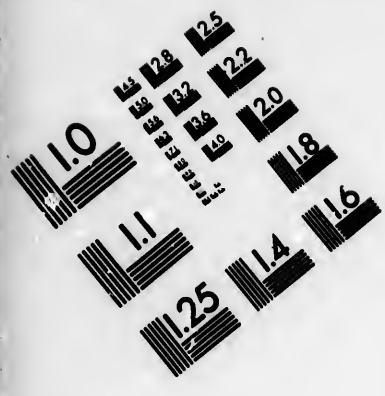

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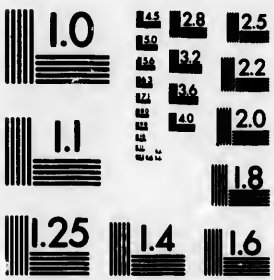

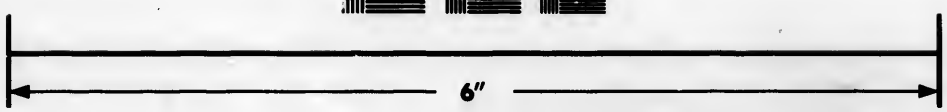

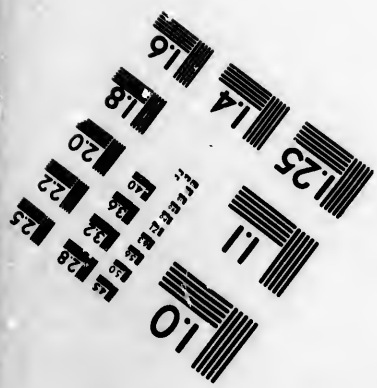

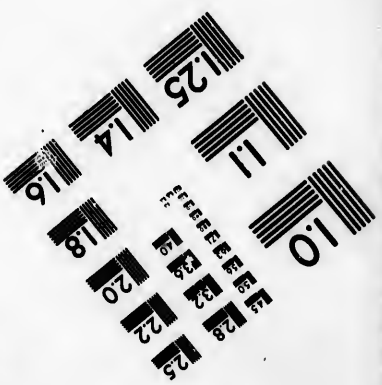

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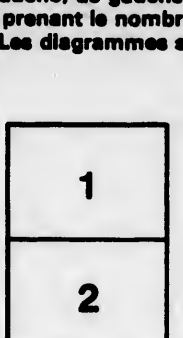

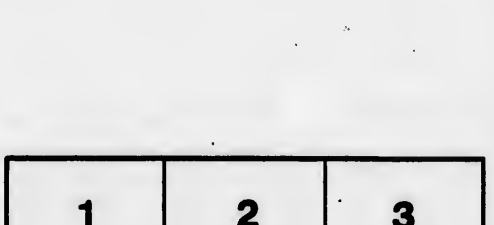

LIFE INSURANCE AND CARDIAC DISEASE.

BY

F. G. FINLEY, M.D.

Assistant Professor of Medicine and Associate Professor of Clinical Medicine, McGill University; Attending Physician Montreal General Hospital.

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It has been gradually recognised that the presence of a cardiac murmur is not necessarily a sign of serious cardiac disease. In many instances such a sign need cause no apprehension for the immediate future, and in others no material shortening of life need be anticipated. Under these circumstances it is not surprising that many insurance offices are now ready to accept selected cases of cardiac disease for a term of years, or again to insure them with the protection of a lien.

The practice of different companies varies widely. The more conservative still decline any case so long as a murmur is present whether this be of organic or non-organic origin. In many instances this results in an injustice to the applicants and in a loss of business to the company. Others, more progressive and liberal, endeavour to distinguish the more serious cases of disease from those of a benign character. In the selection it is needless to say that much depends on the knowledge and discrimination of the examiner, and his responsibility is much increased in dealing with damaged lives.

There are certain principles to be considered in endeavouring to form a prognosis in any case of cardiac disease, and this must be based on the individual's whole clinical history and on his general health, as well as on the local evidences of disease. Much stress must be laid on a history of acute rheumatism which leads in many instances to serious and even fatal consequences. The proportion of cases in which the heart is damaged in acute rheumatism is variously stated in different statistics. In 965 personal cases of Pribram the heart suffered in 38.2 per cent.; these figures closely correspond with those of Schott, 42.9 per cent.; Schramm, 38.7 per cent.; and May, 42.75 per cent. We may therefore safely conclude that in over one-third of the cases of rheumatism a damaged heart is the result. With this knowledge it is not surprising that insurance companies are extremely chary of accepting applicants who have recently suffered from the disease, particularly when it is remembered how often recurrence and fresh damage to the heart may ensue.

