aspiration on the aortic blood is checked by more or less perfect valves, while the increased tone of the arterial system brought about by the drug promotes the resiliency and aspirative power of the latter. What, then, is the rational treatment of aortic incompetency?

Marey and Chauveau demonstrated by experiment on the horse that destruction of the aortic sigmoid valves caused a rise in intraventricular pressure due to the reflux of blood, and that this was associated with increased frequency of the heart's action.¹⁶ Ottomar Rosenbach¹⁷ also showed that no artificial destruction of valves, or even the introduction into the heart of various obstacles, materially affected the blood pressure in the arteries. Marey's and Rosenbach's observations are not incompatible. The increased frequency of action noted by the former in the presence of increased intracardiac pressure, together with the constant action of the forces of gravitation and aspiration, serve to maintain arterial pressure, notwithstanding the greater labour thrown upon the heart. The therapeutic indications given by these results is that the aortically incompetent heart should be quickened, not retarded, until, after acquired compensation, the organ is able to act in a more leisurely manner, and the patient, abandoning the aid of the orthopneic position, to recline in comfort. It should, moreover, be remembered that the average frequency of the pulse in aortic regurgitation is above the normal rate, Corrigan¹⁸ placed it at 110 per minute. Belladonna, strychnine, and the nitrates are the agents which I have found most useful under these circumstances, and are to be regarded as cardiac stimulants, not depressants. When cardiac propulsion has to be increased with as little increase as possible of cardiac aspiration, I use accelerants of the heart's action such as those named; when the main indication is the increase of cardiac aspiration I use the digitalis group of remedies, and most frequently digitalis itself, over which I fail to find any advantage in its substitutes, for the vascular effects of digitalis need not be injurious provided the case is one for treatment chiefly by the digitalis group. In the paper to which I have already referred Dr. Barrs speaks of the out-patient department of a considerable hospital as the best field for testing the effects of remedies, because in the cases which present themselves the other circumstances remain largely unaltered. With this opinion I entirely agree, and it is just in such a field that I have had an opportunity of convincing myself of the correctness of the views I have expressed. It is a matter of common experience that compensation will become established in many cases without any treatment. Unimpeded in its action by drugs, the overburdened heart tends as a rule to ease itself by quickened action, which may pass into a morbid tachycardia regular or irregular in its rhythm. Skill in the treatment of heart disease consists in following the indications thus afforded by Nature in promoting compensation, and in checking a dangerous preponderance either of tachycardia or of bradycardia during the process. Lesions requiring increased propulsion, I repeat, will, as a general rule, need cardiac acceleration, those requiring increased aspiration cardiac retardation. The indubitable representative of the former class is aortic valvular incompetency; of the latter, mitral regurgitation. The pathological relations of these valves thus differ as essentially as their anatomical situation and physiological function; hence also the different treatment each requires when its normal action is disturbed.

¹⁶ *Circul. d. Sang.*, p. 674-75.

¹⁷ *Archiv f. exp. Path. u. Pharmac.*, Bd. ix, p. 1 et seq.

¹⁸ *Loc. cit.*

DR. ALLAN MACFADYEN, Lecturer on Bacteriology at the British Institute of Preventive Medicine, has been appointed to act as Honorary Secretary of the Institute.

YELLOW FEVER IN BRAZIL.—A telegram from Rio de Janeiro dated March 1st states that there is serious yellow fever there which is likely to last. In consequence of the non-completion of a promised hospital of isolation, the only available quarantine station of Brazil there is now used as a yellow fever hospital for the crew of an Italian ship of war which has, out of 280, had 225 cases, 84 having proved fatal. Several suspected cases have occurred at Belgrano, a suburb of Buenos Ayres.

NOTES ON CERTAIN CHANGES IN THE CARDIO-VASCULAR SYSTEM WHICH ARE INDUCED BY TREATMENT ACCORDING TO THE SCHOTT METHODS.¹

By W. BEZLY THORNE, M.D.

THE changes which may be observed to take place in some of the physical characters of the heart and blood vessels under the several and combined influences of position, rest, and pharmaceutical treatment, have been the object of well-deserved interest. The modifications of form and alterations of function which these organs undergo as the result of treatment by physical methods consisting of mineral baths and remedial movements, are so rapidly effected, and yield results so striking, that they may be regarded as equally noteworthy. They have been observed mainly by auscultatory percussion and with the aid of the sphygmograph. It is not possible to claim for either method the merit of un-failing exactitude. Nevertheless, they are capable of yielding information of both clinical and physiological value.

