adhesion of the

pericardium was limited also to the portion covering the *right* auricle. (*b.*) In four out of the seven cases, the pleura adhered to the outer surface of the pericardium also : in three, no information is given on this point.

4. Of twenty-eight cases in which inflammation of the pleura was the only *obvious* cause of the inflammation leading to white spots on the pericardium, the *adhesions* of the pleura were on the *right* side in nineteen, on the left alone in eight, and the side is doubtful in one case : it is also a well-known fact, that the white spots are more frequently found on the pericardium covering the *right* cavities of the heart than *elsewhere*.

Old adhesions of the pleuræ were found in many cases besides those enumerated. They have been counted in those cases of old pericarditis *only*, in which neither rheumatism nor Bright's disease was *ascertained* to have been present.* In *some* of the cases in which adhesions, both of the pericardium and of the pleuræ, were found, the inflammation may have extended from the former to the latter organ ; in *other* cases again, the two inflammations may have derived their origin from a *common* cause, and whether beginning *simultaneously* or at *different times*, may have been independent of each other. There can be little doubt however, that in a third class of cases (and those *may* be the most numerous) the inflammation has extended from the *pleura* to the *pericardium* ; because the *post mortem* appear-

* Vide Note to p. 466.

ances sometimes *show* the disease in the former texture to be the *older* of the two, and because also, according to the facts adduced in another part of this communication, (p. 537 and 541,) pleuritis is a much more common disease than pericarditis.

Before terminating these general remarks on the causes of pericarditis, I would desire to guard the members of the Society against any misconception of the meaning of my statements, by reminding them what has been the especial object of my inquiries up to this point. I have first examined all the cases of acute pericarditis which have fallen under my observation, with a view to discover what were the causes to which the disease *in those cases* might, with most probability, be referred. I have next endeavoured to establish the *reality* of the influence of the causes *so observed*, and to obtain some *measure* of their importance, by inquiring how often they had been present, and might therefore have operated, in those cases in which, after death, pericarditis was found to have existed at some former period. I have thus *limited my inquiries* to the three chief causes already considered, but I do not wish to be understood to assert that there are no other causes of the disease. I believe that other causes do exist, and it is possible that some of them may have been in operation in the cases of old adhesion of the pericardium ; but as the three causes I have treated of were ascertained to have been *actually* present in *most*, and to have been *possibly* present in *all* the cases which I have examined, it seems reasonable to

conclude that these are the most *common*, and consequently the most *important*, causes of the disease.

It may not be uninteresting to compare the results which have been stated, with those arrived at by some other observers.

1. *Of the causes of pericarditis in general.*

Louis* states, that the exciting causes of pericarditis are unknown in the greater number of cases. The authors to whom he had referred, mention them only in two subjects. One† of these had received a violent blow with the fist on the pericardial region, fifteen days before the symptoms appeared; the other‡ had ridden hard on horseback during several successive days. Louis appears to have found an exciting cause in *one* only of the *seven* cases observed by himself. The patient, a female, was seized with the disease, after experiencing great grief, and at the end of a long journey on foot (210 leagues in twenty days). He likewise *infers*, from the frequent complication of pericarditis with pleurisy and pneumonia, the probability of the former disease arising from the same causes as the two latter, and also being influenced by them.

Bouillaud§ treats very lightly the opinion of Louis, that the causes are in most cases unknown. He admits, that in *some cases* they cannot be ascertained; but his statements *imply* that these are only exceptional instances. The *great* cause, in his opinion, is exposure to cold after copious perspira-

* Recherches Anatomico-Pathol., p. 293.

† Vide Corvisart.

‡ Vide Bertin.

§ Traité Clin. des Malad. du Cœur, 1^{re} ed., t. i., p. 470-1-4.

tion and fatiguing labour ; and he seems to speak of this cause, and of acute rheumatism, almost as if he considered them to be the same thing.

M. Hache,* however, on analysing Bouillaud's own cases, has drawn from them a different conclusion. Of thirty-six cases reported in the work referred to, the causes appear to have been *unknown* in twenty-two (nearly two-thirds), or at least none are mentioned ; and in *six* cases only did a *manifest* cause exist, as exposure to cold, at a period near the beginning of the attack. Of the eight patients whose cases are reported, by M. Hache himself, two had been exposed to cold whilst perspiring, and had also rheumatismus acutus. In four, no exciting cause was discovered, but only *remote* causes more or less probable ; and in two there was no known cause of any kind.

2. *Of rheumatism.*

Of all the causes of pericarditis, acute rheumatism is that which has attracted by far the greatest share of attention, and is generally considered to be incomparably the most frequent. So strong is the hold which this opinion has obtained upon the minds of medical men, that I have very frequently heard them express their surprise on meeting with a case of disease of the heart which had originated independently of rheumatism.

Dr. Hope,† referring to the causes of pericarditis,

* Memoire sur la Péricardite. Archiv. Gen. de Medicine, 2^e Série, t. ix., 1835, pp. 325, 330-1.

† On Diseases of the Heart, 3rd ed., p. 177.

says, "and far above all acute rheumatism;" and referring to acute, or sub-acute rheumatism, he describes it as "an affection, which, whether severe or mild, whether in its early or later stages, is, beyond comparison, the most frequent cause of pericarditis and endocarditis."* He likewise states that "acute rheumatism had preceded in about three-fourths of the worst cases of valvular disease, and adhesion of the pericardium, which have occurred amongst upwards of 10,000 hospital patients," whom he had treated during the preceding four and a half years.†

Dr. Watson thus expresses himself respecting the same question:—"Acute pericarditis is liable to arise, like all other internal inflammations, after exposure to cold, or when no exciting cause is to be discovered. But for one such case of what may be called spontaneous acute inflammation of that membrane, you will meet with a dozen, or more, in which it occurs in connection with a disease that we have not yet had before us—acute rheumatism."‡

Dr. C. J. B. Williams considers that "of the causes of pericarditis, rheumatism is by far the most common; but it still more frequently produces endocarditis."§

3. *Of Bright's disease.*

Pericarditis has been mentioned by various writers as one among the secondary inflammations to which Bright's disease gives rise. But the great frequency

* Op. cit., p. 161.

† P. 178.

‡ Lectures, vol. ii., p. 263.

§ Lond. Med. Gaz., vol. ii., 1837-8, p. 866.

of Bright's disease as a complication of pericarditis, and its great frequency relatively to rheumatism, and to the other causes of this inflammation, appear never to have been suspected.

The strongest statement which I have met with respecting the occurrence of pericarditis in connection with Bright's disease occurs in the original paper of Dr. Bright himself. "Out of seventeen dissections, we have found ten or eleven betraying inflammation of the pleura, generally old, but sometimes of more recent date. We have found three instances in which the patients had suffered decided attacks of inflammation in the pericardium, shortly before death; and in two of these cases we had proof of some previous affection of the same kind. In one only were the signs of inflammation in the peritoneum well marked. Five out of the seventeen had altogether escaped inflammatory affections of the serous membranes."* (See also Table II. p. 539 of this communication.) The prominent reflection in the mind of Dr. Bright appears to have had reference to the great frequency of internal inflammations, as a consequence of renal disease. To this he was naturally led by the course of his investigations. But his inquiries did not lead him to consider, nor does he appear to have suspected, the *great proportion* of all cases of pericarditis which arise from renal disease.

Dr. Christison, in reference to the secondary affections in Bright's disease, observes, that "pleurisy

* Reports of Medical Cases, 1827, vol. i., p. 71.

is the most frequent of the serous inflammations ; peritonitis is, upon the whole, rare ; pericarditis is also seldom seen.”*

Drs. Rilliet and Barthez, in treating of Bright’s disease, as it occurs in children, state, that “ the principal complications are inflammation of the same organs in which dropsy is liable to appear. The most frequent of all, are certainly inflammations of the serous membranes, then of the lung. . . . The inflammations of the serous membranes are pleurisy, peritonitis, and much more rarely pericarditis.”†

The chief particulars, therefore, in which my results differ from those obtained by other observers, are these:—1. I have found an adequate cause for the pericarditis in *all* my cases. 2. Whilst I have found rheumatism, as a complication, in quite as great a proportion of cases as any one who has given us a numerical account of his observations, yet its frequency, relatively to other causes, has been less in my experience than in that of any writer with whom I am acquainted. 3. I have found Bright’s disease to be the cause of pericarditis in a large proportion of the cases which have fallen under my notice.‡

* On Granular Degeneration of the Kidneys. Edinb., 1839, p. 90.

† *Traité Clinique et Pratique des Maladies des Enfants*. Paris, 1843. Vol. i., p. 603.

‡ Since this communication was sent to the Society, and before it was read, the “ Lectures on subjects connected with Clinical Medicine, comprising diseases of the heart,” by Dr. Latham,

Having taken a *general* view of the causes of pericarditis actually observed in my cases, I propose now to inquire, more particularly, into some of the circumstances connected with two of these causes.

I.—OF RHEUMATISM, CONSIDERED AS A CAUSE OF PERICARDITIS.

1.—*Frequency with which pericarditis and endocarditis occur in acute rheumatism.*—We have seen the importance of acute rheumatism as a cause of pericarditis, in the fact that this cause existed in two-thirds of the cases examined. I shall now endeavour to ascertain what amount of confirmation the conclusion thus arrived at, may receive, from an inquiry into the frequency with which pericarditis occurs in the course of rheumatism.

have been published. The following extract from this valuable work will show how little the author suspects, and probably, therefore, how little physicians generally suspect, the important part that Bright's disease plays in the production of pericarditis. "My own experience of pericarditis is mainly derived from what it is as an accompaniment of acute rheumatism. I have seen the disease, indeed, under other circumstances; but it has been very seldom; so seldom, indeed, that I have little acquaintance with other conditions, external or internal, conducing to it. I can neither tell whence to look for it, nor when to expect it, except when it occurs as a part of acute rheumatism."

"The pericarditis which is acute and rapidly progressive, and, unless arrested by timely and effectual treatment, full of peril, this is the pericarditis I mean. And with this the practice of a large hospital has rendered me familiar, by presenting me every year with numerous instances of it in alliance with acute rheumatism. But, separate from acute rheumatism, even the practice of a large hospital does not present me with more than an instance or two of it in several years."—P. 136.

With reference to this question, I examined, several years ago, a number of cases of acute rheumatism, occurring in University College Hospital. The greater number of these patients were treated by Dr. Elliotson ; but a few by Drs. Carswell and Williams. The results are as follows :—

Of forty-seven cases of acute, or sub-acute, rheumatism, *taken indiscriminately*, I found that

In 11 (nearly one-fourth) there was valvular disease, either old or recent, but probably in most of the cases old. Some of these patients had also hypertrophy of the heart, and some had not.

In 2 there were signs of slight valvular disease, probably from actually existing endocarditis in one, if not in both of them.

In 25 (more than half) there was no evidence of the existence of any kind of disease of the heart.

In 9 the state of the heart is not mentioned, and I conclude it was healthy in most of them, because it was the custom, both of the physicians and of myself, to examine the heart in all cases of rheumatism.

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Of an otherseries* of eighty-six cases of acute

* *Some* of the preceding forty-seven cases are included in these eighty-six ; how many, however, my notes do not enable me, without some difficulty, to determine.

or sub-acute rheumatism, also *taken indiscriminately*, I found that

- In 5 there was acute pericarditis (in *one* of these there was also acute endocarditis).
- In 19 (less than one-fourth) there was valvular disease, either old or recent, but probably in most of the cases old. Some of these patients had also hypertrophy of the heart, and some had not.
- In 19 there was no evidence of disease of the heart of any kind.
- In 43 the state of the heart is not mentioned, and I conclude that this organ was healthy in most of them, for the reason stated above.

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The proportion of cases of acute pericarditis, therefore, was one in seventeen ; and of disease of the heart of some description, but chiefly old disease, about one in three and a half. The heart was probably free from any readily appreciable disease, whether old or recent, in more than two-thirds of these cases of acute rheumatism.

I shall now examine the cases of acute rheumatism treated by myself in University College Hospital, in the course of three years and a quarter ; and, in order to render the results applicable to some other purposes, I shall give a separate account of the cases treated in each year.*

* The cases for the first year are so much fewer than those of
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First period of twelve months—1841-2.

Number of cases of acute or sub-acute rheumatism, *nine*. Of these patients, two had slight morbus cordis, old or recent; five had no sign of disease of the heart; and in two, the heart is not *mentioned*, and was probably healthy. There was no case of pericarditis.

Second period of twelve months—1842-3.

Number of cases of acute or sub-acute rheumatism, *twenty-four*. Of these patients, one had acute pericarditis; ten others had some kind of morbus cordis (there was valvular disease of old standing in two of them, and in eight it could not be determined whether the valvular disease were altogether old or recent). In ten, the heart was healthy; and in three, its condition is not mentioned, and was probably, therefore, healthy.

Third period, of fifteen months—1843-4.

Number of cases of acute or sub-acute rheumatism, *forty-two*. Of these patients,

24 had some kind of morbus cordis.

14 had no morbus cordis; and in

4 the heart is not mentioned, and was probably
— healthy.

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the second and third years, that I have no doubt some must have been omitted from the tables which were prepared at the end of each session, and from which the calculations were made at the time. There has, however, been no *selection*, and a case of rheumatism, complicated with pericarditis, would certainly have been much less likely to escape notice than one not so complicated.

Of the twenty-four having morbus cordis, eighteen had slight valvular disease (generally *very slight*). This disease was probably of old standing in most of them, and was not *known* to be *recent* in any. Three had a little hypertrophy. There was well-marked acute pericarditis of considerable severity in *five*, *very slight* pericarditis in two more, and in *two* others, the same disease might be present, but in so trifling a degree, that its existence was doubtful. Two of the cases of pericarditis were complicated with well-marked endocarditis, and in two others the same disease might be present, but its existence was doubtful.

All the five severer cases of pericarditis occurred between the 1st April and 5th Oct. 1844; and it was remarked at the time (and the remark is confirmed by the figures already given), that the disease was observed much more frequently than *usual*, within the period referred to.

Summary.—The cases of acute or sub-acute rheumatism treated by me were seventy-five in number. Of these, thirty-seven, or one-half, had morbus cordis of some kind. The rest had probably no morbus cordis, for twenty-nine are *stated* to have had none; and in *nine*, no mention is made of the heart.

Of the cases having some morbus cordis, *six* had *acute pericarditis* of considerable severity, *two* in a very slight degree, and in two its existence was doubtful.

There was valvular disease, either old or recent, in thirty cases. In two others there was valvular

disease *known* to be recent, and in two more there was doubt whether it was recent or not. The four cases last named were complicated with pericarditis. The *proportion* of cases of pericarditis, then, (excluding the two very slight and two doubtful ones,) was one in twelve and a half; and of disease of the heart of some kind, but chiefly of old standing, about one in two. The heart was healthy in one half.

The *frequency* of pericarditis, and of morbus cordis generally, as observed in my cases, was considerably greater than in the cases treated by the other physicians conjointly. The difference may, in part, perhaps, be owing to a progressive increase in the amount of attention paid to the heart, and to a consequent habit of *recording slighter* cases of morbus cordis than, at an earlier period, might be thought *worth* mentioning; and of such, indeed, as I now think are subjects of curiosity rather than of much practical importance.

The question of the frequency of pericarditis arising in the course of acute rheumatism has excited much discussion within the last few years, and has elicited much difference of opinion from high authorities; it may, therefore, be worth while, in this place, to refer to some of the results which have been arrived at.

Bouillaud, who has contributed more than any other person to excite the discussion of this question, stated, in 1835, that “ pericarditis exists in about one half of the individuals affected with violent acute

articular rheumatism.”* In 1836, he says he had found that acute rheumatism affecting several articulations had been accompanied, in eight cases out of nine, by rheumatism of the sero-fibrous tissue of the heart.† In a still later publication, in 1840, he makes the following statement :—“ In 114 cases of acute articular rheumatism, of which we have made the most exact resumé, there occurred seventy-four of great or of medium intensity, and forty of a slighter description. Now, among the seventy-four cases of the first category, we have counted sixty-four in which the coincidence of endocarditis, or of endo-pericarditis, was *certain*, and three others in which it was *doubtful*; whilst among the *forty* cases of the second category, there is but *one* in which the coincidence in question has been ascertained to exist.”‡ Hence this writer concludes—1. “ That, in violent acute articular rheumatism generally diffused (*généralisé*), the coincidence of endocarditis, of pericarditis, or of endo-pericarditis, is *the rule*, and the non-coincidence *the exception*.”

