were advised to endure their suffering rather than face the risk of lateral lithotomy—then the only resource—and this must affect the comparative mortality. I should like to have compared each decennial period of Thompson's cases with my own to show the mortality at different ages, but this is not possible from the way in which his statistics are compiled. Nevertheless, some further comparison is possible and of value.

Thompson's Tables. (Operations from 1790 to 1840.)

Age 1 to 11 inclusive	850 cases, 49 deaths, 1 in 17= 6.0 per cent. mortality.
" 1 to 48	1,365 " 114 " 1 in 12= 8.3 " "
" 49 and upwards	462 " 115 " 1 in 4=25.0 " "
At all ages	1,827 " 229 " 1 in 8=12.5 " "

My own Tables. (Operations from 1888 to 1892.)

Age under 10	166 cases, 14 deaths, 1 in 11.9= 8.4 per cent. mortality.
" 50	377 " 32 " 1 in 11.8= 8.4 " "
" 50 and upwards	236 " 29 " 1 in 8.0=12.5 " "
At all ages	613 " 61 " 1 in 10.0=10.0 " "

Comparison of these figures emphasises what I have already pointed out, namely, that the general mortality of stone operations is reduced. It shows further that the reduction is due to the greater safety with which operations are now performed after 50 years of age; but it appears to show also unmistakably that operations for stone in children are attended with a greater mortality than they were fifty years ago. This, if it be true—and I have endeavoured to avoid putting any unfair construction on the figures—can only be due to the introduction of lithotripsy and suprapubic section. Reference to the first tables shows that to the latter the enhanced mortality must be ascribed.

This further inquiry therefore confirms the opinion I expressed in my former paper already referred to that lateral lithotomy and litholapaxy are safer operations in children than the suprapubic is at present, and that if the last-mentioned is to be adopted as a routine procedure in the future, it must be shown that it gives better results than it does now.

To return for a moment to the mortality of suprapubic section in adults. I can only speak of general impressions gathered from the statistics and from my own operations. So far as these go, they leave no doubt in my mind that where a cutting operation has to be performed on an elderly person, say above 50, suprapubic section is safer than perineal, but it should be resorted to only when lithotripsy is for any reason unadvisable. In the middle period of life, although I personally prefer to perform litholapaxy, I believe the mortality of the three operations is very similar. I have not seen a permanent urinary fistula left after any suprapubic section, but in three cases operated upon by me in private practice, all men with marked prostatic enlargement, the length of time before sound healing was secured was protracted to months, in one to seven months, to the patient's and my own considerable annoyance. Removal of prostatic tissue in these cases was forbidden by the patients' general condition.

THE TREATMENT OF CHRONIC AFFECTIONS OF THE HEART BY BATHS AND EXERCISES

By W. BEZLY THORNE, M.D.

THE PHYSICAL TREATMENT OF AFFECTIONS OF THE HEART. ALTHOUGH the Schott methods of treating affections of the heart were brought under the notice of the medical profession in England in 1891,¹ it is only within the present year that they have attracted even a small share of the attention which, as therapeutic agents of the first order of efficiency, they unquestionably deserve. The brief account of the system in question which I published in the early part of the present year,² and the paper from the pen of Dr. Wethered which recently appeared in the BRITISH MEDICAL JOURNAL, have at length attracted so much attention that further information on the subject may possibly be read with interest.

In the Hunterian Oration of last year Dr. Lauder Brunton assigned to the system under consideration a place

intermediate between massage as applied to those who are confined to bed, on the one hand, and graduated walking exercise, as practised in the Terrain cure, on the other. Such a general classification would not be intended to have the force of a precise definition; and I hope to be able to show that while in skilful and experienced hands massage, combined with rest, may be of great value in the treatment of certain conditions of the heart, the Schott methods are equally applicable to the same conditions either by themselves or in conjunction with massage, while graduated walking falls into place as their rational complement.

