An experimental inquiry into the 'Schott treatment' of certain diseases of the heart at Bad Nauheim / by R.L. Bowles.

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AN EXPERIMENTAL INQUIRY INTO THE "SCHOTT TREATMENT" OF CERTAIN DISEASES OF THE HEART AT BAD NAUHEIM.

BY R. L. BOWLES, M.D., F.R.C.P.

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By R. L. BOWLES, M.D., F.R.C.P.

As long as twenty-two years ago I sent to Nauheim, on the advice of Dr. Hermann Weber, a case of heart disease of the most unpromising kind, and the patient returned *well* and remained so for three years, when he died of acute pneumonia, in consequence of gross carelessness and indiscretion on his part in a cold December fog. This patient had been previously confided to my care by Dr. Weber for cardiac and liver disease, with general anasarca and effusion into his serous cavities. The usual remedies availed him nothing. He was, as a last resource, treated with what, at that time, I had reason to have confidence in as a diuretic—sour milk, and no other food; this, happily, acted so well both as food and medicine that at the end of some weeks all fluid had passed from every part *except from the abdominal cavity.* His general health improved and he could take exercise, but his abdomen did not decrease in size, although it had been tapped five times, and his heart remained, as one then expected in such cases, a permanent menace to life. However, as I have said, he went to Nauheim in this condition and came away well. I resolved to visit and investigate the Nauheim treatment at the first opportunity, but preoccupation and circumstances prevented me, until I was again stirred, like many others, by more recent experiences. To make clear the attitude of mind in which I approached the question, it is but right to say that I had good reasons to be convinced as long as five-and-thirty years ago that

individual hearts, healthy and diseased, constantly vary in size, and, like the iris, the uterus, the arterial system, the abdominal viscera, and all parts supplied with involuntary muscular fibre, are subject to the influences of specific medicinal agents and to physical agents, such as heat and cold, light, electricity, and so forth. Since then I have collected together a large number of observations germane to the subject, and especially on localised and changing dilatation of the larger vessels. Physiological investigations of the last three years have placed the possibility of these variations in the size of the heart and blood-vessels beyond a doubt.

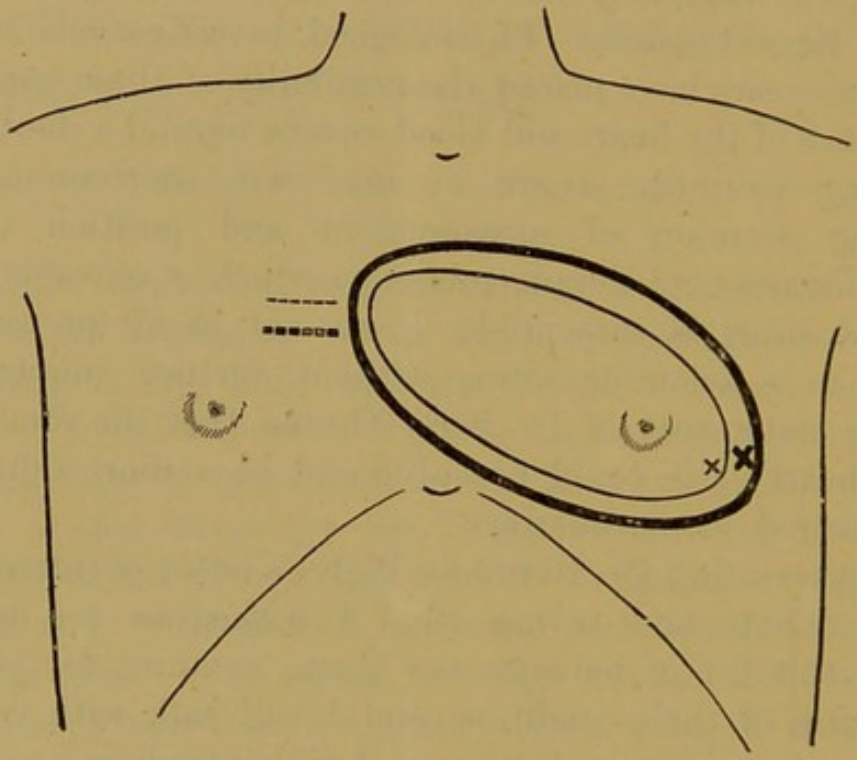
Being painfully aware of my own shortcomings in ensuring accuracy of measurement and position in the many diseases and derangements to which a movable organ like the heart is susceptible, I was not at all prepared to accept in a scientific sense, without further inquiry, the definite statements of Dr. Bezly Thorne that the diminution of the heart's size could be so induced in a short time as to be measured in centimetres.