2. “ That in acute articular rheumatism, which is slight, partial, and apyretic, the non-coincidence of endocarditis, of pericarditis, or of endo-pericarditis, is the rule, and the coincidence the exception.” §

* *Traité Clin. des Malad. du Cœur.*, Pref., p. 14.

† *Nouvelles Recherches sur le Rhumatisme*, artic. aigu. p. 27.

‡ *Traité Clin. du Rhumat.*, &c. Pref., p. 12.

§ *Traité Clin. du Rhumat.*, &c., 1840, p. 12.

Bouillaud's cases of "great and medium" intensity, are probably the same as those I have called *acute* and *sub-acute*; for he characterises the slighter (*légers*) cases by the expressions, "rhumatisme articulaire aigu, léger, partiel, apyretique."

Dr. Hope, after quoting the opinion of Bouillaud, that *one-half* of the individuals affected with acute rheumatism have symptoms of pericarditis, or of endocarditis, and often of both, makes the following remark upon it: "According to my own observation, the statement is not wide of the truth, when rheumatic affections are neglected or inefficiently treated:"* but in the next page of his work, referring to the occurrence of "inflammation of the heart" in acute rheumatism, treated in the manner which he there advocates, he adds, "I think that about one case in twelve would be the maximum in my practice."

Dr. C. J. B. Williams expresses his opinion in the following terms: "I can confidently state, that I have found signs of endocarditis, or pericarditis, or both, to a greater or less extent, in fully three-fourths of the cases of rheumatism which I have examined in the last three years."†

Dr. Macleod, speaking of "rheumatic fever," or the fibrous form of acute rheumatism, states that, "Of the 226 cases of acute rheumatism, above alluded to, the heart was affected in fifty-two, or rather more than one-fifth; but taking the whole

* On Diseases of the Heart. 3rd edit., p. 178.

† Lectures in Lond. Med. Gaz., 1837-8. Vol. ii., p. 866.

number of cases of rheumatism, including every form, the proportion of such complication I believe to be little more than half the above.”*

Dr. W. Budd found that rheumatism of the heart came on in one half of forty-two cases of rheumatism. He also found “that rheumatic inflammation of the pericardium is less frequent than that of the valves of the heart.” “In twenty-one cases of acute rheumatism affecting the heart, which were taken indiscriminately, and whose history was written with exactness, there were five only of pericarditis, and in all these the lining membrane was also affected.”†

Drs. Rilliet and Barthez observed acute pericarditis four times in eleven cases of articular rheumatism (*acute*, I believe).‡ These cases, it is to be remembered, occurred amongst children, and in the children’s hospital in Paris.

M. Chomel in the *résumé* of his practice during the season of 1834-5, refers to forty-nine cases of acute articular rheumatism carefully observed, in which no example was found of pericarditis or of endocarditis.§

In the spring of 1841, I heard the statement of the result of his public practice delivered by Chomel at the end of his course of clinical lectures, and I made the following memoranda which relate to

* On Rheumatism, &c. London, 1842, p. 154.

† Library of Medicine, vol. v., pp. 200 and 194.

‡ *Traité Clinique et Pratique des Maladies des Enfants*. Paris, 1843. Vol. i., p. 210.

§ Quoted by Bouillaud in *Traité Clinique*, 1840, p. 133.

this subject :—In a period of ten months, he had treated in the Hôtel Dieu in Paris, thirty-one cases of acute rheumatism ; of these, nineteen were very acute, and twelve sub-acute. Among these patients, *one* only had had symptoms of disease of the heart, (palpitations,) and in one case only, the rheumatism was complicated with disease of the heart, *beginning whilst the patient was in the hospital*. Bruit de soufflet was heard in seven cases, and in two others its presence was suspected only.

M. Chomel likewise communicated the following results of his previous experience :—In the course of six years he had treated in hospital practice eighty-six cases of acute rheumatism.* Among these patients were found *six* who had symptoms of disease of the heart before the rheumatic attack, and in four others, disease of the heart supervened in the course of the rheumatism. There were twenty-nine patients (or one-third of the whole) in whom a bruit de soufflet was heard during some days.

In the thirty-one cases referred to, (and *perhaps* in all the eighty-six,) the heart was examined with peculiar care, in consequence of the very acrimonious and personal discussions of the question before us, which were for some time carried on between some of the Professors of the School of Medicine in Paris.†

* Looking at the *dates*, I should *suppose* these eighty-six cases to *include* the thirty-one, and to *exclude* the forty-nine just before spoken of.

† We ought to bear in mind the fact, that Chomel considers

Of eight cases of acute rheumatism collected with great care by M. Grisolle after the publication of Bouillaud's work in 1836, pericarditis did *not* occur in *one*.*

The reference I have just made to the opinions of various observers, exhibits a very considerable difference in the results at which they have arrived. Upon this difference I beg to make the following observations :—

1. I think we are entitled to receive with some allowance, and certainly with considerable caution, those statements which are not accompanied by a precise and numerical exhibition of the cases upon which they are founded. Unless when so accompanied, we can never know whether the results given are merely *general impressions* left in the mind of the observer, or whether they are such as have been arrived at by an actual *enumeration* of the cases with their complications. Every one at all accustomed to such inquiries, is aware how widely results of the first description are not only *liable*, but even *almost certain*, to deviate from the truth, and that not only when obtained by incompetent individuals, but likewise by those whose accuracy of observation and good faith are unimpeachable.

rheumatism and gout to be the *same disease*. As the cases above referred to, however, occurred in hospital practice and in Paris, it is probable that all, or nearly all, of them were examples of rheumatism.

* Quoted in Chomel's *Leçons de Clinique Médicale*. Rhumatisme et Goutte. Paris, 1837, p. 205.

2. Several of the authorities quoted, have stated their results in reference to both endocarditis and pericarditis, without distinguishing the two : others have either distinguished them, or have furnished us with the requisite data for doing so. If we take pericarditis and endocarditis *together*, we shall find that Bouillaud observed this complication in six-sevenths of the cases of acute rheumatism ; Dr. Williams in fully three-fourths ; Chomel in about half ; Dr. Hope in half (or one-twelfth in rheumatism treated in a particular manner*) ; and Dr. Budd

* If it could be established that, under different methods of treatment, so great a difference in the results can be obtained, the fact would be most important ; but I feel it my duty again to protest against all conclusions drawn from facts so loosely stated. I utterly repudiate such evidence, come from whom it may, in every department of medicine, and, most of all, in that department which is perhaps the most difficult, viz., in which we have to estimate the absolute and relative effects of different plans of treating disease. For anything that appears to the contrary, the opinion quoted in the text is a *mere guess*—it is opposed to the plainest probabilities, and would be more fitly placed among the exaggerations of a caricaturist than among the sober conclusions of an inductive philosopher. Such *guesses* are the bane of therapeutics, and a fruitful source of those remedies and systems which have successively risen above the medical horizon, flourished for their brief day, and then disappeared for ever, unless when resuscitated for an hour under similar influences in some succeeding generation. Some lover of books might do the profession a service by collecting all such crudities into a volume, which might serve as a beacon to our course, whether backwards into the sea of books, or forwards into that sea of nature, on the shore of which Newton, with equal truth, modesty and beauty, described himself as standing. I am half inclined to volunteer my aid to any such labourer,

in half. I found the same complication in half the cases treated by myself, and in one in three and a half of those treated by the other physicians to the hospital conjointly. So far the conclusions arrived at by the different persons referred to (with the exception of Bouillaud) agree to a very considerable extent.

All the writers quoted, excepting Chomel, either *directly state* or seem evidently to *imply* that the cardiac disease in the cases observed by them was *recent*. It is in reference to this question that a considerable difference is apparent between their results and those of Chomel and myself. Chomel found only *one* case in twenty-one in which the cardiac disease was ascertained to have supervened during the progress of the attack of rheumatism under observation. In one-third of his cases, however, he found a bruit de soufflet, which in *most* of them I think *probably* arose from valvular disease, although he does not admit, nor do I assert, this opinion to be proved.

In the cases of acute rheumatism occurring in University College Hospital, there was found to be *recent* endocarditis or pericarditis—

and by way of earnest, I offer him, as a title for his work, “Random Recollections of Medical Experience.”

I should be sorry to leave any one under the impression that these remarks are directed against *Dr. Hope*; it is against the system that I raise my voice. Had I been seeking them, I could have found abundant materials in other books for similar comment; such blots are only more conspicuous when found in a work of so much value as that of *Dr. Hope*.

1. In one in seventeen of those treated by the physicians before named.

2. In one in five, about, of those treated by myself.

I observed the existence of *valvular* disease (*not ascertained* to be recent) in one out of two and a quarter cases of rheumatism, which proportion is nearly the same as that in which Chomel found a *bruit de soufflet* (*viz.*, one in three).

It thus appears that whilst the proportion of cases of *recent* inflammation of the heart, which I found to complicate acute rheumatism, is *less* by one half than that given by the authors quoted above, it is *three* times *greater* than that deduced from the cases in University Collège Hospital, which were not treated by me, and *four* times greater than that found by Chomel. It is worthy of remark, that the two results last referred to, very nearly agree.

Causes of this difference of opinion.—The differences in the results which have been quoted are too great to be accidental, and one or two reflections have occurred to me, which I beg to offer, as going some way towards reconciling these discordant statements.

1. The fact that a greater number of cases of recent inflammation was observed by me than by M. Chomel, I would explain by the supposition, (which, although an *assumption*, I believe to be true, because it is founded upon a *personal* observation of his practice,—I make this statement also without forgetting the remark previously made at page 488, and which

may only refer to about one-third of Chomel's cases,) that circumstances led me to examine the heart with more care, and more unvarying regularity than M. Chomel did, and that, in consequence, I have either observed some such cases as he overlooked, or which he did not think of sufficient importance to be recorded. The same supposition may account for the *agreement* in the numbers deduced from the cases in University College Hospital, not treated by me, with the numbers of M. Chomel, as well as for the *difference* between both those numbers and my own.

2. Much of the difference between my results and those of all the other physicians referred to, except Chomel, may be ascribed, I think, to another cause. The gentlemen in question have said nothing about the distinction of *previously existing* valvular disease from that supervening during the attack of rheumatism under observation. Hence as they have omitted all *mention* of examples of old valvular disease in their cases of rheumatism, they must either have included them with the cases of recent inflammation, without distinguishing them, and have spoken of them all as if recent, or they must have remained *intentionally* silent respecting the cases of old standing, for they *could* not fail to *observe* them: which of these views is the more likely to be true, every one will judge for himself. I *believe* the former to be the correct one, and shall proceed upon that supposition.

Now the *practical assumption* (I do not say the

direct statement) which I have ascribed to the writers referred to, that the signs of valvular disease of the heart, observed in cases of acute rheumatism, arise in all instances from *recent inflammation*, is certainly erroneous. In a great number, perhaps in most, of the cases, the heart-disease is of older date than the rheumatism,* and in many of the rest, the duration of the valvular disease is un-

* The truth of this statement will appear from the consideration and comparison of the facts which follow, and of those given at page 503-4. Between December 1837, and February 1841, I examined and noted the condition of the heart in 1,026 patients, in University College Hospital, *taken indiscriminately* from among those admitted for all kinds of diseases. This was done for the purpose of ascertaining what proportion of them had signs of disease of the heart; and I found physical signs of a greater or less amount of disease in this organ in 413 cases (these are exclusive of cases of anæmia), as well as signs more or less doubtful in 67 more cases. They were, for the most part, examples of valvular disease, but include, also, a few of hypertrophy without valvular disease. Of these cases, 105 belonged to the class of morbus cordis; that is to say, the affection of the heart constituted the main disease. As the signs were noted almost always at my first visit after the patient's admission, all those cases of inflammation in the heart are excluded which supervened after that time: and, as I find only *one* case distinguished in which the endocarditis was *known* to be *recent*, and only two of pericarditis (one acute and one chronic), I think the numbers given may represent pretty accurately the proportion of physicians' cases of all kinds—and including, of course, cases of rheumatism—which exhibited signs of *old* disease of the heart. Now, as the proportion of *valvular* diseases in *all* the cases *approximates* to the *proportion* of valvular diseases in the cases of acute rheumatism, it seems to be a necessary conclusion, that most of the examples of valvular disease,

certain; for in *most* instances in which the physical signs are observed when the patient is first examining acute rheumatism, are of older date than the rheumatism itself.

The *excess* of cases of valvular disease in the class of acute rheumatism, compared with the class of "all diseases," is probably due to, and therefore represents, the *amount* of the excess of *RECENT endocarditis* in the one class above the other; and, as we have just seen that the class "all diseases," contains in it *hardly any* examples of *recent* disease of the heart, the *same excess* may be taken to represent the *ABSOLUTE* amount of cases of acute endocarditis supervening in the course of acute rheumatism. It therefore becomes interesting to calculate the amount of the excess referred to, and it will be found to be as follows:—

Of the 413 cases of heart-disease, twenty-eight were unattended by any murmur, and were cases of hypertrophy; and 385 cases exhibited a murmur of greater or less intensity.

Of the 1,026 cases, therefore, 37·524 per cent. were accompanied by a cardiac murmur; or,

We may exclude eighty-two cases of acute or sub-acute rheumatism from the 1,026 cases. Of these eighty-two cases of rheumatism, fifty-five were accompanied with a murmur, and twenty-seven were not.

There remain, therefore, 944 cases without rheumatism; among which are found 330 cases with a valvular murmur, i. e. 35·063 per cent.

We have seen, that among cases of acute rheumatism (pp. 483-4), old or recent valvular disease was found in thirty-four out of seventy-five, or in 45·333 per cent.

The *excess* in the amount of valvular disease in cases of acute rheumatism, therefore, above that in *all diseases indiscriminately*, is 7·809 per cent.; and above that, in *all diseases exclusive of rheumatism*, 10·270 per cent.

The frequency of acute endocarditis in rheumatism thus arrived at, will be made the basis of some future calculations, and also of comparison with the observations of other physicians. It is, therefore, important to keep clearly in view a fundamental differ-

amined, we have no means of distinguishing whether the valvular affection be old or recent.*

ence in the character of the data of those writers who will be quoted, as compared with the data made use of in the above calculations. The writers referred to, estimate the frequency of endocarditis from *direct* observations, made during the life of the patients. I have not *attempted* to do this, because I am persuaded that a number of cases of endocarditis cannot be *distinguished* during life, from cases of *old* disease. (See the note below.)

* On this subject I would remark,—1. That in old valvular disease, and in recent endocarditis, the modifications in the sounds and impulse of the heart, and in the extent of dulness, on percussion, are in very many cases the same. 2. The pyrexia may be a part of the rheumatism, and therefore affords us no aid. 3. In very many cases of both kinds, there is no *pain* in the cardiac region, or the pain is plainly seated in the integuments; and in all cases, taken singly, it is a very uncertain guide. 4. The permanent *disappearance* of the bellows' murmur, I believe to be the exception, instead of the rule, in cases of *recent* endocarditis; and, therefore, it does not generally distinguish this from old valvular disease.

I have been enabled to discover the existence of *recent* endocarditis, in a few cases, chiefly by the following circumstances: 1. By the appearance of a bellows' murmur, which could not be ascribed to venesection, or to any other obvious cause; and in a patient who was found to be free from it on admission. 2. By some considerable change in the rhythm of the heart, in cases in which it was at first found to be natural. I have observed the pulse to become *decidedly less frequent*, and each individual beat to be more slowly performed; in other words, both *slow* and *tardy*. The action of the heart becomes irregular, both as to its force and rapidity, and the duration of the periods of rest, and often also intermitting. With these signs, I have generally observed the bellows' murmur to persist after the heart's action has again become regular. We might not perhaps, *à priori*, have expected the contractions of the heart to become *less frequent* and

3. If in a large proportion of the cases of valvular disease referred to, the physical signs *were proved* to arise from, and therefore to indicate, *existing* inflammation, the conclusion, that endocarditis is more frequent than pericarditis, would not yet be warranted. For anatomical and physiological reasons, a very slight amount of endocarditis, having its seat in the valves, will give rise to an appreciable murmur; and it is almost certain that an equally trifling amount of pericarditis would not be so readily detected, and that such cases have not in fact been counted among those spoken of by the writers in question.—(Vide also on this subject, note to p. 551.)

tardy in a disease which must increase the sensibility of its lining membrane. Perhaps the cause is the same as that of suspension of the peristaltic action of the intestines in peritonitis, and as that of the paralysis of the intercostal muscles, which some physicians believe to occur in pleuritis. Be the explanation what it may, however, I am quite sure, both from the careful observation of such cases during life, and from an examination of the heart after death, that the symptoms I have described are produced by endocarditis. But then they are *not* present in *all cases* of endocarditis, as I have also *ascertained*. Were I to trust to the *impression* on my own mind, unchecked by figures, I should say that I have found the symptoms in question, in cases of endocarditis, unaccompanied by pericarditis; and that in cases of endo-pericarditis, I have found the *frequency*, and perhaps the *quickness*, of the pulse increased, with or without intermittent or irregular action. Cases of pericarditis, and of endo-pericarditis, with increased frequency and quickness of pulse, would appear to be unfavourable to the explanation of the slowness and tardiness of the pulse already adverted to.

