A COMPARATIVE VIEW
OF SOME OF THE MORE IMPORTANT POINTS OF
THE PATHOLOGY OF
RHEUMATIC AND NON-RHEUMATIC
PERICARDITIS,
DEDUCED FROM AN ANALYSIS OF CASES.

BY

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PATHOLOGISTS are much indebted to the late Dr. Taylor for having satisfactorily shown¹ that acute rheumatism is not so exclusively the cause of pericarditis as had been before supposed; and for having called attention to the importance of granular disease of the kidney in this point of view. Dr. Taylor followed up his elaborate statistical inquiry by publishing in full the details of many of the cases on which these calculations rested. And the minuteness of the analysis is justified by the minute accuracy of the original records, as reported in the 'Lancet.'² But into the question of the nature of non-rheumatic pericarditis he has not entered so fully as into that of its frequency.

¹ Med.-Chir. Trans., vol. xxviii, p. 453. See also 'Medical Times,' vol. xxi, p. 482.

² Lancet, 1845, p. 46.

There need be no long waiting in the wards of a large London hospital to see what are the merits of a numerical question concerning either acute rheumatism or granular disease of the kidneys. A careful examination of my notebooks, at the period of the publication of Dr. Taylor's researches, showed that, new as those conclusions were to me, they were generally consistent with the facts observed and recorded in ignorance of them. A few lines might serve to show how nearly my more limited experience on this question of comparative frequency agrees with that of Dr. Taylor. But the difference in the comparative nature and practical importance of the rheumatic and non-rheumatic forms requires a larger space for its illustration. In the belief that such an inquiry will not be wholly useless or devoid of interest, I have ventured to bring the subject under consideration in the following pages.

To avoid any misconception, it may be proper to state at the outset, that the word pericarditis is used in the following pages to denote recent inflammation of the pericardium. The analysis refers exclusively to cases of this nature. Not to reject the evidence from the traces of old pericarditis, I have not availed myself of it here, from the feeling that, on grounds of this kind, I have nothing new to urge.

The means of investigation is an analysis of the more or less complete records of 1410 cases observed under nearly similar circumstances, that is, in the wards of different hospitals. Of these cases a disproportionately large number are of thoracic, especially cardiac disease, and of fever. The ratio of cases of phthisis and of granular disease of the kidneys is also very high; though I believe that it fairly presents the relative frequency in hospital practice. Of these 1410 cases, $1249=88.59$ per cent. were not cases of rheumatism; $161=11.41$ per cent. were admitted on account of rheumatism at least deserving the name of sub-acute, or suffered it while under observation. Of the whole number, $85=6$ per cent. had recent pericarditis, observed during life, or discovered after death, or both. These cases were thus distributed:—

24 =	1.92 per cent.	occurred among the 1249 non-rheumatic cases.
61 =	37.88	„ „ 161 rheumatic cases.
85 =	6.	1410

The circumstances under which these cases were collected forbid the above numbers being taken to represent the liability to pericarditis, either in acute rheumatism, or in other diseases. But the interest attached to individual cases of pericarditis, which caused so disproportionately large a number of instances of this form of disease to be recorded, extended equally to the rheumatic and non-rheumatic class of cases: so that, though the average frequency of the occurrence under these different circumstances is unduly, yet I believe it is equally, raised.

As to the mode of arrangement which has been adopted: I have not at command cases enough of pericarditis, referable to each separate cause other than rheumatism, to allow me to deduce by analysis a summary of the characteristic effects (if such there be) of each of these in particular. It has seemed better, therefore, to group them, and to speak of rheumatic pericarditis rather as contrasted with this non-rheumatic group, than as being but one of many forms of a disease, all separately important, and having each their own distinctive characters. The only general subdivision of which the non-rheumatic cases seem to admit is, according as the pericarditis has appeared referable to local causes, or of more unequivocal constitutional origin.

Thus arranged, the features which are not marked strongly enough to stand alone are quite merged in the group. We cannot institute a running comparison between the detailed history of rheumatic pericarditis, for which there are sufficient and suitable materials, and the ill-assorted mass of facts which results from the accumulation of cases of all other forms of this affection. The comparison must therefore be limited to certain points, which the common bearing of all these cases shows to be important, and concurrently supplies the means for investigating.

