On Rheumatic Fever
by J. V. de Boisrie

The Writer would claim the indulgence of the sponsor, as seven years ago, he introduced a word of the English language.
I propose in the following treatise to consider the probable theory of acute rheuma-
tism, as may be deduced from its symptoms and results, and then pass under review the remedies now in use, and in doing so endeavour to ascertain those points of its treatment, as may seem to be most in accordance with the nature of the disease.

In speaking of acute rheumatism I would not exclude what has been termed rheumatic gout, for though in some way allied to that disease it seems to partake more to gout in the character of the accompanying constitutional disturbance, which is of much less intensity and does not exhibit its most striking features, also in the nature of the local attacks which are confined to one or two joints—being less fleeting, and resting in deposits of chalk stone; and what is of greatest importance in the cause of the oedema that renders acute rheumatism, properly so-called, such a formidable disease—namely the implication of the heart.

Acute rheumatism is spoken of and is generally accepted as an inflammatory fever attendant upon the local seconion in the joints, by what is regarded as a specific inflammation of the
fibrous tissue of the heart. How is this produced? The most common cause of this affection is exposure to cold and damp; is it that there acts an indeterminate manner on the capillaries of the point, as it were; or, as it occurs in other lectures, the pericardium membrane of the heart, for instance, to such a marked change? What do the symptoms indicate? The paroxysm begins generally with more or less stiffness and pain of the larger joints, of the four extremities especially; the pain increases, swelling soon follows, and fever sets in with a peculiar characteristic chill, bounding pulse, more frequently compressible than hard. There is great thirst, and at first a hot and dry skin, which Bowen blames now attended with a profuse perspiration, much increased at night; of an acid nature and of a sour smell. Besides these symptoms, the urine is scanty and dark-coloured, and deposits the back, red sediment having an off-flavour of wine acid; and the tongue has a thick layer of whitish film. Deposited on its surface. These are signs that apparently point out an attack of inflammation of certain parts attended with fever; and they would seem to justify the view, to which maintains, that the...
Disease is a severe local inflammation with its usual coincident - great constitutional disturbance; but it presents certain peculiarities that have led observers to consider it under another point of view, and have made them object to the term local inflammation being used to denote the real nature of the disease. For some of the classical writers an affliction of a part or parts attended with pain, heat, redness and swelling, and to all appearances symptomatic feet of blood is drawn, it presents on consulting a well-marked anduffed ankle-supplied condition, and of the painful nature of the foot becomes implicit, so that the well-established proof of inflammation is the effusion of vesicular gaping.

That it is a local inflammation has been objected to on the ground that though the disease generally manifests itself first by the swelling in the superficial veins of the feet, yet no means always does so, and that symptoms of constitutional disturbance may precede the articular affection, and what is more, that the peculiar fever of inflammation with all its symptoms, and that
in persons who had previously suffered under the disease, had occurred without a single joint seeming affected. Dr. Grases makes mention of such cases. By these, evidence is certainly afforded that the disease could not be dependent upon any local inflammation. Furthermore, it is remarked that the febrile disturbance bears no ratio to the intensity of the articular affection. So that, the constitutional symptoms may be of unusual severity, the joints being sub-tially attacked. How different this is from what inflammation normally exhibits, even when it is articular; then, the effect it produces on the system, is always in proportion to its intensity. And do we denote anything in favour of this doctrine in the strange phenomenon of metabolism? Can we call local such an inflammation, as will to stay there the whole face of its fermenting effect on the knee joint, and in consequence, in the first manner, leave it free to grind with violence the elbow joint? Now if we do, we ought to have whilst the duration of the inflammation lasted in the first joint, a corresponding high fever which would demand
as the affection subsided, and be on the increase again, as it began to tell on the other joint. And thus, there ought to be exhibited a constant fall and rise of the inflammatory force; which we certainly do not find. Local inflammation—let us take it where we like—whether scrophulous or traumatic in the joints, never shows this strange tendency—for if it spreads it is only by the ineluctable occurrence of contiguity, but it will not do so by leaping from one part to another more remote; for the cause that gives rise to it, can act only at the time that the parts affected are exposed to its influence, and it has not the power to store itself up, as it were, and act at pleasure now on the one joint, now on the other.