On presenting Dr. Hermann Weber's letter of introduction to Dr. Schott, and saying what I wished to see, he said, "Take this list of patients, see them, examine for yourself, take notes of their condition, and I will talk with you this evening; but come with me now, I will introduce you to Dr. Heineman, an American physician, who has had a larger experience of my method than anyone else, and he will help you in any way you want, *but you must examine for yourself.*" I found that I had to deal with a man of instant action, resistless energy, and simple nature, whose whole wish was to establish the truth of his system for the good of humanity, and for the memory of his brother, to whom entirely, so he in his modesty says, the merits of the discovery are due.

In Dr. Heineman I found a gentleman who had held high hospital appointments in his own country as a pathological, medical, and clinical teacher, and who had come to Nauheim for eight seasons on account of his only child, who had made there a most astonishing recovery from degraded health with hæmophilia and many distressing complications.

At first Dr. Heineman did not closely investigate Dr.

Schott's treatment of cardiac diseases, as he could not believe its claims worthy of his attention. He was not in practice there, but a visitor, and his interest was purely scientific. In giving me an outline of the way in which things were done, he produced this particular tracing, made directly from a man's chest, which had been examined and marked in this way a month previously, as he said, "by your own countrymen."



Mr. L.—Cardiac Dulness.

Before exercise
After ,,
Apex beat before ×
,, ,, after ×
Liver dulness before
,, ,, after

Auscultation and percussion by Sir T. Grainger Stewart, Dr. Holman, and Dr. T. McGregor Robertson.

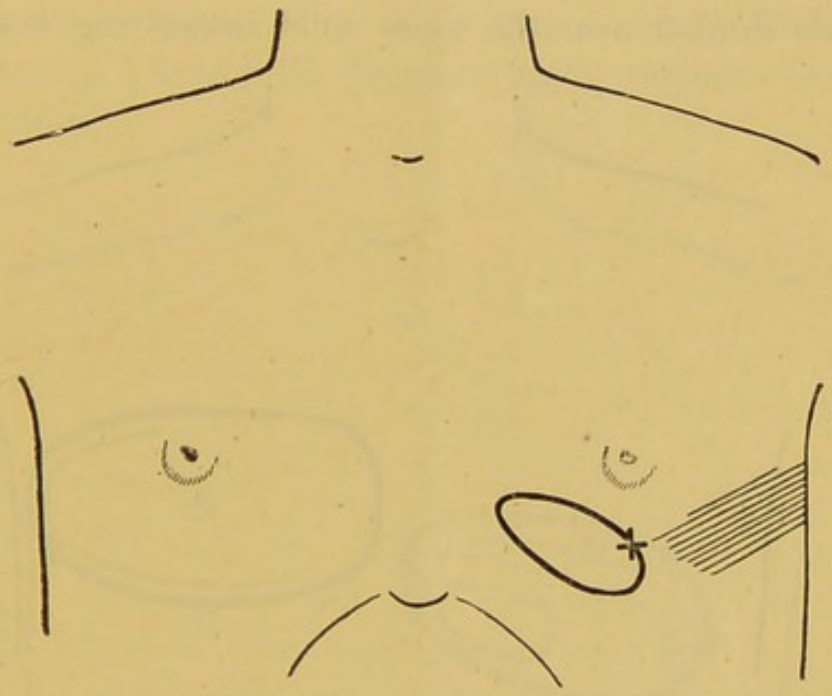
Exercises administered by Dr. Theodore Schott and Dr. Bezly Thorne.

Recorded by Dr. Newton Heineman, and corroborated by Dr. Richard Greene, of Northampton.

Exercises of twenty minutes.

