or an insignificant pouch. If the process of its involution is carried still further, it is supposed that an annular constriction or an actual occlusion of the bowel may take place. And there are some cases in which a fibrous cord or a polypus re-

Fig. 1.—A, appendix vermiformis; B, duodenum; C, colon; D, and E, empty and flaccid gut below stricture; F, stricture; G, hypertrophied and congested gut above stricture; H, rectum.

main attached to the seat of stricture, which bear out this theory; but in cases where such an appendix does not exist as in the above case, and still more so in the cases where the stricture is multiple, we have no knowledge of its causation.

REFERENCES.

- ¹ Treves's *Intestinal Obstruction*. ² Hudson, *Pathological Society's Transactions*, 1899, p. 99.

NOTES ON THE ANATOMY AND SURGERY OF MECKEL'S DIVERTICULUM.

By GEORGE A. CLARKSON, F.R.C.S.ENG.,
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OF all the foetal relics which are only occasionally found in the human body there is none, I suppose, with which we are more familiar than with Meckel's diverticulum. Its anatomy, like that of other functionless and useless relics, is subject to considerable variation. Representing as it does the vitello-intestinal duct, which in the early days of development connects the yolk sac to the bowel, in an ordinary way it undergoes complete and absolute atrophy, no trace of it remaining at all.

When atrophy, however, does not occur or is only partial, we may find one of the following conditions:

1. The duct may remain patent throughout its whole length. I had the opportunity of seeing a few years ago an infant in whom this condition was present. There was a small opening at the umbilicus leading into a distinct canal, down which a probe could be easily passed, and which occasionally discharged faecal material.

2. The portion near the intestine may persist, the other part either disappearing entirely or being represented by a fibrous cord extending from the apex of the diverticulum to the umbilicus.

3. The duct may be entirely converted into a fibrous cord attached to the intestine at that point from which it would originally rise.

The anatomy of the diverticulum is of some interest. Statistics show that it occurs in rather over 2 per cent. of all bodies examined, and it is said that it occurs rather more frequently in males than females. It is usually found within the last three feet of the ileum, but the exact position varies within wide limits. It is rare to find it more than 10 feet from the caecum, but 7 cases have been recorded where it arose from the duodenum, and more than twice that number from the jejunum. I have myself reported an instance of a well-developed diverticulum arising from the jejunum 2 feet from the pylorus.¹

The usual length is from 1 to 3 inches, and its origin is most often from that side of the intestine away from the mesentery. Rarely it springs from the mesenteric side, and may then lie between the layers of the mesentery. A process of the mesentery in some cases passes on to it; in others its vascular supply is derived from branches of the vessels supplying that portion of gut which it joins. Its structure resembles that of the adjoining bowel, but its coats are apt to be rather thinner. The size of the opening of the diverticulum into the bowel necessarily varies considerably. Where the communication is small or valvular, the formation of a faecal concretion is favoured. Foreign bodies have been known to lodge in the diverticulum and there cause ulceration.

Surgically the important point is with regard to the fibrous cord, the outer extremity of which may be attached to the umbilicus or to the abdominal wall below it. Generally, owing to the mobility of the ileum, it undergoes stretching and thinning till it breaks, the umbilical portion completely disappearing. The proximal portion is then peculiarly apt to form some fresh attachment, to one of the viscera it may be, to another portion of intestine, or to the mesentery. It is these adhesions that constitute the danger from the diverticulum. They are a fertile source of internal strangulation if they be present.

That strangulation from a Meckel's diverticulum is not a particularly rare occurrence is obvious from the fact that most surgeons of experience have come across cases, and that cases of it are not infrequently reported. In dealing with a case of internal strangulation from this cause it is important to ascertain whether a pervious tube or a simple fibrous band is being dealt with.

REFERENCE.

- ¹ *Journal of Anatomy and Physiology*, vol. xxvi.

THE LETTSOMIAN LECTURES

ON

DISEASES AND DISORDERS OF THE HEART AND ARTERIES IN MIDDLE AND ADVANCED LIFE.*

Delivered before the Medical Society of London.

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LECTURE II.

DIAGNOSIS AND PATHOLOGY.

As I have already pointed out, the causes of cardio-vascular disease in the second half of life are very often, indeed usually, complex. It follows therefore that if we desire, as we do most particularly, to discover the effects of each pathogenetic influence as distinguished from the others, we must begin our study with the simplest, or purest, or most definite of all, and proceed from it towards those which are more difficult, as well as to combinations of causes. It is easy to adopt this method in our present inquiry.