The age of the 61 subjects of rheumatic pericarditis, here

examined, was about 21, on the average. And, where the numbers are large enough to place the conclusion out of the reach of the disturbing influence of single unusual cases, it does not seem that the difference of sex, or the alternative of death or recovery, involves any notable deviation from this age. The age was, however, slightly greater in the male patients, and in the favorable cases.

The mean age of the 24 subjects of non-rheumatic pericarditis was 42 years, the extremes being 7 and 63 years. All of these cases but one, a woman aged 24, dying of dysentery, were of the male sex.

The majority of the rheumatic subjects appear to have been generally healthy: certainly they were not a cachectic class. The non-rheumatic cases form a strong contrast in this respect. Even in the cases where the pericardial inflammation was engrafted on acute disease, the condition of the patients, previous to the accession of such primary disease, could not be designated as generally healthy.

As to the different causes of the pericarditis :—

Rheumatic . .	61 cases coincided with acute rheumatism.
Non-rheumatic of local origin	7 „ ensued on inflammation of the lungs or pleura.
	2 „ „ malignant disease of the pericardium.
	1 „ „ old cardiac disease.
Non-rheumatic of constitu- tional origin	6 „ coincided with granular disease of the kidney.
	4 „ „ hæmorrhage or exhaustion.
	2 „ „ scarlatina and erysipelas re- spectively.
	2 „ were inexplicable.
	85

¹ Doubts may be expressed concerning the rheumatic nature of two of these cases. One of these doubtful cases may possibly have been suffering rather from remittent fever, the other from a mechanical injury.

² 5 certainly; 1 questionably.

³ Of the two inexplicable cases, one was a rapidly fatal obscure case, of which no examination was allowed after death. The other was a case

Such is the general distribution of these cases. Their details, however, allow the investigation to be carried further into some particular points of the pathology of the two forms of the disease. And first, of the rheumatic class:—

The date of the accession of pericarditis was determined with tolerable accuracy in 33 of the above rheumatic cases. The mean of these observations gives the 10·5th day of the rheumatic attack as that on which the pericardial complication most commonly supervenes. In some other cases, pericarditis did not come on till 5, 6, 9, or 10 weeks from the beginning of the rheumatism. During this long period, however, the rheumatic attack was rather what might be called rheumatic disturbance of the constitution¹ than regular rheumatic fever. In these few late cases, the pericarditis, when it did come, was certainly very slight. But, as concerns the other cases, I am rather inclined to think that pericarditis supervening after the 10th day was more severe than when occurring at an earlier period.

The question, whether a first or a subsequent attack of rheumatism be more likely to be accompanied by pericarditis, is beyond the reach of hospital statistics. The circumstances which bring this class of rheumatic patients

of sudden fatal hæmorrhage into the pericardium, of which no explanation could be offered, save what a little patch of inflamed membrane near the base of the heart afforded. I may add that, but for the anomalous nature of the case which induced so very careful an examination, this morbid appearance might very easily have been overlooked, and certainly would not have been recorded.

On the rest of the non-rheumatic cases, there is only to remark here, that, in four of them, the pericardial affection might have been referred to more than one of the specified causes. Of these, one seemed referable to extension of inflammation rather than to erysipelas; another to renal rather than to old cardiac disease; the third rather to exhaustion, than to inflammation of a neighbouring part; and in the fourth, the old cardiac disease seemed in more active operation than the old renal disease.

¹ The rheumatic diathesis of Dr. Todd, on 'Gout and Rheumatism,' p. 109.

under observation, depend as much on personal considerations as on their disease. My note-books record more numerous admissions during a first, but proportionately more frequent instances of pericarditis during a second attack of acute articular rheumatism. The conclusion, however, among so many disturbing causes, whose influence I am unable to estimate, brings no conviction to my mind, and I forbear to urge it on such insufficient grounds.

Hospital statistics, in the same way, are unable to answer the question, whether pericarditis be more likely to occur in the severe or in the slighter cases of rheumatic fever. The rule cannot be absolutely and universally laid down on these grounds,¹ for hospital experience is limited, to an uncertain extent, to the severer cases of acute rheumatism. Within these limits, judging from the cases now under examination, it might be inferred that the degree of severity of the articular affection bears an inverse relation to that of the pericardial. Thus:—of the cases where the articular affection was noted as slight, in 53·3 per cent. the pericardial affection was severe; in 46·6 per cent. it was slight. Again, where the articular affection was noted as severe, the pericardial was severe in 42·8, and slight in 57·1 per cent. of the cases.