The system consists of two methods of treatment—that by baths, and that by remedial exercises or movements. Broadly speaking, the immediate effect on the heart and blood vessels of immersion in water, whether holding in solution a number of mineral and gaseous constituents or relatively pure, depends on the temperature of that medium; and it may at once be stated that the range which is available for the therapeutic purposes in question lies between 85° and 96° F. The effect of the immersion is at once to increase the volume and diminish the rate of the pulse; and that the difference between the primary effects of a comparatively pure and a strongly mineral water is not considerable will be shown by the comparison of observations made on myself in connection with immersions of ten minutes' duration in three different waters, each of which was of the temperature of 90° F. In the first instance the bath consisted of London water as provided for public consumption, in the second of the water of Llangammarch Wells, in Breconshire, which, in addition to 0.09 parts of chloride of barium, contains 2.7 of chloride of sodium and 1.2 of chloride of calcium per 1,000. In the third instance the water was that of the Nauheim Spring No. 7, freed from the greater part of its natural carbonic acid, and containing close on 22 parts of chloride of sodium and about 1.7 of chloride of calcium per 1,000. It will be observed that in each instance there was an immediate diminution of the pulse-rate which, proportionally to the rate observed before immersion, can scarcely be said to differ, and that during the latter half of the immersion there was a slight advance on the lowest rate attained. Further, it should be stated that in each case there was a marked increase in the volume of the pulse as tested by the finger.

The following are the pulse rates:

	London Water.	Llangammarch Water.	Nauheim Water.
Before immersion (standing)...	88	96	84
Within 1 minute	71	80	72
At the 2nd "	76	69	64
At the 4th "	68	73	64
At the 6th "	64	70	68
At the 8th "	68	74	70
At the 10th "	64	77	70
After dressing (standing)	88	88	80

Here ends the similarity of effect of immersion in plain and mineral waters as far as my own experience goes. During the last two or three minutes the bath of plain water conveyed a sense of cold, which was only afterwards relieved by vigorous towelling, and was followed by no perceptible sense of exhilaration or invigoration. The mineral baths, on the contrary, induced a glow of warmth and a sense of exhilaration and invigoration which, within certain limits, were proportionate in degree and duration to the salinity of the water employed. Moreover, the influence exercised on the rate and volume of the pulse in the case of plain water is so transitory that it may be regarded as merely temporary, and presumably would not be cumulative in the event of repeated daily immersions being employed, as it undoubtedly is with baths more or less saline in constitution. It may, therefore, be correct to say that, in respect of therapeutic influence on a disabled heart and an impaired circulation, fresh water baths may be dismissed from consideration.

Mineral baths, therefore, whether endowed by Nature or by artificial means with suitable ingredients, may be said to produce the following immediate and rapidly-ensuing results:—a marked diminution of the rate of the pulse, an equally notable increase in its volume and force, a glow of warmth extending to the extremities and imparting to them a heightened colour, and an enduring sense of refreshment and invigoration. No less obvious are the influences they exercise on the respiration and on the size of the heart.

¹ Reprint, *The Treatment of Chronic Diseases of the Heart.* By Th. Schott, M.D. Eyre, Spottiswoode, and Co.

² *The Treatment of Chronic Diseases of the Heart by Baths and Exercises.* By W. Bezly Thorne, M.D. J. and A. Churchill.

During the first two or three, or even five or six, minutes of immersion, the breathing becomes oppressed and laboured, and sometimes a sense of constriction is experienced in the epigastric and lower anterior costal regions, while, at the same time, the area of cardiac dulness diminishes to a degree varying from a third to about half an inch in the healthy, to an inch or more in the dilated heart, as measured in the oblique transverse diameter. These effects are not transitory. The area of dulness, the force, volume, and rate of the pulse, all show a tendency to return within the following twenty-four hours to the initial standard, but each successive day, with its bath of graduated strength and duration, brings its instalment of gain, which leads to a recovery which in some cases is partial, and is, happily, in many complete. At the same time an enlarged liver may be observed to diminish in vertical measurement, prominence, and sharpness of edge, while sometimes within the first day, and almost invariably within the first two or three, a free diuresis, which may last in greater or less degree throughout the bathing course and after it, is generally found to have been established.