TOBACCO HEART.

We have in tobacco a single distinct influence at work—one that is universally acknowledged to affect the heart and vessels, and the physiological action of which is understood; one, further, that can be removed, perhaps not without some

* A few passages are omitted from the text of the lecture as delivered.

difficulty (for I have had a patient plead for his pipe with tears in his eyes), and certainly can always be resumed with remarkable readiness—in a word, a most favourable subject of observation by experiment. It is well, too, to begin the study of tobacco heart in young men, whose circulation is still structurally sound; and thereafter to follow up the subject in middle-aged and old persons. Adopting this line of inquiry, I have found that the uncomplicated effects of tobacco on young healthy hearts, as they present themselves clinically, are palpitation in every instance, a sense of irregular action,¹ post-sternal oppression and pain in half the cases, and in one out of every eight sufferers either angina or uncomfortable sensations in the left arm. Faintness or actual faints occurred in one-third, and giddiness and a feeling of impending death in a smaller proportion. Turning to the physical signs, the heart proves to be of ordinary size in 50 per cent. of the patients; in a few it is very slightly enlarged; the precordial impulse is often very weak, but occasionally increased in force and frequency, and almost as often irregular as not; the pulse tension, with insignificant exceptions, I have always found low. Very interesting, in the light of what I shall tell you later on, is the fact that of twenty of these patients complaining of the heart, not one presented a cardiac murmur beyond a weak mitral systolic *bruit*, varying with posture or cubitus.

Now we are in a position to study the tobacco heart in a man of 40, and again let us begin with a man who is sound, active, and healthy otherwise. He complains of his heart, and recognises willingly (for he belongs to our own profession) in the discomfort and anxiety from which he suffers the penalty of having smoked for years the strongest and blackest tobacco that he could buy. Yet his heart is not enlarged, and the cardiac sounds may be described as ordinary were they not peculiarly irregular, the frequency changing every moment, and a falter occurring at short intervals. There is not a trace of murmur to be found in connection with the valves and orifices. At ages over 40 a clinical study of the tobacco heart is highly instructive from a practical point of view. Whilst palpitation is still the common complaint, pain, including angina, is put forward more prominently, and so are faintness, actual faints, a feeling of impending death, and a sense of cardiac irregularity, each intermission being accompanied with a sudden stab through the precordia. In these subjects the heart is more frequently found to be large and feeble: the same weak systolic murmur is occasionally to be heard; the radial pulse is often irregular, and the vessel wall thick. This you will notice is a combination of symptoms and signs sufficient to alarm the casual observer. But when we examine it more deliberately, in the light of our study of the tobacco heart in young subjects, on the one hand, and of our knowledge of the normal or natural condition of the heart and arteries at 60, on the other hand, we are able to reassure ourselves and our patients. We are justified in concluding not only that every cardio-vascular lesion which may happen to be found in tobacco smokers is not to be put to the credit of tobacco, but *vice versa*—and this is of more interest to us in our present inquiry—that precordial pain, angina, faintness, and irregular pulse, in a man of 60 with a full-sized heart, are not to be hastily regarded as evidences of grave disease without further inquiry as to his habits. The cardiac enlargement and large pulse may be nothing more than the result of a life of bodily and mental activity; the precordial distress may be the result only of tobacco. How very necessary this caution is will be impressed upon your consideration by the two following cases:

The first is that of a man, aged 60, actively engaged in professional pursuits, who first suffered from precordial pain of an alarming character four years and a-half ago, and has had attacks since, particularly during exertion and after meals. One day last autumn, at the end of many hours' hard work, accompanied by at least eighteen cigarettes, he was rushing off to dine with a friend when he was suddenly seized with precordial pain which he described as fearful, radiating down the left arm. He broke into a cold sweat, thought that his last hour had come, and for a short time had impairment of consciousness. Shortly after this event he took the advice of his doctors and gave up tobacco—shall I say for a time?—and from that day to this (now six months) he has had no further trouble with his heart.