The inference from these figures, however, is somewhat weakened by the converse view of the case. Taking the degree of the severity of the pericarditis as the starting point: where this was slight, the same inverse ratio holds, the articular affection having been severe in 58·8, and slight in 41·2 per cent. But with severe pericarditis, the joints suffered severely in 73·7, and slightly in 26·3 per cent. of the cases under examination.

Without pressing the data to a more exact conclusion than their extent warrants, it may at least be safely inferred that the severity of the articular and pericardial affections bear no very close relationship to each other. Or, to speak

¹ Dr. Taylor, in his valuable paper already referred to, gives a summary of the discordant opinions held on this matter, drawn from such a partial view of the subject. (Op. cit., p. 523.)

from single extreme cases, whose practical warnings and encouragements alike are lost in an analysis, it may be said, on the one hand, that the most severe, even fatal, pericarditis, may come on in a case where clinical skill is taxed to the utmost to detect the articular affection. On the other hand, acute rheumatism, of whose severity no words short of agonizing and terrible can convey any adequate idea, by no means necessarily involves the addition of pericarditis to the other sources of distress.

In another point of view, namely, as to what is called the relation of metastasis from the joints to the heart, this series of cases supplies some facts worth consideration. There are 37 cases available for this inquiry. In one case pericarditis preceded the articular affection. In 6 it came on after the subsidence, and in 30 during the continuance of the affection of the joints. The antecedent case speaks for itself. As far as I can abstract my own judgment of the facts of the subsequent cases from an opinion averse to the theory of metastasis, I do not think that they bring any strong support to that theory. There appears nothing in these to justify any further statement than that the articular affection passed away; and then, after a variable time, pericarditis set in. The 30 cases, however, where disease existed at the same time in both the articulations and the pericardium, speak a less equivocal language; for in 4 only of these cases was any distinct relief to the joints observed on the accession of pericarditis.

As far as concerns the question of the likelihood of metastasis from the joints to the heart being the cause of pericarditis in rheumatism, the above cases furnish as strong negative evidence as could have been expected, viewed even in the most favorable light. It is quite unnecessary to reduce still further the value of the slight positive testimony which might be deduced from them in support of such a theory by a further analysis of such small results. Only it may be mentioned, that in such case the counter-irritant must be subtracted from the metastatic influence of pericarditis on the joints. And, in all fairness, against the few

cases where the articular has been relieved by the accession of pericardial inflammation, must be set those much more numerous ones where the recrudescence of the articular affection has brought with it pericarditis. And the converse.

It is a feature of rheumatic pericarditis that it allows these questions concerning it to be entertained. It is very characteristic of this form of the disease, that we can speak with such certainty of the date of its accession, which experience has led us to anticipate, and that we can weigh the severity of its local or constitutional symptoms. These considerations apply to this form exclusively. But, in pursuing the inquiry, there arise questions where the rheumatic and non-rheumatic forms mutually illustrate each other, and may be more advantageously studied together. The possible influence, for instance, of certain causes contingent on acute rheumatism, seems most fitly to come under examination with the influence of the same causes independent of rheumatism.

The chief questions involved in the history of non-rheumatic pericarditis of local origin, are the influence of pre-existent cardiac or pulmonary affections in inducing inflammation of the pericardium. Both these questions are of the utmost importance in relation to acute rheumatism also. And first as to pre-existent cardiac disease.

Of 60 of the cases of rheumatic pericarditis where the presence of endocarditis was sought for, in 6 only were no signs of endocardial lesion discovered. Of these 6 cases it is interesting to notice, that in 2 of them the pericarditis is described as severe. It is not to be inferred that acute endocarditis coincides, as a rule, in so large a proportion of cases with pericarditis. Some deduction must be made for cases of functional murmurs, and some for the existence of old valvular disease. But, though we cannot eliminate these sources of fallacy, the fact that the physical signs which might denote the effects of present or past endocarditis were found in nine tenths of these cases of rheumatic pericarditis is very important.

Was endocarditis, the precursor of pericarditis in so many of these cases, to be considered as its cause? There are no means of refuting such an hypothesis, on however slender grounds it may seem to rest. For pathology supplies us with no unequivocal instances of a tendency to acute endocarditis apart from a tendency to pericarditis also. Was pericarditis, where it preceded endocarditis, the cause of the secondary affection? Here the non-rheumatic cases of pericarditis supply the most important evidence against such an assumption. For as far as it is allowable to draw general conclusions from such small numbers, it appears that endocarditis is rarely met with in subjects of non-rheumatic pericarditis of the age and class of those now under examination. Indeed, in the absence of the cause of which they are both parallel effects, the frequency of their coincidence is not even as great as the neighbourhood of their seats respectively would have led one to anticipate.

