of health and robustness about them, and between their "attacks" they are quite well. In those cases where the patients are thin, it is not the thinness of constitutional disease, but simply an emaciation due to lack of sufficient nourishment.

2. The earlier history of the case will sometimes indicate that the initial symptoms suggested an active ulcerative attack; but often any such sudden onset is absent, and the symptoms begin and creep on quite insidiously. This is usually the course taken by that type of obstruction dependent on congenital narrowness of the pyloric orifice.

3. Exacerbation of the symptoms is engendered by anything that has an enfeebling effect upon the constitution. If from undue exertion, mentally or bodily, from worry or anxiety, the patient is reduced to a state below par, the same diminished sense of physical and physiological fitness is experienced by the stomach and renders it less capable of overcoming the obstruction.

4. It will nearly always be noted that while, at the outset, the attacks of dyspepsia are few and far between, they gradually increase in frequency; and as they become more frequent so they become more severe. This sequence of events is most suggestive, because it indicates two probabilities—one, an increasing narrowness of the pyloric aperture; the other, the increasing failure of the stomach to overcome the obstruction.

5. Physical examination is only of value as regards dilatation. And here it may be remarked that, as a symptom, no more importance should be attached to the absence than to the presence of dilatation; for while at one time the viscus may be able to overcome the obstruction, at another it may fail; but, notwithstanding its absence, the obstruction is there. Rather, therefore, should it be taken that its presence at one time and its absence at another is an indication of partial pyloric obstruction.

As a means to diagnosis the x rays and opaque meal aid us considerably; but, from all that has been said about the occasional power of the stomach to empty itself completely by overcoming the obstruction, it can be well understood how that sometimes an erroneous impression may be conveyed. If, however, the meal takes an unduly long time to pass out of the stomach, and the skiagram shows, in addition, some irregularity in the shape of the parts in the neighbourhood of the obstruction, the picture presented by the x rays will help to confirm the opinion which the symptoms have probably already suggested.

TREATMENT.

If surgery had done nothing more in the treatment of chronic gastric disorders than deal with this particular class of cases, it would have earned for itself a reputation beyond the power of words to express. I know of few patients whose existence may be more miserable, and who, when relief is afforded, become more happy.

The condition of partial pyloric obstruction can always be temporarily relieved by rest in its broadest sense and careful attention to diet; but, as the condition is dependent essentially on mechanical causes, it is only by mechanical measures that it can adequately be dealt with. With regard to operation, we have the choice of two primary procedures. One is to deal directly with the obstruction; the other, to leave the obstruction untouched and circumvent it by uniting the stomach to the bowel. As regards the first of these two procedures, much must depend upon the nature of the obstruction. If it be due to growth, removal if possible; if it be of an innocent nature and the part can be freely mobilized, gastro-duodenostomy by Finney's method would appear to be better than either the Heineke-Mikulicz operation of pyloroplasty or pylorodiosis.

As regards the second of the two procedures, short-circuiting by the "no-loop" operation of gastro-jejuno-stomy is the sole method employed. Of all the operations for obstruction none have been more frequently executed than this. In my own wards, for instance, the operation has been performed by myself and by my assistant colleagues, Mr. Grant Andrew and Mr. Farquhar Macrae—now surgeons to the institution—428 times up to the end of 1919. Perhaps the best testimony that can be borne to the permanent good effected by the operation is to be found in the fact that, to my knowledge, there lives at the present day a female patient, perfectly well and engaged

in active work, whom I operated upon seventeen years ago; and another, a male, also quite well and driving a motor car, upon whom I operated nineteen years ago.

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A Lecture

ON

HEART AFFECTIONS IN RELATION TO THE LABOUR MARKET.

DELIVERED DURING THE POST-GRADUATE COURSE AT THE NATIONAL HOSPITAL FOR DISEASES OF THE HEART.