Case 1.—This was a male patient, who suffered from chronic myocarditis, with marked dilatation of both ventricles, slight effusion into both pleural cavities, general

anasarca, albuminous urine, and a suspicion of incipient tabes. His heart was much enlarged, the apex beating 5½ centimetres to the left of the nipple, and the area of the cardiac dulness was enormous. After twenty minutes' exercises there was a remarkable diminution of the area of cardiac dulness and a shifting of the apex 2½ centimetres nearer to the left nipple and 1 centimetre lower down, the change being distinctly appreciable to the finger. The liver had gone up an inch.



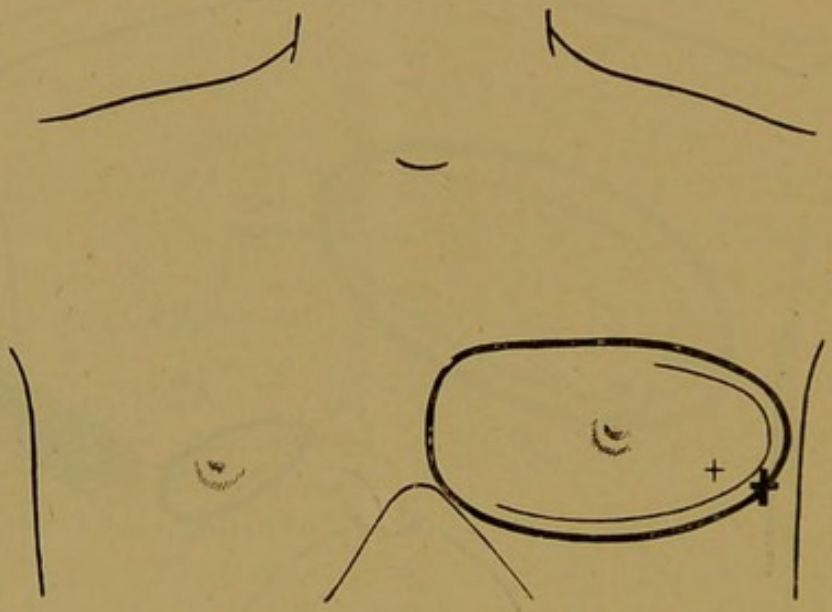
L.—Cardiac Dulness after a Month's Treatment.
Slight dulness at shaded part and at back of lung.

Exactly a month later I found the same patient, a Russian, comfortably smoking a cigar after a long walk, looking and feeling, so he assured me, perfectly well. The day before he had walked up the Johannisberg, a small hill with sharp ascent, without drawing rein. There was now no trace of dropsy anywhere, the albumen had gone, and this is the tracing of the present normal limits of percussion dulness and the present position of the organs.

I should here explain that I was made, in every case, to take my own observations and to mark the chest in my own way, and only in cases of doubt, and at my request, would either Dr. Schott or Dr. Heineman give me a lead in any way.

There was in the physical examination a practical difficulty which will at once occur to you: what was meant

by relative and absolute percussion dulness? What I called relative dulness Dr. Heineman called dulness simply, and what I called absolute he called "flatness." Of course the essential point was that we should clearly, at starting, understand the exact value of each other's terms, and in this we, I think, succeeded. Relative dulness, then, meant the first line of the loss of that lung percussion note which should be present at the point struck—where, in short, the lung becomes thinner over the more solid underlying heart; and



Captain H. B.—Before and after Bath. 10 min.

Cardiac dulness before ——
,, ,, after ——
Apex beat, before bath ×
,, ,, after ,, ×

