

but more or less simultaneous whereas infections from other vectors are likely to be isolated.

Analyses of the prevailing air streams at the time of foot and mouth outbreaks earlier in 1967, in 1966 and 1965 are shown in the table. According to Mr Hurst, none of them are likely to have been started by windborne virus, although in three cases winds were in the right direction for a short time before the outbreaks. However, the waves of scattered but simultaneous outbreaks of the disease on the Kent and Sussex coasts throughout the spring and summer of 1952 present a different picture. These outbreaks had all the characteristics of airborne origin; they occurred after favourable airstreams and at periods when bird migration was minimal. Traditionally, birds, especially starlings, have been suspected of spreading foot and mouth disease, but in fact their role, if any, is far from clear. The Gower report discussed the possibility of starlings spreading the disease in the 1951 infections, but in 1952 it is unlikely that they had anything to do with the dispersal of the disease. If anything, during the spring and early summer the starlings would be migrating from west to east. And during the latest epidemic starlings seem to have had little impact. The snow in early December 1967 caused them to migrate south-westerly from central England, the infected area, to the Gower coast, south-west England and even southern Ireland, but there were no corresponding outbreaks of the disease.

Doing without the Dollar

THE state of psychology in Canada is heavily dependent on support from the United States in the forms both of men and money. But United States funds are likely to decrease to half their present size by 1970, and the Canadian Government must more than make good this gap if it is to finance the expected expansion of psychological activity in Canada.

Of the 1,600 psychologists working in Canada in 1966, 20 per cent were not Canadians and 11 per cent were Americans. Of the \$3.5 million granted in the same year for psychological research, roughly one-third each was contributed by Canadian, United States and other outside sources. According to a study by M. H. Appley and Jean Rickwood presented to the Science Council of Canada (*Psychology in Canada*, Science Secretariat, Ottawa), the costs of financing psychological research are likely to rise to \$14.6 million in 1970-71 and to \$30.8 million in 1975-76. These estimates are based on the assumption that, compared with 1966, the number of research projects will increase by 100 per cent by 1970 and 160 per cent by 1976. The estimates include a 20 per cent sophistication factor and an allowance of 25 per cent for cost escalation.

Where will these funds come from? The grant support from the US, far from keeping pace with this expansion, is expected to diminish rapidly, leaving the Canadian Government to foot almost the entire bill by 1975. The drying up of United States funds is presumably attributable to the containment of the rate of growth of US research spending in recent months.

If the level of spending on psychological research is not maintained, Canada must expect to lose a fair proportion of her foreign labour force, particularly the

reverse brain drain from the United States. The median income for psychologists is \$9,235 in Canada against \$11,500 in the United States, and the respective research grants per psychologist are \$835 and \$4,900. The necessary expansion of Canadian universities has depended heavily on American personnel and will continue to do so; differentials between the two countries cannot therefore be allowed to increase. Canadian faculties must remain competitive with those in the US in order to retain American psychologists.

Health in the United States

THE United States Health Education Committee has laboriously compiled a rather unusual document (1966, \$5.25) which outlines the major killing and crippling diseases in the United States, and describes what is being done to reduce their incidence. Five of the fifteen main causes of death are listed.

Main causes of death	Estimated deaths in 1965	Percentage total deaths
Cardiovascular-renal diseases	999,850	55
Cancer	296,320	16
Accidents	106,900	6
Pneumonia	61,460	3
Certain diseases of early infancy	55,060	3

From the report it seems that deaths attributable to rheumatic fever, tuberculosis, appendicitis, influenza, whooping cough, acute nephritis, dysentery and anaemias have all decreased within the past decade or two and, furthermore, during the 22 years between 1943 and 1965, the life expectancy for Americans increased by 7 years. At the time the information was compiled, the discovery of a reliable contraceptive pill was acclaimed as the most important medical advance in the sixties, but listed among other major research pay-offs and developments in other fields of medical research are anticoagulant drugs for treating heart attack, antihypertension drugs for hypertensive heart disease, methotrexate and actinomycin D—chemotherapeutic agents for certain types of cancer and, of course, a number of vaccines. New tests have been devised for detecting gonococcal arthritis and phenylketonuria, and many new anticonvulsant drugs have been developed.

The cost of illness to the United States in terms of lost working days and private expenditures for health and medical services is staggering—\$30 billion. The approximate financial aid given to medical research in the United States is as shown.

Cost of illness to the United States	\$30 billion
Amount repaid in income and excise taxes by individuals whose lives have been saved by medical research	\$1.2 billion
Total spent on medical research by the National Institutes of Health	\$1.2 billion
Amount spent by other departments of the Federal Government on medical and "health related" research including the pharmaceutical industry	\$0.75 billion
What the chief national voluntary health agencies raise	\$0.036 billion

The growth of population receives considerable attention in the document, and it is estimated that, at the present rate of growth, the population of the United States will double before the end of the century. The effect of this, it is suggested, will be to burden rather

than to accelerate the country's economy, and it is therefore proposed that research on a far larger scale must be supported on the biological and medical aspects of human reproduction so that improved methods of fertility control can be developed. In 1965 an estimated \$13,027,446 was being spent on sterility, fertility and population dynamics.