BY

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DURING the war, and particularly in connexion with recruiting, doctors were continually having to estimate the all-round efficiency of a man as a fighting unit, quite apart from having to disqualify him for such obvious disabilities as flat-foot, hammer-toe, hernia, etc.

Into such an estimate the strength and general condition of the heart necessarily entered very largely, and indeed became one of the most important and difficult factors to appraise in deciding upon a man's category. Owing to the vast complexity of modern warfare, in which whole nations are, so to speak, in arms, there came to be numerous posts which could be filled by men who were very far from being A1 men.

In the fully organized army a constant process of sorting was always going on by which those with impaired efficiency were moved downwards into lower grades, while those whose efficiency had improved were moved upwards.

There is no reason why in civil life a similar effort, doubtless on a somewhat different system, should not be made for estimating the efficiency of a man in the labour market. The problem here is in one sense easier than in the army, in another sense more complex; for clearly a man might be A1 for his particular trade, but not A1 as an infantry soldier, on whom frequent calls for excessive exertion may be made at any hour of the day or night, so that many a man, though he might only be B1 or B2 from the army standpoint, might quite well be A1 in his own particular occupation, which did not call for such sudden and strenuous forms of exertion, though it could not in any sense be classed as "light work." To quote from American experience:

Throughout the war it remained a strange paradox that the "irritable heart of soldiers," which is a functional neurosis, where the heart is known to be intrinsically normal, should give rise to such pronounced cardiac symptoms, whereas the cases of valvular heart disease were so completely free from symptoms; in the "soldier's heart" anything approaching a normal heart rate even during rest is very unusual. It was generally found that mild cases of valvular disease in the army examinations showed a cardiac response well within normal limits and were remarkably free from subjective sensations, thus offering a striking contrast to the "effort syndrome" in which such symptoms are usually pronounced.¹

We want to consider this afternoon how far cardiac lesions, whether functional or organic, affect a man's chances of getting work in the labour market and to what extent they are actually prejudicial to him when he does get it.

The progress of modern medicine has stripped heart disease of many of its terrors simply by demonstrating that there are numerous organic affections of the heart which are compatible with a life of reasonable length and of a not too restricted activity. Still, for all that, one must realize that an organic disease of the heart is a handicap in the labour market, more especially as heart disease still connotes to the employer the idea of early and sudden death, as doubtless it did to the profession in the dim and distant past, for the ideas held by doctors in one generation become the *idées fixes* of the laity in the next.

Now it is, of course, quite obvious that patients suffering from a gross structural disease of the heart, such as mitral stenosis or aortic regurgitation, cannot safely be employed on really heavy work, though almost any doctor with much experience could produce an instance of someone who had done astonishingly heavy work in spite of one or other of these lesions. Patients with aortic disease are more likely to be unconscious of their cardiac ailment than are the subjects of mitral disease, in whom shortness of breath manifests itself sooner than in cases of aortic disease. But we must not be guided by exceptional cases, which make bad rules for medicine just as legal people say that "hard cases make bad law." On the other hand, to write down every cardiac case as fit for "light work only" is equally ill advised, at least if by light work we mean something mainly sedentary. The fact is that fairly hard work can be done by many people who suffer from heart disease, provided the hours are regular and the work more or less the same from day to day and hour to hour, while there is no undue sense of hurry in the doing of it. Anything in the nature of spurts, which may be almost an essential element in some occupations, though the work itself may not be so intrinsically heavy, should be strenuously avoided; thus, dockers are a good instance of an occupation which involves periodical rushes, with, it may be, unduly slack intervals, and that kind of thing is bad for almost any form of heart disease, and particularly for the older and casual workers.