The second case is equally striking:

A man, aged 55, of fairly active disposition, and somewhat full habit of body, was suddenly seized with angina pectoris in October, 1899. The pain was of a dull, bursting character over the region of the heart; and

it passed into the left shoulder, down to the elbow, and settled particularly in the wrist. At the same time there was pain in the upper maxillary region. The heart slowed down from 75 to 50, and the sufferer felt that he was dying. From that time anginal attacks occurred in rapid succession, five, six, nine, or even eleven in a single day; occasionally they came on in the night. This experience continued for nearly two months; indeed, it was six months before the angina finally ceased. It was instantly relieved by amyl nitrite; nitroglycerine was unsuccessful. In the course of giving advice to this patient I fortunately discovered that he had just laid in a stock of 2,000 cigars. The line of treatment was obvious, and the result has been, as I have said, complete recovery.

I have dwelt on the subject of tobacco heart perhaps longer than was necessary, addressing, as I am, a meeting of practitioners of experience, and not a class of clinical students. I have done so to bring home to us an important consideration which we are all apt to overlook in diagnosis and still more in treatment—namely, that whether in an ordinary senile heart, or in a heart that is the seat of chronic valvular disease, or in arterial degeneration, something more than the pathological changes have to be regarded in many instances—usually some entirely adventitious disturbance, which alone calls for treatment—such as indigestion, flatulence, worry, a bronchial catarrh, or it may be free indulgence in tobacco, tea, or coffee.

THE HEART IN ALCOHOLISM.

Let us pass on now to consider from the clinical point of view the effect on the organs of circulation of another morbid influence of a definite kind—namely, alcohol, or perhaps more correctly alcoholism, leaving on one side the questions of form and strength of the drink taken and its purity.

The direct effects of alcohol on the heart and vessels are by no means so easily determined as those of tobacco. In the first place, they are complicated with the many indirect effects which it produces on these organs by deranging the functions of alimentation and assimilation, the nervous system and the kidneys, and with the secondary effects on the vessels and heart of chronic nephritis due to the same cause. In the second place, as we saw in my first lecture, alcoholism is very commonly associated with nervous strain, with gout and goutiness, with tobacco, with syphilis, and not uncommonly with two or more or all of these together.

Eliminating as far as possible these sources of error by careful selection of cases, I find that the alcoholic heart presents clinical characters as a whole very different from those of tobacco heart, which we have just studied. The most striking and important of these are the evidences of actual pathological change in the size of the heart and the condition of the myocardium. We found no evidence that tobacco causes serious cardiac enlargement. Of 28 cases of alcoholic heart, on the other hand, which I examined clinically in connection with the present inquiry (the average age being 46), only 2 hearts were of ordinary size, and as a matter of fact both of these patients were under 40 years of age. This result is in accord with my pathological observations. For instance, I have followed the condition of the heart carefully in an intemperate man of 43, and *post mortem* found the heart to weigh 17 ozs., to be universally dilated in all its chambers, and to present enlargement of the mitral opening without valvular lesion, corresponding with a weak apex systolic murmur heard during life. These results are also in accord with those in Dr. Maguire's cases of acute dilatation of the heart from alcoholism, which he recorded as long ago as 1888,² and one of which occurred in a man of 23. Dr. Mott has found fatty degeneration of the myocardium in patients dying suddenly during alcoholism. With hardly an exception the precordial impulse is weak; indeed, it is often imperceptible; the sounds are small and feeble, and may be almost inaudible; in 20 per cent. of my cases a weak apex systolic murmur could be heard, varying with posture and from day to day, significant no doubt of leakage through a dilated mitral opening. The alcoholic heart is irregular and accelerated in about half the cases. The pulse tension is usually low; in one-third of the instances the radial artery was sclerosed; in one-fifth of them there was slight albuminuria; the legs may be cedematous. The complaints with which the patient comes to us are commonly of palpitation of the heart, faintness or actual faints and precordial pain, but it is very interesting to observe that angina pectoris is rare in the alcoholic as compared with the tobacco heart in the ratio of 4 to 15 per cent.