4. The excessive proportion of cases of heart-disease, observed by Bouillaud in his cases of rheumatism, (nearly twice as high as that found by any other physician,) does not admit of the same explanation; nor can I suggest any other view which appears to me so reasonable as this, viz. either that he has fallen into some error in the *enumeration* of his cases, or that he has unduly increased the number of cases of valvular disease, by including amongst them cases in which there was a bellows' murmur, produced by anæmia, whether idiopathic, or consequent on the large and repeated venesections which he is known to advocate and to practise. Bouillaud's own explanation of the different results obtained by himself and others, I believe is this—that *they* have *overlooked* cases which *he* has observed and recorded. This explanation is no doubt true to a certain extent, but only in reference to *some* of the individuals to whose opinions he is opposed; and it is therefore totally inadequate to serve the purpose he has in view. As I have myself suggested a similar explanation of the difference, in the results which I obtained from an examination of the cases treated by myself in University College Hospital, and of those treated at an *earlier period*, and by several other physicians *conjointly*, I am anxious to guard against any misunderstanding, by adding a word in further explanation of my meaning. I do not intend to insinuate (what I have heard Bouillaud affirm) that others have overlooked cases which I

have counted, *because they were not* COMPETENT to observe them ; but I believe this may have happened *partly* because circumstances have occurred to me which induced me to give more than ordinary attention to this subject ; and partly because I may, (for the last-mentioned reason) have *recorded* cases which they perhaps *observed*, but did not consider of sufficient importance to be mentioned. The physical signs of valvular disease do not require for their detection so delicate or so practised an ear, that auscultators of acknowledged respectability have need to resort to the odious expedient of charging each other with an *inability* to appreciate them.

If we consider *acute pericarditis* apart from endocarditis, or valvular disease, the results are as follows. Bouillaud found this complication in one-half of his cases of acute rheumatism. Dr. Macleod, in one-fifth in *adults*, and in one-half in children (four in eight). Rilliet, in one-third in children. Dr. W. Budd found it in one out of every eight and a half cases ; and I found it in one out of twelve and a half of *my own* cases, (or, including two *slight* cases, in one in nine and a half,) and in one out of seventeen of the rest of the cases observed in University College Hospital. Upon these statements I would remark :—

1. That Bouillaud gives no *numerical data* for pericarditis alone ; hence we cannot feel assured that he has carefully enumerated his facts.

2. Dr. Macleod, whose proportion of cases of pericarditis stands next after Bouillaud's, has made *no mention* of endocarditis, or of valvular disease, and therefore I suspect he may have included some of these among his cases of pericarditis.

3. Rilliet's observations refer to *children* only, in whom this complication is believed to be more frequent: his results also *approach* to those of Dr. Macleod for children.

4. Dr. W. Budd and myself alone give data which admit of a fair comparison, and (if I include my *slighter* cases, as he probably did) the results are very nearly the same, and certainly agree as closely as could be expected, when we consider the comparatively small number of cases from which they have been obtained.*

* In Dr. Latham's lectures, there are some important statements bearing upon the questions just discussed.

Out of 136 cases of acute rheumatism treated by Dr. Latham, the heart was affected in ninety, and exempt in forty-six.

The disease was seated in the

Endocardium alone in	63
Pericardium in	7
Endocardium and pericardium in	11
And the seat was doubtful in	9

It thus appears that pericarditis occurred twice in every fifteen cases of rheumatism; and, including all the slight as well as severe cases, I find the proportion to be identically the same in my cases of rheumatism.

Dr. Latham found signs of valvular disease in rather *more* than one-half of his cases of rheumatism, and I found the same signs in rather *less* than one-half of my cases.

The general result of the preceding investigation appears to me to be,—

1. That acute inflammation of the heart has occurred less frequently as a complication of rheuma-

The coincidence between these results of pure observation (as far as they have been given, and therefore as far as they are comparable) and those already cited in the text, proves, I think, the substantial accuracy of both. It is in the *interpretation* of the observations that so great a difference appears, and I cannot but believe that the remarks I have made upon the statements of the authorities I have quoted, are to a considerable extent, although not equally, applicable to those of Dr. Latham. Dr. Latham (page 145) has spoken of all his cases of valvular disease in rheumatism as examples of *recent* inflammation; but in a portion of them only has he given us any *proof* that the disease was recent. It appears by the facts stated in Dr. Latham's work, at page 233, that the murmur supervened after the patient's admission, in thirty-six cases; and by other facts given, at page 147, that the murmur *ceased* ultimately in seventeen cases. All the cases in which either of these circumstances was observed may be accounted cases of *recent* endocarditis; we are not informed, however, in how many instances the murmur was *both* observed to *commence* and to *cease* in the *same individual*. The number of cases *proved* to be recent is therefore uncertain, but must be between 53 (36+17) and 19 (36-17). Dr. Latham has shown, in various parts of his work, that he is perfectly acquainted with the distinctions between recent endocarditis and old valvular disease (vide p. 97 to 116). The remarks he has made upon this subject agree in substance with those which I have already made (vide note to p. 496). It may therefore be said, that he has kept these distinctions in view in making his observations, of which he has only given us the results. But I would urge that it would be very unsafe for us to assume this in the absence of any direct statement from the author to that effect, and still more in the face of

tism, in my experience, than it has been *believed* to occur in the experience of those writers whose opinions seem to have been most generally adopted by the profession.

some strong reasons for believing the contrary. One or two of these reasons I will state, for the question is a most important one.

1. The proportion of *all* cases of morbus cordis in acute rheumatism, found by Dr. Latham, as well as by the chief authorities I have referred to, is very nearly the same as that found by me. Now, I *know* that my cases comprise the examples both of old and recent disease, and I therefore *infer* from the agreement of that their cases comprise the same.

2. If *all* the cases mentioned by Dr. Latham were cases of *recent* inflammation, he has intentionally omitted all mention of cases of *old* valvular disease. Such an omission is in itself *improbable*; he nowhere tells us that he has made it, and he writes in such a manner as to leave the impression that he speaks of all cases of heart-disease, attended by murmurs, which he had observed.

3. Practical physicians are well acquainted with the frequent complication of pericarditis with pleurisy and pneumonia. Dr. Latham has adduced important evidence of this, and I have observed this complication in a large proportion of my cases. Dr. Latham has found the frequency of inflammation of the lungs to vary in different cases of rheumatism, as follows (p. 163):—

In cases of rheumatism without heart-affection, 1 in 9.

In cases of rheumatism with *endocarditis* alone, 1 in 9.

In cases of rheumatism with *pericarditis* alone, 1 in 2.

In cases of rheumatism with both endocarditis and pericarditis, 2 in 3.

Now, the remarkable *difference* in the proportion of cases of inflammation of the lungs, among the cases of pericarditis and those of endocarditis, and the equally remarkable coincidence of proportion among the cases of rheumatism, with endocarditis,

2. That the frequency of inflammation of the heart, even in my cases, has been such as abundantly to show the great influence of acute rheumatism in its production. To *prove* strictly the latter proposition, it would be necessary to show that inflammation, of the heart occurs less frequently in other acute diseases than in acute rheumatism. This I have not had the leisure as yet to accomplish; but with the caution now given, I think I may venture to make the required assumption.

Perhaps I may here record an opinion which I did not state in its proper place, because there are no published data to refer to in its support, but to which, on account of the scrupulous accuracy of the author, I attach all the importance that a verbal statement ought ever to receive. In 1841, M. Louis expressed to me his strong conviction that inflammation of the heart occurred much less fre-

and without any heart-affection, admit of a ready explanation on the supposition, the truth of which I am attempting to prove, that the cases called endocarditis, included also all cases of old valvular disease.

4. The great difference in the *mortality* of the two classes of disease seems to favour the same view. Out of eleven cases of endopericarditis, three deaths occurred, but not one death among the sixty-three cases of simple endocarditis. This comparison, I think, proves that endocarditis is less fatal than pericarditis, but I believe it makes the difference appear to be greater than it really is, and the supposition that many of the cases called endocarditis were cases of old valvular disease, affords a ready explanation of the apparently very great disparity in the mortality of the diseases compared.—(Vide also page 497, paragraph 3).

quently as a complication of rheumatism, than it was then the fashion in Paris to believe.

2.—*Frequency of Morbus Cordis in CHRONIC Rheumatism.*—Out of 109 cases of chronic rheumatism taken indiscriminately, and treated in the same period, and by the same physicians as the eighty-six cases of acute rheumatism referred to at page 481, I find,

20 are stated to have had some disease of the heart, chiefly valvular, and in *most* cases probably of old standing.

2 only had acute pericarditis, and even of these one was doubtful.

87 had no disease of the heart, or none is mentioned.

109

If we compare these cases of chronic with the eighty-six cases of acute rheumatism, which were observed under the same circumstances we find,—

1. That the proportion of cases of disease of the heart, *chiefly* valvular, and believed to be *chiefly* old, is nearly the same in both classes, being about 22·09 per cent. in the cases of acute rheumatism, and about 18·34 per cent. in those of the chronic form.*

* *At first view*, this result may appear to be inconsistent with the facts given in the note to page 494, inasmuch as the proportion of cases of morbus cordis in chronic *rheumatism*, above given, seems to be smaller by one-half, than in *all kinds of diseases*, taken indis-

2. That there is however a small excess of the variety of cases of morbus cordis under consideration among the cases of acute rheumatism, which is probably due to a greater proportion of examples of *recent endocarditis* in this form of the disease.

3. That the *amount* of the excess just referred to is 3·75 per cent., and assuming it to depend wholly upon *recent endocarditis*, these figures will represent the *amount* of the excess in the proportion of cases of *recent endocarditis* in acute rheumatism *above* the proportion in chronic rheumatism.

The difference between the amount of the excess of valvular disease in rheumatismus acutus, over that in rheumatismus chronicus, (viz. 3·75, as above,) and the amount of the excess of valvular disease in rheumatismus acutus, over that in "all diseases," (viz. 10·270, vide note to p. 494,) is 6·520; and this figure may represent the excess of the amount of valvular disease in rheumatismus chronicus, over that in "all diseases;" and since, further, this excess is probably due to *recent endocarditis*, and also since

criminally, as given in the place referred to. The two series of cases, however, are not *strictly* comparable, because those spoken of at page 494, were all observed for the express purpose of ascertaining the proportion of cases in which there was any degree of morbus cordis; and, therefore, under circumstances leading to the record, if not to the observation, of slighter forms of cardiac disease in them, than in the 109 cases of chronic rheumatism recorded without any such view. Indeed, from the statements made, page 505, it will appear that there is a greater proportion of cases of valvular disease in chronic rheumatism than in the class

the class of all diseases here referred to probably (for reasons given in the note p. 494) includes hardly any cases of recent inflammation of the heart, the same figures will probably represent nearly the *absolute* amount per cent. of recent endocarditis in cases of rheumatismus chronicus.

It is necessary, however, to remember that the figure 10·270 above referred to, is calculated from observations made by myself alone; whereas, the figure 3·75 is calculated from observations made by three other physicians conjointly, and which yielded a smaller proportion of cases of valvular disease than did my observations. The difference, therefore, just arrived at, 6·520, representing the amount of recent endocarditis in chronic rheumatism, if erroneous, will probably be so by making the proportion of endocarditis in the last-mentioned disease appear too great.

4. That the proportion of cases of *ascertained acute* inflammation of the pericardium, (and pro-

of "all diseases." Hence, that which at first view appeared an inconsistency, affords, when more closely examined, an additional proof of the truth of the statements to which it appeared to be opposed.

The consistency of this explanation *at once* with the facts just referred to, and with those to which it has been before applied at pages 484 and 492, last paragraph, viewed in connection with the statement that the observations consist of several series made at different times and places, and by different persons, will afford to those who reflect upon the subject, a strong confirmation of the truth of the explanation.

bably also, as we have just seen, of the endocardium,) is much greater in the course of acute than in that of chronic rheumatism.*—(Vide note to p. 509.)

* From the facts which have been given in the text, various other questions appertaining to the absolute and relative frequency of pericarditis and of endocarditis, in different circumstances, may be solved numerically, and more or less conclusively in different instances. For the sake of those persons who may not find the inquiry too repulsive, the following examples of a few such questions are here given.

(1.) *Comparative frequency of acute pericarditis and of acute endocarditis in acute rheumatism.*

1. From the facts stated at page 483, we may calculate that in the cases of acute rheumatism treated by me, there occurred eight per cent. of cases of acute pericarditis (or, including two slight cases, 10·66 per cent.), and in the other cases treated in University College Hospital, the proportion of pericarditis was 5·813 per cent.

2. The frequency of endocarditis must be calculated by the more circuitous process already given, (p.494, note,) and the result cannot therefore be so *absolutely* depended upon. I am only able to give the proportion in the cases treated by myself, and, as we have seen, it is about 10·270 per cent. These calculations would show that acute pericarditis and acute endocarditis occur with equal frequency in cases of acute rheumatism.

A similar result may be obtained by a mode of calculation somewhat different from No. 2, and more strictly comparable with it: thus,—

3. The proportion of acute pericarditis in all kinds of diseases taken indiscriminately, I have found from numerous observations to be 1·25 per cent. The difference therefore between the proportion in acute rheumatism, and that in *all* diseases, is 9·41 per cent. Compare this with the corresponding difference already given above, (viz., 10·270, in paragraph No. 2,) and which repre-

3.—*Frequency of other internal inflammations than those of the heart in ACUTE rheumatism.*

In the forty-seven cases of acute or sub-acute

sents the amount of acute endocarditis in acute rheumatism, and the result is an excess of 0·860 per cent. of acute endocarditis above the proportion of cases of acute pericarditis in acute rheumatism.

4. Now the proportions obtained in paragraphs Nos. 2 and 3 might approximate still more closely if we could make a just allowance for the following difference in the character of the data upon which they are based. The class "all kinds of diseases," referred to in paragraph No. 2, are those described in the note to page 494; and being noted at the time of the patient's admission, they exclude all cases of endocarditis or pericarditis supervening after admission. But in the class "all kinds of diseases," referred to in paragraph No. 3, the observations were noted after the patients were discharged, and the class therefore *includes* all those cases of acute disease which supervened in the hospital. Be it remembered also, that in this class would occur many cases of acute inflammation of the heart, complicating rheumatism and Bright's disease.

The correction which these facts show to be necessary, would raise the figure 9·41 by very nearly the proportion of cases of acute pericarditis occurring *in the course of* all diseases indiscriminately, and would thereby bring it nearer (and perhaps very near) to the figure 10·270 obtained by the first calculation, as given in paragraph No. 2.

(2.) *Comparative frequency of acute pericarditis and of acute endocarditis in chronic rheumatism.*

From the figures given at page 504, it seems that pericarditis occurred in chronic rheumatism in about 1·834 per cent. of the cases. I have no data which enable me to calculate *directly* the proportion of cases of acute endocarditis in chronic rheumatism; (owing to difficulties in diagnosis referred to at page 496, note;)

rheumatism, mentioned at page 480, the following complications were observed :—

but a method of calculating it *indirectly*, and somewhat rudely, has been given at page 505. The proportion resulting from that calculation would be 6·520 per cent.; consequently, higher than that of pericarditis; but, for reasons given p. 506, this result can only be regarded as a rude approximation to the truth.

(3.) *Comparative frequency of acute pericarditis and of acute endocarditis in "all kinds of diseases."*

1. From observations before referred to, I find that *acute pericarditis* occurs in all diseases indiscriminately, in the proportion of 1·25 per cent.

2. I have no means of calculating the proportion of cases of *acute endocarditis*, in a SIMILAR series of cases of all kinds of disease.

3. The proportion of cases of acute endocarditis in *fatal* cases of *all* kinds may, however, be calculated by Tables I. and III., pp. 537 and 541. From these tables, it appears there were six cases of acute endocarditis in 192 fatal cases of all diseases, i. e. 3·13 per cent. The corresponding per centage of cases of *acute pericarditis*, deduced from the same facts, is 4·68.

