

**Valvular disease of the heart with especial reference to treatment by the
Bath waters / by Hugh Lane.**

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VALVULAR DISEASE OF THE HEART

WITH A HISTORY OF THE DISEASE

TREATMENT BY THE BATH WATERS.

HUGH LANE

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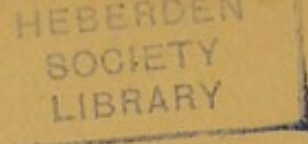
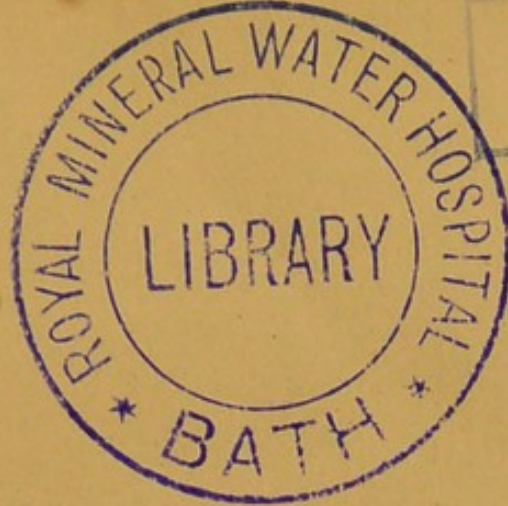


Ἀριστον μὲν ὕδωρ

The Gift of
The Author







VALVULAR DISEASE OF THE HEART

WITH SPECIAL REFERENCE TO

TREATMENT BY THE BATH WATERS

BY

HUGH LANE, M.R.C.S., &c.

Hon. Phys. to the Bath Eastern Dispensary, &c.

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PART I.



The Subject considered generally, chiefly Pathologically, with the Authors' Views.

PART II.



The Administration of the Baths in Heart Cases.

To the President
of the Royal Mineral Water Hosp
with the author's compliments.

P R E F A C E.

—+*++*+—

The following, while expressing sanguine views of the prognosis in valvular disease of the heart, is also intended for the consideration of those who have care of cases suffering from valvular disease of the heart or from other heart affections, as frequently met with in patients advised to repair to Bath for the use of the Mineral Waters.

The questions which are being so constantly raised as to the advisability of this or that patient bathing when suffering from cardiac trouble, sufficiently justify in my opinion such a step as the publication of this work, and I trust that it will do much to set at rest many of the little controversies and sometimes needless alarms which are raised when the question arises of thermal water treatment for rheumatism complicated with valvular disease, or for some of the functional irregularities of the heart which are met with in other affections, or I trust perhaps may even induce observers to entertain the idea

of attempting a line of treatment for cardiac disease, independent of any existing rheumatism, from which treatment I have seen the happiest results.

HUGH LANE,

4th February, 1889.

11, The Circus, Bath.



PART I.

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THE SUBJECT CONSIDERED GENERALLY,
CHIEFLY PATHOLOGICALLY,
WITH THE AUTHOR'S VIEWS.

Valvular Lesions, so commonly regarded as incurable—as “*faits accomplis*” which cannot be rectified—have of late appeared to me in perhaps a less gloomy light than heretofore, and having been fortunate enough to have had good clinical advantages, I have been enabled to make the following observations on the subject:—

Most works written on the action of Mineral Waters upon rheumatism and upon the too frequently attending valvular lesions lead one to the conclusion that they are inert in so far as improvement goes upon valvular mischief, or that they may be positively harmful. I am fully aware that to make the assertion “that valvular disease of the heart is amenable to such treatment as will modify its effects to such an extent to warrant one in saying that it may be classified as

on ordinary tractable affection" is an extremely bold statement, I do not wish fully to convey this idea, but I shall endeavour to show that this beneficial change is a real one if clinical facts are to be relied on.