It is unnecessary for me to attempt to give a sketch even

outline of the subject of either acute or sub-acute or chronic alcoholism. I would rather mention a form of acute alcoholic failure of the heart of which I have recently seen a case, but which appears to be rare. A middle-aged woman at the end of each of her repeated bouts of active alcoholism has violent sickness, prostration passes into a collapse, and for 24 hours or more she lies flat on her back with all the phenomena of what may be called acute air-hunger; she breathes loudly and deeply, at the rate of 36 per minute, with groaning expiration. The expression is alarmed, despairing, and imploring; the nose is pinched; the surface is livid and cold; the breath is cold; the pulse is practically imperceptible at the wrist; and yet the precordial impulse is both strong and extensive. The condition is at once one of collapse and urgent dyspnoea, much as in one form of so-called diabetic coma; and it is further remarkable in that it may pass off quite suddenly after having lasted, as I have said, for many hours. It is difficult to resist the conclusion that in such a condition as this some product of alcohol present in the blood is the cause of the remarkable phenomena.

The course of alcoholic heart in older subjects gradually becomes affected by the appearance of cirrhosis of the liver, Bright's disease, neuritis, and possibly dementia; and the method of termination is very various, including ordinary cardiac failure with dropsy. Sudden death occasionally occurs.

GOUT.

Of the many instances of disorder and disease of the heart and arteries that I have met with in gouty subjects at or over 40 years of age, I have made a careful study of 29 taken from my private case-books. Twelve of these (10 males and 2 females) had suffered from ordinary articular gout, the other 17 (6 males and 11 females) had irregular gout as defined in my first lecture. The average age was 62. In no instance was there albuminuria. The physical condition of the heart and arteries and the patients' complaints were remarkably alike in the two groups. In 23 of the 29 the heart proved to be enlarged either on one or on both sides. In less than half the number the cardiac action was feeble; in a small number the impulse was entirely imperceptible; the heart and pulse-rate was ordinary; the rhythm was but seldom irregular. It is a very remarkable fact that in no fewer than 12 out of the 29 cases of gouty heart a systolic murmur was to be heard over the aortic area, the manubrium and the right carotid, significant of disease either of the aortic arch or of the aortic valves, in every instance independently of rheumatism or other obvious cause than gout. This result is an interesting confirmation of the pathological observations of Dr. Norman Moore and Sir Dyce Duckworth, given by the latter,³ and of the statement of Murchison⁴ of his experience.

That atheroma of the arteries at an unusually early period of life, and diseases of the aortic valves which are not congenital, and are independent of injury or rheumatism, are met with far oftener in persons who are the subjects of the lithic acid dyscrasia, or who have had gout, than in those who have had no such tendencies.

In 7 (25 per cent.) of my cases a more or less developed systolic murmur was found in the mitral area, significant either of valvular atheroma and sclerosis or of leakage from ventricular dilatation. Very curiously, I have never met with aortic incompetence of gouty origin. When no murmur exists the cardiac sounds are commonly somewhat feeble and the second sound may be of ringing quality; this more commonly in goutiness than in developed gout. In agreement with this connection, the radial pulse is more often tense in the subjects of irregular than of regular gout; altogether high tension is found in more than one-half of the cases. The great majority presented distinct thickening of the arterial walls. Besides a distressing feeling of irregularity, fluttering or intermittency and dyspnoea on exertion, men who are the subjects of gouty heart complain most frequently of precordial pain; women more often of palpitation and faintness or actual faints. In quite one-fourth of all cases of gouty heart the pain is anginal, and such angina may be of the most pronounced type. A friend of my own, aged 60, began to suffer from gouty angina (diagnosed to be such by his family physician forty years ago) at the age of 20. Almost every year, sometimes more frequently, for the last twelve years of his life, he was liable to be seized with intense pain in the left side of the chest, which rapidly extended to the neck and down the left arm, with

tingling in the hand, a sense of great constriction in the chest, faintness, and distress of breathing. He had immediately to rest, whereupon the distress subsided, but it did not perfectly disappear for hours. On different occasions also in connection with these anginal seizures I have known him have free hæmoptysis, complete unconsciousness, vomiting, and sudden evacuation of the bowels. He also suffered from articular gout, and irregular gout in almost every possible form.

OBESITY AND GLYCOSURIA.