(4.) *Comparative frequency of acute pericarditis in rheumatismus acutus, rheumatismus chronicus, and in "all diseases."*

Acute pericarditis was found—

1. In *acute* rheumatism, in 8 per cent. of the cases (or including two slight cases in 10·66 per cent.).

2. In chronic rheumatism in 1·834 per cent.

3. In "all diseases," in 1·25.

The results numbered 1 and 3 are calculated from the observations referred to in the note pp. 507 & 8, paragraphs 3 and 4, and observed by myself; that numbered 2 is calculated from the cases described p. 504, and treated by the other physicians to the hospital. If we make all the calculations from the cases treated by the latter physicians alone, we shall obtain results more strictly comparable; and, numbering them as above, they are—

1. *In the head.*

8 had *pain* in the head : and of these eight,
one had also drowsiness and convulsions,
four giddiness, and one delirium.

1 had *insensibility*. This symptom occurred
early in the disease, and lasted for a short
time only. In

8 the state of the head is not mentioned,
and in

30 the head was free from disease, or there was
— only rheumatism of the scalp.

47

No. 1.—5·81 per cent. (p. 480—1.)

No. 2.—1·834 per cent. (p. 504.)

No. 3.—0·374 per cent.

(5.) *Comparative frequency of acute endocarditis in rheumatismus acutus, rheumatismus chronicus, and in "all diseases."*

We have already seen that acute endocarditis occurs—

1. In *acute* rheumatism, in 10·270 per cent. of the cases (note to p. 494, also note to p. 507 & 8, paragraphs 3 and 4).

2. In chronic rheumatism, in less than 6·520, note to p. 508, paragraph 2.

3. I have no means of calculating the proportion of cases of *acute* endocarditis in "all diseases" (vide note to p. 509).

Pericarditis and endocarditis, then, appear to occur with almost equal frequency, whether they are observed in connection with—

1. Acute rheumatism (note to p. 507). Or, 2. Bright's disease (p. 537). Or, 3. All diseases (note to p. 551). In chronic rheumatism alone, a considerable disparity is found ; but, as has been already stated, the results which relate to this form of the disease must be received with considerable caution.

With respect to the relative frequency of pericarditis and endocarditis, I have noticed the following opinions in the works of those writers whom I have had occasion to consult.

Dr. Watson observes, that "when pericarditis happens, in the course of an attack of rheumatism, so, also, to the best of my

One had also erysipelas of the face.

Only about one-fifth therefore had symptoms of any affection of the head, and not more than one in sixteen (if so many) had any inflammation within the head.

2. *In the lungs.*

11 (about one fourth) had *bronchitis*. This was generally trifling in amount, and in three it is stated to have been chronic, and to have existed previously.

2 (one in twenty-three and a half) had *pleuritis*. In one the left was the side affected; in the other, both sides; in the last, there were also tubercles. In

18 the lungs are not mentioned, and in

16 there were no symptoms of disease in the lungs.

47

belief, in almost every instance does endocarditis." (Lectures, vol. ii., p. 263. London, 1843.)

Dr. C. J. B. Williams believes that rheumatism "still more frequently produces endocarditis," than pericarditis (quoted already, p. 476).

Dr. W. Budd found endocarditis to be *four* times as frequent as pericarditis, in acute rheumatism (vide ante, p. 487).

All these opinions, but especially the last, *appear* at first sight to be opposed to the results I have given above; but, in reality, the difference is only *apparent*; for, whilst my numbers refer to *acute endocarditis alone*, those of Dr. Budd, and probably, also, of the other writers in question, *actually*, although not professedly, comprise both *acute* endocarditis, and *old* valvular disease (vide p. 493, paragraph No. 2; vide, also, the opinion of Dr. Latham, quoted in the note to p. 500).

3. *In the abdomen.*

There was no example of recent inflammation in the abdomen.

In the eighty-six cases of rheumatism mentioned at page 481, the following were the complications noted :—

1. *In the head.*

2 had *insensibility*. One of these had undoubted *meningitis* with effusion of serum and blood, the other is the one referred to already in the forty-seven cases last mentioned.

4 had *pain* in the head. Of these, one had also drowsiness and convulsions, one confusion of intellect, and two giddiness.

2 had *giddiness* alone.

2 had *delirium* alone. In

3 there was no symptom of disease in the head, and in

75 the head is not mentioned.

2. *In the lungs.*

8 (about one-eleventh) had *bronchitis*, chiefly chronic.

1 had *pleuritis*. In

5 there was no disease, and in

73 the lungs are not mentioned.

3. *In the abdomen.*

2 had acute *peritonitis*.

1 had *icterus*.

1 had *diarrhœa*.

In the forty-two cases of rheumatism treated by

me, and mentioned at page 482, the following complications occurred :—

- 3 (1 in 14) had *pneumonia*.
- 5 (1 in 8) had *acute* bronchitis.
- 1 had pleuritis.
- 1 had erythema nodosum.
- 1 had roseola (gonorrheal ?).
- 1 had conjunctivitis (do. ?).

In the rest there occurred no inflammatory complication.

These results are such as are furnished by the cases I have examined, but I do not attach much importance to them. The proportion of the cases in which the state of each organ is not mentioned, is so high as to justify us in believing that many instances of internal inflammations complicating rheumatism must have been omitted. I do not think that these facts warrant us in drawing any very positive conclusions respecting the relative frequency of pericarditis and of other internal inflammations in acute rheumatism. As far as they go, however, they seem to show that pericarditis occurs more frequently in these circumstances than any other inflammation, except bronchitis. Inflammations of the lungs, pleura, and parts within the head, are perhaps the next in order, and those in the abdomen are the least frequent.*

* In the work already cited, Dr. Latham gives the following facts :—Of 136 cases of acute rheumatism, inflammation of the lungs was found in 24, viz., pneumonia in 18, pleurisy in 2, and severe bronchitis in 4. The proportion of the whole is about

4. *Frequency of other internal inflammations than those of the heart in CHRONIC rheumatism.*

In the 109 cases of chronic rheumatism referred to at page 504, the following complications were noted :—

1 in $5\frac{1}{2}$. This agrees very closely with the proportion in my 42 cases referred to in the text, which was about 1 in $4\frac{1}{2}$.

In a previous note I have given the result of Dr. Latham's observations upon the relative frequency of inflammation of the lungs, in cases of rheumatism, with and without accompanying inflammation of the heart. It may be interesting to record here an analysis of 20 cases of pericarditis which I made with the view of determining the proportion of cases in which pleurisy and pneumonia complicate the cardiac inflammation. This analysis was made above a year ago, and for that reason it does not admit of so strict a comparison with that of Dr. Latham, as if it had been made for this purpose.

Among the 20 cases of pericarditis, pleurisy was found in 13. In 6, on the left side, in 3 on the right side, and in 4, on both.

Among the same 20 cases, pneumonia was found in 7, it was double in 4, on the left side in 2, and on the right side in 1.

I found however a considerable difference in the frequency of pleurisy and pneumonia, according as the pericarditis belonged to one or the other of the two classes of cases already described (page 453).

Of the 20 cases of pericarditis, 11 were *rheumatic*, and 9 were what, to avoid circumlocution, I will call *renal*.

In 5 of the 11 *rheumatic* cases, there was also acute endocarditis, but in none of the *renal* cases was this complication found.

Among the 11 *rheumatic* cases, pleurisy was found in 5, and pneumonia in 5. In 4 of the last there was pleurisy as well.

Among the 9 *renal* cases, pleurisy was found in 8, and pneumonia in 2.

Pleurisy therefore was more frequent in the *renal* than in the *rheumatic* cases, whereas the contrary is true of pneumonia.

1. *In the head.*—One had *acute meningitis*, one *delirium*, three *headache*, and four *giddiness*. *Hemiplegia* also was noted in *five* cases, but I have omitted to state whether it was of older date than the *rheumatism*. In 100 the state of the head is not mentioned.

2. *In the lungs.*—*Bronchitis* was found in five cases, *pneumonia* in two, *pleurisy* in one, and the lungs are not mentioned in 105.

3. *In the abdomen.*—*Hepatitis* occurred in *one* case. There was no abdominal inflammation noted in the rest. The remarks made upon the value of the results last given are equally applicable to these. As far as the cases go, however, they seem to show,—

1. That acute inflammations of other organs, as well as of the heart, are less commonly observed in the course of chronic, than of acute *rheumatism*.

2. That in the course of *chronic* *rheumatism*, *pneumonia*, *pleuritis* and *meningitis* occur as often as *pericarditis* does.

5. *Of the circumstances which favour the occurrence of pericarditis in the course of rheumatism.*

1. *Metastasis.*

The examples of the connection of *rheumatism* and *pericarditis*, we have seen (p. 454) were fifteen in number. In *ten* of these the *rheumatism* continued without any abatement after the *pericarditis* had supervened ; in *one* the *rheumatism* ceased, but not suddenly, about the time the *pericarditis* appeared ; and in *another*, the *rheumatism* gradually subsided,

and had altogether ceased for three or four days before the pericarditis began. In *one* case no information on the point in question is given. In *two* cases the pericarditis *preceded* the rheumatism, in one by a few hours only, but in the other by some days. In the latter case the rheumatism was most *trifling* in degree, and *transient* in duration, whilst the pericarditis was most severe and fatal, and the case may *perhaps* be viewed, as already suggested, (p. 454, also p. 519-22,) as an example of rheumatic fever without arthritis. If this opinion be adopted in respect to this case, it may perhaps be extended also to another case in which no articular affection was observed, (and which therefore I have not here *counted* among the cases of rheumatism,) but in which there existed pericarditis and profuse perspirations, without any *other cause* of the internal inflammation being discovered.

The above facts *prove*, I think, that *metastasis* is not a *frequent* cause of the pericarditis which occurs in connection with rheumatism, since I have not met with a single example of its operation; but they do not prove that such a thing as metastasis *never* occurs. It *may* be true that if, in the height of acute rheumatism, anything occurred to cause the somewhat sudden disappearance of the articular affection, (without at the same time removing from the system the *presumed cause* of that affection,) the heart would be more likely to suffer than in those cases in which the articular affection gradually subsides. The only mode by which the question could

be determined, would be to compare an equal number of cases in which the rheumatism in its progress has followed each of these courses, and to ascertain in which class the heart has suffered most frequently. This is a test however not very easily applied on account of the infrequency of those cases of rheumatism in which all external inflammation abruptly disappears. Perhaps an approximation to the truth might be arrived at by comparing those cases in which the articular affection is *more fixed* with those in which it exhibits a greater tendency to *migrate* from one joint to another (vide p. 523). If we thus permit ourselves for a moment to *go beyond* the evidence of the facts before us, without however *contradicting* it, and to *speculate* upon the evidence with which facts, not yet observed, may furnish us, (a procedure not only consistent with the philosophy of Bacon, but forming an important part of it, and exemplified abundantly in the history of the physical sciences,) we may easily frame an hypothesis consistent at once with the facts I have adduced, and with the doctrine of metastasis. *Assuming* the cause of rheumatism to be a morbid matter in the blood, we can conceive (what seems accordant with facts) that this matter has a greater tendency to fix itself in the joints, and to cause inflammation there, than elsewhere; that it has however a certain tendency to become fixed in other parts (especially some internal organs); that *in general* it locates itself in these parts without, at the same time, leaving the joints (perhaps from an excessive formation of the morbid matter);

but that if it do leave the joints *suddenly* (and not in consequence of being gradually destroyed or expelled from the system), as from any external cause, it will be more likely, than in other circumstances, to fix itself in the other parts for which it has an affinity.

The testimony of most observers agrees with my own, in tending to show that metastasis is not the *ordinary* cause of the development of pericarditis in the course of rheumatism. Some writers indeed seem to think that metastasis *never* occurs, whilst others appear to me to attach an undue importance to it. Perhaps the speculations I have just hazarded may help us to reconcile whatever is contradictory in the statements of authors upon this subject.

Cases of rheumatism, in which the cardiac inflammation appears before the articular.—Various writers have observed cases in which inflammation of the heart began before the articular inflammation in rheumatism.

1835.—Dr. Watson * gives one case in which the heart suffered first, and states that he has seen others; he refers, also, to a case related by Dr. Duncan, of Edinburgh.

1839.—Dr. Hope † has observed the same fact, and refers to a second case, which had been mentioned to him.

1835.—One of the best-marked examples, how-

* Lond. Med. Gaz., vol. xvi.

† Treatise on the Heart. 3rd edition, p. 178-9.

ever, of the occurrence under consideration is related by M. Hache.* The patient was *first* attacked with pericarditis, a very intense acute rheumatism supervened on the twelfth, and ceased on the twenty-first day. Then pleurisy of the left side showed itself, which had ceased entirely on the seventeenth day. The affection of the pericardium, after having slowly decreased from the fifteenth to the thirty-second day, was aggravated on the thirty-sixth, and was not altogether cured until fifty days from its commencement.

1842.—A very unequivocal case of the same kind is related by Dr. Graves.† The patient was admitted into the hospital for trifling febrile symptoms. On the fifth day afterwards, symptoms of pericarditis appeared, and on the tenth day severe articular rheumatism supervened, ran its usual course, and lasted ten or twelve days. The symptoms of pericarditis ceased about two days before the rheumatism appeared, and the heart exhibited no sign of disease throughout the course of this affection.

Acute rheumatism and rheumatic pericarditis without any articular affection.—Two of my cases (p. 454) seem to render the opinion not improbable, that as, in rheumatic fever, the articular inflammation *ordinarily* occurs without pericarditis, so, in some rare instances, the pericarditis *may* occur without any articular inflammation, *the cases being in all other respects the same.* The cases given by M. Hache

* Archiv. Génér. de Méd., t. ix., p. 325.

† Clinical Medicine, p. 915.

and Dr. Graves may be considered to have been of this description, before the *ordinary* symptoms of rheumatism supervened. It seems to me probable that, in these cases, the morbid condition of the general system was essentially the same in *all periods* of their course, and was also essentially the same as that which exists in ordinary cases of acute rheumatism. In *one* stage of this diseased condition, inflammation of the *heart* appeared; in *another* stage, inflammation of the *joints*. It has been *proved* that either of these inflammations may appear before the other; also, that the *articular* inflammation *commonly* runs its course without being accompanied by that of the heart. There seems, therefore, to exist a strong *à priori* argument in favour of the occasional occurrence of inflammation of the heart in rheumatic fever, without inflammation of the joints. This opinion implies the possibility of rheumatic fever occurring without arthritis, and is supported by the facts which support the latter opinion.

The doctrine that rheumatic fever may occur "without rheumatism," is strongly and ably advocated by M. Chomel, who considers such cases to be analogous to those, admitted by various observers, of small-pox, measles, and scarlet fever without any eruption.*

* For a fuller discussion of the doctrine in question, I would beg to refer to some valuable and original remarks by M. Chomel, on the analogies of what he terms "*disseminated inflammations*," and on the differences between these and other inflammations. In

Dr. Graves has witnessed "several well-marked cases of individuals liable to rheumatic fever, and who had previously suffered from attacks of fever,

this class he places small-pox, measles, scarlet fever, typhus, urticaria, pemphigus, zona, varicella, aphthæ, furuncles, rheumatism, the various inflammations of plague and syphilis, and also the metastatic abscesses which follow wounds, operations, parturition, and small-pox. The chief points of agreement which he notices, among these affections, are:—

1. The *unity* of each affection, although represented by a *multiplicity* of *local* affections developed simultaneously or successively over large surfaces, or in organs distant from each other.
2. They cannot be artificially excited by the common causes of inflammation.—
3. Antiphlogistic remedies have generally no influence upon the *duration* of the disease, and often but an equivocal one upon its *intensity*.—
4. Each of them has in general only one kind of termination.—
5. Some of them, as urticaria, have but a momentary duration; others, like rheumatism, persist for an almost indefinite period of time.—
6. They are developed under the influence of specific causes.—
7. They are *secondary* inflammations; by which M. Chomel understands, that the patients who suffer from them are the subjects of a "morbid condition," or "diathesis," of which these inflammations are only the consequence. Finally, M. Chomel inclines to the opinion that the morbid condition referred to, consists in some alteration of the animal fluids, and particularly of the blood. He cites some of the diseases of this class as examples of those in which there is "manifestly an infection of the liquids,"—e. g. small-pox, measles, scarlet fever, oriental plague, and contagious typhus. (*Leçons de Clinique Médicale faites à l'Hôtel Dieu de Paris, &c., Fièvre Typhoïde. 1834, p. 529 to 539.*)

The peculiarities, just enumerated, of the disseminated class of inflammations, are perhaps still better seen in the gonorrhœal than in the ordinary form of rheumatism. The frequent combination of conjunctivitis with the affection of the joints, and the fact that

with arthritis in the usual form, and subsequently, on exposure to cold, were seized with symptoms of pyrexia, which, in intensity, duration, and every other particular, were identical with their former fevers, save and except that from beginning to end not a single joint was inflamed.”*

Dr. Todd believes the *rheumatic diathesis*, without an actual paroxysm of rheumatic fever, to be a fertile source of those cardiac diseases which are met with in early life.† His cases seem to me to prove that a *less amount* of rheumatism than is usually called *rheumatic fever* may be accompanied with inflammation of the endocardium or pericardium.