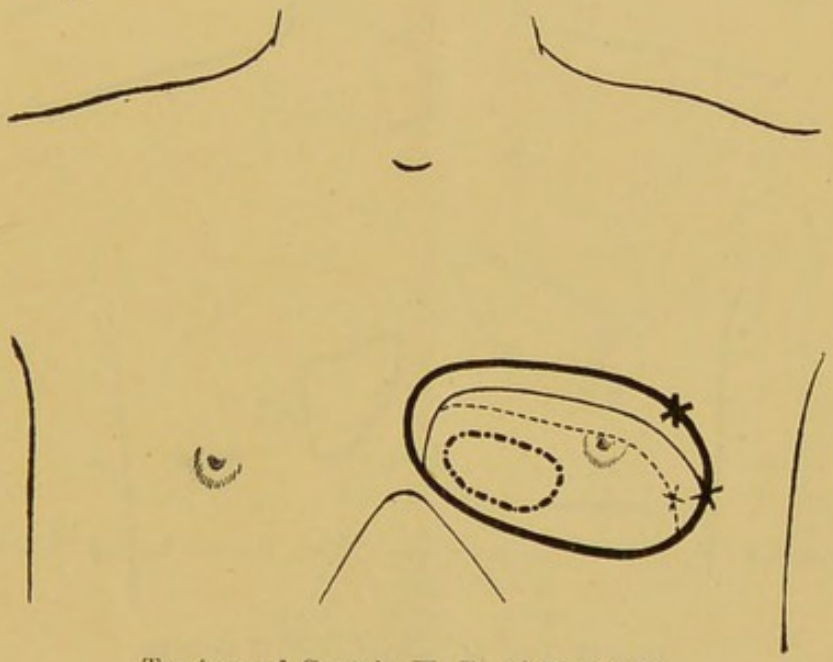
absolute dulness implied the absence or inappreciable quantity of lung tissue underlying the part struck.

I may state here that Dr. Schott claims a greater facility and precision for a method of percussion of his late brother than for that ordinarily employed. Dr. Schott calls it "percussion with limitation."

It appears that his brother and he had experimented acoustically and by percussion for years at the slaughter-house and on the cadaver, localising and defining dull spots and internal organs by the use of long needles and other means. He says that by the ordinary method when striking a rib we get the vibration of its whole length; but by steady pressure on either side of the point struck you limit the

vibration, just as is done by pressure on the string of the violin. The proceeding is simple—viz., place three fingers on the part, press firmly with the two outside and more lightly with the centre finger, which is the point struck. This method appears to me to affect the tactile more than the acoustic sense.

I propose now to show the tracings and notes of a case displaying the effects of the *baths* on the size of the heart as observed by myself, with the assistance of Dr. Heineman. For clearness, I have in all diagrams made tracings of absolute dulness only.



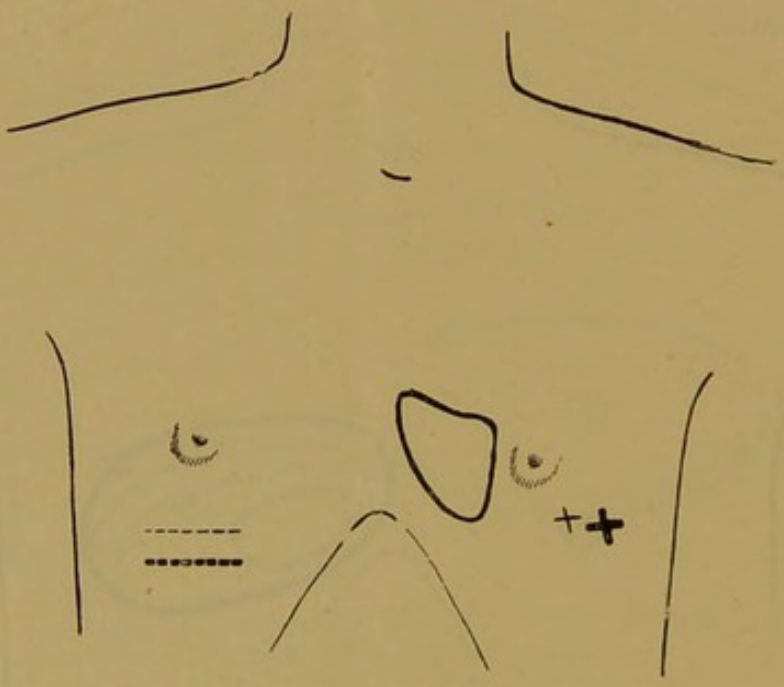
Tracings of Captain H. B. of March 25.

Case 2.—This patient was said to be the subject of marked mitral stenosis with extreme dilatation of the auricles, and had a previous history of rheumatism and pleurisy. The heart's action was so disturbed that I could hear no murmurs. The urine was loaded with albumen. Before a bath of ten minutes' duration the apex beat was $8\frac{1}{2}$ centimetres to the left of the nipple, and after the bath only $5\frac{1}{2}$ centimetres distant, and at a slightly higher level. The general area of dulness was considerably reduced.