As an explanation of the actual improvement which frequently follows the use of the thermal waters of Bath on valvular lesions, I would venture to advance the following theory :—" That the tissues in rheumatism including those of the endocardium, and especially those portions which enter into the formation of the valvular apparatus, having been acted on by the lactic acid become so altered in texture that the valvular appendages—so altered—must lead to a change of their position, and consequently a want of apposition in the valves themselves, with the result that a *bruit* indicating deficiency becomes at once apparent ; it may be stenotic from vegetations in greater or less quantity, or it may be incompetency from puckering of the valves themselves, or of the tendinous bands which regulate their proper closure ; in either case a progressive physiological change is brought about leading them to their original normal physiological character, owing to the increased alkalinity which has been imparted to the blood by the alkaline waters ; if this alkalinity has not been imparted to the blood how can it

be assumed that the influence of the Bath Waters is beneficial, and how is their action to be explained seeing that the diminution of normal alkalinity in the rheumatic patient cannot be denied.

We know that when we have a *bruit* to deal with in the course of acute rheumatism, the chances are unequivocally in favour of its having been produced by some attendant endocarditis; if organisation of lymph deposit has taken place upon the valves producing stenosis, can it be denied that the inflammatory deposit has been attended by its toxic confrère the lactic acid of rheumatism, and is it unfair to state that this accumulation (granting it to be acidified) is acted upon by blood becoming more alkalinised every day; also should the lesion be produced by shortening of the chordæ tendineæ, and contraction of the muscoli papillares, producing incompetency, what agent other than that of inflammation originating in a rheumatic attack has been at work, and what more rational view to take than that if we wish to remove an acid agency we should employ an alkaline re-agent? I do not wish to dogmatise or appear an egotist in the matter, but I must insist that when a *bruit* accompanied by a thrill, and giving rise to dyspnœa &c. in a patient, who, before his attack

of acute rheumatism was perfectly well, that this *bruit* can hardly be explained on any functional grounds such as anæmia &c., and when after six weeks or more this *bruit*—with its sometimes attendant train of ills—has disappeared, I may be excused for bringing to the front a clinical fact, which has appeared so obvious to myself, and the treatment by alkaline waters so beneficial to the patient.

A vegetation as seen on the endocardium and valvular apparatus, is as we know, one of the results of inflammation, viz., organisation, and consists of a soft tissue composed almost entirely of cells. Now, under what circumstances will an organised tissue thus formed undergo lessening of its bulk, or better still, more or less disintegration?

Fatty and calcareous degeneration, the two pathological conditions which exist so long as there is interference with the process of oxidation, are checked when oxidation is established; now, as the blood is vitiated in rheumatism, the process of oxidation must to a greater or less extent be interfered with, and it is to rectify this vitiated condition of blood that we employ the alkaline thermal waters, which promote oxidation, as evidenced by the trophic influences observed in so many of the cases undergoing this treatment;

so that since oxidation is improved, fatty and calcareous degeneration in the vegetations has been interfered with, and is it unreasonable to assume that another change has been set up in them, causing them to undergo a process of disintegration, and therefore leading to a cardiac sound of a much more normal type than that which formerly existed? In those cases in which the vegetations are obstructive, the improvement seems to be most marked, as will be readily understood from the foregoing reasons, but in the case of aortic regurgitation, the peculiar anatomical arrangement of the semilunar valves—destitute as they are of chordæ tendinæ and other extraneous apparatus—cannot obviously be affected to the same extent by the chemical changes of alkalinity on the one hand, or of the disappearance of vegetations on the other—seeing that vegetations in moderation must cause stenosis, but not necessarily regurgitation, unless of course the deposits impinging against one another in the closure of the valves prevent complete apposition of the free edges—but the anatomical construction of the mitral valve lends itself more readily to be attacked and again can more easily readapt itself under the action of the healing influences.