A heart which has been badly damaged in early childhood must always be a source of anxiety, and in such cases we can seldom look forward to anything but quite sedentary work under the most favourable circumstances; the important thing is to decide early as to what sort of sedentary work the boy or girl should be trained for, carefully considering their individual proclivities. The heart, however, which is damaged by rheumatic fever after puberty in early adult life, if wisely handled at the outset, is often capable of a surprising amount of work, and it is these cases, especially of aortic disease, which are often able to carry on fairly hard work for a quite considerable length of time. In the case of mitral stenosis, on the other hand, decidedly less work can be expected from the heart, and it is well to remember the dictum of Huchard that in mitral stenosis we have a heart "*réglé pour un petit travail*."

But it is quite a different matter when we come to the case of men who seem to develop heart disease in or about middle life as a result of strain or lues. Such cases are nearly always progressive, and their value in the labour market is much inferior to that of those whom we have just been considering, where the lesion is due to rheumatism.

In particular it is true that cases with a history of lues can seldom be relied upon for any seriously continuous hard work, and the special liability to sudden death in these cases should never be forgotten. Doubtless it is this kind of case which has frightened employers, and as, of course, so often when sudden death occurs, the verdict brought in is that of "heart disease," all forms of heart disease become tarred with the same brush and all seem equally likely in the eyes of the employer to give rise to sudden death, so that they not unnaturally look askance at all cases suffering from heart disease, no matter what the cause may be.

Putting aside the grosser structural lesions of the heart there are all kinds of minor cardiac affections which, for want of a better term, might be grouped under the heading of "weak heart." These cases may, in many instances, be the result of some infective process, such as influenza, malaria, or indeed any febrile condition, and are not unreasonably described as "poisoned hearts," but in addition to this there would seem to be some people who are born apparently with subnormal cardiac power; fortunately there is not, as a rule, so much difficulty about these cases as regards occupation, for they, at the outset of their career, have insensibly drifted into quasi-sedentary occupations more or less suited to them, having instinctively recognized an inaptitude for much physical exertion, and it was cases such as these which, at the beginning of the war—perhaps not unnaturally—were passed into the army as A1, and tended to swell later on the mighty host of D.A.H. patients to such formidable proportions. Many cases of this kind in which the nervous

system plays a part are undoubtedly benefited by occupation, and also by exercise within reasonable limits. There are, of course, symptoms apparently associated with the heart which do not necessarily arise from it, though it may be difficult to disabuse a patient of the belief that a pain in the left side and perhaps some shortness of breath is a sure sign of heart disease.

In civil life the doctor, except when definitely employed by the State, an insurance company, or some similar body, has primarily to consider the interest of the individual, but in reality the wider interests of the State and the individual are not so much opposed as might at first sight appear. Clearly it is not to the interest of the State or an employer to let themselves discard an efficient workman because he happens to have some disease of the heart—all the employers and the State require is to be protected against exceptional risks; on the other hand, the individual is benefited by finding a suitable employment. "There are positions in industry, in fact, in every plant of reasonable size, that people of varying substandard conditions of health and body can fill with efficiency to the profit of their employers and themselves."²