Another objection, which is raised, is that the results of the articular affection are different from those of inflammation. It neither leads to suppuration, destruction of the cartilage, engorgement, and as far as the joints are concerned, not even to the effusion of coagulable lymph. It is true that this will not apply to the fibrous portions of the—
heart, where inflammation so insidiously departs its venom of fatality; and here the question arises: how is it that the results of an affection of the same nature differ in the same textures? there must be something inconsistent in this, and it has not failed to attract attention. Mr. Cullen questions the propriety of considering the affection on the valves of the heart as being due to inflammation, on the plea that no blood vessels reach the lining membrane of the heart, it being nourished by the blood in immediate contact with it; and that there can be no inflammation without capillaries. He accounts for the affection on the valves by supposing, that some causes operate on the quality of the blood, whereby its fluid is increased, and its deposition favoured by the increased action of the heart under the circumstances which cause the valves to act as a bunch of strings would do in a flowing stream of blood; and furthermore he accounts for the greater liability of the left side being affected in the circumstance, that the newly made arterial blood, has a greater-
this position is part with its future than the present. This is found by experiments on the living animal. The valvular deposit may be explained in this wise, but without entering upon the merits of Mr. Simon's hypothesis, it will not hold good in those cases where the pericardium is implicated. And vegetable gum is deposited within glands at opposed surfaces, together. The recent inflammation of the pericardium, in rheumatic fever, has been regarded as a result and not as an agent for the disease, by those who deny the doctrine of local inflammation as its cause. And they defend the doctrine of localities, as due to the increase of the circulation, to that which the heart has to contract and dilate not only more frequently but more vigorously and thus by subjecting the opposed surfaces of its working membrane to the same cause, that well in other parts give rise to inflammation — namely the friction and unnatural friction. The valves may be said to be in the same way influenced, and we may designate the presence of the capillary synch on their surfaces in this same sense without having recourse to any other
hypothesis. The reason why they are more frequently the seat of mischief is, that they are in immediate contact with unhealthy blood, besides being exposed to the circumstance just alluded to.

Now as to the instance that the disease is inflammatory from the appearance which the blood presents after it has been drawn. That it degenerates into a well marked suffused and cuffed mass is a strange feature of the disease; but here again the opponents of the inflammatory doctrine object to this as a proof against them, saying, that unlike in other inflammations, you may head to death and the same results will be obtained after each bleeding. Namely, that the suffused and cuffed state will be preserved whereas in true inflammation, a fort bleeding will as far influence the disease, that a second will cause a considerable decrease of the fester. There is in rheumatism a great increase of the fester, and also a great diminution of the red blood corpuscles. We find the same in common inflammation. It is true, but the different action which
Vena sectional views on the fibrin would seem to point out, that its increase is dependent on the one case upon a cause dissimilar in the other. Rejecting the doctrine of local inflammation as sufficient for explaining the true pathology of acute chyloumation, observers have been led to consider it as a blood disease, to such as implies a poison of some sorts contaminating the circulating fluid. This hypothesis originated with Dr. Parry, who regarded the poison as the product of both unpaired primary and secondary accumulations, and which, under circumstances such as cold and damp influencing the eliminatory action of the skin and kidneys, was thrown back on kept in the circulation and gave rise to the different symptoms that characterize the disease.

How is this opinion supported? In the first place, what are those characters of blood disease, that would make acute chyloumation allied to them? They exhibit a state of pelvic derangement at the onset of the malady, sometimes attended with sensations. They are associated with pain and affection of certain
parts, and each disease attacking specially as in some special localities. There is also disturbance of the secreting functions ascribed by the state of the urine. Such changes are exhibited in the different known affections of measles, small pox, typhus, and others. Take as a case scarlet fever, which is one of the blood diseases and see whether the analogy, between it and rheumatic fever, still bears on the front now under consideration. In both the health is destroyed, with febrile symptoms— an eruption takes place, and though this is not uncommon the case in acute rheumatism, yet it seems Dr. Todd lays great stress upon this; the eruption is usually bilateral. Then we have a most important resemblance in the tendency that each has to attack certain parts. For in scarlet fever there is most painful affection of the throat, so also in the other disease, there is a most exciting affection of the joints. This would carry us further, and would well lead us to imagine that these possibly exists such a poison as before-mentioned accumulating in the blood, which
Having for the present ignored such affinity as we know other matters whether healthy or not to have, settle upon that which enters into the composition of the joints and then causes the mischief. On looking closely at the nature of the articular affection, it seems to participate a great deal more of irritation than of inflammation. The pain which is so intense indicates this, it is such as is produced by micturition, especially in a move, without the symptoms of local inflammation being well marked. For there is indeed little redness and heat and the quick subsidence of the inflammation shows that it could not be to its intensity that the localization pain was due. And, I think, we might more satisfactorily explain what actually takes place in rheumatic articular disease by supposing that a poison capable of being attracted to the parts, causes there, by acting on the nerves, that intense irritation, leading if this is continued long enough, to the effusion of serum and a little edema and heat, an occurrence which is well illustrated.
by the embolism. For it gives these very results. Moreover such a supposition would account for the almost invariable term of the affection into resolution. The inflammation being the result of irritation and not the cause, cannot be of such severe nature as to lead to the effusion of corpulent lymph, or to suppuration or to gangrene. It is also too labile, for the same reason. And in furtherance of this view, we find that in those cases that end in suppuration, the irritation and its attendant of pain continue so long that the partake is impaired, and the parts thus suffer.

