one, but none the less they both exist under the differing conditions.

But in pure aortic regurgitation, the mitral valve still holding, the physics of the disease are vastly altered. The left ventricle receives the diastolic shock—sometimes more, sometimes less, according to the amount of completeness of the regurgitation. Two crowds—namely, an oncoming rush and a backward retreat—thus meet and collide in a limited space, with no outlet or retreat. Injury must accrue to something. Either the constituents of the crowd must be injured, or the boundaries of the containing space stretched or broken down.

In the case of the diseased heart it is the ventricular walls which, after bearing the strain, eventually give way. And, as is almost universally admitted, the diastolic pause is lengthened under the influence of digitalis. The period is augmented during which all this extra strain is being borne. Centrifugal pressure is enough to try the strength of the ventricular cavity in ordinary circumstances. But in Dr. Bruce's case the conditions are not the same. It is true that he describes a patient having dropsy and other signs of heart failure, the chief lesion being aortic incompetence. It is true, also, that his patient was relieved by a course of digitalis; but it is equally true that he was suffering from mitral disease, and I contend that, by supporting a failing ventricular compensation by digitalis, there is no actual proof that such treatment is to be pursued in pure aortic regurgitation. I will at once admit that I have seen cases of aortic regurgitation much benefited by the use of digitalis; but they were all of them cases in which mitral regurgitation was also present.

These contentions are obviously difficult of proof. Very little in therapeutics can be actually proved. I am still open to conviction if the weight of evidence is against me, and, as Dr. Clifford Allbutt wisely observes, "it is best that each observer should give the results of his own impressions as simply as possible," but if I may formulate an opinion, which has been forced on my mind by a somewhat extensive experience, I would at once say that although digitalis is the most powerful remedy in mitral disease which we possess, in cases of pure aortic regurgitation digitalis is not only a dangerous drug, but actually a poison.

DEGENERATION OF THE MYOCARDIUM IN HOT CLIMATES.

By W. CARNEGIE BROWN, M.D., M.R.C.P.

A SOMEWHAT unfamiliar result of residence in the tropics, but one which is by no means infrequent, is a peculiar form of degeneration of the cardiac muscle. Clinically and pathologically the condition is of much interest and importance, for the evidences of myocardial change are apt to be misinterpreted, and sudden and unanticipated death occurs not infrequently after an apparently trivial illness.

The patient is usually a man who has been some years in the tropics; he is confident that he is organically sound, and though he confesses he is not well, he is sure that there is little the matter. In answer to leading questions he says he is tired, yet sleepless; he is disinclined for exertion, mentally or bodily; he yawns unaccountably; he has flushings of the face, tingling and itching in the extremities; he perspires more readily and copiously than is his habit; and he has a vague feeling of uneasiness and apprehension. There is no faintness, no dyspnoea, no cough, no pre-cardiac oppression. Palpitation is absent, or it is slight, and felt only after exertion. There is perhaps some indigestion, and he has remarked that the feeling of weariness comes on coincidentally with discomfort in the stomach. He is thirsty, and wants more than his usual quantity of stimulant. He is not depressed, but he worries unnecessarily about his affairs, and is kept awake at nights by a stream of thought and indefinite anxiety. The pupils are large, and not actively responsive to volitional or reflex stimuli. The pulse is irregular, but it is full, soft, and deliberate; the vasomotor system is inactive, and there is no hardening of the arteries. The skin is moister and more lax than usual. The temperature is normal; the tongue is clean, and gives no indication of any morbid condition; the urine is

scanty, and loaded with urates, though otherwise normal. The rhythm of the natural cardiac cycle is unimpaired, but the heart's action is somewhat hesitating, and an occasional flutter or tremor may be detected at the apex; the impulse is softer, perhaps more diffuse, than normal, but it is not displaced. The clearness of note in the sounds is diminished; they seem a little distant, and the first is somewhat weak. Little further aid is to be obtained from the stethoscope; there are no adventitious murmurs, and examination of the pulmonary area and *conus arteriosus* gives no indication of deficient or defective blood.

In the absence of any definite cardiac symptoms, the malaise is apt to be set down as nervous or perhaps imaginary. The patient is told that there is nothing serious the matter, and he is dismissed with words of comfort and caution. In the great majority of instances, he reports in a day or two that he is quite well, but in some cases, and not very infrequently, the event is different, and the termination is tragic and startling. Generally without apparent cause, sometimes during a transitory attack of fever or indisposition, the undefined restlessness and weariness return. After an uncomfortable day, the patient goes to bed overtired; possibly he takes some sulphonal or veronal and falls asleep. In the middle of the night he starts up with a feeling of inexpressible alarm, there is a spasm of angina, and he falls back dead.