Closely related to goutiness is a clinical type of disturbed metabolism, mainly characterised by corpulence, a bulky, flabby build, and glycosuria. Of this type, represented by 12 cases in my series, 9 had glycosuria and 2 albuminuria; 8 were men; the average age was 58. Only one had suffered from true articular gout. Here, again, the interesting observation was made that no fewer than three-fourths of the number had a systolic aortic murmur, none of them a regurgitant aortic murmur, and nearly one-half of them an ill-developed mitral systolic murmur. Thus there appears to be more liability to atheroma in the gross corpulent diabetic even than in the gouty man. In all the cases the heart appeared to be enlarged, but accurate physical examination is difficult or impossible in many of these subjects. The impulse was often more feeble than in the gouty; the cardiac sounds were equally weak, and the second aortic sound was occasionally accentuated. The pulse corresponded with the gouty pulse in thickness and tension, but it was more often found irregular and hurried. As for the complaints of corpulent and diabetic patients, they prove to be very similar to those of gouty individuals in respect of pain, but neither palpitation, faintness, nor irregularity was so often mentioned.

It must not be understood from what I have just said in my account of these cases that all disturbances of the heart in gouty subjects progress to valvular or vascular degeneration with associated cardiac enlargement and degeneration. The friend whose case I have just described at some length had led an active life, as I said, for forty years; and, as I hope to show in my next lecture, the condition is amenable to treatment if this be based on a correct appreciation of the cause that is at work. But it is equally true that if correct advice be not given, or if it be given but be neglected as happens so frequently, the endocardium and the aorta and other arteries steadily degenerate, chronic interstitial nephritis makes its appearance, and the patient dies either slowly from cardiac failure or suddenly from cerebral hæmorrhage.

CARDIAC STRAIN.

To make this part of my subject more plain I will discuss in the first place acute strain of the heart as it occurs after the 40th year, afterwards I will consider the condition of the heart and arteries at this age in persons who have strained them in youth or early manhood.

A man of 65, who came to me complaining of his heart, gave the following account of the commencement of his trouble: Four years previously, on making a very hard stroke at golf, he was suddenly seized with a sensation of something having happened in his heart. He played up to the next hole, but now felt the chest oppressed; he sat down and got relief. This experience was repeated, and he gave up the round. Walking home two miles, he had to sit down occasionally with the same feeling. Ever since that occurrence exertion has produced the same effect. I found the ordinary physical signs of enlargement of both sides of the heart, a scarcely perceptible impulse, the cardiac sounds extremely feeble, the second being of a finely ringing quality, the pulse tense, quiet, and regular, but the radial artery by no means sclerosed. The patient's principal complaints were of irregular action of the heart, which troubled him on lying down or when he was dyspeptic, and, as I have said, of post-sternal oppression on exertion. This man had neither albuminuria nor emphysema, but he had frequently suffered from ordinary articular gout.

Belonging to this type of cardiac strain I have notes in all of 11 cases, which I will briefly summarise: Eight were men, 3 women; and their average age was 56. In all but 1 of them the heart was large, with feeble precordial impulse; the sounds were small and feeble; the aortic diastolic sound was often ringing; in but 1 case was there a murmur—aortic systolic; with few exceptions the rhythm and the rate of the heart were ordinary. In half the cases the radial artery was sclerosed; in the majority the tension was not increased. Persons who strain their heart after middle life chiefly complain of precordial oppression, a sense of palpitation and irregular action of the heart, and pain, which may amount to angina; and they may tell us that distress and disability in

these different forms have troubled them for years. You will have observed that the man whose case I have read in particular was the subject of gout; and this brings me to the interesting fact that of these 11 individuals 7 were gouty. We have already seen how greatly reduced is the resistance of the cardio-vascular system in gouty subjects, and are thus prepared for the readiness with which their heart may be strained by exertion—a matter of obvious importance prophylactically. In other cases not included in this group the strain took the form of valvular injury, or affected hearts already the seats of old-standing valvular lesions of rheumatic origin; but the present is not the occasion to discuss these. Nor need I add that a not infrequent result of acute strain of the aged heart, whether its valves have been already damaged or its myocardium badly nourished, is sudden death. Now I can understand that some of you, like Professor Allbutt,⁶ our earliest and highest authority on this subject, might object to the application of the term "strain" to the effect of exertion in gouty and senile hearts. They might say, with great reason, that exertion in these subjects is not a cause of strain or dilatation of the heart, but simply a test, as it were, or the proof of cardiac debility and disability. But when we come to consider cardiac strain a little more closely, it may be maintained just as easily that every dilated heart, every dilated cardiac chamber, every dilated blood vessel has been strained. Whether, on the one hand, valvular disease, Bright's disease or emphysema, or, on the other hand, myocardial degeneration, has disturbed that cardinal condition of a normal circulation, that the driving power must always exceed the resistance ahead, over-distension and dilatation of the cavities, with excessive stretching of their walls, constitute or consist in mechanical strain. However, laying aside theoretical discussions of this character, the great practical fact remains that when the aged or ill-nourished heart is over-distended from sudden and severe exertion, it acts at a mechanical disadvantage, and that as often as this may occur the heart suffers more or less in its efficiency; whilst, on the other hand, in confirmation of this consideration, the heart sometimes diminishes in size, and precordial distress disappears under strict treatment continued for a sufficient length of time.