The class of cases of non-rheumatic pericarditis, however, where a tendency to endocarditis does co-exist, is well worth attention. It includes infantile remittent fever, and the exanthemata of children. And though the following remarks¹ scarcely grow out of the cases under examination, where these diseases are but imperfectly represented, yet the seeming importance of the point, and its bearings on this part of our subject, may excuse the digression from the strict results of a tabular analysis.

¹ One of the cases marked as rheumatism in the series under examination may possibly have been remittent fever.

The cases under examination, do not, I believe, offer a fair idea of the frequency of pericarditis in cases of scarlatina; for hospital practice supplies comparatively few instances of scarlatina in young children, the age at which such an occurrence, according to recorded observations, is most likely. Among adults, of whom a large number are found suffering from scarlatina in St. Bartholomew's Hospital, pericarditis is certainly a very rare complication of this disease. As if, assuming its frequency in children, the tendency disappeared with advancing years.

On the subject of Pericarditis, as a complication of scarlatina in young subjects, besides the systematic works, see '*Lancet*,' Dec. 14, 1839, p. 441; Mr. Snow.—'*Med. Gazette*,' vol. xxxv, p. 664; Dr. S. S. Alison.

There are at least two striking features which rheumatism with a tendency to heart affection has in common with these diseases. The most obvious is their more frequent occurrence in young subjects; and, where the occurrence of the disease itself is not restricted to early life, the loss of this tendency in more advanced age. The other less tangible feature is, that they all belong to the same class of blood-diseases so-called; to which indeed, by an extension of the term, the general pathological condition resulting from Bright's disease of the kidney might be referred. I say less tangible, for I cannot consider the vague term of blood-disease as more than a convenient form of expression in the absence of more accurate knowledge. We must wait the result of further inquiries like those of Dr. Garrod,¹ to give a definite meaning and permanent form to the expression, before we can safely rest any pathological theories upon it. For when we come to inquire more particularly into the nature of the deviations from the normal composition of the blood which characterise this class, we find no uniform condition² to which this particular effect, namely, the tendency to heart disease, might reasonably be ascribed. If we turn from the appreciable chemical changes to assumed changes in the vital properties of the blood, there indeed is a field for speculation; but who, in the present state of our knowledge, shall presume to build upon it?

Again, to return to our subject, as to the relation of pulmonary inflammation (using this as a general term) to pericarditis, the rheumatic and non-rheumatic forms mutually throw light on each other, and may be most advantageously considered together. In the 1410 cases which constitute the basis of the present inquiry, pulmonary inflammation—that is, pneumonia, pleuritis, or pleuro-pneumonia—was ascertained to exist, either by auscultation or dissection, 265 times. Of these—

¹ Med.-Chir. Trans., vol. xxxi, p. 83.

² Dr. Garrod; *op. cit.*, p. 92.

117 had pneumonia, of which 19 had recent pericarditis.

86	„	pleurisy	„	6	„
62	„	pleuro-pneumonia	„	8	„
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265				33	= 12·4 per. cent.

As before, so many conditions may have exercised an influence on the observation and recording of these cases that it is not safe to take the figures as a general expression of the average frequency of the coincidence of pericardial and pulmonary inflammation. But, inquiring into the order of sequence and connection of the two local affections in the particular cases, we obtain the following results:—In 15 cases the pericardial preceded, in 8 it followed, the pulmonary inflammation. In five cases the date of accession of the two affections coincided, and in the remaining 5 the dates could not be determined accurately.

These results, however, require a little further arrangement before they can be made available for any general inferences; for the rheumatic and the non-rheumatic cases stand in strong contrast to each other. Of the 15 preceding cases 14 were rheumatic; while of the 8 subsequent cases all but 1 belonged to the other class.

Turning first to the relations of pulmonary and pericardial inflammation in the rheumatic class:—Observation shows that, though pericardial inflammation commonly precedes, yet that it sometimes, though rarely, follows pulmonary inflammation; and, more frequently, that pulmonary inflammation comes on without the intervention of pericarditis or endocarditis at all. There are thus no grounds for considering pulmonary inflammation as a consequence of pericarditis rather than as a conjoined effect of their common cause—acute rheumatism.