I endeavored to prove that the phenomenon of metastasis was at variance with the theory of local inflammation, and now can we derive from it anything in support of the other doctrine? I think so, and I will try to explain how. We assume that there is a poison present in the blood; now as its particles are carried along the course of the circulation, they may become aggregated at times, and in that concentrated state on account of its
affinity for the febrile textures of the joints, be attracted and deposited there. The results have been considered above. The poison, now matter imitates the nerves of the part, and intense pain and its consequences follow. It is expelled as its violence expanded, and the joint is left free, but some few of the particles of the poison have aggregated at other parts, and are attracted to the joint nearest which the concentration has taken place, and the same phenomenon occurs in this as in the first joint—and so on, the same arising from joint to joint, gives the particular affection the feeling that is well characterized it.

The joint also adjoins to some of the theory, the nature of the constitution, which become the may of the disease. Acute rheumatism generally arises in those that are prone to all sorts of chills of being in whom there is a favorable opportunity for the poison, which originates from imperfect assimilation, to be generated. They are unavoidably exposed to the influence of cold and damp, which by checking the due elimination of the poison—
causes it to remain in the body, and contaminates it. Much importance is attached to the presence of acids in the sweat and urine, from which they infer that acute rheumatism is produced by the generation of lactic acid and their acids of the una Nature striving to throw off by the skin, the other by the kidney. These certainly indicate the presence of these foreign matters in the blood.

Now with regard to the circumstance, that the disease manifests itself in those that are poor and destitute of proper and sufficient food, is an evidence that the disease is originated by such a cause as has been mentioned, might be objected to, that it will not occur for all kinds of cold. When it occurs in the sick, however, it will generally be found in those of the rheumatic diathesis, and the same circumstances in them, of exposure to cold and damp, will check the elimination of a specific matter which their constitution is to the habit of manufacturing, and the disease will then be aggravated in them. In those where such a diathesis is not present we may very fairly conceive that other...
causes, besides those above-mentioned, and which we are not able to ascertain, are capable of giving rise to the production of lactic and urinary acid.

It is asserted that the presence of the acids in the secretion cannot be fairly adduced as a proof that these occasion the malady, and that it is merely a result and not a cause. This is very true; but though the absence here seems to be brought forward as a positive fact, yet it is much more in favour than not. It shows at all events that these acids exist, and that there is nothing abnormal that they give rise to, as foreign matters are wont to do by acting upon the parts, with which they come into contact, especially as other corrobative evidence is adduced. Diabetes is a disease of the same nature, the presence of a foreign matter in the blood giving rise to certain derangements of the system, generally fatal; it is supposed that it is due to imperfect assimilation also, and this has given rise to the idea that if vaccination also originate from the same source, the same means ought to suffice for the cure of both. But this will not hold good, for as in both cases the products...
of the imperfect assimilation differ, so naturally must the phenomena they give rise to be different and differently acted upon by the same agents.

Now pass to the consideration of the various means adopted for the treatment of acute rheumatism; and it is much to be regretted that no certainty exists as to the true pathology of the disease, for it not only leads to the use of very diversified remedies, but it leaves an unsatisfactory gap in the way that a cure should be understood. Now that we know, how essential to the success of treatment, is an accurate conception of the nature of a disease, this is so much the more to be felt in the case of acute rheumatism; for we have to battle not only against an existing morbid process, but also against the fluids that may be conveyed to the cells, and proceeding from different directions, and which may be a hundredfold more fatal. And in that wide range of dissimilar agents, in which are employed those which may certainly be found some that will more effectually do this than many others. May more, some that may perhaps tend to
very about or form that which we there

To avoid.