The other and perhaps in some respects more remarkable method consists, as already indicated, of movements or exercises. Their originators have designated them *Widerstandgymnastik*—a term which literally translated into “resisted gymnastics,” might convey a misapprehension to the English mind. As they have been fully described elsewhere,³ it need only be said that they consist of movements which should be performed under the immediate direction of the physician, subject to a certain measure of resistance offered either by him or by a carefully trained assistant, and successively applied to the upper extremities, trunk, and lower extremities.

Any detailed description of the influence which these movements exercise on the heart, pulse, and abdominal viscera would be a reiteration of what has been said of the effects of mineral baths on those organs. In most respects they are identical, but it must be observed that as regards the diminution of the pulse rate, the influence is neither exerted so rapidly nor so marked in degree. On the other hand the movements yield the more rapid and striking results in reducing the area of cardiac dulness, while the baths may be regarded as exercising the more profound and enduring influence on the nutrition on the cardio-vascular tissues and those of the system generally. These points of difference are of obvious practical importance. Both methods are capable of bringing influences to bear on the heart and blood vessels, the importance of which it would be difficult to exaggerate; combined they are capable of producing effects which throw the action of drugs completely into the shade; judiciously directed and skilfully applied, they are capable of yielding therapeutic results the importance of which can scarcely be overestimated.

It would, perhaps, be interesting to inquire by what means such remarkable results are produced. The originators of the system suggest that the baths, through their mineral and gaseous constituents—the latter being carried by imbibition into the superficial layers of the corium—produce a cutaneous excitation, which, transmitted along the nerves of sensation to the cardiac and vasomotor centres, is reflected to the peripheral nerves, which they control, and induces an expansion of the arteries and capillaries throughout the body, and, simultaneously, a tonic contraction of the myocardium. For the exercises they claim that a similar influence travels to the same centres along the motor nerves of the muscles successively brought into regulated, orderly, and never-exhausting action. My own view is that, if there be any difference in the matter of precedence between the effects produced on the heart and vessels respectively, it is the latter which are first brought under influence; that the general, and especially the capillary, vascular capacity being increased, the carrying and containing power of the vessels is proportionately increased, peripheral resistance is reduced, and the heart is at once placed in the position of being an organ of relatively greater driving power. As Sir Philip Smyly puts it,⁴ “the contraction being more complete, it takes a longer time, thus making the pulse slower and at the

same time fuller. Being able to send on more blood, it is ready to receive more, and thus relieves venous congestion.” That the vascular capacity may increase independently of, or out of proportion to, the driving power of the heart is shown by the symptoms which may be induced by no more than two or three movements where there exists some obstacle to the rapid filling of the arteries, as is the case in obstruction of the pulmonary circuit from emphysema and other causes, and where the aortic orifice is rigid and unyielding. Under such conditions, unless the movements be most carefully regulated and perhaps administered in the recumbent position, facial pallor and yawning supervene, and may be rapidly followed by syncope.

It might perhaps be interesting as well as legitimate to wander a step further in the field of physiological speculation, and to inquire more particularly how such effects as are common to both the methods under consideration, namely, diminution of the rate of the pulse, increase of its volume, diminution of the area of cardiac dulness, and determination of blood to the surface and extremities, are effected. In so doing, I need offer no apology for referring once more, with due acknowledgments, to the lucid account which Dr. Lauder Brunton gave, on the occasion already referred to, of the results of his own investigations and those of Ludwig and other observers. The points which are of especial interest to us may be summarised as follows as nearly as possible in the words of the Harveian Orator:—

1. The amount of blood contained in the body is insufficient to fill the whole of the vascular system at once.

2. The vessels which supply the muscles of the body and of the limbs are capable of such expansion that, when fully dilated, they will allow the arterial blood to pour through them alone as quickly as it usually does through the vessels of the skin, intestines, and muscles together.

3. The contraction of the cutaneous vessels, such as occurs in exposure to cold, will drive more blood through the muscles, and, as oxidation goes on more rapidly in them, the result will be increased production of heat.