Thus reviewing the circumstances under which fatty and calcareous degeneration is found

to occur, we discover that the condition that is favourable to their existence is principally interference with the process of oxidation, and it is agreed that among the many salutary effects produced by a more or less prolonged course of the Bath Waters is improved colour, improved tone to the tissues, new vitality, and a trophic influence; these can be summed up in the word oxidation. Then we can say oxidation has been at work in a most efficient manner—fatty and calcareous degeneration has been checked, morbid products as it were strangled—and not only checked but the most desired result of inflammation in connective tissues has, I take it, been attained, namely, resolution, and to this shall I ascribe those cases where, on admission, cardiac *bruits* have been plainly evident, and in seven or eight weeks after have become more or less inaudible?

I have endeavoured to explain pathologically what an important part the thermal waters play in its accomplishment. Having made such a statement as this, the question might well be asked, What is to be learnt from it? “Is it that cases of valvular disease of the heart should go to Bath to be cured?”

Shall I be stating too much when I say that a case of valvular disease of the heart after acute

rheumatism before compensatory hypertrophy or dilatation has taken place would not only not be inconvenienced by the Hot Water Mineral Baths, but would derive the benefit I have been endeavouring to explain? and further, if the theory held good, then would not cases derive benefit in which there was compensatory hypertrophy caused by the obstructions of vegetations, that is, if the morbid material was removed simply by less opposition being offered to the already overstrained ventricles. It is unnecessary for me to say that where the remote effects of valvular disease have manifested themselves, these cases have no call for consideration except in this manner, that it is just these very remote effects which, if the proper treatment were applied in time, whatever it may be, may prevent their ever happening. As regards the action of the Bath Waters in this matter, I would remark in passing that out of all the cases with *bruits* in some form or other which I have observed only *one* case has been refused permission to bathe—it was on account of much dyspnœa in a most asthenic and anæmic patient with aortic regurgitation. The experiment of bathing was not tried, but I think that had that patient bathed and had she improved ever so little (and there was good reason to suppose she would have), although there was a risk; had she bathed with impunity it would

have been interesting to have noted the result, if only to have saved the Bath Waters from the imputed danger of a patient bathing in them when subject to severe cardiac disease.

I think it is to be regretted that mild or even more severe cases should be viewed with as much apprehension as they so frequently seem to be, in the face of the clinical phenomena of the ameliorative type which it has been my good fortune to have seen.

I would regard mitral stenosis, mitral regurgitation, and aortic stenosis as of the same clinical importance, reserving aortic regurgitation for a somewhat graver position, but I would not render myself an alarmist even in this the generally accepted gravest form of valvular disease, unless indeed, the later sequelæ beyond hypertrophy and dilatation had manifested themselves.

I am informed that at the Mineral Water Hospital of about the last 500 cases of heart diseases in all its forms, which have undergone a regular course of bathing, after the first two, three, or half-dozen baths, none of these cases have ever complained of deleterious effects of any importance. The deduction is obvious, for the worst that has been experienced is a slight

tendency to syncope after perhaps the first bath, when after the fourth or fifth a tolerance has been established: and in my own experience in a few cases in which untoward symptoms exhibited themselves at a later period in the course of bathing, I have invariably found that they have been the outcome of a want of discretion, and been prompted to the patient by the marked improvement and consciousness of impunity which he thought he could enjoy, and therefore led him into indulgences of tobacco, over exertion, &c.

In many cases an improvement is found, and in some few an actual disappearance has occurred of *bruits* undoubtedly of an organic nature. In the reasons argued it is of course quite understood that some of the cases being in the humbler classes of life are now put under different conditions, from perhaps hard work when ailing to having better food, more regular habits, and lastly but often not leastly, the mechanical cleansing effect of the hot water, all these conditions combining to clear away any anæmic trouble in the heart of the chronic rheumatic who finds his way to Bath; but also many of the cases observed were such as of presystolic improvement, when the possibility of anæmic and functional *bruits* could be at once put aside.