2. *Form of rheumatism.*—If we adopt the division of febrile rheumatism into a fibrous and a capsular variety, according to the characters of each laid down by Dr. Macleod, I find that all my cases of rheumatic pericarditis occurred in the fibrous form of the disease. This result accords with the experience of Dr. Macleod, who found that all the cases of heart affection witnessed by him, save two,

some patients can predict the occurrence of both as soon as they contract a gonorrhœa, seem to show that the local affections are *secondary*, in the sense of this term already defined. If this reasoning be admitted, we must also admit that gonorrhœa, like syphilis, although necessarily a purely local disease at first, soon leads to the development of important morbid changes in the general system.

* System of Clinical Medicine, p. 914.

† Practical Remarks on Gout, Rheumatic Fever, &c. London, 1843, p. 111.

arose from the fibrous or diffused acute rheumatism.*

In connection with this observation, it is not unimportant to remark that the inflammation generally attacks a smaller number of joints, and is much more obstinately fixed in them, in the capsular, than in the fibrous rheumatism. These peculiarities are especially seen, I think, in gonorrhœal rheumatism, which I should place in the capsular class,† and I do not remember to have seen a case of acute inflammation in any of the tissues of the heart, in this form of the disease. These *facts* agree with the *speculative* considerations already suggested in connection with the subject of metastasis (page 517). Considerable allowance, however, must be made for the *fact* (according to my observation) that the *fibrous* is much *more frequent* than the capsular kind of rheumatism. Of 387 cases of rheumatism also referred to by Dr. Macleod, there were, of the *fibrous* form 226, of the *capsular* 81, and of the muscular, 80.‡

3. *Intensity of the rheumatism.*—The rheumatism

* On Rheumatism, pp. 46 and 113.

† Dr. Todd objects to the division of rheumatism into the fibrous and capsular varieties, believing the latter to be *gout*, and not rheumatism. I have seen various cases of *gonorrhœal* rheumatism, however, which differ widely in their characters, both from chronic rheumatism and the fibrous form of the acute disease, and which agree in many important respects with Dr. Macleod's description of *capsular* rheumatism, but which, nevertheless, have no claim to be considered identical with gout.

‡ Op. cit., ch. xiv., p. 151.

was *very acute* in two cases only, somewhat less acute in two others, sub-acute in ten, and there was a mere trace of it in one.

The rheumatism could be said to be very acute, therefore, only in about one-fourth of the cases. In all these, the pericarditis was *very acute*, and affected the whole of the organ, and in two of them it proved fatal. In all the remaining cases the pericarditis was less intense, in two the result was fatal, but in *one* only from the pericarditis. In this one the rheumatism was most *trifling* and *transient*, and the inflammation of the pericardium was severe and general, but somewhat chronic in its duration. From these facts I am disposed to conclude,—

1. That the violence and fatality of rheumatic pericarditis are *generally* greater in the cases in which the accompanying rheumatism is *very acute*, than in those in which it is sub-acute.

2. Whether pericarditis be more *frequent* in the very severe, than in the less severe form of acute rheumatism, is uncertain. The facts just given, *as far as they go*, are opposed to such a view, three-fourths of the cases having occurred in sub-acute rheumatism. This result however *might* depend upon sub-acute rheumatism, being the more common form of the disease, *if such be the fact*. The question could only be determined by comparing an *equal* number of cases of rheumatism, of great and of moderate intensity, and by ascertaining in which class pericarditis was of more frequent occurrence.

On the question just referred to, we find that the

testimony of observers is conflicting, but the greater number appear to favour the opinion, that the more severe the rheumatism is, the more frequent will be the pericarditic complication. Bouillaud speaks very decidedly on this point, in a passage already quoted (page 485). Dr. Copland* and Dr. Macleod† entertain the same view. Dr. Latham and Dr. Watson are the only writers whom I remember, who express an opposite opinion: they say that pericarditis "is not more to be looked for when the disease (rheumatism) is severe, than when it is mild."‡

Dr. W. Budd§ believes that "rheumatic inflammation of the heart is most common in severe cases, especially when there is much fever, and the parts affected are numerous." He adds, "it is our opinion that it is the fever chiefly which tends to extend the rheumatic inflammation over a great number of parts, and thereby increases the liability of the heart, in common with other parts, to become affected with rheumatic inflammation." In support of the last-mentioned opinion, Dr. Budd refers to the observations of Louis, which show that the number and extent of the secondary lesions in pneumonia, typhoid fever, and many other acute diseases, are proportioned to the degree of febrile movement.

If it should hereafter be proved to be a fact that rheumatic pericarditis is most frequent when the

* Medical Dictionary, vol. ii., p. 195.

† On Rheumatism, p. 45.

‡ London Medical Gazette, vol. xvi., p. 164.

§ Library of Medicine, vol. v., p. 199.

fever is highest, it will still not necessarily follow that the *fever* is the *cause* of this greater frequency. It seems to me fully as reasonable to regard the *severity* of the articular affection, the *great number* of joints implicated, the inflammations in the heart, and the high fever, as *independent*, but *associated* effects of one *common* cause. The fever in rheumatism is not *caused* by the articular inflammation, (although it is *possible* it may be increased by it,) for it begins before, and is not always proportioned to, the local affection, but is most probably due to some change in the composition of the blood; if so, a *higher* degree of fever *may* imply a *greater* amount of change in the blood, and upon the same cause may depend the greater *extent* and *severity* of the articular, and the greater *frequency* of the cardiac inflammation. This view would also explain what appears to have occurred in my cases, viz., that pericarditis, when it *does* supervene, is *more violent* in proportion as the rheumatism is more severe. The argument drawn from Louis' observations does not seem to me to be strictly applicable: for, 1. There is no reason to believe that the inflammation of the heart in acute rheumatism is a *secondary* affection in any sense in which the term is not equally true of the inflammation of the joints; and, 2. Louis' remark that secondary lesions are most common in the diseases referred to by him, when there is most fever, may be quite true without obliging us to ascribe these affections to *the fever*. In such cases, compared with slighter ones, the illness is of long

duration, and there is much prostration of strength ; circumstances capable of favouring in various ways the development of secondary lesions—to say nothing of the conceivable peculiarities of the original cause of the fever itself.

4. *Stage of the rheumatism.*—The pericarditis came on in two cases before the arthritis ; in two on the first day of the disease, in three on the third day, in one on the fourth day, in three on the eighth or ninth, in two on the eleventh, in one on the seventeenth day, and in one the day was uncertain. In fully one half the cases of rheumatic pericarditis, therefore, the affection of the heart appeared on or before the fourth day of the disease. With one exception, the pericarditis did not appear sooner in those cases in which it was very severe, than in those in which it was much less severe.

5. *Influence of repeated attacks of rheumatism.*—In eleven out of the fifteen cases, the pericarditis supervened in the course of the *first* attack of rheumatism, in three during the second attack, and in *one* during the *third*. The eleven cases referred to, comprise all the examples of the *most intense* form of pericarditis. Hence rheumatic pericarditis appears to be both more *frequent* and more *severe* in the first, than in subsequent attacks of rheumatism.

6. *Previous disease of the heart.*—Ten out of fifteen patients had no previous disease of the heart, (and among them occurred *all* the *most severe* cases of pericarditis,) the rest probably *all* had. Whe-

ther, however, pericarditis be more frequent in those cases of *rheumatism* in which the heart was previously diseased than in others, these facts do not enable me to determine. The fact that it occurred in most of the cases during the *first* attack of *rheumatism* is an *argument against* such a supposition, but is not *conclusive*, because very many cases of organic disease of the heart have arisen independently of rheumatism.

7. *Age of the subjects of rheumatism.*—Of the fifteen patients having rheumatic pericarditis, nine, or two-thirds, were twenty years old or under, *five* between twenty and twenty-six years, and the remaining one only was above forty years of age. Rheumatic pericarditis therefore is more frequent in young persons than in old ones; but we must remember that acute rheumatism is itself more frequent in the earlier periods of life. These facts then do not meet the real question, which is, whether, among patients suffering from acute rheumatism, pericarditis be relatively more frequent in the young than in the old.

Dr. Macleod gives some figures which seem to show “that the proportion of cases of rheumatic pericarditis is considerably greater in young subjects, than in those more advanced in years. Of those referred to in the preceding table of cases of acute rheumatism, but eight were under 15 years of age; and of these, four, or half, had pericarditis. Between 15 and 20 there were forty-eight patients, and of these, sixteen had pericarditis, or one third;

between 20 and 25 years of age there were forty-six patients; and of these, sixteen had pericarditis, being very nearly the same proportion as the preceding; between 25 and 30 there were forty-two, and they afforded only ten, or not quite one in four. After this the proportion of cases rapidly diminishes, for from 30 to 35 we have twenty-seven cases of rheumatic fever, giving us only three of pericarditis, or one in nine; and from 35 to 40, we have also twenty-seven cases of rheumatism, without one of pericarditis.”*

8. *Sex*.—Of my 15 patients, *nine* were males, and *six* females; but then rheumatism is also more frequent among men than women.

Dr. Macleod's cases however would seem to show a greater tendency to pericarditis in *females* than in males suffering from rheumatism: for “of the total number of patients labouring under acute rheumatism, 137 were males, and 89 females; of the former 28, and of the latter 24, had symptoms of pericarditis; or, of the men, rather less than one in five, and of the women rather more than one in four.”†

9. *Previous strength of the patient*.—Four patients were robust or vigorous up to the time of the illness under which they were suffering. Of the *eleven* remaining patients, one or two were previously not very well, and the rest were not naturally strong. I am not able to state what proportions of all the

* On Rheumatism, 1842, p. 156-7.

† Op. cit., p. 154.

patients suffering from acute rheumatism were previously robust or weakly.

10. *Influence of Venesection.*—Twelve of the patients had not been bled before the pericarditis appeared, and among these are found all the *worst* cases of pericarditis, and all the fatal cases save one.

Three patients were bled, and in the manner following :—

One to 3xvi, five days before the pericarditis appeared.

One to 3xii, three days before the pericarditis appeared.

One to 3xvi, eleven days before the pericarditis appeared.

In none of the three did the rheumatism abate, after the venesection, before the pericarditis supervened.

As far as they go, then, these facts contradict the supposition that venesection in rheumatism favours the occurrence of pericarditis, but they do not *quite* meet the real question, viz., whether among the subjects of *acute* rheumatism, those who are bled, and especially those who are *largely* bled, suffer from pericarditis in greater proportion than those who are not bled.

Dr. Alison and M. Gendrin believe that large bleedings favour the production of pericarditis. Dr. Alison “has no difficulty in stating his conviction, that large and repeated bleedings in the beginning of rheumatism, increase the risk of this metas-

tasis ;”* and again he says, “ the acute rheumatism cannot, probably, be much shortened in its duration by antiphlogistic remedies ; and if it were so shortened in external parts, we have good reason to think that the risk of affection of the heart would be greatly increased. For although the translation to the heart has been observed to take place under all modes of treatment of the disease, yet it has been seen to follow large bleeding, and immediately consequent recession of the inflammation on the extremities, often enough and quickly enough to justify much apprehension of such a result, when the quantity of blood taken is so great, as to produce a marked and immediate effect on the heart’s actions.”†

It *may* be true that large bleedings, *when they are immediately followed by recession of the inflammation on the extremities*, favour the occurrence of pericarditis in rheumatism. I am acquainted with no facts opposed to this view ; but in a point of so much importance, it would be desirable to have an exact statement of the number and other circumstances of the cases in which such an occurrence has been observed. Cases of the kind referred to must be rare, and the opportunity of seeing even *one* of them has never happened to me.

M. Gendrin states that during several years he

* Cyclopædia of Practical Medicine. History of Medicine, p. 95.

† Outlines of Pathology, and Practice of Medicine. Edinburgh, 1844, p. 362.

combated acute rheumatism by blood-letting, repeated sometimes "avec peu de mesure." He then observed pericarditis sufficiently often; and he could even cite cases in which this affection had supervened in the highest degree of debility induced by bleeding. He refers to one case in which pericarditis appeared after the eleventh bleeding, and on the seventeenth day of an intense acute rheumatism, affecting a young man. Since he has renounced blood-letting, as the principal means in the treatment of acute rheumatism, he has but rarely seen pericarditis supervene; and when it supervenes, it does not ordinarily become severe. M. Gendrin quotes the results of Bouillaud's practice in support of his own. Every one knows that Bouillaud bleeds both largely and frequently in acute rheumatism, yet he finds that one-half of these patients present symptoms of endocarditis, or of pericarditis. (We have already seen, page 485, that the proportion Bouillaud now gives is much higher than this.) Gendrin states that this is rather below than above the proportion, in the cases of rheumatism treated by himself by blood-letting, but not in those treated by another method. "In twenty-nine cases of acute rheumatism, treated by nitrate of potass in large doses," this writer had "met with only three cases of pericarditis, and in only one of these was the inflammation found to have any severity, and to call for any special treatment."*

M. Gendrin's cases, however, seem to me to

* Leçons sur les Maladies du Cœur, p. 426-7.

prove no more than this, that large bleedings do not always *prevent* the occurrence of pericarditis. More exact numerical data would be required to show the *relative* frequency of pericarditis in rheumatism, treated by free bleedings, and by other methods (p. 490, note). Before we can estimate the value of the argument drawn from Bouillaud's practice, we must be *well assured* that pericarditis *does* occur more frequently in the cases of rheumatism observed in his practice, than in that of other physicians. Dr. Macleod has drawn an opposite conclusion from Bouillaud's statements; first, however, assuming that blood-letting has scarcely been employed in France in the treatment of rheumatism, and that it was among these cases (and not among *his own*, treated by large bleeding,) that Bouillaud observed inflammation of the heart to be so common.*

Conclusion.—Upon the whole, the circumstances which *seem* most to favour the occurrence of pericarditis, in the course of acute rheumatism, are :—

1. The *fibrous form* of the disease as distinguished from the capsular.
2. A *first* attack of rheumatism.
3. An early age in the sufferer from rheumatism.
4. A high degree of intensity of the rheumatism(?).
5. An impaired state of health, or a naturally delicate constitution of body in the subject attacked with rheumatism(?).
6. *Mode in which rheumatism produces pericarditis.*

* London Medical Gazette, 1837-8, vol. i., p. 151.

1. Dr. Elliotson ascribes the pericarditis to “*sympathy* with the fibrous membrane of joints attacked by rheumatism.”*

2. Bouillaud thinks the cardiac affection “occurs in virtue of the tendency to *extension*, to *diffusion*, which characterizes rheumatic inflammation,” and he also directs attention to the importance of remarking the similarity of organization between the pericardium and endocardium on the one hand, and the fibro-serous tissue, which “is the essential seat of acute articular rheumatism,” on the other hand, in our endeavours to explain the connection under our consideration.†

3. Dr. Macleod thinks “rheumatic fever” (or the fibrous form of rheumatism) implicates the membranes of the heart “by *extension*,” but that *capsular* rheumatism becomes transferred to the pleura, or the membranes of the brain, by *metastasis*.‡

Dr. Hope approaches nearer the truth when he says the inflammation extends to the internal fibrous tissues, as it extends from one joint to another, “by the affinity of tissue.”§

Dr. W. Budd has more distinctly conceived and

* Lumleyan Lectures. London, 1830, p. 9.

† *Traité Clin. des Malad. du Cœur*, 1st edition, p. 474.

‡ *On Rheumatism*, p. 114.

§ This expression is taken by Dr. Hope from *Bichat*, and seems to me to afford a good example of one of those distant glimpses of yet undeveloped truths, which are caught only by the piercing eye of genius. The *affinity of tissue* has been ably illustrated in a valuable paper, by Dr. W. Budd, “On Diseases which affect cor-

enunciated the same proposition, in describing the inflammation of the heart, "as one of a series of local affections, which implicate identical tissues in various parts of the body."*

The same fundamental idea seems to have occupied the mind of each of the writers quoted, but it has been, by degrees, more and more distinctly defined and expressed.

