

heart, or other organs were seen." The repeated finding of sustained high blood-lactate levels is in poor accord with this statement.—We are, etc.,

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REFERENCE

- ¹ *Diabetes*, 1960, 9, A-9.

Emotional Stress and Coronary Disease

SIR,—In your leading article on emotional stress and coronary disease (March 19, p. 866) you refer to Russek's publication¹ in which he stated 91 of 100 patients under 40 years old who developed coronary heart disease had severe emotional strain preceding the attack. May I point out that in my review² of 100 cases of coronary occlusion in young adults (all under 35 years of age) who served in the British Forces during the war years and developed coronary occlusion either during service or in civil life following discharge there was little evidence of any relationship to heavy responsibilities or mental stress?

Only 9 out of the 100 cases were officers, and all of these, apart from a doctor and an instructor lieutenant in the Royal Navy, had begun their service as rankers. None of the commissioned officers were of higher rank than lieutenant and so would not have been subjected to heavy responsibilities. Most of the cases fell in the Registrar-General's social classes IV and V. There was only one female in the whole series, and even allowing for the greater number of males to females in the services—10–15 males to 1 female—there seems no doubt that coronary heart disease in the younger age groups is very rare in females.

The only other outstanding feature was the body build, the good physical development of these young adults; most of the patients were above the average weight for age and height. What was remarkable was the very advanced degenerative changes in the coronary arteries found at necropsy in some of these young patients, indicating the pathological process had been present for years. These advanced pathological findings at such an early age, the preponderance in males, the body build, and the lack of relationship to mental stress or other extraneous factors support the view that genetic influences are the more important factors in the aetiology of coronary heart disease in young people than habits of life and work.

The literature on the pathogenesis of coronary heart disease is full of contradictory opinions, and there is barely one conclusion which has not been seriously challenged in recent months by workers of repute in the same fields. Even the increased incidence of coronary disease revealed by vital statistics has been called "largely artificial." In a recent review³ the authors stated: "One (criticism) is that most of the studies have focused attention on the concentrations of serum cholesterol, serum lipid or serum lipoprotein, without proper emphasis on the focus of the problem, which is atheroma and infarction." In the present state of our knowledge the relationship of emotional stress and coronary disease must be considered as purely speculative, and, in spite of the enormous amount of work which has been done in recent years on the pathogenesis of coronary heart disease, the cause still remains unknown.—I am, etc.,

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REFERENCES

- ¹ Russek, H. I., *J. Amer. med. Ass.*, 1959, 171, 503.
² Newman, M., *Lancet*, 1951, 1, 1045.
³ Page, I. H., *Circulation*, 1957, 16, 163. Quoted by Morgan, A. D., *Advances in Cardiology*, 1959, 2, 255.

SIR,—I hope that I may be allowed to welcome your recent leading article on emotional stress and coronary disease (March 19, p. 866). Your general support for the suggestion that stress may play a part in causing coronary thrombosis (and possibly hypertension too¹) is both timely and useful.

You make the point about comparing stress in different groups and nationalities. Such comparisons are inevitably very broad generalizations, because stress is, by definition, something which affects individuals and not groups. Stress is generally defined as being the internal or resisting force set up within the human organism by reaction with the environment. It is thus a function of failure to adapt successfully to a situation, or inability, often for subconscious reasons, to solve a frustrating problem. Unsolved problems are stressful; solved problems, even if they involve hard work and fatigue, are morale-raising. Situations in which a whole community is under pressure tend to raise rather than to lower morale. This is because what may be stressful to an individual tends, when the whole group is involved, to bind it together and promote group solidarity. Wars, floods, and famines tend thus to promote group solidarity and to lower, rather than raise, the incidence of stress disorders. Stress is, in brief, one man against his environment. This is a possible reason why certain occupational groups, especially those in which there is a drive to get to the top or to do better than the other man, may show a higher incidence of stress diseases than would a group in which conformity is the general rule.

An additional point about coronary thrombosis which is not widely enough realized is that in what has been called "young man's coronary thrombosis"—which means roughly the under-fifties—the disease process is usually confined to the coronary vessels. In older people it is part of a generalized atherosclerosis involving the whole vascular tree and may be regarded more as an inevitable wear-and-tear condition. This was brought out by Yater *et al.*² and is further discussed in a forthcoming paper in *The Practitioner*.³

If I may be allowed to make one further point, it is to say that we are, in this unit, particularly concerned about the possible aetiological influence of both stress and environmental factors in coronary thrombosis. If these factors play a part in causation, it would seem likely that the negative advice which is so often given to a man who has had a coronary thrombosis while still in the prime of life may to some extent increase rather than diminish his load of frustration.—I am, etc.,

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REFERENCES

- ¹ Hambling, J., in *Essential Hypertension: Modern Trends in Psychosomatic Medicine*, edited by D. O'Neill, 1955. Butterworth, London.
² Yater, W. M., Traum, A. H., Brown, W. G., Fitzgerald, R. P., Geisler, M. A., and Wilcox, B. B., *Amer. Heart J.*, 1948, 38, 334.
³ Wright, H. B., *Practitioner*, 1960. In press.

Tempo of Modern Life

STR,—I was delighted to read in Dr. I. Atkin's article (*Journal*, December 26, 1959, p. 1477) the scorn with which he treated the theory that many of to-day's mental disorders were due to the "rapid tempo of modern life." Ever since I heard this phrase fall so frequently and so blandly from the lips of my medical teachers 10 years ago, I have been suspicious of it. As Dr. Atkin points out, life in England to-day is very much safer, securer, and more comfortable than it has ever been before.

If there has, in fact, been an increase in mental disorders in recent times, the cause, I think, lies elsewhere. It lies in the fact that in the days before the