There are two main and strikingly different points in the treatment of acute inflammation, the use or non of the abstraction of blood. Some maintain it to be the chief anchor of safety, others regard it as a source of fatally ultimate results of such vast importance, that they render the nature of the mean most worthy of consideration. In what way is bleeding beneficial in inflammation? It does good by diminish

ishing the action of the heart, allowing less blood to flow to the inflamed part, and by causing what is termed coagulation of the blood from it. Such a way will healing act on inflamina
tion of the lungs and pleura also in acute arthritis. It will also for influence the constituents of the blood as to lessen the amount of fibrin which a first abstraction has thrown to be on the increase. The great guide in the employment of this remedy is the hard pulse which indicates some change in the coats of the artery which it has the power of affecting for this harmless observable when the blood has been
drawn in sufficient quantity to relieve the
patient. Observation is beneficial in the
symptoms of acute rheumatism we frequently to
have recourse to it. Blood is abstracted to relive
agrient that is red, swollen, hot and painful,
but though we have no pain it cannot
to be due to the amount of blood in the parts, for
there is cause to indicate, in the rheumatic
articular affection, that such a state exists.
There is generally only a slight flush, evap-
oration of blood in this case also is not wanted.
there is no overflow of blood to the parts, and
the diminution of the heart's action by bleeding
is of no avail. But besides what we in
is to bleed to day for the purpose of relieving
the patient, (and we do so of course to lessen the evil
which we suppose the inflammation then will
occasion, if not checked), while it may
be few without, and another joint attacked
in its stead? it must be answered that it
is of none at all.
The blood, which is drawn off, is very marked,
suffrut and cubbed. The skin is in evident
excess; but it differs from .common inflammation
in this respect, that the repetition of venesection has no influence on the skin, and that it may be repeated over and over again, and the same beffed and cuffed condition will present itself. Here is therefore a powerful indication against the use of the lanceti, if we have to resort to the abstraction of inflammatory blood. I find in the blood of the acute ulceration a large increase of the fibrin, more I think than in any other disease, and there is a great decrease of the colored corpuscles, which latter accounts for the extreme pallor of the countenance of the patient, under the disease, even a few days after its commencement. Now, I remember Professor Todd, in his lectures, recording some experiments of his, by which he found that bleeding in health resulted in the very conditions just mentioned. After the first abstraction of blood there was a diminution of 36 parts in 1000 of the red corpuscles, in a dog fed on albuminous food and plentifully, and in one submitted to a low diet the decrease was from 120 parts, as obtained from the feet bleeding, to 76 parts in 1000 - the diminution
being 44 parts; and the serum was increased to about 6 parts. Surely one cannot be right in regarding it as useless. Surely we cannot be right in using such a mean for the cure of a disease as we know favours or gives rise to those conditions which the disease itself presents. This seems to be a strong argument against bleeding in rheumatic fever. The indications presented by the pulse exclude also against such a step. It is full, bounding and comfortable, showing but an asthenic condition, a greater want of power of the resilient coat of the arteries, and at the same time a want of tone in the system generally. What can be the good of debilitating it all more? especially in such a disease as this. That will unfortunately try its patience alone. Alter the constitution enough! The proper means, the correct irritability and the stimulating affinities are sufficient agents of improvement. There is one other thing and not least important. change against the practice of bleeding in the disease, and that is the tendency
It is said, it has of complicating the heart. This remark is made more from the observation of facts than from any actual explanations of the proper cause. Dr. Todd impressed upon us that it was with those physicians, who adopted blood-letting for their treatment, that the average of heart diseases consequent upon rheumatic fever was greatest. This he gathered from the cases recorded by Mr. Boyd. Hunt, Dr. Parke, I find, remarked the same thing. It might be that the abstraining of blood, by increasing the irritability of the heart, favours the circumstances that lead to the deposition of insalable syphilis.

From the many statements made to refute the employment of blood-letting in rheumatic fever, one error are at the same time affected strongly in favour of the hypothesis of a blood poison, as its cause, against that of local inflammation; and if we could establish this to be the case, the fact alone would speak loudly against the practice, for the influence, defusing to the utmost, that foreign matter, acting as poison in the blood, has on the system, would make
as reject at once the idea of such a measure.

The administration of Mercury has been greatly valued by some, but deprecated by others, in whose hands it met with failure.