Poor Laws for the Rich

LOCAL authorities in Britain administer between them some 3,000 different means tests to would-be beneficiaries of assistance schemes. Mr Mike Reddin of the London School of Economics has established by experiment that the multiplicity of these means tests ensures a wide range of variation in the assistance that different local authorities will award to the same individual (Fabian Tract 382: *Social Services for All?*).

Local authorities were asked to state the benefits they would grant to a series of hypothetical families, constituted so as to be eligible for all the major means tested services. One such family consisted of a mother and father and four children, all in full-time education, aged 8, 11, 16 and 18. The range of variation (see table) is such that in every case it is entirely possible for a family earning £20 a week to be awarded a more generous allowance than a family with half this income.

Anomalies of this sort are one result of the plethora of means tests; another is the unnecessary administrative effort in applying so unstandardized a system. Perhaps the most serious evil of the situation is that its sheer complexity probably leaves many people in ignorance of the benefits to which they are entitled. Mr Reddin notes that each scheme must be effectively publicized if it is to be fully used, but such publicity is non-existent.

VARIATION IN BENEFITS AWARDED BY LOCAL AUTHORITIES TO FAMILIES WITH FOUR CHILDREN OF SCHOOL AGE

	Annual grant for education of second child	Rent rebate for three- bedroom house	Charge for domestic help for 20 h/week
Family A (income £10/week)	£40 to £115	nil to 84%	nil to £2½
Family B (income £15/week)	nil to £105	nil to 56%	nil to £5
Family C (income £20/week)	nil to £65	nil to 26%	£1½ to £5

In the same publication Mr Peter Kaim-Caudle of the University of Durham calculates the value of aid for each child of parents in various income groups. The length of a child's full-time education is directly proportional to parental income, which means that the better off benefit more from state aid than do the less well off. Throughout each child's period of dependency, Mr Kaim-Caudle estimates, the typical £12 per week family will receive a total of £1,800. Families with incomes of £24, £36 and £72 per week will receive totals of £3,200, £7,000 and £4,400 respectively.

These extraordinary findings will add fuel to the arguments about selectivity in the social services. Memories of the thirties, when a notorious means test was operated, have always counted for a good deal within the British Labour Party; but this evidence gathered by the Fabians is bound to suggest that selectivity is not only wrong but inefficient as well.

Certainly Mr Kenneth Robinson, the Minister of Health, who has been wrestling with the problem of re-imposing prescription charges except for a few favoured categories of patient, will confirm that arrangements of this kind are in practice very hard to operate.

Peter Kaim-Caudle also argues that the effect of selectivity is to reduce incentives for low wage earners even more substantially than progressive taxation policies do for the salary earner. He points out that an average married couple with two children lose 3s. 4d. rent rebate for every £1 by which their income rises between £16 and £20. In addition, the same family may lose 5s. rates rebate for every £1 increase in wages, and when earnings exceed £15 10s. their children lose their free school meals. The increase in graduated pension contribution is added to this. For an earnings increase from £15 to £18, the family lose 15s. worth of school meals, 13s. 4d. in rent rebate, 15s. in rate rebate, and 2s. 10d. in graduated pension contribution. From the extra 60s. a week, 46s. 2d. is therefore swallowed up, equivalent to 15s. 4d. in the pound.

This, no doubt, is an extreme example, but it does illustrate that selectivity is a two-edged weapon, to be used with great caution, if at all. As Mr Kaim-Caudle concludes, the discouragement for the low wage earner by loss of benefit is almost certainly greater than it is for the middle class executive.

Examinations for Programmers

THE case of the private computer schools was aired in the House of Commons last Friday, May 31. It was clear that the Minister of State for the Department of Education and Science, Mrs Shirley Williams, was fully aware of the disturbing state of affairs in some schools. Mrs Williams, in fact, conceded a great deal of the case. Replying to a debate begun by Mr John Hunt (MP for Bromley), Mrs Williams said that the "aptitude tests offered to people who wish to attend private computer schools are in many cases worthless as any effective form of selection". She went on to say that "the courses in many cases, although not in all, do not lead to recognized national examination standards, and in some cases, although students may take such an examination, the syllabus they followed gives little chance of their getting satisfactorily through it". A number of schools are tempted to accept unsatisfactory students because of the "large sums of money spent"—some schools' fees were as high as £150 for a six-week course.

It was made clear in the debate that there is little that the department could do to prevent students applying to unsatisfactory schools, although it could encourage schools to apply to the department for recognition as "efficient". The department could, however, publicize the merits of other alternative courses. A new booklet published jointly by the department and the Central Office of Information gives guidance to students about recognized training courses, and details of examinations set and administered by bodies like the City and Guilds and the British Computer Society. The British Computer Society has now at last become a professional body with its own examinations. The plan to do so, put forward in June 1967, was approved at the extraordinary general meeting on