Auscultatory percussion is practised, it is scarcely necessary to say, by so adjusting a binaural stethoscope to the patient's chest, that the percussion note is conveyed a relatively undiminished and unblended sound to the observer's ears. The stroke may be delivered in a variety of ways. My own practice is to touch the chest lightly with the tip of the round-pointed ferrule of a long clinical pencil, and to let it travel in a radial line, from a point well outside the region to be defined, to the point at which a rise of a semitone is observed to take place in the percussion note. (The diagram illustrates the proceeding. The circles indicate points at which the chest piece may be placed, and the dots mark the line in which the ferrule is made to move.)

Certain advantages may be claimed for this method. Extraneous sounds being to a great extent excluded, and the note itself being clear and definite, the faculties of hearing and of mental concentration are spared a measure of strain and fatigue which is inseparable from the more usual proceeding. Moreover, inasmuch as the ferrule impinges at each stroke on a surface not much more extended than that which is designated in the geometrical definition of a point, it may be claimed that the resulting demarcations will bear comparison with others in respect to precision. The factor which introduces the element of uncertainty is the observer's appreciation of sound. It may be defective or exhausted. Nevertheless, it is possible to educate it to almost automatic action.

The tests to which I have subjected auscultatory percussion in defining the position of abdominal viscera, more especially of the liver, the lower border of which is frequently appreciable to the touch, have convinced me that

¹ Read in the Section of Medicine at the Annual Meeting of the British Medical Association, held in London, July-August, 1895.

it is capable of affording marginal indications which are not far from being anatomically exact.

Speaking generally, the more or less irregular convexity of the upper half or two-thirds of the cardiac area of dullness may be said to present itself under three differing typical forms, which are indicative of as many several conditions in relation to dilatation. The transition from the one to the other, under the influence of the physical treatment, is in most cases so rapid that intermediate phases cannot always be observed. The typical forms alluded to may be described as the oval, the bipartite, and the conoid. The relation in which they stand to each other with reference to degrees of dilatation is indicated by the order in which they have been enumerated. Thus, the bipartite line does not give place to the typically oval, nor is the conoid observed to become bipartite. On the contrary, as the area of dullness undergoes diminution, the oval merges into the bipartite and the bipartite into the conoid. The order of transition is invariable, although it may happen that, where observations are not made with sufficient frequency, the bipartite outline, as intermediate between the other two, may elude notice. Meanwhile, as the area of dullness becomes progressively smaller, and stage by stage the apex beat moves in the direction of the mesial line, either horizontally in or about the fifth interspace or obliquely upwards from the neighbourhood of the sixth, its force and character are frequently found to undergo modification. The feeble impulse grows in power, the thrill, epigastric pulsation, the heaving of the chest wall diminish in force and distribution or subside altogether.

DIAGRAMS.

One other change deserves notice. In the earlier stages of treatment, the margins of the several areas of dullness group themselves more or less concentrically. Towards the conclusion of the course, and especially in those instances in which the attendant success is greatest, the central point (every allowance being made for the influence of adjacent organs), moves in an upward direction.

Turning now to the blood vessels, the effect of either immersion in a saline bath of duly adjusted concentration and temperature, or of remedial movements so regulated with regard to range, force, and duration as to be adapted to the general capacity and local conditions of the patient, is to increase the volume of the pulse, and, in most instances, to diminish its frequency. Gauged by the touch, the wave appears to increase by perhaps one half, and in some, but by

no means rare, instances, to become doubled in volume within the space of a few minutes. The impression conveyed to the finger is confirmed by the sphygmograph as well as by the appearance of lips, cheeks, ears, and fingers which before were either dusky or bloodless, and have been brought to healthier colour and to a more natural temperature. The arterial coats convey the impression of having become soft and yielding, and the lumen can be obliterated without the exercise of excessive pressure. In not a few instances, it is found towards the conclusion of a course extending over five or six weeks, that each succeeding bath or series of movements will lessen the altitude of the wave, diminish diastolic pressure, and where the summit is unduly acuminated, correct that defect.

A few words must be said on the subject of the patches of colour, consisting of degenerated and dilated capillaries, which in many subjects disfigure the nose and cheeks, and also of the zones of dilated cutaneous veinlets which are not uncommonly found to be irregularly grouped around the cardiac area, or along the lower border of the liver. On the face the vessels frequently become much less conspicuous, as much in consequence of their diminished size as of a favourable change in their hue. So effectually may some of them be resolved that they escape detection even when sought for with the aid of a lens. In exceptionally favourable cases the minute varicosities which occur on the trunk have been known to disappear altogether.