Contrasted with the commoner forms of myocardial decay the salient features of the disease are the absence of fainting fits, the inconsiderable impairment of the circulation, the vagueness of the physical signs, and the fact that fatal syncope usually supervenes in the absence of unwonted exertion. It is perhaps only a coincidence, but one the importance of which will not be overlooked, that death frequently occurs at night and after the administration of a soporific.

The *post-mortem* appearances are fairly uniform. On opening the pericardium (which contains no excess of fluid) the heart is found to be somewhat larger than normal. It lacks the resistance of a healthy organ, and is lax and flaccid. Epicardial fat is markedly deficient. If the viscus is removed from the thorax and held up by the great vessels, it sags and droops; in extreme cases the parietes are so loose that it collapses in mushroom shape over the hand that grasps it. Section into the ventricles shows no dilatation and no endocarditis; on the contrary, the lining membrane is blanched and bloodless. A similar condition prevails in the muscle; there are no infarcts, no points of haemorrhage, no deposits of pigment, no fat, no reaction to iodine, no serous atrophy. The coronary arteries are dilated and soft, and show no atheromatous change. The myocardium is pale, almost to whiteness, soft and friable. Microscopically, the intermuscular connective tissue is seen to be swollen, and apparently increased in quantity, but rounded infiltration and vascular congestion are absent. The condition of the individual fibres suggests cloudy swelling; the section looks waterlogged, it appears to have a general boggy turbidity, the striae are hazy and indistinct, and there is occasional rupture and fragmentation of the ultimate strands. From other indications it is obvious that the general nutrition is profoundly impaired, and that the myocardial lesions, as is the case in other retrogressions of tissue, are only prominent incidents of a general dyscrasia. The liver is small, and its section is pale and pasty-looking. There is no definite atrophy of the intestines, but their coats are thin and the villi and mucosa are shrunken and deficient in lymphoid tissue. The body fat is not diminished in quantity; in places it seems to be in excess, but it is dull and discoloured, and its distribution is irregular. In two necropsies in which a careful examination of all the organs was made, it was noted that no parasites, systemic or intestinal, were found, and that blood and bone marrow were normal.

The disorder appears to have no racial preference. It is questionable, indeed, if it is "tropical," in the sense that it is limited to tropical countries. Under the name of "soft heart" a similar macroscopic condition was long ago described by Louis, Laennec and Stokes, but its histo-pathology, which was worked out by v. Recklinghausen, is altogether different. The cloudy swelling of the myocardium seen after death from acute fevers has,

microscopically, closer pathological affinities, but it is widely separated from this condition by its etiology and clinical history. This degeneration occurs in persons who abstain altogether from alcohol, in moderate drinkers, and in those who are chronically overstimulated. It affects smokers and non-smokers alike, but women distinctly less than men. Repeated attacks of malarial and other fevers, and the high body temperatures usually associated with cardiac asthenia and cloudy swelling, do not originate it, while, contrary to the opinion which was formerly held by many physicians, it seems to have no relation to beri-beri.

There is, however, an influence which is clearly causative; it is over-indulgence in hard exercise. The disease is one of the imprudently strenuous life. In the tropics, probably oftener than elsewhere, the distinction between exercise and fatigue is inadequately realized; and it is by no means unusual to find men of middle life and prolonged residence who follow the cult of athletics with the unquestioning zeal of the English schoolboy. From the ranks of these enthusiasts the physician draws his European cases; while, if he sees instances of sudden and fatal syncope in natives, it is found that, in obese and indolent subjects, death is generally the result of fatty overgrowth, in hard-working coolies, of this myocardial degeneration.

Are any means available by which a degeneration such as this may be remedied, or by which, at least, the further progress of destruction may be arrested? The answer is that certainly the latter, and perhaps both results, can be effected by timely treatment. We know that an impaired muscle fibre may in favourable circumstances be absorbed and replaced; and we also know that the muscle cell, when over-stimulated, loses its general, before its special, function. The sequence is—exhaustion, loss of proteolytic and assimilative function, loss of contractility, decay. In this instance it is obvious that the cardiac muscle is starving not for lack of nourishment, but from want of ability to absorb the nutritive material which is around and about it in superfluity. If its metabolic capacity and nutrition can be restored, so, certainly, will its contractility and ability for work. To this end, rest in bed is a first essential, and diet must, in consequence, be limited. General massage is necessary to maintain and restore muscle function and assimilation. Heart stimulants—digitalis, ether, strychnine—are to be avoided; strong cigars, than which there is no more powerful cardiac depressant, must be prohibited. If the patient is a moderate drinker, alcohol should be stopped; if he is a free liver and stimulants appear indispensable, consideration is necessary. But in deciding the point, which is very important, it should be borne in mind—and this is specially true of the tropics—that the sudden withdrawal of alcohol and tobacco from a patient thoroughly habituated to their use may induce such deep dissatisfaction as to seriously prejudice all assimilative processes. As to drugs, opium is of special value. In the tropics, where heat exhaustion is in daily evidence, its efficacy is more generally appreciated than in colder climates. There can be no question of the beneficial action of opium in the extreme fatigue that is induced by continued and severe physical effort in hot climates, and in the dyscrasias that result from over-exertion. In no disorder in the tropics is this more apparent than in degeneration of the myocardium; apart from its sedative effect, opium acts with promptitude and certainty as a restorative of cardiac tissue; and in such a condition it may be safely and usefully continued for long periods without other medicine than an occasional laxative. All other hypnotics should be discarded; some of them are dangerous, others may be so. With suitable treatment, the prognosis of this form of myocardial degeneration is by no means bad, and if taken in hand during their earlier stages most cases will do well.