The first questions which, I believe, we are asked in nine cases out of ten, when we inform a patient that he or she has the heart affected, are such as these—"Will it get all right?" or "Will it interfere with my occupation?" or perhaps, "Is it likely to cause sudden death?" all questions of great importance both to patient and doctor. Now if we can prove that cardiac disease (I am using the term in so far as valvular disease is concerned) does improve under certain circumstances, if we can show that the diseased valves undergo a decided improvement under conditions which favour it, is it not a question of degree as to how far that improvement can be carried, and if we could add to the cause of the improvement and get a corresponding amount of effect, should we not have most powerful reasons for saying that there are brighter hopes for the possessor of a *bruit* than if such a happy circumstance did not exist?

The question will now be then—is heart disease curable? and can be answered by asking another—Are many other diseases curable? are fevers curable? There is a universal belief among the public, and possibly a little among a few medical men, that they are. If we were to tell our patients, in answer to a question involving something definite in the answer we are to give

them as to curing them, that we could not *cure* their maladies but only guide them (which probably would be much nearer the mark), that is, do everything to minimise the various symptoms, and place the patient in the best possible position for antagonizing these symptoms, and helping nature in her therapeutic endeavours—if we were to tell our patient this he would have far less confidence in us than if we were to tell him we were “curing” him, therefore we tell him (when he has recovered somewhat) that he is *cured*. We tell him this for reasons which are, perhaps, sufficiently obvious, but after all perhaps he is still debilitated from typhoid and with intestinal cicatrices. Or, after scarlet fever, we tell him that he is cured of the fever, but anasarca appears with kidney trouble. But, when we have endocarditis after rheumatism to deal with, how differently we act than when we get complications from other complaints. In the latter we tell the patient he is well, but what do we say after acute rheumatism complicated by endocarditis? We go to work I believe in just the opposite manner; we allow this much, “that he has got over his fever,” but we are very ready to run on to the complication and herald it to him with a big *but*—but you have got your heart affected—and we seem to attach tremendous importance to this complication. We may go on to tell him that no power on earth

can undo the mischief which has taken place, in short, we now paint his disease in decidedly black colours. I do not mean to deny but that this has its advantages, in making him careful for instance, but is there sufficient justification for this wholesale condemnation, even in the worst form of valvular disease?—true, one of the most important organs for preserving the vitality of the organism is affected, but even then, under favourable conditions, has not that organ a tendency to improve if given fair play?

Nature has been aided by rest, diet, and supervision. Rest I place first, as I believe being the primary cause of the improvement—but against this may be set, in these cases at least, the excitability which the thermal water gives to the circulation, and, of course, increased cardiac action, and this objection I would meet by saying that the improvement in the general muscular and nervous tone of the patient, brought about by the waters, is the very factor which I attempt to explain, not only compensates for this undue action but ultimately becomes the active healing power.

One cannot lay down any hard and fast rule for bathing these patients, but it must be borne in mind that the reclining position should be

adopted for cases of aortic regurgitation or even any other *bruit* or combination of *bruits*, where the cardiac disturbance and remote symptoms are prominent.

A high temperature should in all cases be avoided, choosing a prolonged immersion at a comparatively low temperature, starting at 96 degrees Fahr., and not exceeding 98 degrees in a bath of quarter of an hour, and working up to 25 minutes or half-an-hour's duration, with complete rest in the recumbent position for one hour after the bath. This will generally be found to be best tolerated and productive of the most satisfying results.

I have selected one each of the four most commonly met with *bruits* for the purpose of shewing the changes which the sphygmograph has made evident, before and after a course of the baths, and under as nearly as possible the same circumstances of pressure, &c.

1.—Mitral regurgitation. On first seeing him, "tracing of low tension, no aortic stenosis, therefore purely due to low pressure in radial. At end of course, one month after, line of ascent more perpendicular, sharper summit, better marked tidal and dicrotic waves, in short, pulse of greater tension.

2.—Mitral stenosis. This tracing although manifestly denoting obstruction, did not present one of the chief characteristics of mitral obstruction, viz., the irregularity caused by the ventricle contracting upon an insufficient quantity of blood in the cavity, owing to its being obstructed at the mitral orifice, but as a *bruit* almost replaced the second sound, it may be that there was some aortic regurgitation denoted by this *bruit*, which allowed sufficient reflux of blood to make up for the deficiency; be this as it may, when the patient had a six week's course of baths the line of ascent was decidedly improved, longer and more vertical, and both tidal and dicrotic waves more marked.