STRAIN BEFORE 40.

A more interesting group of cases than those which I have just discussed is composed of persons who have strained their hearts in youth or early manhood and have never been quite well since, and in middle or advanced life are at last driven to us for help. Cases of this character would furnish excellent material from which we might attempt to judge of the after-effects of excess or abuse of muscular exercise in the young. This is a tempting subject of discussion, but far too long and much too important to be taken up casually at this time. Therefore, I will content myself with submitting to you as plainly as I can certain facts bearing on it that have come before me in my present inquiry, along with a few simple observations of a practical bearing. First, then, let me read to you the history of what I should call a typical case of the kind.

A man of 69 complains that as often as he walks any distance or climbs a stair he is arrested by a distressing sense of having a bar across the lower end of the sternum, breathlessness, irregular palpitation of the heart and a very little choking in the throat; the discomfort has lately deserved the name of pain. His heart is very large, the area of precordial dulness being increased in all directions and measuring transversely 7 inches. The impulse is weak over the left ventricle, but definite in the epigastrium; the sounds come in couples—moderately good and very weak respectively, without murmur; and the radial artery is large and thick, with rather low pressure and irregular rhythm. It turns out that for the last forty years these uncomfortable feelings have troubled the man more or less, and that at three different periods of his life—at 31, at 42, and at 67—they increased so much as to incapacitate him for many months—the first time with a sudden sense of something snapping in the heart, the second time with a faint, and always, as he believes, consequent on overwork. Now this man never had rheumatism, or gout, or syphilis, and was always a temperate, careful liver: and he volunteers the statement that he first felt his

heart at Cambridge, where he was captain of his College boat, and was tried for the University boat, but felt himself that he was not fit for it. Belonging to this type of cardiac strain I have selected 11 cases. The heart is always found to be enlarged; in about one half of the cases it is irregular. It may be weak and beating at the ordinary rate, but in other instances it is increased both in force and frequency. Only in quite exceptional cases did I meet with endocardial murmurs in this group of old strained hearts; as a rule the sounds were ordinary, with a disposition to accentuation of the aortic second sound. High tension and sclerosis of the radial artery were respectively found in about one half of the cases. The patients complained most commonly of a distressing sense of irregular palpitation of the heart, and very commonly of precordial pain, but rarely of angina. Faintness also is sometimes mentioned. Let me hasten to add with respect to these cases that they do not include any instances of direct injury of the valves mechanically. Rupture or stretching of the aortic and mitral valves during exertion furnishes us with some very remarkable clinical cases; but it is with parietal strain that we are concerned now—physical over-stretching of the cardiac walls.

The subjects of dilatation of the heart from mechanical stress suffer by no means from what is commonly called "heart disease" excepting in the worst cases, but yet they feel their hearts comparatively, and it may be seriously, disabled. Naturally they associate these feelings of disability with fresh attempts at exercise or exertion, as in the case which I have just read. As I pointed out in my first lecture, such exertion is not by any means always connected with the patient's occupation or daily duties, but quite often occurs during unwise attempts on his part to resume at 50 the athletic exercises of his youth in order to reduce his weight, relieve his liver, or dispel gout. It is not wonderful that under such circumstances a permanently enlarged and badly-nourished heart should become embarrassed, or even seriously deranged, or still further strained. I have known a man of 43, going straight from London to the Alps, have not only precordial distress, but dropsy of his legs after his first ascent. Indeed, the man who has reached later middle life with his heart enlarged by years of great bodily activity in youth, and settles down quietly, on retirement, let us say, from the navy, sometimes finds that ordinary exercise is sufficient to produce alarming cardiac distress and curious loss of courage, obviously due to the muscular tissue of the thickened cardiac walls having fallen quite out of condition. How instructive, for instance, is the following case:

A gentleman, aged 60, who has led from his boyhood upwards a life of physical activity, and at the same time of temperance, and has suffered from neither syphilis nor rheumatism, but possibly from a doubtful attack of gout, settles in a relaxing provincial town, continues to eat heartily, and considers that a little work in the garden is sufficient exercise for him. He increases in weight, his breath gets short, his heart flutters, and now he begins to get anxious about his health, fancying, as he says, that he has all sorts of diseases—a disposition to worry about himself which is entirely new and provoking to him. I find his heart very large and feeble, the cardiac sounds scarcely audible, and in the mitral area a well-developed systolic murmur. The patient is ordered to reduce his diet as a whole and in respect of carbohydrates, to return carefully to walking exercise on the level, and to take a calomel purge, followed by a saline, twice a week, and a mild strychnine mixture. He improves, and continues to do so, is able to walk miles without discomfort, and in the course of two months not only do I find his heart reduced in size on physical examination, but I fail to hear the apical murmur, which must have been produced by dilatation of the left ventricle.

The bearing of such a case as this on the pathology, prevention and treatment of certain cases of senile heart disease will be obvious to all. We must be careful, however, to observe that neither unwise abandonment of wholesome exercise nor ill-advised return to physical exertion, separately or in succession, can be regarded as the only cause of the recrudescence of cardiac distress after 40 in those who have strained their circulation in youth. Any one of the many circumstances that produce cardiac failure and dropsy in chronic valvular disease may lead to embarrassment and fresh dilatation of the simply enlarged heart—anæmia and chronic disease, the acute specific fevers, including pneumonia, emphysema, granular kidney, gout, syphilis, tobacco and alcohol poisoning, as well as anxiety and worry, and in women the advent of the menopause. In these cases of old cardiac strain, as in every form of chronic valvular disease and of chronic heart disease of all kinds, not only the original and permanent lesion, but the recent and probably temporary circumstance that caused the

failure have to be ascertained and fully respected in connection with prognosis and treatment.

SYPHILIS.

Syphilis appears to account for a very considerable proportion of the more serious cases of heart disease which we meet with in older subjects, of course excluding chronic valvular disease originating remotely in endocarditis; but I ought to repeat here, what I have already mentioned, that syphilis as a cause of cardio-vascular lesions is very often associated with other morbid influences, particularly strain and alcohol. Of its position as the principal cause of serious disease of the valves as distinguished from the walls of the heart originating in middle life there can be no question. No fewer than 9 out of 28 cases of which I have private notes were the subjects of double aortic disease; practically all the others had a loud ringing second sound over the aorta significant of degeneration; pain of anginal type in half the cases was the prominent complaint; and two-thirds of the subjects had sclerosis of the radial artery. When we consider that syphilis does also affect the myocardium primarily, that fibroid disease, chronic aneurysm and fatty degeneration of the heart are all traceable to specific disease of the coronaries in many instances; and, finally, that many of the subjects of syphilitic cardio-vascular disease have perished before 40, the magnitude of this cause can be fully realised.

I believe that the profession in general have not yet woken up, if I may say so, to the gravity of this subject. How seldom we inquire for a history of specific disease in patients coming to us with cardiac disease in middle life! To no one, as far as my reading goes, are we so much indebted for the truth on this subject as to my friend and colleague, Dr. Mott. Thirteen years ago he published a paper on 21 cases of sudden death from cardio-vascular disease, and in 9 of these there was a history of either actual or probable syphilis. What was of greater interest, however, at that early date he drew attention to the association of syphilitic cardio-vascular lesions with Bright's disease in the broad acceptance of the term. Dr. Mott's work in the interval on syphilitic lesions of the arterial system of the brain has been so brilliant, and is so generally known, that it requires nothing more than this appreciative mention by me, and it saves me the trouble of an excursion into the large subjects of cerebral hæmorrhage and thrombosis in connection with these lectures.

NERVOUS STRAIN.

I confess that it is difficult to say much that is of real diagnostic value on the clinical aspect of cardio-vascular disorders and disease from nervous strain. As I remarked in discussing this subject from the etiological point of view, several factors come into play, besides nervous excitement followed by exhaustion and their effects on the heart, great vessels, and cerebral arteries; and the cases therefore are found to present a puzzling variety of features. Certain clinical characters are, however, common to the majority. Arterial tension is high; the radial artery is thick, sometimes markedly so; the heart enlarges; and in about one half of the cases a systolic murmur is to be heard either in the aortic or in the mitral area, significant of chronic endocardial lesions. I have already pointed out that in some of these patients polyuria and temporary albuminuria occur along with the high tension and increased action of the heart; but later on the heart may fail. The direct cardiac symptoms of which they complain are of the ordinary character, palpitation with accelerated cardiac frequency and pain—not angina—being the most common at first; feelings of indescribable discomfort and suffocation in the more advanced stage.