With regard to *bruits*, a patient may pass through a course of treatment, recovering heart power and general health, without any essential change ensuing in the sounds. In some subjects the abnormality becomes less distinct in degrees proportionate to the improvement; in others the opposite occurs, or perhaps a *bruit* becomes audible for the first time, and offers diagnostic evidence in the last days of a successful treatment.

Changes of such importance in the heart and blood vessels do not remain without influence on the stream they convey to the tissues for their nutrition and repair, and nothing is more striking than the rapid correction of anaemia, which is effected while they are in progress. Such being some of the more noteworthy phenomena which distinguish the treatment of cardiac affections by means of remedial baths and movements, we will turn for one moment to the relation in which they stand to one another and to their general significance.

It can scarcely be doubted that the notch which characterises what I have ventured to denominate the bipartite out-

A & A Before and after 1st bath.
B & B Before and after 5th bath.
C On conclusion of course (24 baths.)
X. & X. Apex-beats at corresponding periods.
S. S. Mid-sternum.

98. The day after conclusion of course.

A & A First Day.
Before and after 4 arm,
and 5 leg, movements
in recumbent position

P.96.

P.78.

B & B Third Day.
Before and after 1st
Bath, 94° F. Temp. 4
minutes

P.88.

P.76.

C. Fifth Day.
4 hours after exercises (3 days
exercises, 2 days baths)

Tenth Day.
Before exercises ...
After do. ...
Maximum lumen.

A & A First Day.
(Before and after 1st bath. Temp.
94° F. 5 minutes

B Fifth Day.
6 hours after 4th bath (half set
of exercises on 4th day)

C Fiftieth Day.
After 28 baths and 1 week of
exercises (2 menstrual inter-
ruptions)

X. & X. Apex-beats at corresponding peric
S.S. MID-STERNUM.

Eleventh Day.
Diminishing lumen—tension returning.

Before bath
After do.
IV.

X. & X. Apex-beats at corre-
sponding periods.
S.S. MID-STERNUM.

line, corresponds with the situation of the auriculo-ventricular fibrous ring, and that the convexities which rise from its angle correspond with the bulging walls of the more yielding, and therefore earlier dilated, muscular chambers. If such be the case, it would follow that the oval outline indicates the existence of the extreme stage of dilatation, the bipartite one in which the fibrous structures which interpose between the auricles and ventricles, resist a strain to which the muscular tissues have been compelled to yield; and that the conoid outline corresponds with the conformation and the state of health which are preserved when both valves and chambers, even though damaged, bear the strain of work in such a manner as to constitute the heart a competent organ. The fact that the outline characteristic of one type may pass into another representing a stage of progress, within the space of a few minutes, bears striking testimony to the power of recoil which resides in walls which have been continuously stretched for months or years.

I have already, elsewhere, given my reasons for holding that the heart at the outset plays a relatively passive part in these remarkable changes of form and size, and that the primary causative condition is an increase of arterial capacity which involves a diminution of peripheral resistance.

The rise which it has been stated the heart frequently makes in the chest towards the conclusion of a course of successful treatment is probably attributable partly to diminished weight of blood in the cavities, and partly to the increased strength and contractility of the great vessels which spring from its base.

The sphygmographic records indicate, first, an enlargement of lumen together with an increase of diastole, and later, the return of normal tension, with waves of moderate altitude and diminishing diastole.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

THE ESMARCH BANDAGE IN HÆMORRHAGE AND SHOCK.

To be successful in the treatment of excessive hæmorrhages, instantaneous action is essential. Intravenous injection is undoubtedly more rapid in its action than injection into the axillary or other cellular tissue. One does not always have a transfusion apparatus convenient; besides, when one has it, its preparation for use takes some minutes; those few minutes are often of vital importance. Here axillary injection has the advantage, as it can be done at once, but absorption is dangerously slow. It is for these reasons that I mention a treatment not in general use.

If I have an Esmarch bandage, I quickly wrap all the limbs firmly, beginning at the distal ends, thus driving all the blood into the body, besides stimulating the heart and giving it less to do. Not having an Esmarch, I use an ordinary bandage in the same way, and then apply a tourniquet over the main artery.