Hereditary influences play only an indirect part in cardiac disease. Acute rheumatism has undoubtedly an hereditary tendency, but as the disease usually appears in children or young adults, hereditary influence

need seldom weigh against an applicant, hitherto free from rheumatic disease. Arterial sclerosis, on the other hand, with its accompanying renal and cardiac changes, is a very important factor in estimating longevity. Members of arterio-sclerotic families are often large in bone and muscle, they are often somewhat free livers, or again they may be subject to frequent mental strain, as financiers or professional men, and fail to attain old age through disease of the arteries. After middle life the effects of vascular or renal disease are noticeable, and they succumb to cardiac disease or apoplexy. Where a marked history of cases of this nature runs through families insurance offices may well regard such business as unduly risky, and provide against loss by refusing to accept them as first class lives.

The habits of the applicant particularly in regard to the use of alcohol is of much importance. Excesses in this direction undoubtedly lead to hypertrophy and dilatation, often with degenerative changes in the heart. In a damaged heart this influence is even more potent, and excesses can only be regarded as of more than usual gravity.

The sex of the individual has some bearing on the prognosis. Men usually stand cardiac disease worse than women owing doubtless to their more active lives and their more frequent abuse of alcohol. An important exception must however be made in the case of married women, in whom pregnancy not infrequently induces the first symptoms of failing compensation. In mitral stenosis the influence of pregnancy seems to be more injurious and fatal than in any other cardiac lesion.

With regard to the station in life, the affluent or sedentary classes are much more favourably placed than those engaged in manual labour. The necessity of daily toil removes the possibility of obtaining the periods of rest which are often essential for the prolongation of life. Cases in which the lesions are stationary for a period of three or more years are much more favourable than recent cases, in which it is difficult to estimate how rapidly further changes may develope. In the single interview accorded to an examiner it is usually impossible to determine this point, and it is one on which important information may sometimes be obtained from the family physician. A stationary condition may be inferred when acute rheumatism dates back several years, and when with this, changes in the size of the heart are trifling or absent.

We may next briefly consider certain cases where murmurs are present and are regarded as of functional origin, and then pass on to the consideration of cases due to organic change in the heart or its valves. A frequent difficulty is met with in young nervous people in whom the heart's action becomes rapid or violent under examination. The forcible action and the occasional presence of a murmur under these circumstances may lead to an erroneous diagnosis, and it is only by subsequent examination that such an impression can be corrected.

Systolic murmurs at the pulmonary region are of a frequent occurrence; although soft and blowing they are occasionally harsh and loud, and may even have a character closely resembling pericardial friction. They are often heard up to the sternoclavicular joint and are occasionally transmitted to the aorta and heard down to the apex. Although more frequently found in chlororic girls than in other conditions, still it is important to remember that they are occasionally found as a temporary phenomenon in healthy well-nourished men. They are frequent in neurotic hearts, in the latter stages of febrile affections, and in a variety of debilitating conditions, but as these have no special bearing on the present subject they need not be further referred to. When the heart and vessels are free from disease, when there is an absence of cardiac enlargement, of arterial sclerosis and of a history of conditions leading to cardiac disease, the prognosis must be based rather on the general condition of the applicant than on the presence of the murmur, and if we can feel fully satisfied that it is of a functional character it may be disregarded.

Another murmur which is frequently heard is that in the subclavian arteries. It is systolic in rhythm, often rather harsh, more common on the left than on the right side and not infrequently present below and to the outer side of the clavicle. This murmur often occurs in strong, healthy men and has been attributed to the pressure of large muscles on some part of the subclavian artery altering its calibre at certain parts of its course. In the absence of pulmonary disease I believe it may be disregarded as of any special significance, although it has occasionally led to a suspicion of aneurism.

The cardio-pulmonary murmur is heard at the apex or just outside it, or sometimes along the left border of the heart and even along the right side of the sternum. It is soft, systolic, short and puffing, and its most important character is due to its being distinctly influenced by respiration, being heard best at the end of inspiration and dying away with expiration. It is, however, sometimes heard all through the respiratory phase, becoming extremely faint during expiration. If careful observation shows that it has these characters and if other evidence of cardiac disease is lacking it may be disregarded.

In all forms of cardiac lesions, after compensation has once definitely broken down, the tenure of life is insecure and uncertain. Although cases are occasionally met which survive for a period of ten or fifteen years after suffering from general anasarca, yet these are too exceptional to allow of their being taken into account. According to N. S. Davis, the average period of duration of life after compensation began to fail varied from 2.6 years in mitral regurgitation to 3.8 years in aortic

stenosis, the figures for mitral stenosis and aortic regurgitation being between these extremes. Both Broadbent and Balfour place the average duration of aortic regurgitation after signs of failing compensation have set in at four years.