Here are clearly brought out the facts of the change of position of the heart's apex and of the circumferential dulness within the space of a few minutes. That which I thought impossible is shown to be quite possible.

This patient paid me a visit on March 26th, 1896. He assured me that he could then walk five miles and more at a stretch without fatigue or dyspnœa; there was not a trace of dropsy, and he felt quite himself. I found, however, that although the cardiac dulness was shown by fresh tracings to be much diminished it was still great, and that there was now a well-marked diastolic bruit at the base and a systolic mitral bruit. There was, moreover, albumen in his urine.

I advised another course at Nauheim.



Miss M. (æt. 14).—Exercises, 15 minutes.

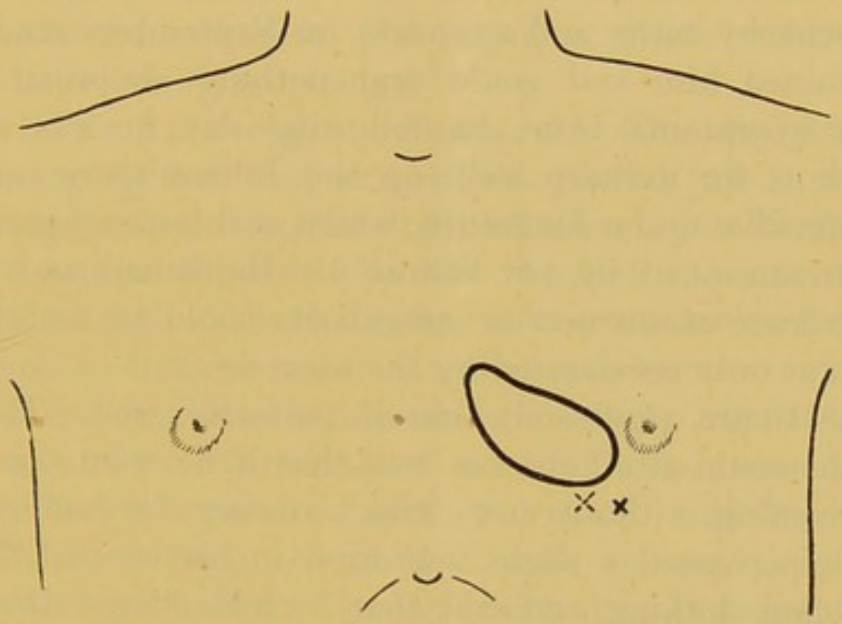
D, diaphragm before ----
,, after ----
Apex beat before x
,, ,, after ×

Next we have tracings of a chest before and after the *exercises*, and here again is seen a retraction of the heart's apex 2½ centimetres.

Case 3.—This was a girl fourteen years of age, who had had an attack of rheumatism in the preceding winter and suffered from stenosis and insufficiency of the mitral valve. She had been treated at Nauheim for two months by baths alone under medical direction, but without becoming any better; having then been treated with baths and gymnastics under Dr. Schott's system, the marked dyspnœa and all præcordial pains disappeared, and she considered herself to be

perfectly well. Before an exercise of fifteen minutes the apex beat was $4\frac{1}{2}$ centimetres to the left and below the nipple, but after the exercise it was only $2\frac{1}{2}$ centimetres to the left and below.

Case 4.—This patient, who was the subject of aortic stenosis and a slight mitral regurgitation, and was now spending a fifth season at Nauheim, had been much benefited by the treatment. The area of cardiac dulness was normal and the



Prof. D. K. (old case of eight years' standing).—After Six Exercises with Resistauce.

Cardiac dulness ——
Apex beat before ×
,, ,, after ×

apex beat 4 centimetres below and just inside the nipple line. After 6 movements of the exercises the apex was distinctly felt 2 centimetres nearer the median line.

ANGINA PECTORIS.

Case 5.—September, 1895. General Count S——, a Russian officer, who had seen much service in Central Asia, believed himself to be a perfectly healthy man until he was attacked by influenza in April, 1895. In the later part of his illness, or rather after it, he was suddenly seized, whilst out commanding his brigade, with Angina Pectoris, lasting, at intervals, for twenty hours.

He was so ill that the priest was sent for to perform

the last offices of the church—a very serious matter in the Russian Church.