But, whatever the relation between the two affections, their coincidence has more than a mere abstract pathological interest. The coincidence is very frequent, and very important. It is very frequent; for in the 61 rheumatic cases now under examination, pulmonary inflammation

occurred 24 times—that is, in 39·3 per cent. of all the cases. Of these, 4 had pleurisy, of which 2 died; 17 had pneumonia, of which 4 died; and 3 had what may most properly be called pleuro-pneumonia, all of which recovered. It should be mentioned, by the way, that in some cases the disease began as bronchitis; but it ran on so rapidly to pneumonia that it seems most correct to designate it as such. And it is very important; for the question of life or death in cases of rheumatic pericarditis turns more often on the affection of the lungs than on that of the heart. Though it be true that rheumatism may induce pulmonary inflammation without the intervention of pericarditis, yet it seems as if this intervention were necessary to the manifestation of the pulmonary inflammation in all its severity.¹

The non-rheumatic class tell quite a different story. Here pulmonary inflammation has apparently a distinct influence in inducing pericarditis. And this influence, as might have been expected, is most evident in cases of pleurisy. The clinical history, indeed, which in cases of rheumatism is commonly so precise, as to the date of the accession of pericarditis, is very deficient on this point in the non-rheumatic class. But, as far as anatomy goes, we may infer with certainty (and wherever clinical observation has anything to offer, it quite bears out the conclusion) that the pericarditis was subsequent to, and probably contingent on, the pulmonary inflammation.

To express the legitimate conclusions from the above considerations in a few words, pericarditis, in rheumatic cases, cannot be considered as a frequent result of pul-

¹ Considering the frequency and importance of the coincidence of rheumatic pericarditis and pulmonary inflammation, it is remarkable that it should have attracted so little attention, even of those whose detailed clinical observations show that they were quite familiar with it. I can refer only to Dr. Latham ('Lectures on Diseases of the Heart,' vol. i, p. 159,) for an express description of it. I would add my testimony, in which all who are familiar with the disease will agree, that his picture is not over drawn.

monary inflammation. The ultimate issue of the case, however, in death or recovery, is very much influenced by such a coincidence, which, moreover, is far from uncommon. Pericarditis, in non-rheumatic cases, not unfrequently may be referred to such a cause. But the coincidence is comparatively unimportant, the cardiac complication being rather a measure of the severity of the original disease than itself any serious addition to it. To this point, however, there will be occasion hereafter to return.

With these instances of propagation of inflammation to the pericardium from neighbouring structures, the occurrence of pericarditis in connection with malignant disease of this part (noticed in the preceding table), deserves a passing notice; for malignant disease of the pericardium, like malignant disease of the brain, seems to have an especial tendency to induce pericarditis about the period of the fatal termination, though the inflammation has not such a direct influence in bringing about this termination here as in the brain. The comparative rarity of this class of cases, however, and their hopeless nature, destroy whatever interest they might otherwise have possessed here in respect of this particular tendency.

It remains to inquire, in the same way, into the pathology of that class of cases where pericarditis depends on some general cause other than rheumatism. Besides the exanthematous fevers, which have already been cursorily noticed, the assumed causes under which the cases seem to group themselves are hæmorrhage, or exhaustion, and Bright's disease of the kidney. The effects of these causes, however, do not admit of being examined in the same way as those of the subdivision just now under consideration. There is little to say of either of them but what may more conveniently be expressed in a general summary of the characters of non-rheumatic pericarditis.

Hæmorrhage, or exhaustion, is mentioned among the less frequent causes. Though its independent influence appear small numerically expressed, there is reason to believe that, in connection with other causes, its influence in this respect

is very great;¹ for it may be doubted whether pericarditis occurring at the close of a disease be not more properly referable to the general effects of that disease on the constitution than immediately and specifically to the disease itself in many cases.