Children suffering from extensive burns of the surface will often recover who otherwise would not if the blood from the arms and legs is rapidly driven towards the internal organs to take the place of that already taken to the surface. Careful application of the Esmarch bandage to the limbs in cases of *post-partum* hæmorrhage will be found of the greatest benefit. I recommend the above treatment in some cases of heart failure, especially in cases of threatened death from chloroform.

Southport, Lancashire.

JOHN McMULLEN, M.B.

SIMULTANEOUS DISLOCATION OF BOTH SHOULDERS.

I NOTICE in the BRITISH MEDICAL JOURNAL for February 8th, 1896, and November 9th, 1895, an account of the above rare occurrence. On October 9th, 1895, I was called to an accident case, a collier, aged 55. While working in the pit he suddenly tapped some water that came with such force that he was washed down the dip a distance of sixty yards. He had a dislocation of both shoulders, and, strange to say, both sub-

coracoid. He also had a compound fracture of the left leg about the centre. I reduced both dislocations after setting the limb without the aid of an anæsthetic, but found more difficulty in reducing the dislocation of the left than the right shoulder. A few days after the left shoulder became dislocated again, and was reduced with some difficulty. About a month after the accident I amputated the leg, being assisted at the operation by Drs. Partington and Youngson, of Tunstall. Neither gentleman had before seen a dislocation of both shoulders. The patient is now walking about very comfortably on crutches.

Kidsgrove, Staffs.

JON. STEELE.

THYMUS TREATMENT OF EXOPHTHALMIC GOÏTRE. THE following case of exophthalmic goitre came under my care in 1892, and in spite of all treatment became steadily worse until March, 1895, when thymus gland medication was begun and continued with the best results.

Mrs. B., schoolmistress, aged 39, a widow with two children, with the exception of chorea when a girl, had always enjoyed good health. She came under my care in August, 1892. She had noticed weakness and palpitation coming on six months before. She blamed water contaminated with lead as the cause of her illness, but admitted having had much worry for a year or two.

At this time the symptoms soon yielded to rest and tonics, and she returned to work practically well. Since that time she has been under my care at Easter, Midsummer, and Christmas, during which time the palpitation has never been so severe as in 1892, but the exophthalmos has got much worse. At Christmas, 1894, it was very bad indeed, especially the right eye. Towards the end of February, 1895, Mrs. B. wrote for advice about her eyes, they were "so very prominent." I had just read Further Notes on the Treatment of a case of Exophthalmic Goitre in the BRITISH MEDICAL JOURNAL of February 16th, and determined to try the thymus treatment in this case. Dr. Owen very courteously gave me full directions as to the preparation of the fresh gland, and my patient did what she could to procure them, but with poor success. In the meantime Messrs. Burroughs, Wellcome, and Co. had prepared five-grain tabloids of the thymus, and treatment by them was begun at Easter. At first one, next two, and lastly three were taken daily after food. She came here for the Midsummer vacation, and on her arrival was wonderfully improved. The pulse-rate, which had always been at least 90, was 75. The left eye looked normal, but the right was still slightly prominent; it was always the worst. Her general health was good. The thyroid gland never was much enlarged, and I could not say there was much alteration in its size.

From this time the patient felt so well that, the supply of tabloids being finished, she stopped the treatment, and in a few weeks the exophthalmos was back again to a considerable extent. The tabloids were resumed, and in a short time their benefit was noticeable.

The treatment was first tried under every disadvantage, as the patient was busy and worried over examination work, and the great improvement under such circumstances was all the more remarkable.

Newton Stewart, N.B.

NORMAN J. M'KIE, M.D.

AN UNUSUAL CASE OF ACUTE PHTHISIS.

Mrs. A., aged 48, was first visited by me on February 4th. She was then suffering from pulmonary phthisis of the upper third of the right lung, and was getting about. The history given to me was that a medical man had treated her for some rheumatic affection three months previously, and failed to find anything else the matter with her. Otherwise she remained in apparently good health up to two weeks before I saw her. The family history upon either side is an unusually good one, most members being remarkably strong and well built.

Mrs. A. lives in a well-kept farm situated in a beautifully healthy spot upon high ground. A few days after my visit of February 4th the left lung became affected. From this date the case deteriorated daily in a remarkably rapid manner, culminating in death on February 19th, fifteen days from my first visit, and probably only one month from the commencement of acute symptoms.

The treatment was quinine, digitalis, and morphia. The