The main thing to grasp, from the point of view of the labour market, is the importance of prognosis; with regard to this the ordinary stethoscope diagnosis does not help us much—we merely learn that there is or is not some structural disease of the heart; whereas what we want to know is the man's efficiency, and how far this structural disease should affect his chances of employment. No doubt a great study of the prognosis for heart cases has been made through insurance companies and much useful information has been acquired as to the expectation of life. But here it is purely a question of "How long the proposer is likely to live." We want to consider the more profound question: "In what way can he live with greatest benefit to himself and the community?" In what work can he most effectively engage or continue? Are there some trades which are more suitable for cases with heart disease than others? It would, of course, be easy to reply that cases with heart disease are best suited by clerical and sedentary work, and no doubt this covers a fair amount of the ground. But among the vast masses of the manual labourers there are many whose whole temperamental and psychic make-up, so to speak, is entirely unsuited for sedentary work. Then, again, a man may be working well but gets an attack of rheumatism which damages his heart: Is he to give up his work? If really exceptionally heavy, he clearly must do so, but when a man has been at some occupation for several years, much of it which to a tyro would be heavy and difficult has to him by long practice become comparatively easy. The whole aim of industrial or occupational medicine is to find the square hole for the square man, and as this is particularly difficult to do with regard to heart disease we want to consider rather closely the various trades which would be most suitable for any particular cardiac lesion. Obviously the first thing to be considered is the man's own natural aptitude and inclination for any particular occupation. As a general rule it might be said that all work which puts a good deal of strain on the lower extremities is less unfavourable to cardiac cases than that in which the strain falls mainly on the upper extremities. Most forms of aortic disease and undoubtedly those of the degenerative type, appear to be very unfavourably affected by any work which involves even a moderate strain upon the arms, such as carpentering; and this is particularly the case when there is any suspicion of angina. Thus I had recently under my care at the hospital a young man with an aortic lesion. He worked in a "card-glazing" factory and was given the easiest work to do which they had; it consisted in pulling with the left hand quite a light lever, which set in motion the roller beneath which the cards were passed, but this continued pulling with the left hand, though the resistance was quite moderate, proved too much for him. Then, again, I recently saw a man who had been invalided out of the army with aortic disease, whose occupation was "pile driving"; now this is not heavy work, as it is done by a machine and only requires superintending; however, such work may involve going up a ladder to the height of 40 ft., and when he had to do this he would become giddy and be in danger of falling, so that this kind of work had to be abandoned.

To take a few trades which are usually classed as light work, and which are in most cases suitable for those who have compensated valvular lesions:

1. *Tailoring*.—As a rule, we are apt to associate this occupation with bad ventilation, but of course there is no reason why the ventilation should be bad, and during the past few years all factories have been greatly improved in this respect; still, owing to the very sedentary nature of the work, men easily feel the cold and want windows shut, so, to that extent, the ventilation is not such an easy problem. The work itself is in general light enough, the only heavy part being the ironing; the iron generally used weighs from 14 to 20 lb., and may sometimes weigh even as much as 30 lb. No doubt there is a great deal of knack in the use of these irons, so that the weight may not seem much to a man accustomed to the trade.

2. *Boot repairing* is another occupation which is not unreasonably classed as "light work," but here again the ordinary boot repairing known as "botching," as opposed to finer boot repairing, involves standing upright at the bench for long hours at a stretch, which of course puts a strain upon the circulation, and I have on several occasions met with men having compensated aortic lesions who had to give up this work owing to the long hours of standing required, though they might have done intrinsically harder work which did not happen to involve so much standing.

3. *Boot-making* is also classed as a "light occupation," and so it is; but it will be found unsuitable for most forms of heart disease, as it involves much use of the arms both in the hammering and wide stitching which nearly always puts a strain upon the heart; the posture of boot-makers is also bad for all kinds of chest complaints.

4. *Basket-making*.—This might seem eminently suitable for those suffering with minor affections of the heart, but this will not always be the case, for there is a great variety in basket-making, which differs much in different localities, and the making of a large basket involves a wide extension of the arms, and so puts an undue strain upon the heart.

5. *Leather Work*.—Many kinds of light leather work are well adapted for most forms of heart disease, where the patient can get about easily, but for such occupations a man should be fairly handy and intelligent. Often a trade which seems quite light, and indeed is so in a general way, may incidentally involve quite heavy work. Thus, for instance, portmanteau sewing would seem quite suitable for many cardiac cases, but unfortunately it frequently involves having to lift heavy weights, so that one has been obliged to knock off a man from such work, though superficially it might seem entirely suitable.

6. *Scavenging*.—Then, again, one has met with scavengers for a borough council who could quite well do ordinary sweeping, but the extra exertion involved by "squeegeeing" when it has been specially wet unfits them for the job and they have it give it up.

