

AMERICAN UNIVERSITIES

Who Next at Caltech?

from our Special Correspondent

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THE search for a new president of the California Institute of Technology, occasioned by the impending retirement of Dr Lee DuBridge, is also turning out to be a search for a new academic policy. It seems now to be agreed among the faculty that the institute must broaden the base of its operations, and in particular must find ways of developing a more balanced programme of instruction in the humanities and the social sciences. This, no doubt, is why the institute makes no secret of its regret that it has not been possible to recruit as president Mr John Gardner, who retired from his post as Secretary of the Department of Health, Education and Welfare a year ago, and seems to have declined several similar invitations from different universities since he first declared his intention to devote himself to urban problems. There is no doubt that Mr Gardner would have been able to foster a rapid yet respectable development of the curriculum outside the fields of science and technology in which Caltech is now pre-eminent. It remains to be seen whether fallout from government service after the election on November 5 will provide the candidate for which the institute is looking. Dr Donald Hornig, the President's Science Adviser, will no doubt be on the market in the New Year and is an obvious although an improbable candidate.

The imbalance between the humanities and the sciences is not the only way in which the institute is distinguished from other universities. Women, for example, make up only a tiny proportion of the 200 or so undergraduates admitted each year, and although it seems to be agreed that something should be done to put this right, it is not yet clear whether this will be done by denying places to qualified male undergraduates or by increasing the size of the intake and thus diluting the teaching effort which the institute is proud to lavish on its undergraduates. The ratio of staff to students is another distinctive—and enviable—characteristic of the institute. Roughly 200 of the 600 members of the faculty are established teachers (as distinct from post-doctoral fellows and the like), but graduate students barely outnumber undergraduates at about 700. The faculty seems united in the view that there should be no substantial increase of the number of undergraduates in the fields of study now being followed on the grounds that any substantial increase would diminish the individual attention given to the teaching of undergraduates.

The cost of the changes which may come with the appointment of the new president is unlikely seriously to impede his ambitions. Already one of the most well-heeled of institutions, the institute has recently embarked on a campaign to raise a further \$85 million which will bring its endowment to rather more than \$200 million. Even if this appeal does not succeed, however, there should be enough slack in the budget to support quite considerable innovations. In 1967 the institute consumed only \$3.7 million from the total of \$7.1 million interest from its investments—the rest went to swell the investment portfolio. It is true, of course, that federal agencies may contribute less towards the cost of research than has been the

custom in the past few years—in 1966–67, no less than \$13 million, or roughly half the operating budget, came from this source. (The management fee for undertaking responsibility for the Jet Propulsion Laboratory, paid by the National Aeronautics and Space Administration, accounts merely for about ten per cent of federal support for research at the institute.) Already there has been some restraint—some members of the faculty, for example, take the line that visiting research fellows must bring their own money with them. Because of its great prestige, the institute is better placed than other institutions to ensure that it comes near the front of the queue for federal research money. Indeed, Caltech can fairly claim that many of its traditional public services are not properly paid for as things are—for example, the work which the institute does to keep track of seismic activity in California, involving the maintenance of a network of seventeen seismic stations and a central laboratory, is at present paid for out of the ordinary academic budget. In circumstances like these, finding money for the plans will be less difficult than finding people to carry them out.

SOCIOLOGY

Ways to Prevent Suicide

EACH day, on average, about a thousand people in the world take their own lives and at least eight times this number attempt to do so, according to a report by the World Health Organization (Prevention of Suicide, WHO, 8s, \$1.25). In most European countries and North America, suicide ranks among the first five to ten causes of death.

The burden of the WHO report is that some suicides could be prevented, partly because certain classes of potential suicides can be identified by their situation or profession and partly because many suicides in fact give prior warning of their intention. Improved collection of statistics and more knowledge about suicide among doctors, nurses and the public at large would better the chances of recognizing and helping such people.

Table 1. SUICIDE RATES (YEARLY AVERAGE FOR 1961–63) PER 100,000 OF POPULATION

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|----------------|------|----------------------------|------|
| Hungary | 33.9 | Australia | 19.6 |
| Finland | 29.0 | USA | 15.6 |
| Austria | 28.3 | England and Wales | 15.1 |
| Czechoslovakia | 28.2 | New Zealand | 13.0 |
| Japan | 24.7 | Poland | 12.8 |
| Denmark | 24.2 | Scotland | 11.1 |
| West Germany | 24.1 | Canada | 11.7 |
| Switzerland | 23.3 | Israel (Jewish population) | 10.4 |
| Sweden | 21.7 | Netherlands | 9.1 |
| France | 20.7 | Italy | 1.1 |

Many of those who commit suicide give warning, either by word or deed, of their intention. Indeed, in the opinion of some investigators, warning is almost always given. But such danger signs are frequently unnoticed or ignored. Kessel, for example, has found that 34 per cent of 511 cases of self-poisoning had given warning of their intention and of these warnings 62 per cent had been noted but not acted upon. Some surveys have shown that more than half the persons committing suicide had seen a doctor within three months of the

event and up to a quarter had seen a psychiatrist. The WHO report points out that certain groups of people are more likely to commit suicide than others. Foremost among them are those who have already made one attempt. Follow-up studies show that on average some 5 per cent of patients kill themselves within five years of their first attempt while up to 10 per cent do so over longer periods.