It would be very desirable to institute an exact comparison between Bright's disease of the kidney and acute rheumatism in respect to their tendencies to induce inflammation of the pericardium. The circumstances, however,

¹ In saying this, I would not be understood, as implying in any degree that the judicious employment of depletion in acute rheumatism has a tendency to induce pericarditis. It should require very strong evidence on the abstract point to deter any one from pursuing the plan dictated by common experience—that is, from using depletion, like other remedial means, according as the symptoms may indicate. And this strong evidence we certainly do not possess. Facts and opinions have not been collected and stated on this matter with the impartiality which alone could give us confidence in a conclusion at variance with ordinary experience. We must, indeed, receive with caution the recorded results of any plans of treatment pursued with such enthusiasm, as is the employment of depletion, by M. Bouillaud, in the treatment of acute rheumatism. Judged by the records of the practice of other physicians, the results of this more active treatment appear to be less favorable than those of ordinary practice. But the ill-effects of its excessive employment give no grounds for inferring that depletion is not applicable at all in these cases. We run into the opposite extreme, when by one sweeping clause we refer to the effects of depletion, what M. Bouillaud urges, as evidence of its having been necessary, and we hazard the well-being of our patients by such a hasty inference.

Of the 61 rheumatic cases under examination, blood was drawn by cupping or venesection in 7 cases before inflammation of the pericardium set in. It was drawn for the relief of the present symptoms, and more especially on account of present endocarditis. Now, obviously, the assumption that pericarditis resulted from depletion in these cases, however unjustifiable, yet cannot be refuted. The only answer that can be offered is the fact, that depletion has been employed on the same indications in a much larger number of cases of acute rheumatism, where yet pericarditis has not followed. The cases where depletion might in a similar way be said to have prevented rheumatic pericarditis, are at least three times as many as those where it might be said, as above, to have caused this complication; judging at least from my own observations.

under which these two diseases occur, and our sources of information concerning them, respectively, are so very different that they hardly admit of being put in comparison. Acute rheumatism is a disease, for instance, of short duration, with well-marked symptoms and well-known tendencies. Bright's disease of the kidney, from the present point of view, is in these respects its exact opposite. Our knowledge of the cardiac complications of acute rheumatism is mostly clinical; of those of Bright's disease mostly anatomical. The data for the statistics of acute rheumatism within hospital practice are tolerably distinct; but how often do we overlook Bright's disease in the living, and how we need some criterion, exact and of ready application, of its presence after death!¹

But though the data are wanting for an exact history of renal as compared with the other forms of pericarditis, yet, on the practical bearings of the subject, this class of cases is most instructive. Let us look at them in this point of view, grouping the renal with the other cases of non-rheumatic pericarditis. Though composed of such various elements, yet, to clinical observation, in its general features, negative as well as positive, the group is quite a natural one.

Turning, then, from the more particular examination of each form to a consideration of the general characters of the class, the negative features are those which come most strongly before us; for, looking at the clinical history of the disease, as compared with the rheumatic form, there appears to be quite a blank on those points where the features of rheumatic pericarditis are usually best marked; for there are no symptoms to mark its setting in, so severe as to make us forget the original disease in its complication, as there are in rheumatism. There is no fear of our insensibly acquiring impressions of a metastasis of disease from other parts to the pericardium, such as we need a

¹ Frerichs ('Die Bright'sche Nieren-krankheit,' s. 168,) thinks that the recognition of the fibrinous casts of the urinary tubes will, with the more general use of the microscope, supply this desideratum.

careful reference to our note-books to correct. The very existence of the disease was recognised during life, whether by symptoms or by physical signs, in scarcely more than half the cases.

What a contrast with the rheumatic cases, where pain is so general and often so severe a symptom! There, of 61 cases, in 1 only were the physical signs unobserved, and this not from the heart not being examined, but from the part of the membrane affected lying posteriorly out of the reach of auscultation; while in 11 out of these 24 non-rheumatic cases no symptoms led to the heart being examined, and the existing disease, in a large proportion of them at least, remained undetected during life.

But if the symptoms and physical signs fail us here, the opportunities for informing ourselves of the amount and anatomical characters of the disease by dissection are more than proportionately increased. Of the 24 cases under examination 22=91·6 per cent. died. Again, what a contrast to rheumatic pericarditis, where the average¹ mortality, in this series of cases, is 18 per cent.

These facts deserve a very careful examination; for on their correct interpretation depends the answer to be given to the two most important practical questions which can be asked concerning any acute disease—namely, as to the amount of distress and the danger to life which it involves.