3.—Aortic stenosis. Before treatment a short oblique line of ascent, with ill-defined or nearly absent waves in the line of descent. Seven weeks later, line of ascent nearly vertical and longer, summit wave more pointed, and waves in line of descent much more developed. Of course the improved line of ascent may be accounted for on the ground of compensating hypertrophy, but as the improvement in the line of descent cannot be so accounted for, would it be unreasonable to assume that what produced the improvement in the one, produced it in the other, and what prevented the blood regurgitating also held good for its onward course?

4.—Aortic regurgitation. Pulse at commencement, an abrupt rise, this was the most noticeable feature in the tracing, and an abrupt fall. Eight weeks after, the line of descent was characterised by the considerable shortening from the summit to the tidal wave. Shall I say that this showed that what had previously interfered with the proper closure of the valves, had been removed and apposition affected, if not, what other cause for the improvement?

In following out the observations of the cases which have furnished clinical examples for this monograph, it may be as well to state that there has been no specific therapeutic agent employed, other than that of the Bath Waters.

Finally—I don't think I shall be adding too much if I say that the strong convictions I have of the highly salutary effects produced in this all important disease are sufficient to warrant me in giving a prognosis very different from what I might have done formerly, that is, before my attention and inquiries were directed in this channel. The rapidity with which these cases have progressed, and the highly satisfactory manner

in which so many have terminated, is my apology for advancing a line of treatment, for the consideration of the profession, additional to that which we are agreed has been, so far, the best at our disposal, and shall I add to a great extent only palliative.



PART II.

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THE ADMINISTRATION OF THE BATHS IN HEART CASES.

The Mineral Waters of Bath, which now hold so high a position in the list of Spas, are as is generally now known, of the greatest benefit in cases of chronic rheumatism, gout, and the allied diseases; without entering into any discussion as to the suitability of the Bath Waters for these, with their several complications I would say that rheumatism, in some form or other, is the disease which is ever before the public eye, when the subject of thermal water treatment is considered, that is to say, mention the fact that a patient has gone to Bath for treatment, and rheumatism in some form or other is the disease which at once suggests itself, but valvular disease of the heart is the trouble which is ever before the medical eye when rheumatism is spoken of, especially when acute rheumatism has been the starting point of the disease for which the use of the Mineral Waters of Bath is

now recommended; although I say, that given an attack of acute rheumatism, the medical attendant at once looks to the condition of the patients heart, yet, for all this, there are few people who are not cognizant of the fact that rheumatic fever and heart disease are very frequently associated, and, what is the result of all this knowledge? What happens in many cases when the medical man says to his patient "well, after you have somewhat recovered you must go to Bath, or some thermal water Spa, and have a course of baths?" Possessed of the knowledge that valvular disease is what he is now suffering from, he begins to question his doctor as to whether his heart will "stand" the baths; granted for the moment the doctor gives him a reassuring answer in the highest degree, and granted that he comes to Bath, and still more granted that he sees one of the resident medical men in Bath, who sees case after case come and go vastly improved, and even has this impressed upon him, I say this that he approaches his first bath frequently with feelings of doubt and uncertainty, not to say co-mingled with fear.

Now, if the case has been diagnosed as one of those forms of heart lesion which are the most serious and the most to be taken care of, it may readily be understood how undesirable it

will be to lay on these additional elements of doubt and fear; and, still more, I would say how equally undesirable, nay even unjust, to depict before him the risks he would run of bathing in other forms of valvular disease, yet to such an extent has the idea grown that the Bath Waters are to be used with caution in all forms of heart disease, that it is only natural that the question should have been raised whether these waters are or are not gifted with a power which they do not possess.