Other high risk groups are the old, the mentally ill, those dependent on alcohol and other drugs, and particular occupation groups. Among the elderly, ill health, break in routine such as retirement, and the death of a loved one are factors which are often associated with suicide. Suicide rates are higher among the mentally ill than in the normal population; there are data to suggest that about 15 per cent of persons suffering from depressive illnesses may eventually die by suicide.

Doctors, dentists and lawyers are particularly prone to suicide. In England and Wales one doctor in 50 takes his own life; over a five year period 6 per cent of all deaths among doctors under the age of 65 were from suicide. Other occupational groups more prone to suicide than the general population are people engaged in the liquor trade (England and Wales), agricultural labourers (USA) and groups connected with fishing and the navy (France).

There is a comparatively high risk of suicide among university students; at Oxford and Cambridge, for example, the suicide rate among men students is 3 to 5 times higher than among their coevals in the normal population. One possible explanation is suggested by another recent report on suicide compiled by Mr Peter Cresswell and a co-author at the University of York (*Student Suicide, 2s*, copies obtainable from the author). Study of suicides at 13 British universities suggested a correlation with the sex ratio, male suicides tending to be highest at universities where there are few girl students.

With young people in general many studies reveal a high incidence of broken homes in early youth. Personal and domestic problems are frequent causes of suicide; a Swedish survey of 1,727 cases of attempted suicide by people under 21 disclosed that 80 per cent were girls, a third of whom had love problems and another third home and parental troubles as the probable cause of the attempt.

On the epidemiology of suicide the WHO report comments that several factors thought to underly suicide rates could profitably be further explored. These are urbanization, the declining influence of religious institutions and the breakdown of tribal social structure in developing countries; the changing social status of women in countries undergoing rapid change; social mobility and loss of a social role. Economic depression, social upheaval and the early months of summer, the report notes, are known to be associated with increases in suicide rates, whilst war is said to have the opposite effect.

The suggestion in the WHO report that better training of doctors could help to prevent certain suicides is vividly born out by recent work at the Medical Research Council's Clinical Psychiatry Research Unit. Barraclough, Nelson and Sainsbury reported at the fourth International Conference for Suicide Prevention last year their posthumous survey of 25 suicide cases in West Sussex (International Society for Suicide

Prevention, 2521 West Pico Boulevard, Los Angeles, California 90006; in the press). Three-quarters of the patients had seen a doctor within a month of their death and half within a week of it. From discussions with friends and relatives, 24 of the suicides were diagnosed as mentally ill and 21 (84 per cent of the total) were found to be suffering from depressive illness.

Antidepressant drugs were being prescribed for only one of the depressed patients; the remainder had received barbiturates or other hypnotics, tranquilizers or no drugs at all. It looks as if the doctors in question had failed to recognize the depression for what it was, and were treating for insomnia or anxiety. Apparently in a few cases—the sample is too small to generalize—the drugs prescribed were used by the patient to take his own life.

If the doctors did indeed fail to diagnose depression, the explanation, Barraclough and colleagues conclude, "is to be found in the lack of teaching about mental illness given by medical schools". In recent years several new chairs of psychiatry have been set up and more time in the undergraduate medical curriculum is devoted to psychiatric teaching. If this development results in the better diagnosis of depressive illness—a condition that can now be treated effectively by drugs or electric convulsive therapy—it may well be that some of the many suicidal patients who suffer from depression can be prevented from taking their lives.

COMMUNICATIONS

Building Intelsats

AN announcement on October 24 revealed that 11 non-American companies are to share substantially in the \$72 million contract recently won by the Hughes Aircraft Co. of California from INTELSAT for the key Intelsat-4 series of communications satellites to take over the basic global commercial communications network for the seventies. Of this sum nearly \$7.4 million (10 per cent) is coming to Britain. The British Aircraft Corporation is the chief beneficiary—to the tune of \$6.75 million; Ferranti solar cells add \$580,000 to the value of the British share. Until now Europe has contributed 30 per cent to Intelsat capital costs and collected only 4 per cent of the contracts. A BAC spokesman claimed this week that the British share of this contract will recoup the money spent by the Government on participation in the world network. Moreover, he added, "the deal has been entirely due to industrial enterprise and has cost the Government nothing". The fact that \$19 million worth of the \$72 million contract has been sub-contracted abroad is on the face of it surprising. There seems no doubt at all that Hughes could have handled the whole package without help from abroad. The company has unrivalled experience and achievement in the geostationary communications satellite field, comprising both operational commercial satellites and experimental advanced systems such as the ATS (Advanced Telecommunications Satellites), one of which enabled the Apollo 7 transmissions to be relayed live to TV audiences in Europe and America. Hughes has been responsible for the Syncom satellites which first demonstrated the feasibility of geostationary satellites and have since