Were I called upon to express my own views upon this question, I would adopt the following *hypothesis*, as consistent with all the facts with which I am acquainted. The cause of acute rheumatism is probably the presence of some morbid matter (or an *excess* of some natural ingredient) in the blood, which has an especial affinity for the fibrous and fibro-serous tissues of the body, and which by fixing itself in one or more of these, induces various local inflammations. The similarity of the structures implicated, is probably the reason why rheumatic pericarditis, or endocarditis, often occurs at the same time with, or succeeds to, rheumatic inflammation in the joints, just as rheumatic inflammation in *one* joint occurs with, or succeeds to, that in *another*. The heart is more frequently (?) and more *severely* affected in *severe* cases of acute rheumatism, for *the same* reason that *more joints* are affected, and more *severely* affected, and also that more fever is present in such cases ; *which reason*

responding parts of the body in a symmetrical manner," in the 25th volume of the Transactions of this Society.

* Library of Medicine, vol. v., p. 195.

may not improbably be a greater *abundance* of the *materies morbi* in the blood.

This hypothesis is perfectly consistent with the supposed *occasional* occurrence of metastasis ; and also with the fact that this is not the ordinary mode in which the heart becomes implicated.

Rheumatism, in the ordinary acceptation of the term, is not, therefore, properly *the cause* of rheumatic pericarditis, as is *demonstrated* by those cases in which the inflammation of the heart precedes that of the joints. We have the same *kind*, and even, more nearly than is commonly considered, the same *amount*, of evidence for affirming the pericarditis to be the cause of the articular inflammation, which we have for affirming the latter to be the cause of the former. The true view I believe to be that which regards both in the same light, viz., as independent consequences of that general morbid state which is present in acute rheumatism.

II. OF BRIGHT'S DISEASE OF THE KIDNEYS, AS A CAUSE OF PERICARDITIS; AND (INCIDENTALLY CONSIDERED) OF SOME OTHER INFLAMMATIONS.

1. *Frequency of Bright's disease as an observed cause of pericarditis.*—We have already seen (p. 457) that out of 31 patients affected with acute pericarditis, *nine*, if not *eleven*, had Bright's disease, and that in none of these cases could any other cause for the pericarditis be discovered.

2. *Frequency of pericarditis, and also of some other internal inflammations, in cases of Bright's disease.*—In order to determine this question, I selected from the notes of my *post mortem* inspections, those of *fifty* cases in which the patients had either *died* of Bright's disease, or were found, after death, to have this disease in a somewhat advanced stage. On examining these cases, I found,—

TABLE I.

	Pericarditis in	Endocarditis in	Pleuritis in	Pneumonia in	Menigitis in	Cerebritis in	Peritonitis in
1. Actually existing or acute	5 (& 2 ?)* or 1 in 10	4, or 1 in 12	11 (& 3 ?) or 1 in 4½	12 (& 8 ?) or 1 in 4	3 (& 1 ?) or 1 in 16	8 † or 1 in 6	5 (& 2 ?) or 1 in 10
2. The remains of previous	7, or 1 in 7 †	21 (& 3 ?) or 1 in 2 nearly	33, or 1 in 1½	1	6 (& 1 ?) or 1 in 8	...	13, or 1 in 4
3. Both, 1 and 2	1	3	7	...	...	...	2
4. Neither 1 nor 2	33	2½	10	27	22	27	25
5. Not examined or not mentioned	4	1	...	2	17	15	7
	52	56	64	50	50	50	54

I have not *sought* for other inflammatory affections in these cases, but have noted a few which arrested

* The figures within brackets, and followed by a note of interrogation, indicate the number of cases in which the existence of the disease to which they refer was doubtful, and which are to be added to the well-ascertained cases.

† Five of these eight were cases of both softening and hæmorrhage, but in which the softening was judged to have preceded the hæmorrhage. I have stated in the text, that, besides the cases of cerebritis and of meningitis, there were two cases of apoplexy and one of hemiplegia, without any morbid appearances after death. I believe many such cases, without visible morbid appearances, are examples of Bright's disease, in which the symptoms in the head result from the circulation of poisoned blood.

‡ *Adhesions* of the pericardium are alone referred to.

my attention in passing. Thus there were two cases of apoplexy and *one* of hemiplegia in which no morbid appearance could be found in the brain or spinal cord ; three cases of erysipelas, two of oedema glottidis, two of inflammation and ulceration of the mucous membrane of the ileum and colon, one of phlebitis, and one of eczema.

Of the above fifty patients, the ages of forty-nine have been recorded, and are here subjoined. There were—

Under 10 years	.	.	.	.	0
10 years and under 20	.	.	.	.	4
20 „ „ 30	.	.	.	.	7
30 „ „ 40	.	.	.	.	14
40 „ „ 50	.	.	.	.	7
50 „ „ 60	.	.	.	.	13
60 „ „ 70	.	.	.	.	2
70 „ „ 80	.	.	.	.	2
					<hr/> 49

The average age of each patient was very nearly forty-one years.

As the question under discussion is one of some importance, I have collected some similar facts from the publications of several writers of authority.

The following facts are taken and re-arranged from a table of the morbid appearances observed in 100 cases, in which Bright's disease formed a prominent feature, during life.* Out of these 100 cases there was found—

* The table in question is published by Dr. Bright, in the Guy's Hospital Reports, vol. i., 1836, p. 380.

TABLE II.

	Pericar- ditis in	Endocar- ditis in	Pleu- ritis in	Pneu- monia in	Menin- gitis in	Cere- britis in	Perito- nitis in
1. Actually existing or acute	8, or 1 in 12½	...	16, or 1 in 6	6, or 1 in 16½	...	8 } † 1 }	12 or 13, 1 in 8½
2. The remains of previous	6, or 1 in 16½	21, or 1 in 5	40, or 1 in 2½	5, or 1 in 20	13, or 1 in 7½	...	13, or 1 in 7½
3. Neither 1 nor 2	...	...	29				
4. Not mentioned	58*	8 ("Heart")	26*	12	...	41*	68*

The correspondence between the results of Dr. Bright and myself is sufficiently close to confirm the general accuracy of both. The difference in some instances may, perhaps, be explained by the larger proportion of Dr. Bright's cases, in which the state of the organs has not been mentioned, e. g. those in the table marked with an asterisk.

M. Becquerel ‡ has examined the morbid appearances in forty-five cases of Bright's disease, observed by himself, and in eighty-four collected from various authors. Out of these 129, he found—

Acute pericarditis in 4 cases, or 1 in 32 (1 in 45 of his own).

„ *pleuritis* in 19 „ 1 in 6 (7 in 45, or 1 in 6½ of his own).

„ *pneumonia* in 22 „ 1 in 5 about.

„ *meningitis* 1 in 34 (which 34 alone were examined).

„ *peritonitis* in 12 „ 1 in 11 about (6 in 45, or 1 in 7½ of his own).

Erysipelas in 5 „ 1 in 26.

In 33 *fatal* cases, taken from a total of 69 cases

† Eight cases of sanguineous effusion and one of softening of the brain.

‡ *Séméiotique des Urines*. Paris, 1841, pp. 492-6.

of Bright's disease, given by M. Malmsten, D. M. et Ch.* of Stockholm, the following, among other complications, are mentioned :—

<i>Pericarditis acuta</i>	in 3, or 1 in 11
<i>Pleuritis</i>	in 2, or 1 in $16\frac{1}{2}$
Pneumonia	in 3, or 1 in 11
Meningitis	in 1
Erysipelas	in 3, or 1 in 11
Phlebitis	in 2, or 1 in $16\frac{1}{2}$
No complication	in 8, or 1 in 4.

The *ages* of these 33 patients were—

10 to 20 years	.	.	4 cases
20 to 30 „	.	.	14 „
30 to 40 „	.	.	9 „
40 to 50 „	.	.	6 „

The age has been recorded in 74 of Dr. Bright's cases, and was—

Under 30 years	in 19 cases.
Above 30 years	in 16 cases.
40 to 50 years	in 21 cases.
Above 50 and chiefly under 55	in 13 cases.
Above 60 years	in 4 cases.†

Fifty out of 74, therefore, sunk before the meridian of life (in the forty-fifth year and below).

Of Dr. Malmsten's patients, 27 in 33 died at or under 40 years of age, and *all* of them under 50.

3. *Frequency of pericarditis, and of some other inflammations, in patients without Bright's disease.*—For the purpose of comparing them with cases of

* Quoted in the Encyclographie des Sciences Médicales. Bruxelles. Août, 1843, p. 40.

† These numbers amount to 73 only, but they are copied accurately.

renal disease, I have selected from my *post mortem* inspections 142 cases in which the kidneys were either healthy or were not the seat of any readily appreciable disease. Among these cases I found—

TABLE III.

	Pericarditis in	Endocarditis in	Pleuritis in	Pneumonia in	Menigitis in	Cerebritis in	Peritonitis in
1. Actually existing or acute	4, or 1 in 35½	2, or 1 in 71	20, or 1 in 7	17 (& 9 †) or about 1 in 8	6 (& 3 †) or 1 in 23½	5* (& 2 †) or 1 in 28½	14 (& 1 †) or 1 in 10
2. The remains of previous	7, or 1 in 20†	60 (& 11 †) or 1 in 2½ about	85, or 1 in 1½	6 (& 4 †) or 1 in 23½	8 (& 2 †) or 1 in 17½	...	13 (& 1 †) or 1 in 11
3. Both 1 and 2	...	...	7	1	...	...	1
4. Neither 1 nor 2	126	61	43	106	73	83	114
5. Not examined or not mentioned	5	8	1	1	50	52	
	142	142	156	144	142	142	144

The other inflammations noted *incidentally* were less numerous in these cases than among those of Bright's disease.

Of the above 142 patients, the ages of 140 have been recorded, and are subjoined. There were—

Under 10 years	.	.	.	.	5
10 years and under 20	.	.	.	.	16
20 " "	30	.	.	.	25
30 " "	40	.	.	.	26
40 " "	50	.	.	.	37
50 " "	60	.	.	.	24
60 " "	70	.	.	.	6
70 " "	80	.	.	.	1

140

* Two cases of softening, with hæmorrhage; one of softening alone; one of carious bone from injury.

† Cases of *adhesion* of the pericardium.

The average age of each patient was $36\frac{1}{2}$ years nearly.

A comparison of this table with the corresponding one of cases of Bright's disease given at page 537 (and I know of no such comparison made by any author) will aid us materially in estimating the tendency of Bright's disease to produce various internal inflammations, the two series of cases being alike in all respects but two, viz., the presence or absence of renal disease and the age of the patients. Taking the sum of the *seven* kinds of inflammation selected, we find (exclusive of the cases marked doubtful) :—

(1.) 50 cases of renal disease yielded 48 examples of *acute* inflammations,—i. e. 96 inflammations in every 100 patients; and that these all occurred among 30 out of the 50 patients,—i. e. 60 per cent. of the cases were complicated with internal inflammations, and the number of these inflammations averaged more than $1\frac{1}{2}$ to each patient affected. Also,

(2.) 50 cases of renal disease yielded 81 examples of *previous* inflammations,—i. e. 162 inflammations in every 100 patients; and that these all occurred among 45 out of the 50 patients,—i. e. 90 per cent. of the cases were complicated with some previous inflammation, and the number of these inflammations averaged above $1\frac{3}{4}$ to each patient affected.

On the other hand we find :—

(1.) 142 cases *without* renal disease yielded 68 examples of acute inflammations,—i. e. 42 inflam-

mations in every 100 patients; and that these all occurred among 51 out of the 142 patients,—i. e. not quite 36 per cent. of the patients had some acute inflammation, and the number of these inflammations averaged $1\frac{1}{3}$ to each patient affected. Also,

(2.) 142 cases *without* renal disease yielded 179 examples of *previous* inflammations,—i. e. 126 inflammations in every 100 patients; and that these all occurred among 100 out of the 142 patients,—i. e. about $70\frac{1}{2}$ per cent. of the cases were complicated with some previous inflammation, and the number of these inflammations averaged nearly $1\frac{1}{2}$ to each patient affected.

Conclusions.

1. The proportional number of *acute* internal inflammations therefore in the series of cases with renal disease is *double* that in the series without renal disease (the numbers being respectively 96 and 42 per cent.): the proportion of *patients* likewise among whom these inflammations were distributed is greater in the former than in the latter series of cases (the numbers being respectively 60 and 36 per cent.): but the average number of inflammations occurring in *each patient affected*, is *nearly* the same in the two series, being however a little greater in the cases of renal disease.

This conclusion is *confirmed* by a comparison of the relative frequency of traces of *previous* inflammation in the series of cases with and without renal disease respectively : *for*,

2. The proportional number per cent. of previous inflammations in the cases of renal disease is only about one-third greater than in the cases without renal disease (the numbers being respectively 162 and 126 per cent.), and the proportion of *patients* among whom these previous inflammations were distributed is still *nearer* the same in the two series (the numbers being respectively 90 and 70·5 per cent.).

Now why do we not find the *same excess* in the number of *previous* inflammations which we find in the number of *recent* inflammations in the series of cases with renal disease, compared with the series without it? Only two explanations of the fact have occurred to me: 1. Assuming that in the cases of Bright's disease a great proportion of the examples of *previous* inflammation were *produced* by the disease of the kidneys; the influence of this cause might be *compensated* by a *more advanced age* in the patients not affected with renal disease (for it may be stated as an established fact, that the longer a patient lives, and the more time, therefore, that is allowed for the application of the various causes of inflammation, the greater will be the number of inflammations found, after death, to have been produced). On examining the *average* age of the patients in the two series of cases, however, I find it is *nearly* the same; but is *somewhat greater* in the cases *with* renal disease.* This explanation, there-

* Of the cases of Bright's disease, the ages were examined in 49, and the *average* for each patient was found to be 41 years

fore is inadmissible. 2. We may suppose that the *previous* inflammations were due to the *same general causes* in *both* series of cases, and that the *excess* of *recent* inflammations in the one class was due to Bright's disease, and was accordingly found *only* after the disease of the kidneys was proved to exist. This is the view which I am disposed to adopt, and it is further confirmed by the *slight excess of previous* inflammations in the series of cases of renal disease *coinciding* with a *similar slight excess* in the average age of the patients in that series, as compared with the other. Some additional facts which support this conclusion will be adduced hereafter.*—(Vide note to p. 549.)

nearly; of the other class of cases, 140 were examined, and the *average* age for each was found to be $36\frac{1}{2}$ years.

* From the facts given in the text, some other questions connected with the absolute and relative frequency of various internal inflammations in Bright's disease, as compared with other diseases, may be elucidated. As these questions are only incidentally connected with the chief subjects of the paper, and as the discussion of them involves details which to some might be tedious, I have thought it best to insert it here.

1. *The relative frequency of various acute inflammations due to Bright's disease alone.*

(a.) The various *acute* inflammations observed after death in the series of cases of Bright's disease, were found in the following order of frequency.—(Vide Table I.)

TABLE IV.

1. Pneumonia (in 24 per cent.)	5. Pericarditis (in 10 per cent.)
2. Pleuritis (in 22 „)	6. Endocarditis (in 8 „)
3. Cerebritis (in 16 „)	7. Meningitis (in 6 „)
4. Peritonitis (in 10 „)	

This table does not, however, *necessarily* represent the tendency

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4. *Comparative efficacy of rheumatismus acutus and of Bright's disease, considered as causes of pericarditis, and of some other inflammations.*

1. In examining the whole of the cases of acute

of BRIGHT'S disease to produce any one of the inflammations enumerated in it as compared with any other, *because* Bright's disease, considered as a cause of inflammation, is here added to, and mixed up with, *all other* causes.

(b.) We must, therefore, endeavour to eliminate the *other* causes referred to. Now the different *acute* inflammations observed after death in the series of cases *without* renal disease, were found in the following order of frequency.—(Vide Table III.)

TABLE V.

1. Pleuritis (in 14 per cent.)	5. Cerebritis (in 3·5 per cent.)
2. Pneumonia (in 12 „)	6. Pericarditis (in 2·81 „)
3. Peritonitis (in 10 „)	7. Endocarditis (in 1·40 „)
4. Meningitis (in 4·2 „)	

If, then, we subtract the per centage frequency of each inflammation, as given in Table V. (which represents the influence of *all* causes *but* renal disease) from that given in Table IV. (which represents the influence of *all* causes) the series of numbers thus obtained should represent the *relative* frequency of each inflammation *due to Bright's disease alone*, and, consequently, the *force* of the *tendency* of this disease to produce each of the inflammations in question respectively. The result of this calculation is subjoined.

TABLE VI.