4. The first effect of sudden or violent contraction of the muscles is to contract the arterioles and to raise the blood pressure, while quite easy contraction will have little effect in compressing the arterioles, and these, becoming dilated, will allow the blood pressure to fall.

Now taking the first and third of the above physiological aphorisms into joint consideration, we at once find a flood of light thrown upon the effects produced by the baths. The amount of blood in the body is not sufficient to fill the whole of the vascular system at once, but it is lingering in undue and injurious measure in the systemic veins, and in an impaired and dilated heart which is labouring against a peripheral resistance out of proportion to its driving power. The condition of exposure to cold is fulfilled by immersion in a medium of a temperature from three to ten degrees lower than that of the body. Contraction of the cutaneous vessels is followed by a more than compensating determination of blood to the muscles, which, becoming the seat of increased oxidation, promote general metabolism and the production of heat. The mineral constituents of the bath cause a measure of cutaneous excitation which forbids chill, and, as soon as reaction follows immersion, opens up fresh avenues for the blood in the glowing skin. Further experience shows that such effects are limited neither to the parts immersed nor to period of immersion. That the vessels generally fall under the same influence is shown by the heightened colour of the cheeks and lips.

Aphorisms 2 and 4 explain in part, if not in whole, the influence of the exercises. The vessels of the muscles are capable of an expansion endowing them with something like three times their ordinary capacity; quite easy contraction will have little effect in compressing the arterioles, and these, becoming dilated, will allow the blood pressure to fall. Easy, quiet, uniform movement of the muscles of the trunk and limbs is the very essence of the Schott system of movements, and in their case also the effects are not limited to the parts brought into exercise, but are shown in the cheeks and lips as obviously as they are during and after immersion in the baths. Whichever method, therefore, be employed, and especially when the two are brought into combined use, we are provided with the means of transferring from the veins

³ *The Schott Methods of the Treatment of Chronic Diseases of the Heart.* J. and A. Churchill.

⁴ *Dublin Review of Medical Science*, September, 1894

blood which has been a vehicle and a store of poisonous ingredients to the arteries, in which it flows a purified and oxidising stream, and, at the same time, of so increasing the vascular capacity as to afford to a labouring heart the relief which would arise from free venesection without despoiling the system of one drop of blood. Accumulation of blood in the heart and veins tends to death; transfer of the excess to the arteries and capillaries is life.

In considering the effects which may be produced in the circulation by both baths and exercises, it must not be forgotten that analogy would point to the coronary system and the vasi vasorum as enjoying their full share in those beneficial changes which have been described. Clinical experience yielding, as it does, evidence of the gradual repair of myocardial and vascular tissues, confirms that hypothesis.

We are now naturally led to inquire what affections of the heart and blood vessels may, with advantage, be treated by these methods. The reply, briefly summarised, might be: those in which therapeutic indications point to the reduction of peripheral resistance; to the relief of a weakened, incompetent, labouring dilated heart with or without valvular lesion; and to the repair of damaged or degenerating cardiac and vascular structures. It will at once be recognised that the range is very wide. Dr. Schott, until recently, excepted only those conditions which involve advanced arteriosclerosis and aneurysm of either the heart or one or more of the great vessels. He is now disposed to withdraw his reservation as to the latter class of cases, and I confess that I am of the same mind. Indeed it seems to me that measures calculated at the same time to repair vascular tissue and to reduce peripheral resistance must be pre-eminently suited to meet the exigencies of at least early cases of aneurysm.

Speaking generally, and for myself, I may say that out of 85 cases of which I have preserved records, one failed to derive benefit from the exercises, and had no opportunity of making trial of the baths; two died in the course of treatment. They were both men in comparatively humble circumstances. One was the subject of mitral disease, with loss of compensation and enormous dilatation. During the cold weather of the current year he contracted capillary bronchitis, upon which supervened inflammation of an enlarged liver and eventually cardiac thrombosis. The other was the subject of a patent foramen ovale. He improved under treatment by exercises to the extent of gaining complete relief from cyanosis and dyspnoea; but one extremely hot night during the past summer he removed his vest, and sat uncovered before an open window. Acute hepatitis was followed in a few days by death. The cases alluded to may be divided into the following classes:

1. Enlargement in persons over 50, in which the heart sounds were not materially altered, except in cases of extreme anæmia, 24.