We know that all undue excitement or overexertion is to be deprecated in all forms of valvular disease of the heart; now, how is undue excitement to be avoided when a patient with an affected heart is recommended to use the waters? Is it by saying, "you know you have had rheumatic fever, you know that the valves of the heart are affected frequently after an attack of this sort, you know that any departure from your regular mode of living is not safe for you, and whether you know it or not, I must tell you that you must use the greatest caution in bathing in the Mineral Waters of Bath? Obviously not. The best advice to give to a patient who you know will derive from the baths the utmost good for rheumatism, be it articular or be it muscular or what not, and who has the misfortune to

possess a cardiac *bruit*, (especially one which has not led to any remote or ill effects) and, who really is to all appearances, not cognizant of the fact, is, *bathe at a temperature of 97° Fahr. for ten minutes the first bath, and don't think of anything else.*

Assuming now that he has got thus far with a patient, he has had one bath at 97° Fahr. for ten minutes, how is he to proceed with his other baths? In all probability the patient will have derived so much confidence from the fact that nothing unpleasant accrued from his first bath, that he will be in a hurry to run on to the hotter baths, and to take long er time; here then is another opportunity for checking undue excitement: tell him all will be well, let him take his next bath at 98° Fahr., staying in the same time, and the day next but one he may push on to 99, and here it would be as well to remain for a time, say half-a-dozen baths; 100 degrees can be reached before the course is finished, or even 102, but this depends upon circumstances. In most cases if the above method be rigidly pursued, nine times out of ten, whatever the nature of the *bruit* be, provided no remote evils have set in, the patient will notice no more than anyone whose heart is perfectly healthy. I am informed by my friend Mr. C. T. Griffiths, the Resident

Medical Officer at the Royal Mineral Water Hospital, that this method is the one practised there, and he says that he has never seen a single case, now some hundreds of cardiac ones, that shewed any symptom that might be classed as even alarming.

Now, as to the style of bath to be used, I have consulted my friend, Mr. Griffiths, on the question of bathing in aortic regurgitation, as I found that this form of heart disease was the one mostly to be "dreaded" from the Bath Waters, and he informed me that he cannot recollect more than one case of this kind, which was deemed unfit for the baths; but, this was a case of a girl who had advanced pulmonary phthisis, and the aortic regurgitation was accompanied by much irregularity of rhythm and weakness of heart action, and the patient was much emaciated and had œdema. Cases of aortic regurgitation uncomplicated, have bathed as others have, and in so far as deleterious effects have been produced, they have been conspicuous by their absence.

It must not be understood that all these cases should bathe indiscriminately, and since I mention this here, it will now be the proper place to mention a few points relative to the style

of bathing, in fact, to state what style of bath should be employed for the respective diseases. The excellent results obtained by the treatment at the Royal Mineral Water Hospital render the task of explanation of the different methods of bathing a light one, and it is now my usual custom to adhere as closely to that system as possible in any heart case which comes under my notice.

It will, however, be impossible to separate by a hard and fast line the various degrees of cardiac affections in such a manner as to determine a different kind of bath for each; besides, it would be unnecessary, to say nothing of the fact that by so doing it would defeat the very aim and object of this work, by lending an importance to what is, after all, a comparatively unimportant matter. I hope I may not be misunderstood by my saying this, I should indeed be very sorry to admit that I consider valvular disease of the heart an unimportant matter, but I must impress upon the reader that it is the one main object of this work to shew that the importance which has been attributed to it should not be on account of the danger which has been supposed to result from the action of the Bath Waters, so much as the grand importance which is lent to it from just the opposite point of view,

namely, that of actual improvement in the cardiac affection, and which subject I have already sufficiently dwelt upon in Part I.

I have given an outline of how a patient with a plain uncomplicated cardiac *bruit* may bathe with impunity, and I also remarked that it would be unnecessary to divide up all the cases of heart disease into several sections; I now purpose to show to what extent this division can most conveniently, and yet securely be carried, and will describe as far as I possibly can, the steps of special observations worthy of note in bathing special cases.