The *excess* of the one per centage over the other per centage just described, is for

1. Cerebritis	12·5	5. Endocarditis	6·6
2. Pneumonia	12·0	6. Meningitis	1·8
3. Pleuritis	8·0	7. Peritonitis	0·1
4. Pericarditis	7·2		

2. A comparison of the numbers just given (in Table VI.) with

pericarditis observed, we have seen (p. 457) that nearly twice as many were connected with acute rheumatism as with Bright's disease. We cannot, however, infer from this circumstance *alone* that

those contained in Table V. will show the *relative* FREQUENCY of various inflammations due to Bright's disease ALONE, as compared with ALL OTHER causes of inflammation, and, consequently, the force of the tendency of Bright's disease, as compared with that of all other causes conjointly, to produce each inflammation respectively.

In this way we find that Bright's disease produces—

TABLE VII.

1. *Endocarditis* almost 5 times as often as *all other* causes put together.
2. *Cerebritis* fully $3\frac{1}{2}$ ditto.
3. *Pericarditis* „ $2\frac{1}{2}$ ditto.
4. *Pneumonia* just as often as ditto.
5. *Pleuritis* fully $\frac{3}{4}$ times (8 to 14) ditto.
6. *Meningitis* less than $\frac{1}{2}$ times (1·8 to 4·2) ditto.
7. *Peritonitis* one hundredth part (0·1 to 10) ditto.

The order of frequency of the various diseases, as exhibited in Table VII., differs from that in Table VI., and the reason of this will become apparent, upon considering that Bright's disease may have a *strong* tendency to produce a given inflammation, which “ALL OTHER CAUSES” together, may either—

- i. Have, also, a *strong* tendency to produce, as, e. g. in the case of pneumonia and pleurisy; or—
- ii. Have only a *feeble* tendency to produce, as in the case of endocarditis.

So that the tendency of Bright's disease to produce *endocarditis*, is *relatively* greater than its tendency to produce *any other* inflammation, yet *absolutely* less than its tendency to produce *pneumonia*.

3. We see, then, that the *absolute tendency* of Bright's disease to produce *pericarditis* and *endocarditis* (the diseases whose causes

the tendency of rheumatism to produce pericarditis is greater than that of Bright's disease, *for* the fact can be equally well explained on the supposition

are, more especially, the objects of investigation in this communication), is less than its *absolute tendency* to produce some other diseases, as, e. g. pneumonia and pleuritis; whereas its *relative tendency*, as *compared* with the tendency of *all other* causes put together, to produce the two diseases in question, *exceeds* its *relative tendency* to produce any other disease except *cerebritis*.

4. *Cerebritis* appears to be the inflammation which Bright's disease has the greatest *absolute* tendency to produce, and, with *one* exception, the greatest *relative* tendency likewise; and meningitis and peritonitis are, of all the inflammations inquired into, those which Bright's disease has the *least* tendency, whether absolute or relative, to produce.

5. Since, according to Table VII., Bright's disease produces pericarditis and endocarditis, $2\frac{1}{2}$ and 5 times respectively, more frequently than *all other causes put together*, it would seem to follow clearly, that it is *the most influential of all the causes* of these inflammations, and, consequently, MORE INFLUENTIAL THAN ACUTE RHEUMATISM, which has hitherto been regarded not only as the chief, but by many *almost* as the exclusive cause of the diseases in question.

This conclusion may possibly prove to be correct, and might be received as unexceptionably true, but for *one* source of fallacy in the facts from which it is deduced, viz.: The *relative* frequency of Bright's disease, and of *all other causes* of these acute inflammations, has been inquired into in *fatal cases only*. Now, many examples of acute pericarditis occur from rheumatism, and probably, also, from other causes (e. g. pleuritis), in cases which do not prove fatal, and, therefore, have not been taken into our account. No doubt many cases of pericarditis and endocarditis which occur in *Bright's* disease, *also*, do not prove fatal; but the *extent* to which this occurs in the case of each of the causes referred to, and the consequent extent of the source of fallacy to be allowed for, is not easy to be estimated, and is one of the difficulties (hereafter referred to —p. 556) which arise in comparing an *acute*, and generally not

that the *tendency* in question is *equal* in the two diseases referred to, *if* it should appear that acute rheumatism is a disease of much more frequent oc-

fatal disease, with a *chronic* and generally fatal one.¹—(Vide further, pp. 560 to 564.)

6. We have already seen reason to think (p. 545) that the *previous* inflammations, of which the traces were found after death, were *due*, in great measure, to the *same* causes in the series of cases *with*, as in that *without*, renal disease; and that these causes must, therefore, have been distinct from, and had probably operated anteriorly to, the existence of any disease of the kidneys.

This conclusion is confirmed by an inspection of the following Table (Table VIII.), in which it will be seen: 1. That the *order of frequency* of the several *previous* inflammations is almost identically the same in the two series of cases;² and 2. That the per centage amount of the frequency of each inflammation is, in the most important instances, nearly the same in each series. The slight excess in the inflammations, which is observed in the one series over the other, is found, however, as might be expected, on account of the greater average age of the subjects, on the side of the cases accompanied with renal disease.

Still further confirmation of the result under consideration is afforded by the fact that the order of frequency of the *previous*

¹ I find, on examination, that of the 142 patients dying without renal disease, four had acute, and one chronic rheumatism in their *last illness*. Of the fifty patients with renal disease, not one had either acute or chronic rheumatism in their last illness.

² Two diseases, pneumonia and cerebritis, are exceptions to this statement, but there are obvious reasons for the difference observed. Pneumonia and cerebritis are noted as very *infrequent* among the *previous* inflammations; no doubt because the *former* disease, when it does not prove fatal, *commonly* leaves little or no anatomical evidence of its previous existence, and because the *latter* is *very generally* fatal in its acute stage.

currence (e. g. *twice* as frequent) than Bright's disease.

In relation to the present question, therefore, it inflammations in *both* series of cases, and of the *recent* inflammations in the series *without* renal disease, is the *same*.¹

TABLE VIII.²

Showing the order of frequency and the per centage amount of the frequency of the several kinds of *previous* inflammations of which the traces were found after death in the series of cases with and without renal disease respectively.

Cases <i>with</i> renal disease.			Cases <i>without</i> renal disease.		
1. Pleuritis	in 66	per cent. of cases examined.	1. Pleuritis	in 59·8	per cent. of cases examined.
2. Endocarditis	„ 42	„	2. Endocarditis	„ 42·25	„
3. Peritonitis	„ 26	„	3. Peritonitis	„ 9·15	„
4. Pericarditis	„ 14	„	4. Pericarditis	„ 4·93	„
5. Meningitis	„ 12	„	5. Meningitis	„ 5·63	„
6. Pneumonia	„ 2	„	6. Pneumonia	„ 4·22	„
7. Cerebritis	„ 0	„	7. Cerebritis	„ 0	„

7. If we add together all the examples of each of the seven kinds of inflammation selected which were found in the *two* series of cases, the *sums* obtained will represent the *absolute* and *relative* frequency, and the per centage amount of the frequency, of each inflammation, from whatever cause arising, as observed in the

¹ Three diseases are exceptions to this statement, but the explanation is obvious. Pneumonia and cerebritis, (for the reasons stated in Note ², p. 549,) and endocarditis. The last disease appears very *frequent* among the *previous* inflammations, probably because, in the slighter forms of it which were noted, e. g. slight thickening of the valves and adjoining endocardium, it is of very frequent occurrence; and *yet* it appears very *infrequent* among the *recent* inflammations, partly because it is not in itself fatal in the slight forms referred to.

² Calculated from Tables I. and III.

becomes a matter of importance to ascertain the relative frequency, among *physicians'* cases, of acute

bodies of persons dying of all diseases indiscriminately. This has been done for the *recent* and *previous* inflammations separately in—

TABLE XI.¹

<i>Recent</i> Inflammations.		<i>Previous</i> Inflammations.	
	Per cent.		Per cent.
1. Pneumonia	in 19·8	1. Pleuritis	in 61·4
2. Pleuritis	„ 16·14	2. Endocarditis	„ 42·2
3. Peritonitis	„ 9·9	3. Peritonitis	„ 13·54
4. Cerebritis	„ 6·77	4. Pericarditis	„ 7·3
5. Pericarditis	„ 4·7	5. Meningitis	„ 7·3
6. Meningitis	„ 4·7	6. Pneumonia	„ 3·64
7. Endocarditis	„ 3·12	7. Cerebritis	„ 0

It is necessary here to notice some statements which, without explanation, would be likely to appear contradictory to each other.

1. We have found (note to p. 507-11) that in acute rheumatism, acute pericarditis occurs quite as frequently as acute endocarditis.

2. We have just seen, likewise, that in all *fatal* cases, whether those of Bright's disease, or those free from renal disease, acute pericarditis is rather more common than acute endocarditis (note to p. 545, et seq.).

3. But by Table IX., just given, it seems that *old* endocarditis was found, in *all* fatal cases, six times as often as *old* pericarditis: the one being in the proportion of 42·2, and the other of 7·3 per cent. If *recent pericarditis*, therefore, be quite as frequent as *recent endocarditis*, why should *old* pericarditis be so much *less* frequent than *old* endocarditis?

The reason is, that the examples of *old endocarditis* referred to,

¹ This table has been calculated directly from Tables I. and III., and not *indirectly* from Tables IV. and V., which would make a slight difference in the figures.

rheumatism, and of Bright's disease. To do this accurately, however, it would be necessary to undertake a series of observations with this express object in view ; for, as acute rheumatism is a disease which is peculiarly incapable of being overlooked (at least in its usual forms), and as Bright's disease is almost *equally likely to be* overlooked in a large number of cases (seeing that it is of very frequent occurrence without dropsy, and without any other symptom likely to attract the attention of any but those who

comprise the slightest forms of the disease, such as a trifling thickening of the valves, or of the endocardium lining the ventricle : whereas the examples of *old pericarditis* with which the comparison is made, include only cases of *adhesion* of the pericardium, and consequently the more severe forms of the disease.

The proper cases for comparison with the above-described cases of *old* endocarditis, would be *all* cases of old pericarditis ; including, besides cases of adhesion, the *slightest* forms of the disease, such as white spots, and even less alterations of the pericardium.

Now the cases thus described I have found to occur in the bodies of 105 out of 355 patients dying of all diseases indiscriminately which were examined by myself, and in *all* of which the condition of the heart was noted, i. e. in 29·5 per cent.

Mr. Paget, who counted *slighter* traces of the disease than I did, found these trifling cases alone to amount to 40·9 per cent. in *all* his *post mortem* inspections (On White Spots on the Surface of the Heart, in vol. xxiii. of the Transactions of this Society, p. 30) ; and Mr. Sibson, noting perhaps still *slighter* cases, found the proportion still higher (Transactions of the Provincial Medical and Surgical Association, vol. xii., p. 523-4).

Thus compared, therefore, the cases of *old pericarditis* are found to be at least as frequent as the corresponding cases of endocarditis, and they *may* be more frequent, and the contradiction above adverted to ceases to exist.

are *especially seeking* for the disease), all observations made under other circumstances would be sure to represent the number of cases of rheumatism, relatively to those of Bright's disease, higher than the truth. For these reasons, the tables published by the Registrar-General, and which are so valuable for many purposes, are utterly useless for this : for the same reasons, also, in part, and partly because the diagnosis was recorded, in general, on the first examination of the patients, and, consequently, before the urine had been tested, the series of cases observed by myself, and already referred to (in the note to p. 494), represent Bright's disease to be very much less frequent than it really is. With these explanations, I shall give such facts as I have collected ; believing, however, that they will all be found tainted with the same error, although in very various degrees.

Dr. Bright found, from an extensive trial among the patients of Guy's Hospital, indiscriminately, that one in eleven presented signs of an affection of the kidneys. On another occasion he found the proportion to be one in six.*

In the Second Report of the Committee of the Statistical Society of London, on Hospital Statistics,† we find it stated that in ten London hospitals there were, on January 9th, 1843, 2,582 patients, the

* Quoted by Dr. Christison, in Preface to Treatise on Granular Degeneration of the Kidneys.

† Journal of the Statistical Society of London, Sept. 1844, vol. vii., p. 215.

names of whose diseases were specified. I have deducted from these cases all those which I suppose would be treated by the *surgeons* to the hospitals, and which I have calculated to be 1,461. Among the 1,121 cases which remain, there were 193 of rheumatism, (the *form* is not distinguished,) and 35 of disease of the kidneys, which I suppose to be chiefly examples of Bright's disease, since the cases of *nephritis*, ischuria, and diabetes, are excluded. This calculation gives one case of Bright's disease for every thirty-two physicians' cases, and 5·5 cases of rheumatism (of *all* forms) for every case of Bright's disease.

In the statistical tables of the Royal Infirmary of Edinburgh, we find the following facts recorded :*—

1st Report.—Number of *medical* cases admitted, 4,768.

No. of cases of Bright's disease, 77, or 1 in 61·9 of the whole.

No. of cases of rheumatism, (form not distinguished), exclusive of pleurodynia, lumbago, and sciatica .	}	339, or 1 in 14, about.
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i. e. 4·4 cases of rheumatism (acute and chronic) for every case of Bright's disease.

2nd Report.—Number of medical cases admitted, 2,290.

No. of cases of Bright's disease, 48, or 1 in 47·7 of the whole.

No. of cases of *acute* rheumatism, 63, or 1 in 36·35 of the whole.

i. e. 1·3 cases of *acute* rheumatism for every case of Bright's disease.

3rd Report.—Number of medical cases admitted, 2,121.

No. of cases of Bright's disease, 34, or 1 in 62·38.

No. of cases of *acute* rheumatism, 69, or 1 in 30·74.

i. e. 2 cases of acute rheumatism for every case of Bright's disease.

* Appendix to the Reports regarding the Royal Infirmary of Edinburgh, 1841, 1842, and 1843.

In 1,014 *medical* cases occurring in University College Hospital, (note to p. 494,) there were found 83 cases of acute or sub-acute rheumatism, i. e. 1 in every 12·22 cases. There were in addition, 6 cases of gonorrhœal, and 112 of chronic rheumatism.

Some years ago, at my request, the urine of fifty-five patients, taken indiscriminately, and under the care of Dr. Elliotson, in University College Hospital, was examined by Mr. Weston, one of the clinical clerks. In two of these cases, the urine was albuminous, and of low specific gravity, and there was anasarca, and in a third the urine was albuminous, but the specific gravity is not mentioned, and there was no anasarca. The proportion of cases of Bright's disease, therefore, did not exceed one in eighteen of the cases examined.

The following facts are taken from cases treated by myself in University College Hospital :—

1. Season of 1841-2. No. of cases treated, 176.

No. of cases of acute or sub-acute	}	9, or 1 in 19·5.
rheumatism		
No. of cases of chronic rheumatism 15.		
No. of cases of Bright's disease . 7, or 1 in 25·14.		

i. e. 1·14 cases of acute rheumatism for every case of Bright's disease.
2. Season of 1842-3. No. of cases treated, 199.

No. of cases of acute and sub-acute	}	24, or 1 in 8·3.
rheumatism		
No. of cases of chronic rheumatism, 12		
No. of cases of Bright's disease, 11		
certain, 4 uncertain (the latter	}	15, or 1 in 13·3.
without dropsy)		

i. e. 1·6 cases of acute rheumatism for every case of Bright's disease.

As far as these materials go, they tend to show that the frequency of acute rheumatism, as compared with that of Bright's disease, in hospital practice, varies between the ratios of one and two, to one.

2. A second method of investigating the relative tendency of acute rheumatism and of Bright's disease to produce pericarditis, consists in taking an equal number of cases of each of those two diseases, and determining in which of the two pericarditis supervenes most frequently. This method, however, is liable to the objection already referred to, (note to p. 548, paragraph 5,) that rheumatic fever is an *acute* disease, and is, therefore, seen in its *whole* course ; whereas, Bright's disease is generally a *chronic* affection, and, as treated in hospitals, is seen only in one point of its course. For the reasons just stated, I have not entered into this inquiry.

3. I have adopted, in addition to the first one, a *third* method of seeking a solution of the same problem, viz., by comparing a series of cases of acute rheumatism with a series of cases of Bright's disease, in which the renal affection was either found after the patient's death to be in an advanced stage, or in which it had been the actual cause of death. In this way, we have the *whole course* of *each* disease before us, and the results obtained should not be very far from the truth, in *relation* to *actually existing*, or *acute* inflammation of the heart, or other parts. In considering the relative frequency of the remains of *previous* inflammation

in the two classes, however, we must remember,—
1. That the average age of the subjects of Bright's disease is greater than that of those who have acute rheumatism ; and, 2. That the course of the former disease is of much longer duration than that of the latter. Hence there is a greater chance in Bright's disease, than in acute rheumatism, of *other* causes co-operating ; and also a greater chance of various inflammations arising from the *longer duration* of the renal disease, *apart* from the *mere strength* of its *tendency* to produce inflammation. If the *efficacy* of Bright's disease and of acute rheumatism, in producing inflammation in any given organ, be *supposed equal*, *then*, if the former disease run a longer course than the latter, it should give rise to a greater number of inflammations ; and, consequently, *traces* of the previous existence of these should be found in greater number after death. The circumstances described would not exercise a similar influence upon the proportion of cases of *existing* inflammation. I shall now state some facts bearing upon the question under discussion.