2. Enlargement in persons under 50 and in which the heart sounds were not materially altered, except in cases of extreme anæmia, 28; of which 11 appeared to be traceable to influenza.

3. Enlargement in which the heart sounds were so changed as to suggest valvular lesion, 24; in 7 of which the sounds became normal under treatment, namely, 5 which were consequent on influenza and 2 on recent rheumatism.

4. Enlargement with asthma and emphysema, 5.

5. Enlargement in cases of chorea, 4; 2 of which were slight and 2 well marked.

6. Cases of marked anæmia in women under 40, 6; in 2 of whom *bruits* became inaudible.

7. Enlargement with cyanosis dependent on patent foramen ovale, 3 (inclusive of Sir P. Smyly's case, published in the *Dublin Review of Medical Science*, September 9th, 1894).

8. Enlargement accompanied by dropsical symptoms, 3; in 2 of which there was œdema of the lower extremities and in 1 an extreme degree of general anasarca (Sir P. Smyly's case).

9. Enlargement with slow intermittent pulse and epileptiform accesses, of 18 years' standing, following traumatic injury to the heart, 1.

It would be difficult to pass from this aspect of the subject without glancing at some of the more important collateral but physiologically consistent effects of these methods of treatment. In many cases changes, as indicated by the following results, are induced in congested abdominal

viscera, namely: relief of gastric and intestinal catarrh and of the attendant deviations from normal digestion with distension; reduction in the size and prominence of an enlarged liver; relief, either partial or complete, of albuminuria, and of acute initial dysmenorrhœa. As regards the respiratory organs, pulmonary resolution—as indicated by the rapid subsidence of crepitation *redur*—has been observed to take place, as well as marked relief in cases of long-standing asthma and emphysema. Perhaps most striking, although most easy of explanation, is the repair of the blood itself. Without recourse to chalybeate remedies colour returns, not infrequently within a few days, to the face of the anæmic, especially in chlorosis and dyscrasia due to malarious poisoning or to the presence in excess of uric acid. For œdema of the lower extremities, ascites, and hydrothorax due to feeble circulation there exists, I believe, no such effectual measure of relief.

I must not omit a reference to the psychological influences of the treatment, for it is perhaps of all the most interesting and suggestive. No one can have observed the subjects of failing or permanently impaired heart strength without being struck with the suffering they endure from loss of power of mental concentration and of control over the emotions, from intolerance of sharp and sudden sounds, and, above all, from the gloom and despondency, not far removed in degree from melancholia, which too often settles on their spirits. The manner in which these allied miseries give place to hope, courage, buoyant spirits, and mental vigour, synchronously with the contraction of a dilated heart and the improvement of the peripheral circulation, is one of the most agreeably surprising therapeutic results that has ever come under my notice. This consideration appears to me to derive additional importance from the joint consideration of the following two observations: that a considerable proportion of cases of heart dilatation are found to have followed in the train of influenza, and that that disease is a by no means infrequent precursor of melancholia. Interesting as the suggestion is to myself, I should scarcely have ventured to allude to it but for the fact that Dr. Savage informs me that he has traced a considerable proportion of cases of melancholia to influenza, and that his observations led him to regard an abnormally rapid pulse, unaccompanied by rise of temperature, or even in some cases associated with deficiency of body heat, as pathognomonic of that special class of cases.