The acceptance of cases for life insurance in which there is judged to be organic disease requires a good deal of nicety in selection. There are obviously numerous cases which must be ruled out as likely to terminate fatally in a few years, or again from the nature of the disease a fairly definite opinion cannot be expressed that the applicant will live for a period of ten or more years.

Affections of the myocardium without valvular lesion occur for the most part over middle life, and therefore in a class who seek insurance less frequently than younger individuals. Cases of dilatation and hypertrophy are so frequently associated with degenerative changes in the arteries or kidneys, or result from alcoholic excesses that they are, in my opinion, too risky and uncertain to be eligible risks.

We must of course recognize that many individuals with moderate grades of cardiac enlargement survive for long periods of years, but it is difficult, usually impossible, to say with any degree of certainty how far degenerative changes have proceeded. Many cases of cardiac dilatation are associated with or due to sclerosis of the coronary vessels, and the impossibility of recognising such changes during life, in the majority of cases, should render us very cautious in recommending the acceptance of such risks, more particularly as the liability to sudden death is a notorious feature of such cases.

Fatty infiltration of the heart is usually found in very stout people who habitually get easily out of breath on exertion. Such individuals, altogether apart from the condition of the heart, are usually regarded with disfavour by insurance officers. Experience shows that the expectancy of life in obesity is not so good as in individuals of about normal weight, and it is a common practice to reject applicants who are more than 40 per cent. over weight. A hard and fast rule in this respect is however unfair. Individuals who owe their over-weight to bone and muscle must be regarded with more favour than when the excess occurs in fat and flabby subjects.

It is in valvular lesions that the chief problems lie in connection with life insurance. Serious lesions at the aortic valve are usually due to regurgitation. This in turn depends on rheumatic inflammation or on the slowly advancing sclerotic changes resulting from strain, syphilis, or arterial sclerosis. The rheumatic type is usually regarded as the more benign, owing to the freedom of the coronary arteries, but this advantage may be balanced by the tendency to further damage to the valves in subsequent rheumatic attacks. The liability to sudden death

is seen in all forms of aortic regurgitation and more particularly in the arterial cases where the orifices of the coronary vessels are apt to become narrowed from the sclerotic process, or again, these vessels may suffer from sclerotic changes and diminution of their calibre at any point of their course. This tendency to sudden death is in itself sufficient reason to reject all applicants with aortic regurgitation.

True aortic stenosis is, apart from senile cases, a rare disease. It is a common mistake to regard systolic murmurs in the aortic region as depending on stenosis. In the great majority of instances this is incorrect, these murmurs being sometimes functional or depending on slight thickening of the semilunar segments or of the intima of the aorta. The rough harsh murmur, the thrill, the ventricular hypertrophy and the small slowly rising and prolonged pulse of true aortic stenosis are absent. The prognosis is favourable in cases of aortic direct murmur when evidences of degenerative changes are absent and when there are no compensatory changes in the ventricle, and are probably about equal to cases depending on slight changes in the mitral valve. In people over middle life the probability of such murmurs being due to arterial sclerosis must be borne in mind. True aortic stenosis is a serious disease, and although the risk of sudden death is not great, yet the duration of life is materially shortened.

In connection with lesions of the aorta a brief mention may be made of the accentuated ringing second sound so commonly heard in arterial sclerosis and renal disease. The sound may not be unduly loud, but it is higher pitched, sharper and more metallic than in health. The presence of such a sound may be an early sign of interstitial nephritis, and even precede the presence of albumen in the urine, or it may indicate sclerosis of the root of the aorta with involvement of the coronary arteries, and it is therefore when present quite sufficient to warrant a rejection. In a patient under my care at the Montreal General Hospital this ringing sound was the only evidence of cardiac disease, and yet this man died quite suddenly one day in rising from his bed.

Lesions of the mitral valve are usually regarded as less serious than those of the aorta. The tendency to sudden death is so slight that it may be practically disregarded, and when this accident does occur it is almost invariably preceded by a long period of failing compensation. Whether mitral stenosis or mitral regurgitation is the more serious lesion is a question on which writers are by no means in accord. If all systolic murmurs heard at the apex are included with mitral regurgitation there can be little doubt that this form of disease is less serious than stenosis. Many murmurs are however of a temporary character and are found under varying circumstances, such as excited action of the heart, from temporary dilatation, from anæmia or from slight cases of endocarditis which occur without serious deformity of the valve.