To be so very frequently found after death, non-rheumatic pericarditis should be a disease of exceeding frequency, unless there be some peculiar liability to its occurrence about this period. Now, it is true that pericarditis, leaving its traces in white spots, is a much more common disease than the most diligent observer would suspect from clinical experience unaided by dissection. But there are no sufficient grounds for claiming these white spots, the evidence of old partial pericarditis, as the effects of non-rheumatic pericarditis exclusively.² We are not always

¹ An average, I believe, much raised by the number of fatal cases which my office necessarily brought under my notice.

² Dr. Taylor's inquiries led him to the conclusion that within the range

stumbling on general non-rheumatic pericarditis during life as we should be did its clinical bear the same ratio to its anatomical frequency as does that of the rheumatic form. The interpretation most agreeable to observation is that which makes the more frequent occurrence about the period of death a characteristic of non-rheumatic pericarditis.

Is it the cause of death? The mortality, on such an assumption, is so very great that one naturally turns to the symptoms observed during life for an explanation of this. Here, as we have already seen, is a blank; but the negative fact that in no more than 13 of these 24 cases was the existence of pericarditis ascertained during life, is full of meaning. For diseases, speaking generally, prove fatal by their local or their constitutional effects. Of the first:—comparing the ordinarily slight amount of local changes in this form with the ordinarily large amount in the rheumatic form (which yet rarely proves fatal in this way), we may reject this explanation of the mortality in non-rheumatic pericarditis as insufficient. Then, as to the constitutional effects, there is no specific fatal tendency apart from the visible rational symptoms of non-rheumatic pericarditis. The 13 cases where the disease was recognised and watched during life are very explicit on this point. Speaking generally, on their evidence, where non-rheumatic pericarditis was watched day by day, judged by its symptoms, it was a slight disease. Its presence or absence seemed almost without influence on the patient's general condition; and no idea of any specific depressing influence, apart from the more determinate symptoms, could reasonably be entertained: nor, where the disease was not recognised during life, does a careful review of the symptoms which were recorded in ignorance of the existence of pericarditis bring into notice any indications of important

of rheumatism, Bright's disease of the kidneys, and inflammation of neighbouring parts, the causes of the "white spots" are to be found (*Med.-Chir. Trans.*, vol. xxviii, pp. 467, 474). There are, however, no sufficient data to guide us in distributing the particular cases under these several heads.

constitutional sympathy with the local disease. The pericarditis was overlooked, because, in fact, it had no symptoms.

Dissection, while it displays, at the same time explains the oversight. It shows us changes slight in degree, and, commonly, of recent origin. Neither the constitutional indications of morbid action, nor the organic results of such action, are of considerable amount. Dissection and clinical observation agree in the same conclusion, that the disease accompanies rather than causes death; that it does not destroy life, but ensues because the patients are already dying.¹

The contrast of what is observed in rheumatic pericarditis may serve to point and confirm this conclusion. With all the severe pain and distress, with all the extensive local changes, in itself, and apart from its complications, rheumatic pericarditis is very rarely the cause of death. It would be unreasonable to infer that non-rheumatic inflammation of the same part, a disease with few or no symptoms, whether local or general, simple or specific, and with trivial local changes, could be so much more fatal. It remains open to inquiry how far the frequency of rheumatic pericarditis has been over-rated in comparison with the non-rheumatic form. But the practical importance of this last in individual cases sinks in the exact proportion that we admit the greater frequency of its occurrence.

Before leaving this part of the subject, it is necessary to call attention to some of the details of the cases which form exceptions to the general results of the analysis which I have

¹ Pericarditis was found in 13 of 292 dissections of cases of Bright's disease (= 4.4 per cent.) recorded by different authors, and analysed by Frerichs ('Die Bright'sche Nieren-krankheit,' s. 120). Agreeing fully with the author of this excellent monograph, as to the obscurity of the pericardial complications of Bright's disease of the kidneys, I cannot assent to his statement (s. 131), that pericarditis (under these circumstances) is, as a rule, rapidly fatal by its interference with the action of the heart. Such an inference is not justified by my own, and I think not by Dr. Taylor's observations.

thus far followed. Generally speaking, non-rheumatic pericarditis might seem to be a mild disease, or rather an unimportant complication accompanying death, analogous to inflammation of other serous membranes, which is liable to occur under similar circumstances. The less striking instances of deviation from this general average, such as pericarditis incident on local mechanical injury supplies, it is needless to recall. The more marked cases, where the disease was accompanied by characteristic symptoms, and was a cause of distress, or even of death, are two in number :

One of these was a man suffering from mania, and who had attempted to commit suicide. Shortly before his death, becoming quieter and more lucid, he complained of pain in his chest, when, on examination, the physical signs of pericarditis were recognised. On dissection, the pericardium displayed intense vascular injection, with abundant inflammatory exudation of coagulable lymph and serum. It was matter of deep regret that the peculiar circumstances of the case should have prevented such active disease from being recognised at an earlier period, when that knowledge might have been made available for directing remedial measures.