Mercury is given, in the shape of calomel, with opium, in ordinary inflammation for two objects: at the commencement of the attack to moderate the inflammation and attack processes; this it effects by means of its influence on the circulation, especially upon the capillaries, and at a later period to check the effusion of copulable lymph and to promote its absorption. These properties will be of little avail or should say, can be of none at all in the affection of the joints, for the reasons advanced above, when healing of the propertied fluid is lacking. The absorptive action of it might exert on the effusion in the joints, it as it were of no use, for the fluid, which has not of a plastic kind, will be reabsorbed without it. Besides the fickle nature of the affection acts its great effects, and they exist at defiance if I may so speak. But if the heart becomes implicated, we may understand how beneficially it can act. The administration
of opium in such a manner as will affect the system in a short time, still by its well known power dissipate the seat of mischief which is deposited in the valves of the heart or rather its envelope. Then mercury may do good, but if this has not taken place the use of it would on the contrary may do harm especially if there is a morbid principle in the blood. Being no specific for rheumatism it cannot have the power of preventing the poison from causing its mischief, but as it has the effect of diminishing the globules of the blood and improving the constitution it would only seem to increase an already existing debilitated state and to form an abnormal condition of the circulating fluid; and, if long continued, by tending to calcination, add its mischief to the already great distress of the patient.

Another plan of treatment is that by opium in large doses, and it seems to be well appreciated to do good. This drug is most beneficial in diseases of an irritable nature. It is a powerful calming of the
Heart's action, and allays pain by acting on the nervous system generally, quelling the nerves. Who... peculiarly irritative character, and from whatever source these most intolerable pain about the joints, shaking and chafing the whole frame, and by preventing sleep draining the patient's life to death. By its action on the heart, opium should tend to prevent what we considered as a probable source of its affection, namely its great irritability and abnormal functional activity; also, by influencing so powerfully the nervous system, it would lessen the severity of the pain, and thereby confer many grateful benefits on the patient, giving him ease and comfort from his sufferings, procuring him sleep and removing the great sense of exhaustion, allowing thus of a rapid convalescence. One objection, however, that might make against the administration of opium is the ataraxia property it possesses over the intestines, and also the kidney by which it would counterbalance the beneficial help nature has instituted from...
These two emollient forces; but the objection is easily overcome; for the occasional use of a purgative and the adjunct of a diuretic would prevent that which is feared.

Dr. Cowgan is the advocate of this plan of treatment and the report of his cases demonstrates facts which speak well in its favour.

Phosphorus is another remedy, upon the efficacy of which much value has been set. It is considered a specific, so far as it will combat the disease though not eradicate from the system. The allegation of its specific powers, renders the investigation of the manner in which it acts, very interesting, and of importance. Phosphorus acts on the kidney, stimulating the secretion of both urea and urine acid, and as such we can understand how beneficially it acts, by drawing off from the system one of those Changing Principles that are set down as contaminating it. It has also the power of acting as a sedative of the heart's action, and consequently will do good in the same manner, that is, we can administer it probably aid to them, by adding the specific property, that many maintain the drug has,
of cooling, short, and dispelling the disease, which
affect the eye, we may assume as the cause being,
its effect by acting as an antitoxin to the
rheumatic poison. We possess a valuable weapon
in contact against the disease. The failure
of the remedy, we may most probably attribute
to the improper way it is administered. Its
good effects are said not to tell until it
has produced a marked physiological action on
the stomach and intestines; to attain which
object it must be given in large and repeated
doses. This makes Doctor Todd, whose experience
of the disease is very great, object to its use: for
he says, that, "though it is capable of shortening
considerably the duration of the disease, to
accomplish this object, the patient has to go
through an ordeal often more trying than the
endurance of the pain in the joints." Here he
alludes to the great irritation of the gastro-
intestinal mucous membrane, and he adds
that the profusion is so great that there is
no small risk of producing an inflammatory
state of that mucous membrane. Here is an
around statement of the efficacy of artemine
in checking the affection, and especially so,
by guesting the irritability of the joints. This can only be the result of a specific influence on the cause of irritation, and if we can attain a point of so much importance as that we can totally by counteracting the evil effects, which we know, we have to dread by the administration of some such drugs as well prevent them. Professor Christian therefore recommends the administration, together with a little quantity of morphia. Doctor Watton, though often successful in the use of colchicum, objects the idea of its possessing any specific property in rheumatic fever, because it has sometimes failed in his hands. This can hardly be held as an argument against the use of mitigating remedies which can account for the failure, and as he says himself, "certain important theoretical points may be overlooked, whereby deficiencies may withstand the influence of remedies in atmospheric agencies may keep up the disease in spite of proper treatment." These are overriding points that must be considered, i.e., the idea of the specific property of colchicum in rheumatic fever, or I think rather say on the rheumatic fever is discarded.
By analogy, we find that Mercury though a specific for syphilis, fails now and then and most effectually through agencies of the same nature.