Professors Botkin and Murinoff of St. Petersburg recognised a loud aortic systolic murmur, and Nothnagel and Widerhofer of Vienna made the diagnosis of sthenocardiac attacks (Angina), extreme dilatation of the heart, with feeble small pulse, and sent him to Nauheim.

On his arrival in August of this year Dr. Schott recognised all the conditions as still present. After about six weeks of treatment by baths and exercises, on September 22nd, 1895, I examined him and could find nothing abnormal in his cardiac symptoms. On the following day he was sent by Dr. Schott for a sharp walk up the Johannisberg and back, and immediately on his return, whilst still hot and perspiring, he was examined by Dr. Schott, Dr. Heineman, and myself, and no trace of murmur or irregularity could be found. The heart was only accelerated by the exercise.

The Count professed himself perfectly well. The only thing he could at all observe was, that if he went out in the chill evening without any extra covering, he had once or twice experienced a slight sensation in his chest. He wore no woollen clothing, and said that he had obeyed Dr. Schott in everything except in abandoning smoking, which he declined to believe did him the smallest harm, and which he indulged in without reserve. He had lived the rough and active life of a soldier in Central Asia, and had taken stimulants somewhat freely, and had also, in consequence of severe and continuous pain in the groin from an injury in battle, taken morphia for a long time, up, I believe, to the time of his influenza in April, 1895.

It must be borne in mind that these are not wonder-exciting diagrams, but literal tracings of the marks made by me on the chest with red and blue pencils at the time of examination, and confirmed by Drs. Schott and Heineman, one or both. No doubt I was fortunate in my cases, for it is a fact upon which both these gentlemen dwelt, that such changes do not always manifest themselves in this satisfactory or definite manner.

Now comes the question, Can these physical changes,

which certainly have displayed themselves, afford us any other explanation? Can they depend on any cause other than a reduction in the heart's size?

Can it be, for example, from increase of the lung capacity overshadowing the dilated underlying heart? If so, then the chest capacity must have enlarged in some direction, for we now have an additional claimant for room. But here it is seen (Diag. No. 1) the diaphragm has gone up, indicating a lessening of chest capacity in this direction, and as to its circumference, careful and repeated measurements have shown that there is no change.

Dr. Oliver has recently demonstrated (Croonian Lectures) the interesting fact that an arm introduced into a jar filled with water, accurately measured, will displace a further two or more ounces of water after the resisting movements than before, showing a distinct increase in the volume of the limb; so, as similar changes must take place in the other limbs and muscles brought into action, we may fairly assume that a large amount, twenty ounces or more, of blood, may thus be diverted at will from the heart and viscera. He has further shown that massage diminishes this increase and again distributes the blood to other and more distant parts.

Drs. Lauder Brunton and Tunnicliffe have shown (*Journ. of Physiology*, vol. 17, No. 5, 1894) that—

I. During the massage of muscles the flow of blood through them is increased.

II. Immediately after the cessation of massage, an accumulation of blood occurs in the massaged muscles. This is rapidly followed by an increased flow through the muscles.

III. The massage of a considerable area causes, at first, a slight rise in the blood pressure. This is followed by a fall which, in some cases, amounts to one-fifth of the initial blood pressure.

There is another point also to bear in mind, and one which much surprised me: the patients always say they are so much relieved in their breathing, and more comfortable generally immediately after the baths and exercises. I thought this might be fancy—faith-healing in fact, but on investigation my scepticism vanished. The simple young girl of fourteen,

who was examined for the first time, had no notion of what was expected, and she gave her testimony of her acquired comfort without any leading questions.

And then the changes in the frequency and character of the pulse: I confess in this to have been less exact than I could wish, but I had so much to do, so many things to observe, and the mystery of language to contend with, that I must be excused for this imperfection. I do not at all mean that I did *not* observe: for example, I took the pulse before and after exercises and baths, and every two minutes whilst the patient was in the bath, and I am sure that as a rule the pulse was quieter, more regular, and of better character than before, and that it accorded with the patient's own feelings of relief and betterness. But the delicate differences of + and − of tension, the uses of the sphygmograph and arteriometer, I am unable to record, although I worked from morning to night for three days and more at the highest pressure, and with the kindest possible help from both my doctor friends.