With regard to diet, in the first place the Schott system recognises no restriction in the amount of fluids ingested. For my own part, I would go so far as to say that in many cases the more fluid, and especially the more water, the patient drink the better, provided it be taken under such circumstances as would not effect undue dilution of the juices of the stomach during the period of gastric digestion. The greater part of the patients who come under treatment are suffering from, if not indeed in consequence of, the concentrated state of the blood in respect of uric acid and other ingredients whose presence in excess is due to deficient oxygenation and defective elimination. The limitation of fluids increases the relative proportion of poison in the blood stream, irritates arterioles and capillaries into contraction, and so increases peripheral resistance and checks elimination. It would be difficult to conceive of circumstances more adverse to a labouring, and perhaps disabled and degenerating, heart. With regard to solid food, it must be borne in mind that a quickened circulation, with enlarged vascular capacity and increased oxygenation and general metabolism, creates an imperative demand for nutrition of high physiological value; that a large proportion of the patients under treatment are the subjects of uric acid storage in the blood and tissues, and that in a certain number of cases that condition exists with the undue deposit of adipose tissue.

The ingestion of the fermentable and acid and fat-forming carbohydrates should, therefore, be regulated according to the circumstances of each case, and, in the class last specified, to a great extent withheld, and three substantial meals of animal food—consisting in due proportion of fish, birds, and butcher's meat, tempered with an abundance of succulent vegetables—be insisted on. Such limitation or withdrawal of carbohydrates and substitution of nitrogenous foods, combined with the drinking of water at proper times and in regulated quantities, may be relied upon in a great

number of instances to free the system from excess of uric acid and to restore the body to its normal weight, whether the previously existing dyscrasia have resulted in excessive deposit of fat or in loss of weight. In the last-named cases a liberal quantity of milk may be taken in one of the many forms in which it can be prepared for the table without admixture with farinaceous substances.

I will now only turn for a moment to the objection most frequently advanced against the effects which it is claimed that the therapeutic movement has upon the dimensions of the heart, namely, that the diminution of the area of cardiac dulness is due to increased pulmonary inflation. In reply, it may be pointed out in the first place that increased inflation of the lung would not account for the indisputable physiological and therapeutic results of the treatment; that where the horizontal plane of the diaphragm changes as the result of the movements, it is found to rise and not to fall. There is one argument, however, which appears to me to be conclusive. It is that, under the influence of both baths and exercise, an apex beat appreciable by sight as well as touch may be observed in a few minutes to migrate towards the mesial line and at the same time to increase in force.

NOTE ON THE TREATMENT OF DILATED HEART AS PRACTISED AT NAUHEIM BY DR. SCHOTT.

By W. ALLEN STURGE, M.D., F.R.C.P.,
Nice.

At the recent meeting of the Association at Bristol an account was given by Dr. Wethered of a visit he paid to the baths of Nauheim for the purpose of studying the influence of the saline waters, combined with the system of gymnastics advocated by Dr. Theodor Schott, of Nauheim, upon diseases of the heart.

As I went through a course of these baths (but without gymnastics) in the past summer for a dilated and irritable condition of the heart, it may interest the readers of the *BRITISH MEDICAL JOURNAL* to have a short account of my experiences. I was seized with influenza in February, 1894, which took the form of acute muscular rheumatism (with alkaline phosphatic urine), pneumonia of a low type; and, later, moderate dilatation of the heart, with quick irritable, somewhat feeble pulse. As I found that no treatment would reduce my pulse below 100, I decided to go to Nauheim. There Dr. Schott found the apex beat to be about 2 centimetres outside the nipple line. I began to take baths on June 15th, and continued them three days out of every four until July 21st. After the bath I had massage according to Dr. Schott's special method. I made notes of my pulse (1) in the early morning, (2) before and after the bath, (3) before and after massage, (4) after going to bed at night.

The first marked change was in the early morning pulse, which, after three baths, was on June 19th, 64—a very marked descent in rapidity. The bath pulse (after walking) remained about 100 until towards the end of the treatment, but on July 17th it had come down to 96, and on July 21st to 88.

The after-massage pulse (lying down), which on June 20th was still as high as 82, was on June 22nd 72, and 64 on July 8th, at which point it remained stationary. It is worthy of note that though the massage was vigorously carried out, it produced a slowing, and not a quickening, of the pulse.