Osler states that the most favourable cases are those in which a moderate degree of stenosis is associated with regurgitation, whilst the worst cases are instances where the valve is much puckered and contracted, allowing of free regurgitation. He is inclined to regard regurgitation as almost as serious as stenosis. Oliver regards regurgitation as the more serious lesion. N. S. Davis states that the average duration of compensation in regurgitation is 5.1 years and in stenosis is 9.5 years. It is obvious, however, that each case must be judged on its own merits and no general rule can be laid down as to the number of years in which compensation is likely to be maintained.

Stenosis of the mitral valve occurs for the most part in young people. In 31 cases of which I have notes only 5 occurred over forty. Of five fatal cases the average at death was thirty-eight, a figure which corresponds very closely to Broadbent's statistics (males 33, females 38). The comparatively early age at death and the infrequency of this lesion over forty clearly indicates the marked tendency to the shortening of life. Although the rheumatic process which terminates in stenosis frequently begins at about puberty and terminates in males at 33 and in females at 38, he would be a bold man who would venture to guarantee a period of ten years in a well-marked instance of this disease. Even in patients in whom compensation is well maintained, in whom dyspnœa on exertion is slight or absent, a break down may come on rather rapidly and unexpectedly. Pulmonary embolism frequently forms an early link in the downward course. Pregnancy is accompanied by serious dangers, and again compensation may be seriously and permanently disturbed by an attack of pneumonia. Recurring bronchitis so frequent in mitral lesions reacts injuriously on the heart and tends to bring about a cardiac breakdown. Apart from such causes compensation in the left auricle and right heart must ultimately give way, and once disturbed is not likely to be fully regained.

It is in mitral regurgitation that we most commonly see examples of prolonged duration of life in chronic cardiac disease. Even with sufficient damage of the mitral segments to lead to considerable enlargement of the heart the patient may survive for a period of twenty, thirty or forty years, and during this long period of years may suffer from such cardiac symptoms as moderate dyspnœa on exertion and recurring bronchitis.

In selecting cases of mitral regurgitation it must always be borne in mind that a fatal termination is not infrequent before thirty-five years of age and consequently only favourable cases can be considered as suitable for life insurance. In the physical examination the mere noise of the murmur must be disregarded and attention paid to the apex site, to the character of the impulse, to the percussion dulness of the heart

and to the character of the pulmonary second sound. It is only when these secondary changes are slight or absent that we can feel assured that the cardiac lesion is not likely to be of a serious character. The graver forms of mitral regurgitation are evidenced by considerable enlargement of the left ventricle, by a diffuse and feeble impulse and by a marked pulmonary accentuation. Absence of pulmonary accentuation may, however, indicate a failing right ventricle, but here other danger signals will not be lacking. The character of the pulse must be carefully considered. If of good volume and average tension it is evidence of a strong ventricle and consequently indicates a favourable outlook. Irregularity of the pulse is more frequent in mitral regurgitation than in any other valvular lesion and if only occasionally present may not indicate any serious cardiac disturbance. It is, however, a sign which must be regarded with a certain amount of apprehension, and if it continues it is of unfavourable omen.

In estimating the extent of a mitral lesion the presence or absence of symptoms is of much importance. Where the heart proves insufficient for the daily requirements of its possessor, when for instance dyspnœa is produced by moderate exertion, when œdema of the ankles is present in the evening, or when any tendency to pulmonary, renal, or hepatic congestion exists, then the applicant cannot be considered eligible from an insurance standpoint.

The class of cases therefore which an insurance company is safest in accepting are those of mitral regurgitation and aortic direct murmurs in which secondary changes in the heart are slight or absent. Cardiac symptoms, particularly dyspnœa on exertion, should be excluded by the personal observation of the examiner, and as far as possible all cases excluded in which the lesion is likely to be progressive. Recurring rheumatic attacks exert a most unfavourable influence from further attacks of endocarditis or pericarditis.

A station in life not involving manual labour and early adult life, at which period arterial sclerosis is unlikely to be present, are further elements which must be weighed in the acceptance of such cases. Careful habits and good general health are also important in estimating these risks.

In conclusion, it may be said that life insurance companies usually take the precaution of preventing heavy losses by limiting the insurance to a term of years, by adding an increased premium or by a system of liens. Under such a system there are many individuals the subject of murmurs or slight cardiac lesions who can obtain the benefit of insurance. Although occasionally unexpected losses are likely to occur, yet these will be more than balanced by more favourable cases.