It is not contended that the heart once contracted remains so; it varies much, but eventually it continues steadily on the whole to diminish in size. Indiscretions of diet, exercise, or mental disturbances, however, always produce injurious effects. This heart of Captain B—— was much smaller a week previously than the day I measured it before and after the bath, but he had taken a trip to Frankfort for enjoyment, committed indiscretions, and was at once the worse for them.

If possible, absolutely no medicine is given during the treatment, but now and then, if life is in danger from relapse or intercurrent complications, infusion of digitalis is given for from one to two, three, or four days, and the patient then progresses favourably. Of course, the majority of the severe cases, and there are many, have already taken medicines *usque ad nauseam* before coming to Nauheim, and have been under the care of distinguished and enlightened physicians. Dr. Schott assumes that all that could be effected by medicines has already been tried and found wanting; but even when digitalis and the rest have been taken for months without the smallest effect prior to their

coming to Nauheim, these medicines, if needed, act in the most satisfactory way after a certain time of Nauheim treatment. This was so in the case of the Russian, Mr. L., and the doctors supplied the strongest confirmatory testimony on this important point.

With regard to the composition and action of the waters, they contain about from 2 to 3 per cent. of chloride of sodium, 2 or 3 per thousand of chloride of calcium, a large proportion of iron, and more carbonic acid than the waters of Spa, Schwalbach, or Pyrmont; they are, moreover, thermal, from 82 to 95 degrees Fahr., and are sent up about fifty feet into the air by the violent explosive action of the carbonic acid hastening to be free. On their way the waters are captured beneath the surface, and conveyed through pipes to the respective baths, and thus whatever active properties the waters contain are preserved to the bather. The supply cistern to the baths is in fact Nature's seething cauldron deep down below the earth's surface. Mysterious as are the ways of waters for which therapeutic action is claimed, their mode of action is, of course, still an open question. Dr. Schott does not pretend that they are absorbed into the blood by the glandular systems of the skin, but it has been proved that they soak into and pass through the outer layers of the epidermis.

Dr. Schott thinks the waters act, in conjunction with the abundant carbonic acid, on the extensive nerve-endings beneath the epidermis, and so by reflex action on the various parts of the nervous system. On this I offer no opinion, and will only recall, by way of emphasis, the enormous reflex influence of heat and cold alone on the heart, vessels, nerves and organs of the body generally.

In conclusion I would claim consideration on the following points.

First.—That my visit was not to describe afresh Nauheim and the general impressions of the Schott treatment, but with an unbiassed mind to investigate the main facts for myself.

Secondly.—That the unpromising case sent by me twenty-two years ago recovered under the influence of baths *alone*, as the exercises had at that time not been introduced at Nauheim.

Thirdly.—That although I saw, and carefully examined, many cases confirmatory of what I have related, to avoid tedium, I only produce typical cases to demonstrate three points.

A.—The position and size of the heart immediately before and after the bath.

B.—Before and after the exercises.

C.—Before and after a course of treatment.

The exact physical conditions of these patients prior to their coming to Nauheim were vouched for by some of the leading physicians in Europe, whose written opinions were submitted to me by the patients themselves, and it must be remembered that all of them had been unsuccessfully treated medicinally and dietetically and then sent to Nauheim as a last resource.

Fourthly.—I would claim that each case related is a practical experiment, and that each experiment was as complete in its character as such clinical and physical experiments could be for the limited purpose which I had in view.