CHRONIC BRIGHT'S DISEASE.

After having reviewed, as I have attempted to do, the principal clinical characters of the diseases of the heart in middle and advanced life under their several causes, it may appear for a moment strange that the most important of all the clinical types of cardio-vascular degeneration has been mentioned only incidentally. This is chronic Bright's disease, which, from its complex pathological relations, its widespread effects on the heart and circulation and the organs that they supply, and the far greater gravity of these than

those of any other causes which we have studied, unless it be syphilis, is a subject of endless interest to us all. Fortunately for me my immediate predecessor in this chair on the medical side, our distinguished Fellow Dr. Samuel West, took for his subject the "Clinical Aspects of Granular Kidney," and thus relieved me of a task which he was so much better able to discharge than I am.

NOTE AND REFERENCES.

¹ A medical friend who has suffered from tobacco heart assures me that at one period he could distinguish the contractions of the auricles and ventricles. ² Maguire, *Trans. Clin. Soc. of London*, xx, p. 235. ³ Dyce Duckworth, *A Treatise on Gout*, 1889, p. 108. ⁴ Murchison, *Clinical Lecture on Diseases of the Liver*, 3rd edition, 1885, p. 637. ⁵ Allbutt's *System of Medicine*, v., p. 483.

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

INTESTINAL SAND.

I AM much interested in the report of Sir Dyce Duckworth and Dr. Garrod's paper on this subject, because I evidently had a case some ten years ago. I was attending a gentleman whose ordinary health was good, in a severe and intractable attack of continuous diarrhoea. A previous medical attendant saw the case with me several times, and we agreed that there were no symptoms of ulceration or organic disease of the bowel, but that probably some catarrhal condition of the colon—where there was slight tenderness—existed. In the height of his illness he passed a quantity of small granules of a pinkish-red colour, generally wrapped up in balls of mucus.

I took some to a chemist who stated that they contained some inorganic salt, he cannot now remember what. I had thought they might contain urates as there was a gouty history, but, finding otherwise, I concluded that in the early part of his illness, which had begun elsewhere, he might have been treated with carbonates of lime, magnesia, or soda, and that these had formed small concretions. I did not substantiate this, and have now no doubt that it was intestinal sand.

Bournemouth.

A. G. S. MAHOMED.

At the meeting of the Royal Medical and Chirurgical Society held on the 26th ultimo, I see there was reported, and discussed, the case of a patient with diarrhoea, in whose motions sand was found.

When in Burmah I repeatedly found sand, in varying quantities, identical in appearance with the sand seen in this case in the evacuations of my patients, but was unable to attach any special significance to its presence.

Intestinal sand probably exists in the alvine discharges to a greater extent than is generally supposed, and the explanation of its frequent discovery in the stools of patients living in the tropics is probably due to the prevalence in those latitudes of looseness of the bowels, a condition which renders the detection of the sand a simple matter.

Welbeck Street, W.

OSWALD BAKER.

CASE OF INTESTINAL OBSTRUCTION.

The following case may be of some interest owing to its unexpected result. On January 26th, 1901, I received an urgent message at 8 P.M. to go and see a lady, aged 66, who, I was told, was taken with an attack of spasms. On arrival I was informed that whilst eating her supper she was taken with violent pains in the stomach, so bad that she had to leave the room. I found her lying on the floor, doubled up, in agonies of pain and regurgitating large quantities of wind. I injected morphine gr. $\frac{1}{4}$, which gave relief. On seeing her next morning I found the abdomen very distended, and that she was still regurgitating wind by the mouth, and vomiting dark green bile, but no flatus had passed by the bowel. I gave an injection by the bowels, without result. I then came to the conclusion there was obstruction in the bowels and suggested calling in another medical man (a relative) from London. He saw the patient with me that night, and agreed there was obstruction, and suggested gr. $\frac{1}{4}$ pills of opium and belladonna every four hours, and requested to be informed in the morn-