The evening pulse (lying down), which varied from 82 to 86 during all the earlier part of the treatment, came down suddenly on July 13th to 72, and rarely much exceeded that rate afterwards.

At the end of the treatment Dr. Schott noted that the apex beat was one centimetre within the nipple, and the sphygmograph showed a pulse of good average fulness and tension.

It is a fact of some interest that on each occasion when there was a sudden drop in the pulse rate, namely, on June 19th, when the early morning rate (which had hitherto ranged between 80 and 90) dropped to 64; and again on July 13th, when the evening rate dropped suddenly to 72, the sudden drop was accompanied by an absolutely sleepless night, with great nervous erythema. This fact points to a pos-

sible explanation of the action of the baths—the explanation, in fact, put forward by Dr. Schott. This is, the soaking of the skin in very strong, warm brine, produces a powerful stimulant effect on all the surface nerve endings. This in its turn being passed up to the nerve centres, acts as a strong tonic on them. Hence the good effect produced on weak centres—such as the heart centres in cases like mine. When the stimulation was so great as to produce a sudden marked change in the pulse, the general centres being over-stimulated would behave as mine did on these two occasions.

The gymnastics, about which so much has been said in connection with the Nauheim treatment, were tried in my case, but they seemed to irritate the heart, and were discontinued. This was probably due to the fact that the muscles of the limbs were still to some extent under the influence of the rheumatism from which they had suffered, and owing to stiffness the resistance they offered to movement was greatly augmented, and hence the increased heart's action under gymnastic treatment.

THE MILROY LECTURES ON THE NATURAL HISTORY AND AFFINITIES OF RHEUMATIC FEVER.

Delivered before the Royal College of Physicians of London, 1 March, 1895.

By ARTHUR NEWSHOLME, M.D. LOND., M.R.C.P.,
Medical Officer of Health for Brighton.

[ABSTRACT.]

LECTURE I.

AFTER a brief sketch of the history of the word "rheumatism," the lecturer outlined the different theories of its causation, and stated that his lectures would be restricted strictly to the consideration of rheumatic fever, which he regarded as a specific febrile disease, caused by a pathogenic micro-organism, endemic throughout Europe and America and other parts, and at times becoming epidemic, or even pandemic. Such a view did not exhaust the entire causation of the disease. It had certain relationships to season, locality, weather, climate, and ground water. It occurred chiefly in certain predisposed persons, under the influence of certain excitants, as injury or fatigue.

EPIDEMIOLOGY OF RHEUMATIC FEVER.

Epidemics were described by Pringle, Stoll, Mertens, and others in the eighteenth century. Their true character was doubtful. Senator had described unusual prevalence of the disease in certain years, but denies "the essential feature of an epidemic-infective power." Longstaff had noted the occurrence of four periods of excessive mortality shared by scarlet fever, erysipelas, pyæmia, puerperal fever, "rheumatism accompanied with heart affection," and five other diseases. Lange, of Copenhagen, Hirsch in Berlin, and others had described local "epidemics." There had, however, so far as the lecturer was aware, been no general investigation of the epidemiology of rheumatic fever. The word "epidemic" was used in these lectures to mean excessively prevalent, the question of infectivity being left for consideration later.

EVIDENCE FROM DEATH RETURNS.

The curve of death-rate from rheumatism in England and Wales from 1851 to 1892 showed crests in 1855 (15 per cent. excess), in 1859 (18 per cent. excess), in 1864 (23 per cent. excess), in 1869-70 (18 per cent. excess), and in 1875 (52 per cent. excess above the respective preceding minimal years). This curve dealt with "rheumatism," the separation into (a) rheumatic fever and rheumatism of the heart, and (b) rheumatism was not made until 1881. For the remaining years the two curves ran parallel, and (a) forming 73.5 per cent. of the whole is the predominant partner.

The curve of death-rate from rheumatism in London showed similar maxima to the above in 1864, 1868, and 1875 and 1884. The 1868 maximum replaced the 1869-70 maximum for England and Wales. Curves for large provin-