Lemon juice has been advocated in the treatment of the disease. I never saw a case treated in this way, and I have always in vain asked for the modes of operation of the remedy, and have as uselessly endeavored to ascertain it in my own mind. The cooling influence of this aqueous drink may help to moderate the fever, though we can hardly suppose it to be efficient enough in such a paroxysm as the rheumatic; and this will be adjunct of convulsions. Suppose, carry the patient through, or with all due respect for the originator of the treatment, whose name and motive I am both equally ignorant of, it may serve no purpose at all and verify Dr. Warren's recommendation of what was given in rheumatic fever, namely "ten weeks."

There are three other modes of treatment, for instance that by arsenic, which may, by its sedative influence on the heart, benefit as opium does. That by cinchona, which has
a marked influence on the circulation, diminishing the frequency of the pulse, and giving it tone. This property can hardly be understood to do great in the cases we are considering, but its beneficial effect cannot be disputed after the paroxysm has passed. It will then support the exhausted constitution, and strengthen the nervous system.

I must not omit to mention a remedy which notwithstanding its common use in almost all the derangements the body is liable to, and the fortunate circumstance that no opposition exists to its efficacy, is most valuable. I allude to a cathartic drug. Ergotamine, by causing a copious drain of fluid out of the intestinal canal, acts not only as their names imply, as purifiers but it also depurates, perfectly the action of the heart, like bleeding would do. They do good then, in their\-mild fever, by exciting one of the können, through which the elimination of a poison from the blood, can take place. And by\- depurating the heart's action, effect the good which we have seen, such an action suppresses; moreover they are useful in correcting the
ends of otherwise beneficial remedies. Saline
emulgates are the best that can be used in
rheumatic fever, for they not only reproduce
the most efficient drain of water, but they
do this chemically by neutralising the acids.
The treatment by alkalies seems to be
beneficial, especially in conjunction with colchi-
cum. By neutralising the acids, they tend
to prevent in a great measure the irritability
they occasion, and if to them is due the
decree that constitutes rheumatic fever, they
will of course prevent accumulation of the
the effects nervous principles, and abate
their effects. By their diaphoretic effect
they tend to help Nature in her efforts
of throwing off injurious matter. The
practice, in rheumatic fever, has been sometimes
enjoined to the use of large doses of
vitro. At first, but it alone, seems
badly able to check it. If it is proper
practice to yield to Nature's demands,
alcalis are then properly administered;
for they are sometimes craved for by the
patients, and become a relief to them.
is of importance, for two reasons; do they relieve the articular affection, and what influence do they exert on the heart? They could seem to be of little value in the first place, on account of the fleeting nature of the affection in the joints, and as the joint bears no value to the vitals in reality, one sole object would be to relieve for the time, and these formulations appear to be more appropriate than the application of leaching for there is very little congestion to relieve, and we know that they must be applied from joints to joints, which would become a serious matter at the end. In the second place, some have thought that local measures have a tendency to throw the disease on the heart, and if we adopt the hypothesis of a contaminating poison we would explain the occurrence by supposing that they prevent the elimination of it, or its taking effect on those parts that have an affinity for it, and so, by delaying it in its course give rise to increased irritation of the heart, which we consider to be a most probable cause of this organ becoming
implicated. As the utility of local means is doubtful, and the consequence of their effects on the contrary suspicious, their employment ought to be rejected, except known to be cases in which, by prolonged irritation, severe inflammation is set up, and the safety of the joint is at stake. The former tantamount to ordinary inflammation, and of course demands for the usual means of treatment.

I have now arrived at the conclusion of the matter designed in this short thesis, and what has been written suggests to the mind of the young student of medicine, the men contemplating of others' actions, the difficulty of the part, which will fall to his share, when, for the first time, thrown on his own responsibility, he will have to declare those means upon which depend the life of a fellow creature. Let him perform his task with a pure conscience and a right mind; his humanity can do no more.

The End.