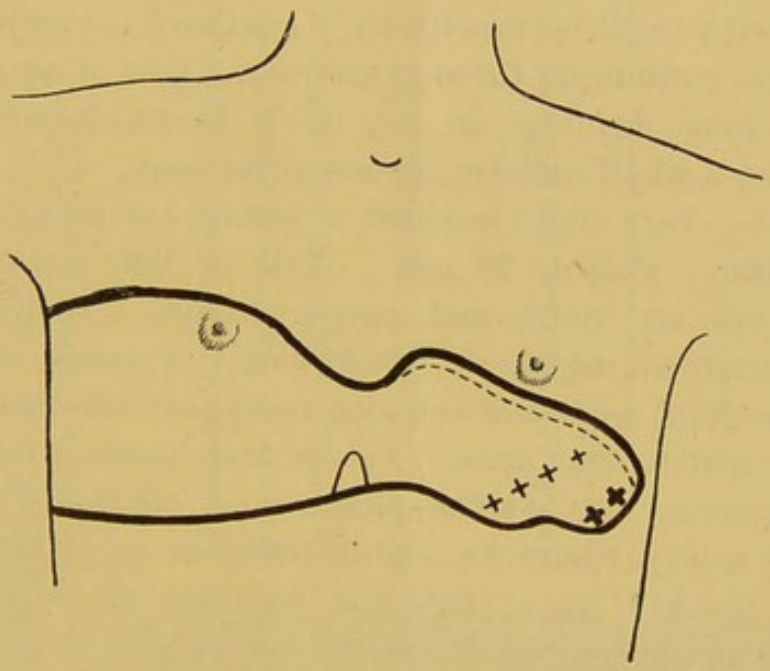
Fifthly.—I do not commit myself to opinion as to the rationale of the physical changes, but I may remind you that the changes observed and recorded by me are in general agreement with the observations of several other physicians who have now investigated this interesting subject.

The following notes of a recent case illustrate the necessity of extreme caution in treating severe cases of heart disease. I was asked by Dr. Rolleston if I could try the effect of resisting movements on a very hopeless-looking case. I consented with the distinct understanding that the movements must be applied only in a tentative manner, as much disturbance might end the patient's life. The boy, seventeen years of age, had suffered from rheumatic fever three years, and two years previously, was in the most distressful and critical state, and was then having his peritoneal cavity emptied by Southey's tubes. We waited three days to see the effect of the tapping. His pulse was 175, irregular in force and rhythm, the cardiac beats were felt in the fifth and sixth intercostal spaces and upwards of 2 inches outside the left nipple line, and diffused in these spaces 2 or 3 inches laterally; the dulness area was

much increased, there was general dropsy, a trace of albumen, the dyspnœa was extreme, and the jugulars were much distended.

April 21st.—After the first exercises, which were very slight, the pulse fell from 175 to 160 and the boy felt and looked relieved.

April 22nd.—The pulse fell from 160 to 140, but was more irregular in force and rhythm, the boy was comforted, the apex beat was less diffused along the sixth intercostal space, and



Very Slight Exercises (10 minutes).

Lines of percussion dulness before ——
" " " after - - - -
Apex beats in 5th and 6th inter-spaces × × × × ×

the area of cardiac dulness was slightly but distinctly diminished after the exercises.

April 23rd.—The pulse went down from 146 to 140, and the boy was surprisingly better in every way.

April 24th.—The apex beat could now only be felt at one spot in the sixth space, but was as diffused as ever in the fifth space. Pulse 140; no reduction.

April 25th.—Very slight exercises, as I was in haste. Pulse fell to 136, and I left him sitting up in bed quite happy and comfortable.

April 26th.—Sunday; no exercises.

April 27th.—At 4 p.m., just prior to my arrival, the boy

had died with the sudden supervention of dyspnœa and much lividity, lasting only ten to fifteen minutes. He had eaten his dinner as usual, was better than ever, and quite hopeful about his condition. I could not help congratulating myself that I was later than usual and that the preceding day had been Sunday, or I should naturally have thought that the exercises had caused this sudden ending of the poor boy's life.

Post-mortem examination, by Dr. Cyril Ogle, April 27th, 1896.

April 27th.—*Thorax.*—Right lung adherent, and somewhat fibrosed with swollen bronchioles; a lobulated cavity just above diaphragm containing three-quarters of a pint of serous fluid.

Left lung deficient in air, of a brownish colour, and containing a small caseous deposit at its apex.

Heart.—Very slight amount of serum, but no adhesions in pericardium; weight, 28 ozs. Wall of left ventricle very thick (over an inch), and cavity dilated. Right normal. Both contained masses of black clot. A small black-and-white speckled *ante-mortem* clot (polypus) attached to wall of left ventricle near apex. Valves and vessels patched with soft atheroma, but valves pliable and efficient. The left coronary artery, where its septal branches are given off, was entirely blocked by a crumpled embolus of the same appearance as the polypus in the left ventricle.

Right kidney healthy; weight, 8 ozs. Left kidney, weight 1 oz., and filled with gaseous gritty material. There were two recent infarcts and one old one in the right kidney.