Before proceeding to these, however, it may be well here to state what I mean by an ordinary case; by an *ordinary case* I mean a clear single *bruit* of either valve, in which the cardiac rhythm is unaffected, the pulse fair, the complexion not venous or cyanosed, no dyspnœa and little or no palpitation, and perhaps, devoid of thrill or exaggerated impulse, in short the only evidence of the *bruit* is that which is obtained by auscultation, the character (I can describe it by no other word) of the *bruit* leaving no doubt of the existence of the valvular lesion, and yet this is the only sign. I again repeat, given a case of this sort, you may bathe your patient without any fear, pro-

ceeding with a temperature as above described. A qualification is, perhaps, here called for in the case of aortic regurgitation; I mention this, not that any misadventure has to my knowledge so far accrued in the bathing of this particular heart lesion, to make me advance the opinion with bold and undue confidence, that these particular cases should be studiously interdicted from bathing, but just from the desire to accept, without contradiction, the universally accepted clinical fact that caution *must* be exercised in this particular valve lesion, knowing well that should one of the dire results of this valvular incompetency occur during the administration of a hot bath, how ready the public mind would be to grasp the co-incident circumstance of a hot bath and a diseased heart.

I have said that special attention should be given in special cases, let us now consider these specialities. First of all the case.

I would call a *special case*, one in which the symptoms enumerated as being absent in the ordinary case are present; you may have one or other or all of these present; if you have, let it be forcibly borne in mind that the two main elements of safety lie in 1st, the reclining position, and 2nd, the water, the same temperature as the

body ; the danger which is supposed to be apprehended, namely fainting, is here by these precautions reduced practically to nil.

Taking then this as your starting point in the course of baths, let it be continued much on the same lines as before described, that is,

1. By bathing on alternate days.
2. Graduating the temperature.
3. Taking good care not to prolong each bath beyond a quarter of an hour.

After this, let everything be done quietly and deliberately, avoiding hurry or even the exertion of drying, these being quite obviated by the system of packing, &c., and later on by the adjournment to the cooling room which is always not far from the bath.

Bathing on alternate days is by far the best system, but unfortunately time is so important to many who visit for thermal treatment, that it has to be laid aside for the more frequent or everyday bath. The benefit which is derived from alternate days being that the system has time, as it were, to brace itself together after the somewhat relaxed state into which it has been brought by the hot bath of the day before.

It has doubtless by this time struck the reader of this work that no mention has been made of the appearances (if any) which lead the observer to notice unpleasant symptoms when a patient exhibits them at the time of his bath. I cannot do better than again refer him to the information given to me upon this precise point by Mr. Griffiths, who states that whenever he has a case of cardiac disease in which there are symptoms present which could most likely lead to their exhibition, he has watched the condition of the patient from the time of entering the bath to that of coming out, and he has told me that they can be summarised by the one word—negative. To write about facts therefore which do not exist, is, as all will agree, absurd; therefore, about the appearances of these patients in their baths nothing further need be said, but before closing the subject of cardiac cases and their baths, I would like to add a few notes with regard to supplementary medication.

Nearly all the patients, cardiac or otherwise, who undergo the hot water treatment by baths, suffer (if I may use so strong a term) from more or less palpitation of the heart when they come out. Increased cardiac action in fact is the result of a bath, and the question might very reasonably here be asked, "Is not this increased

cardiac action the very thing you wish to avoid in cases of valvular disease of the heart?" I would answer this by saying, that in my opinion this excitability is of such a character, that it differs entirely from the excitability from other sources which so often proves deleterious, nay, even dangerous—for this reason, the increased cardiac action generated by the bath, has taken a comparatively long time to generate, at all events much longer than that excitability of the dangerous kind which is produced by sudden shock. To prove this, it has been noticed by Mr. Griffiths, that a patient with a bad *bruit* has entered the water at 98 degrees, and having at once assumed the recumbent position, the pulse has remained the same number of beats to the minute until the temperature has increased, and then the pulse is found to increase gradually in proportion as the temperature is increased, 10, 15 and 20 beats to the minute have been noticed as the temperature has been increased when the patient comes out of the bath, and it has gradually subsided on return to bed. Can this be called "shock"? Certainly not; and more than that, I shall now go further and say that experience appears to show that this increase of pulse (*i.e.*, of heart's action), rather than producing a shock to the heart and an interference with its rhythm to the patients disadvantage, has in the

