strengthened if, despite the cardiomegaly, gallop sounds are not heard. The existence of an effusion can be confirmedatraumatically by ultrasonics. Acute "benign" pericarditis may not be accompanied by clinical evidence of accompanying myocarditis, or the signs may be overshadowed. And, though the disorder is usually well named, a few patients progress rather quickly to cardiac constrictia. A few others develop a relapsing illness with many recurrences of fever, chest pain, pericardial friction, and effusion.

There is no specific treatment. Drugs are indicated only if there is evidence of myocardial failure, in which case digitalis and diuretics should be given. Aspirin is helpful for patients with pericarditis, particularly when they have precordial pain, but corticosteroids should be avoided because of the risk of propagating an underlying virus. Pericardial aspiration may be carried out for diagnostic purposes or may be needed to relieve tamponade. It is usual to prescribe rest and careful convalescence for patients with acute myocarditis, and during the acute stage rest will minimize cardiac volume, cardiac work, and metabolic need. The risk of venous thromboembolism must be recognized in such patients, and passive foot exercises should be instituted. Convalescence ought to be delayed until all abnormal physical signs have disappeared but need not wait upon the resolution of T wave changes on the E.C.G. The patient should undertake carefully graded increases in physical exertion during the convalescent period until he is fully fit.

In mild cases, when the presence of myocarditis is signified only by slight or focal E.C.G. changes, the case for prolonged rest is far less good. Advocates of it cite the occasional sudden death in patients convalescent from acute and apparently uncomplicated influenza as well as the evidence from animal experiments that physical activity may be deleterious in the active stage of a myocardial infection. Their antagonists emphasize the benefits of early mobilization and active physical rehabilitation for the restitution of physical fitness and to minimize the chance of the development of a cardiac neurosis. It is certainly true that there is no evidence of a need for prolonged inactivity in these patients. The high rate of complete recovery of the Swedish patients in Gerzen's series, who were encouraged to return to normal physical activity as early as possible, encourages this view.

The persistence of a cardiac abnormality after virologically proved myocarditis has been well documented.1 3 7-10 But it remains uncertain in what proportion of patients with congestive cardiomyopathy a previous virus infection may have been responsible. Sometimes these patients give a history suggesting that the cardiac disability started abruptly with a brisk illness of influenzal type, after which heart failure was first recognized. But left ventricular failure can be mistaken for bronchitis or "virus pneumonia," and this introductory illness may simply draw attention to a chronic myocardial disease which is likely to remain asymptomatic until pulmonary congestion or oedema occurs.

It seems, therefore, that though death may result from myocardial failure or sudden dysrhythmia during the acute phase of myocarditis,10 11 complete recovery is otherwise to be expected in most patients. The results of the follow-up studies and the fact that no trace of such previous infection is to be found in the myocardium of patients with congestive cardiomyopathy, either in biopsy specimens or after death, make it unlikely that many cases are postinfecitve.

1 Goodwin, J. F., and Oakley, C. M., British Heart Journal, 1972, 34, 545.
2 Gerzen, P., Granath, A., Holmgren, B., and Zetterquist, S., British Heart Journal, 1972, 34, 575.
9 Bengtsson, E., Cardiologia, 1968, 52, 97.
12 Bell, R. W., and Murphy, W. M., American Heart Journal, 1967, 74, 309.

Ivy Tower Economics

One of the features of modern scientific research is the high cost of much of the equipment used, and this together with the proliferation of research institutes and new universities has made research a big business in financial terms. As a result research workers can no longer afford to maintain their traditional isolation from the practical day-to-day world. They have to find a source of income for their projects and make sure that the source will not dry up. Recent events have shown the hazards: first there were cuts in university expenditure and these were followed by the Government's plans5 for diverting resources from the research councils to its major departments. Clearly when times are hard the universities and the health services must expect to be included in general economies, but such events make long-term research planning very difficult.

Another way in which economic events can impinge on research is shown in the latest annual report2 of the Nuffield Foundation. Much of its income comes from shares in the British Leyland Corporation, and when the motor industry has a lean time this income falls precipitously. From over £1 million in 1970 the return from investments fell to £255,608 in 1971. Fortunately unallocated income brought forward from the previous year meant that the trustees had no difficulty in making the grants they thought necessary.

Among medical projects currently supported by the Nuffield Foundation are studies of the biochemical effects of high altitude, further investigation of Rhesus haemolytic disease, and follow-up studies of babies surviving immaturity or asphyxia at birth. Much of its support continues to be given to research in the medical sciences—in particular in neuropathology and kidney physiology. Since its creation 28 years ago the Nuffield Foundation has paid out over £30 million in grants, more than £5 million of which has been given to medical research projects. Such sums may, as the report says, be small compared with Government expenditure, but in terms of results they seem to have been remarkably well spent.

1 British Medical Journal, 1972, 3, 252.