Motor Driving.—The occupation of chauffeur is suitable for many varieties of cardiac lesion, provided there is an automatic starter, otherwise the cranking of the car may be a severe strain; and quite recently I had under my care at the hospital a man whose cardiac symptoms first dated from an occasion when he was cranking his car and he felt the strain to be excessive; in his case the lesion was myocarditis of luetic origin, and for such a man the occupation of chauffeur is quite unsuitable, as there is always in a case of this kind danger of sudden death.

As a general rule, dusty occupations, at least for mitral cases, should be avoided, as they induce coughs and catarrhs, so favouring bronchial congestion, to which patients with a mitral lesion are particularly disposed. Similarly, in advising upon any occupation it is important to consider whether it will expose the patient specially to vicissitudes of weather and sudden changes of temperature.

On careful inquiry it will often be discovered, particularly in towns, that it is not so much the work which is trying the patient as the fact that he lives at the top of some model dwellings, so that at the end of a long day's work he has to ascend an interminable flight of stairs; then, again, the main trouble may be the long journey to work, the catching of omnibus or train, and not the work itself.

With a certain amount of care and trouble in the adjust-

ment of occupation much more work can be got out of quasi-derelict hearts, to the great advantage of the community and the not less benefit of the individual patient.

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CIVIL LESSONS OF THE WAR FOR THE TREATMENT OF FRACTURES OF THE SKULL.*

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At first sight it would not seem that gunshot wounds of the head could teach us any lessons of use in dealing with the ordinary fractures of the vault in civil life. Certain points in the treatment of fractures of the vault—none of them really new—have, however, been firmly established by experience in the war. On such of these as appear to be of use in civil practice I wish to touch.

The advantages of total excision of scalp wounds before dealing with underlying fractures were so firmly established during the war that this procedure is likely to become a routine instead of an occasional step in operations upon civil compound fractures.

Early in the war Sargent introduced perforated metal tubes for dealing with the appallingly septic results of leaving head wounds to be operated on at the base. These tubes will, I think, find a really useful place in the drainage of cerebral abscesses; for it is often difficult to keep a rubber tube in position in the brain. To overcome this difficulty I successfully used a tracheotomy tube to drain a cerebellar abscess in a boy in the East London Children's Hospital. Now I should under similar circumstances use a Sargent's tube.

But I think that the most important point which has been fully established in connexion with the treatment of fractures of the vault is the efficient treatment of wounds of the great blood sinuses. Wounds of the superior longitudinal sinus are not, I fancy, very common in civil practice, but any depressed fracture in or near the middle line of the vertex may be complicated by such a wound.

In the summer of 1910 I operated on a depressed fracture in the mid-line of the vertex. The fracture, which was caused by a falling brick, had caught the upper ends of both Rolandic areas, and both legs were paralysed below the knees. On raising the depressed fragment I encountered that copious stream of haemorrhage which a large rent in the sinus produces. I controlled the bleeding by packing gauze between the sinus wall and the skull, and then sutured the rent. The case recovered and I was very pleased with myself, and decided that I knew how to deal with wounds of the superior longitudinal sinus. There my knowledge of wounds of the sinus remained until the Somme fighting. Then, having lost one case of torn sinus which I had sutured, I contented myself with packing the next one with gauze and leaving in the packing—as a matter of fact, this case recovered. But it was the last I packed, because another surgeon asked: "Why didn't you 'postage stamp' it?"

Haemostasis.

I had been familiar with Horsley's use of muscle grafts for arresting haemorrhage from cerebral vessels, but I did not know that it had been applied to torn sinuses, though this had, I understand, been done for some years before the war by Cushing, who, I believe, always uses a muscle graft cut from the calf for his "postage stamp." Short of assistance, as one often was in the war, I (and I fancy many other surgeons) tried cutting grafts from the aponeurosis of the scalp flaps. The graft should be cut about the size of a postage stamp, and as soon as cut placed over the rent and pressed over it by a gloved finger. This is better than gauze, as the graft is apt to stick to the gauze and come away with it. In twenty to thirty seconds the graft is usually securely stuck and all the haemorrhage

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