EDINBURGH ROYAL INFIRMARY.—At the weekly meeting of the managers on Monday, June 18th, the following reappointments to the staff were made: Mr. C. W. Cathcart, Surgeon, for a further period of five years from September 15th; Dr. William Russell and Dr. Murdoch Brown, Assistant Physicians, for a further period of five years from November 9th; and Mr. J. W. Dowden, Assistant Surgeon, for a further period of five years from September 15th.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

PRIMARY SARCOMA OF THE LIVER.¹

On January 8th a dockyard policeman, aged 25, was admitted with a temperature of 101° after a few days' illness unaccompanied by any very definite symptoms.

His temperature after admission ranged from 99.2° F. to 103.4° F., and his symptoms varied from bronchitis with sanguineous sputum to trigeminal neuralgia. His spleen was somewhat enlarged, but no parasites could be found in his blood. On January 31st his symptoms became abdominal, nausea and vomiting were constant, and the abdomen was markedly tympanitic. On February 1st the temperature fell to subnormal; he became rapidly weaker, and died of heart failure on the 24th.

On opening the abdomen *post mortem* the liver was found to be greatly enlarged, and weighed 11 lb. 6½ oz. The whole surface of the organ was closely studded with slightly raised rounded or oval nodules of a whitish colour. On section the liver was found to have been largely transformed into new growth; masses of sarcomatous tissue from ½ in. to 2 in. in diameter replacing the liver tissue throughout the organ, some of which showed signs of breaking down in their centres, whilst into others haemorrhages had taken place, and all were very friable. No secondary deposits could be seen in the lungs or elsewhere. Microscopically, the tumours were found to consist of a general infiltration of the lobules of the liver with small round cells. No focus outside the organ could be discovered, and it was therefore concluded that the lesions were of primary round-celled sarcoma of the liver.

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ETIOLOGY OF GRANULOMA PUDENDI.

IN his note on the etiology of granuloma pudendi, published in the BRITISH MEDICAL JOURNAL of June 2nd, p. 1274, Mr. Wise states that if the body he had discovered be the *Spirochaeta pallida*, the fact would "strongly support the view held by the minority that this granuloma is a manifestation of syphilis."

As the question is important I should like to point out that even if the organisms discovered in these two cases proved to be undoubted evidences of syphilis, the fact would not prove anything further than that the two diseases were coexistent in these particular instances. As both syphilis and granuloma pudendi are most frequently contracted in a similar manner, it is probable that cases of mixed infection are not at all uncommon. I have met with a considerable number of cases in which soft chancres and suppurating buboes appear to have been contracted simultaneously with this form of granuloma.

On the other hand, the evidence against this disease being merely a manifestation of syphilis is so strong that I fancy there can be few, if any, surgeons who have an extensive acquaintance with the former who have any doubt as to these being quite distinct diseases. Such, at any rate, is the case in Madras, where the disease is common, and where the universal treatment consists in excision of the diseased area, whenever this is feasible. The disease is, in fact, treated on the same principles as malignant disease, and no specific internal medication is ever resorted to. The facts which have established this view of the disease are as follows:

1. In uncomplicated cases granuloma pudendi is a purely local disease, the lesions being confined to the part originally infected, although sometimes transferred to other parts by autoinfection. If the disease be allowed to run its course untreated, or if the patient fall into bad health from any other cause, a cachetic condition may ultimately become established; but even in such cases no local signs, beyond the original lesion, are seen.

2. Antisyphilitic remedies have no effect whatever in checking the spread of the disease. Before the distinct identity of this disease was established, surgeons in Madras were in the habit of treating it on the supposition that it was a manifestation of syphilis, and I have watched the progress of many cases in which both mercury and

¹ Forwarded by the Director-General, Medical Department, Royal Navy.