1. *Pericarditis.*

Of 75 cases* of acute rheumatism, (p. 483.)
8 were complicated with pericarditis
acuta, or 1 in $9\frac{1}{2}$.

* I have taken, for comparison, the last series of cases of acute rheumatism examined, because among them the proportion of cases of acute pericarditis is highest, and perhaps nearest the truth. I

- Of 50 cases of Bright's disease, (p. 537,) 5 were complicated with pericarditis acuta, or 1 in 10.
- Of 100 cases of Bright's disease, (p. 539,) 8 were complicated with pericarditis acuta, or 1 in $12\frac{1}{2}$.
- Of 33 cases of Bright's disease, (p. 539,) 3 were complicated with pericarditis acuta, or 1 in 11.

Again. Of 20 cases of adhesion of the pericardium, (p. 464,) 9 had Bright's disease (4 of which had *also had* acute rheumatism); 5 had *had* acute rheumatism, of which 4 are those just referred to, as having Bright's disease also; and the *fifth* had *some* renal disease.

Hence, 1. Bright's disease and acute rheumatism appear to have caused *acute* pericarditis in an equal proportion of cases; and,

2. Adhesions of the pericardium (and, therefore, *previous* attacks of pericarditis) have been produced much more frequently by Bright's disease, than by rheumatism.

These *results* of *experience* are quite in accordance with a different series of facts given at page 546-56, as well as with the *views* developed in pages 556-7, and they are supported in some measure by the facts exhibited in Table I., page 537, and showing that one in seven of the patients dying with advanced

have excluded two doubtful cases of pericarditis, both from the class of rheumatism and of Bright's disease.

renal disease, have old adhesions of the pericardium.*

2. *Endocarditis acuta and valvular disease.*

(a.) In consequence of the diagnostic difficulties already referred to, (page 496, note,) we have no *direct* means of determining the frequency of *acute* endocarditis in rheumatic fever: the question may, however, be solved indirectly, although with a greater liability to error. Adopting the result given page 494 (note), we have

Acute endocarditis in 7·809 per cent. of cases of acute rheumatism,

And in Table I. p. 537 we have

Acute endocarditis in 8 per cent. of cases of Bright's disease.

(b.) In relation to the same question, we may usefully compare the proportion of cases of *old*

* There is a source of fallacy in the statements in the text, the value of which it is necessary to consider.

I have found that *acute* pericarditis is between three and four times as frequent among *fatal* cases treated by *physicians* in an hospital, as among *all* cases indiscriminately. We ought, therefore, to find acute pericarditis more commonly in *fatal* cases of *Bright's* disease, than in *all* cases of rheumatism indiscriminately.

The force of this objection, if not altogether destroyed, is considerably weakened by the following considerations:—

1. Pericarditis ought to be more frequent in rheumatic fever, as an *acute febrile* disease, (and *apart* from any allowance for its *special tendency* to affect the heart,) than in all diseases *indiscriminately*.

2. Pericarditis is more frequent in *fatal* cases of Bright's disease, than in fatal cases *without* renal disease; being found in one out of every ten of the former, and only in one out of every thirty-five and a half of the latter class of cases.

valvular disease, and of *recent* endocarditis *taken together* in rheumatic fever, and in Bright's disease. We thus find that

In 75 cases of rheumatismus acutus there was valvular disease, *old* or *recent*, in 34, or nearly half (page 483).

In 50 cases of Bright's disease there was valvular disease, *old* or *recent*, in 25, or just half (page 537.)

The similarity of the results exhibited in paragraph (b), and also of those in paragraph (a), (due allowance being made for the way in which the latter were obtained,) with those arrived at in relation to acute pericarditis (page 558), is a strong confirmation of the substantial accuracy of both. We must, however, remember that as we had the advantage of a *post mortem* inspection in the cases of Bright's disease,—paragraph (b)—*slighter* cases of valvular disease may have been detected among these than among the cases of acute rheumatism.

4. It is necessary, in this place, to recal some other facts which relate to the question under discussion. We have seen in a previous part of this communication that

1. *Acute pericarditis* occurs in 8 per cent. of all cases of acute rheumatism (p. 483).
2. „ *endocarditis* „ 7·809 „ „ (p. 494, note).
3. „ *pericarditis* „ 1·25 „ of cases of “all kinds of disease.”
4. „ *endocarditis* „ “all diseases” in a proportion which we have not the means of calculating (p. 509, note).

Again we have seen that,—

5.	<i>Acute pericarditis</i>	occurs in	10 per cent.	of the fatal cases of	Bright's disease (p. 537).
6.	„ endocarditis	„	8	„ „ „	(p. 537).
7.	„ pericarditis	„	4·7	„ of ALL fatal cases (renal included).	(Table IX.)
8.	„ endocarditis	„	3·12	„ „	(Table IX.)

Hence by the results marked No. 1 and 3, we see that,—

(a.) Acute rheumatism produces acute *pericarditis* more than six times as often as do “all diseases” indiscriminately (*including* therefore all cases of acute rheumatism and Bright's disease, whether fatal or not). This result *may* be equally applicable to *endocarditis*, but facts are wanting to determine the point.

And by Nos. 5 and 7, we see that,—

(b.) Bright's disease produces acute pericarditis and endocarditis more than twice as frequently as all diseases indiscriminately. (Note,—these cases being *fatal* ones *only*, will therefore include many examples of Bright's disease, and but *few* of acute rheumatism.)

The results marked (a) and (b) agree sufficiently well with those (p. 558) which affirm an *equal tendency* on the part of acute rheumatism, and of Bright's disease, to produce pericarditis and endocarditis; allowance being made for the greater frequency of rheumatism than of Bright's disease, and also for the *small* number of cases from which they have been deduced. They would coincide exactly

if acute rheumatism were *three times* as frequent as Bright's disease, instead of being (as far as the imperfect data for making the calculation permit us to determine) not more than twice as frequent.—(Vide p. 556.)

But it also appears from other facts, which I have collected, but cannot conveniently record in this place, that,—

9. Acute pericarditis occurs in 0·467 per cent of “all diseases,”
exclusive of *acute* rheumatism
(but inclusive of Bright's
disease).

(c.) Hence by the results,—

No. 1 and 9, rheumatismus acutus produces pericarditis seventeen times as often as *all other* diseases put together, and (allowing rheumatism to be twice as frequent as Bright's disease, and the latter affection to be the *only other* cause of pericarditis, which is *not* the fact, still) eight and a half times as often as Bright's disease. But this conclusion is inconsistent with that (p. 558) which affirms Bright's disease to have an *equal* tendency with acute rheumatism to produce pericarditis, and *also* with that (note to p. 548, paragraph 5) which affirms that Bright's disease produces pericarditis two and a half times as often as all other causes put together, and consequently oftener than rheumatism, as well as with the facts stated at page 457, which show, that among a given number of cases of pericarditis, eighteen occurred in connection with rheumatism, and nine with Bright's disease.

Explanation.—The following considerations will reconcile these contradictions :—

In the note to p. 548, acute rheumatism is compared with *fatal*, or very advanced cases of Bright's disease ; but in conclusion (c), page 562, acute rheumatism is compared with *all* cases of Bright's disease, consequently with those in the *incipient* as well as in the *advanced* stages. It would seem therefore a *probable* inference (because one which would *reconcile* the conflicting statements just given) that Bright's disease has a much greater tendency to produce pericarditis (and the same is probably true also of endocarditis) when in its *advanced*, than when in its *earlier* stages.

The inference thus somewhat *circuitously* arrived at, will be more *satisfactorily* established, if it shall be found to be confirmed by a *direct* comparison of the relative frequency of pericarditis in a considerable number of cases of Bright's disease in different stages. Until this shall have been done, the following considerations may further be adduced in support of it.

1. The impurity of the blood, to which the internal inflammations occurring in Bright's disease have been generally ascribed, is greater in the advanced than in the earlier stages of the disease.*

* These remarks (and indeed all others in this communication) have respect to the *chronic* form only of Bright's disease. It would be interesting to compare the *acute* with the *chronic* form in reference to the various conclusions stated in the text. It would also be interesting to compare the *acute* form of Bright's disease

2. In the advanced disease, the general strength of the patient is much more reduced—a circumstance which, however operating, is generally admitted to create a great liability to the development of various internal inflammations.

The final conclusions which the preceding considerations suggest, seem to be,—

1. That acute rheumatism and Bright's disease, *in its advanced stages*, have an *equal* tendency to produce pericarditis and endocarditis.

2. That acute rheumatism has a greater tendency to produce pericarditis and endocarditis, than has Bright's disease *when in its earlier stages*.

It will be interesting to institute a similar inquiry into,—

The relative frequency of some other acute inflammations, besides those of the heart, in rheumatic fever, and in Bright's disease.

1. *Inflammations within the head.*

Out of 47 cases of acute rheumatism (p. 480), there were

perhaps three of acute disease, or inflammation in the head, i. e. 1 in 16

„ 42 other cases of acute rheumatism (p. 482), not one case of inflammation in the head occurred. Including both series, the proportion is 1 in 30

„ 50 cases of Bright's disease (Table I. p. 537), meningitis or cerebritis occurred in eleven, or 1 in $4\frac{1}{2}$

with acute rheumatism, in respect to their tendency to induce pericarditis and other inflammations. The acute form of Bright's disease is however comparatively so rare, that I am not able to make this comparison from the cases collected by myself.

2. *Pleuritis.*

Out of 47 cases of acute rheumatism, pleuritis oc-						
curred in	.	.	.	.	2	} or 1 in 30
„ 42 other	„	„	„	„	1	
„ 50 „ Bright's disease, pleuritis occurred						} or 1 in 4½
in	.	.	.	.	11	
besides three doubtful cases						

3. *Pneumonia.*

Out of 47 cases of acute rheumatism, acute pneu-						
monia occurred in	.	.	.	.	0	} or 1 in 30
„ 42 other	„	„	„	„	3	
„ 50 cases of Bright's disease, acute pneumo-						} or 1 in 4
nia occurred in	.	.	.	.	12	
besides eight doubtful						

4. *Peritonitis.*

Out of 47 cases of acute rheumatism	} No case of peritonitis or other acute abdominal in- flammation occurred.				
„ 42 other					
„ 50 of Bright's disease, there occurred five					} or 1 in 10
cases of acute peritonitis (besides two					
doubtful ones)	.	.	.	.	

See, also, the Tables at pages 539 and 540.

It would appear, therefore, that Bright's disease, *in its advanced form*, is, much more frequently than acute rheumatism, complicated with inflammation of the pleura, lungs, peritoneum, and parts within the head. It is also worthy of being remarked, that the relative frequency of each of the inflammations referred to, except peritonitis, in Bright's disease and in rheumatism, is nearly the same, being about as seven to one.

This conclusion, however, is liable to *two* very serious sources of fallacy, viz. :—

1. The cases of Bright's disease were *all* fatal ones; whilst the cases of *acute* rheumatism were taken indiscriminately, and would not include many fatal ones. In the former class, therefore, whatever inflammation existed would be *discovered*; but in the latter, many inflammations, even if sought for, might escape detection, owing to imperfections in the means of diagnosis.

2. In a large number of the cases of acute rheumatism, the organs referred to above were either not examined, or have not been mentioned: in some, no doubt, they were passed over in silence, because they were found to be healthy, but in many they were probably not examined at all, and in these some internal inflammations may have been *overlooked*, and their *proportion* consequently under-rated.—(Vide p. 508 to 513.)

3. OF THE OCCURRENCE OF PERICARDITIS IN OTHER BLOOD-DISEASES.

1. From the preceding facts and observations, we are justified, I think, in stating, that in all the cases referred to, there were observed but *two generic* causes of pericarditis. 1. Some disease of the blood. In *one* case this disease was *cyanosis*; in all the rest, either acute rheumatism, or *some* renal disease, but especially Bright's disease.—2. Extension of inflammation from a neighbouring texture to the pericardium.

2. I have already stated, that I do not put forth these as the only causes of pericarditis; neither do I

believe them to be so. But the facts detailed oblige me to conclude, that they are by far the most frequent, and therefore the most important.

3. Seeing that *two* diseases of the blood have been found to occupy so prominent a place among the causes of pericarditis, we might expect to find the same inflammation occurring, with more or less frequency, in the course of other blood-diseases. This consideration suggests inquiries of considerable interest, and calculated, perhaps, to lead to important results; but the subject is one upon which I am not now prepared to enter. Cases are recorded, showing that pericarditis does occur in various blood-diseases, e. g. in scarlatina,* in erysipelas,† in small-pox,‡ and in typhus fever;§ but *isolated* cases are of little value in the determination of such a question. What we want to know is, the number of times that pericarditis, and other internal inflammations, were found in a *series* of cases of any given disease, *taken indiscriminately*, and in all of which the heart and other organs were carefully examined. A simple glance at the results would, then, show us what diseases have a tendency to induce various inflammations, the relative strength

* Dr. Scott Alison, in London Med. Gaz., vol. i., New Series, p. 664.

† Mr. Adams, in Dublin Hospital Reports, vol. iv., p. 371.

‡ Andral, Clinique Médicale—Maladies de Poitrine—Péricardite, vii^e observation.

§ Dr. Latham, Lectures on Diseases of the Heart, p. 348. And Mr. Paget, Med. and Chirurg. Trans., vol. xxiii.

of this tendency in different instances, and whether particular diseases, or classes of disease, have an especial influence in producing inflammation in one organ or tissue, rather than in others.

OF THE IMPORTANCE OF THE CONSTITUTIONAL OR
PREDISPOSING CAUSES OF INFLAMMATION.

The facts which have been detailed in this communication appear calculated to exhibit the great importance of the previous state of the health of patients among the causes of inflammation, as distinguished from any single *external* or *exciting* cause.

Nearly all the cases of pericarditis which I have witnessed, were developed independently of any external or exciting cause, in the ordinary sense of the term. In those cases which were connected with renal disease, the cause of the cardiac inflammation must have been slowly produced, and gradually increased, by the operation of circumstances which interfered with the due depuration of the blood.

In the remaining cases, the application of cold was sometimes the *immediate* cause of the *rheumatism*, but the pericarditis was almost always induced *secondarily* through the rheumatism, and not directly by the application of cold, either at the same time with the rheumatism, or after the appearance of this disease.

I may take this opportunity of stating, also, my entire concurrence in the opinion of those who believe, that in very many cases of acute rheumatism, no undue exposure to cold or wet, or to the influence

of any other (if there *be* any other) acknowledged exciting cause of the disease, can be ascertained to have preceded the attack, within such a period of time as could justify us in regarding the two events in the relation of cause and effect.

I have examined a great number of rheumatic patients, with a special view to this question, and I therefore feel some confidence in the accuracy of the opinion to which I have referred. In these cases, the *predisposing* causes were the only ones which could be supposed to exist; and, if we further call to mind the great number of cases in which a very decided exposure to cold and wet has not been followed by rheumatism, we shall be justified, I think, in concluding that, whilst in some cases the *predisposing* are the *ONLY* causes of the disease, they are, in *all ordinary* cases, the *most important* causes, and that, without their co-operation, the acknowledged exciting causes would, in ordinary circumstances, be inoperative.

It has appeared to me, that acute rheumatism is frequently induced by the slow and continued operation of various agencies, whose effects are rather cumulative than very obvious, at any single point of time during the period of their application. Such agencies are, for example, habitual exposure to moderate degrees of cold and damp, inadequate clothing, bad or insufficient food, intemperate habits, and anxiety of mind.

In the case of rheumatic fever, and of Bright's disease, the particular change in the system to

which the local inflammations are due, would appear to consist in a vitiation of the blood. To the same general cause, we must also refer the local inflammations which supervene in the progress of various other diseases, and for which no *exciting* cause can be found. Such are the inflammations which complicate the eruptive fevers, glanders, phlebitis, &c.

These remarks have been suggested by the cardiac inflammations, which occur in rheumatism and in Bright's disease; but they are obviously equally applicable to the other inflammations, which occur in the same diseases.

May not these facts likewise be adduced in support of the probable truth of the observations of those physicians who maintain that no *exciting* cause can be discovered in very many examples of *various internal inflammations*, and who, consequently, insist especially upon the importance of a careful investigation into the previous health and habits of the subjects of these diseases.