main been productive of the very happiest results to the state of the heart. I am not going to dispute that occasionally this increased cardiac action is sometimes carried to a very considerable extent, so that the pulse may reach 120 or even 130 to the minute after a maximum temperature has been attained, and the full time in the bath has been reached, but I cannot recall any cases which have shown any ill effects from this stimulation; when, however, this high rate of pulse is reached and does not show much inclination to fall, especially if associated with some irregularity of rhythm, it has been customary to give one or more of the usual cardiac sedatives employed in such cases; these seem to hold in check the tendency which the heart displays to run riot, but if a little extra rest in bed be enjoined, it will generally be found to be sufficient; if drugs be used, nothing seems to exert so much good as digitalis combined with iron.

So far, the simple or reclining bath, without any of the extraneous apparatus, now so much in use, has been employed. With regard to "douches," a little caution is necessary, for if the "douche" be turned upon a patient suffering from severe cardiac disease, and there be a considerable elevation or lowering of temperature, the condition of sudden shock just spoken of is to

be apprehended, to whatever point it be applied ; but if the temperature of the douche be near that of the patients body, and not much force employed at first, all will be done to render the risk of the complication as small as possible.

It seems scarcely applicable to say anything about functional *bruits*, but since a *bruit* is frequently met with in the anæmic patients who present themselves for treatment by the baths, with and without history of previous attacks of acute rheumatism, a few words may not be out of place.

On the whole these patients do very well. If there has been any doubt as to whether rheumatism has ever existed, or whether the *bruit* is the result of previous endocarditis or merely an anæmic one, a course of baths will almost settle the question, by the wonderful manner in which the *bruit* decreases in sound, if in fact it does not disappear altogether. These patients, however, frequently complain of the "weakening" effect of the baths at first, even at a moderate temperature, and it is as well to give some stimulating medication from the outset. Should you observe more caution than in bathing a patient suffering from anæmia if you have doubts about the cause of the *bruit*, that is, whether it be functional or roganic ? Need you have any fear or apprehension

in these cases? I should say that there need be no cause to have any doubts for the following reasons.

If a patient shows the usual symptoms of anæmia, can give no clear history of previous acute rheumatism, and has a systolic *bruit*, then you can bathe your patient without any fear, only observing the same ordinary precautions as before. But if the *bruit* be diastolic (a fact which greatly precludes the possibility of it being the so called functional murmur) the case must be treated upon its merits, and with any precaution which may be required from the previous and personal history.

Should the case be one however of advanced anæmia or chlorosis or progressive pernicious anæmia, where the muscular fibre of the heart is in a condition of fatty degeneration, and the heart is hypertrophied and dilated, of course much caution should be observed, patients should not exceed the tepid bath (98°) and always be reclining, the patient coming out on the first signs of fainting, in any case do not give more than 10 minutes for each bath.

In cases of chlorosis, the irritability of the heart is a very constant symptom and it is also very weak, so that as much caution is here re-

quired, nay, more in fact, than in some of the very bad endocardial lesions which follow endocarditis.

Further, in the defective muscular action which allows of mitral and tricuspid regurgitation (the functional *bruit*) and in the altered condition of the blood, which contributes to the pulmonary and aortic murmurs, which we meet with in anæmia; do we not see in the Bath Waters one of the chemical ingredients which we give so much of, and cast our hopes upon? I refer to the iron. Let the patient drink as well as bathe, let him do his best under the guidance of his medical adviser, to use and not to abuse the treatment which nature places at his disposal, and I think we shall see that if he adheres to common sense precautions, whether he have a cardiac *bruit* from rheumatism, or a functional one from anæmia, the day when he first commenced his course of baths was the day when disease began to receive a check, and prove the starting point of a happier future.



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