The other case seeming to require more particular notice is that of a painter who had hand-drop on both sides, from which he had suffered for many years. He had pain on the right side of the head, which increased so as to seem to require the abstraction of blood by cupping. But no relief followed. He sank rapidly, and during the last day of his life was affected with convulsive movements resembling those of chorea, limited nearly, but not exclusively, to the right side. The body was examined at a period when decomposition was so far advanced as to render it difficult to recognise some of the slighter morbid changes. The pericardium, however, was distinctly seen to be coated with a thin layer of coagulable lymph. This layer was thicker in some places than in others, forming bands connecting the two opposite serous surfaces. In one space, over an old

"white patch," there was no new adventitious deposit. In the right hemisphere of the brain, near its lower surface, at the junction of the middle and posterior lobes, was a cavity of about a quarter of an inch in diameter, filled with an olive-coloured fluid. Its walls were lined with a ragged, dark-brownish membrane. The kidneys were small, tough, and granular; some urine found in the bladder was albuminous. In connection with the hand-drop it should be noticed, that the right *extensor communis digitorum* had its muscular substance replaced by ordinary adipose tissue.

I would here, in concluding my own observations, almost offer an apology for the dry and uninteresting manner in which I have presented a subject which more than any other engages the daily interest of the clinical student. But pericarditis has been drawn too often and too well, for me to have anything new to add to clinical sketches of this kind. My object has been rather to call attention to, and investigate some of the less prominent parts of the subject. It remains only briefly in conclusion to see how far these results agree with those of the published cases of Dr. Taylor, who made the subject of non-rheumatic pericarditis so peculiarly his own.

The mean age of Dr. Taylor's non-rheumatic cases was 38·43, that of his rheumatic was 20·52 years. Of the 16 non-rheumatic cases whose sex is named, only 5 were females. The connection with granular disease of the kidney was more frequent than in my cases, being displayed in 10, or perhaps 12, of these 17 cases. Pulmonary inflammation was noted in 5 cases. Altogether, in the coincidence in the age, the predominance of the male sex, the cachectic nature of the subjects generally, and the general identity of the more important reputed causes, the agreement between Dr. Taylor's non-rheumatic cases and my own is sufficiently close to assure me that they both belong to the same class.

The ratio of the mortality does not admit of comparison, Dr. Taylor having selected fatal cases only. But as to the general characters of the disease, all that has been deduced from my own analysis might have been as faithfully deduced

from Dr. Taylor's more elaborate descriptions. The resemblance of the general features of the two series is indeed very striking, more particularly as to the obscurity of the non-rheumatic form. Of Dr. Taylor's 17 cases, in 6 only was the disease recognised during life. In three or four cases the existence of old adhesions limiting the disease to the posterior part explained how, though sought for, it had remained undetected. But in the remaining cases the existence of the disease was not betrayed during life by its symptoms; it was not sought for, and was as completely overlooked as in many of the cases which came under my own observation.

Wanting that personal knowledge of the cases which is essential for reducing their facts to figures, I would not enter into a more detailed analysis, but rest on the general conclusions which obviously arise from them. They were fully as obscure as those which came under my own notice.¹ One arises from the perusal of those elaborate clinical reports, with a conviction that non-rheumatic pericarditis is more within the province of the anatomist than of the physician. These cases, like those already analysed, mark it as a disease with few or no symptoms, its physical signs recognised more often by a chance discovery than on the suggestions of the disease, and its morbid changes small in amount and apparently inactive. In these too, as in those which have come under my own observation, where an opportunity has occurred of watching the disease for some time previous to death, it has been apparently without effect on the general symptoms, its presence or absence being determined by the ear alone. And still, in these, its connection with the fatal termination has appeared to be that of a coincidence rather than of a cause.

¹ Dr. Lalor describing an epidemic of continued fever where pericarditis was a frequent complication, notices that one of the most unfavorable circumstances connected with it was its extreme obscurity. ('Dublin Journal,' vol. xiii, n. s., p. 114.)