

parallel with all this has been an almost complete re-organization of the Academy of Sciences supervising and advisory committee system and its membership. Leadership of the US programme passed from the hands of Roger Revelle of Harvard to Frank Blair of Texas last spring. With the more recent streamlining of the committee structure, the academy's IBP organization looks more like an executive body and less like a gathering of all the worthies in the field.

The \$5 million line item called for in the Federal Government budget for the fiscal year 1970 is expected to get through Congress. It seems modest against the \$200 million originally estimated at the 1967 Congressional hearings for setting up programme operations. The programme itself is now stabilized, with thirteen "integrated" large-scale projects already active, and five more adopted but not yet fully organized. The academy committee has been at pains not to close the door on further promising research subjects which scientists may wish to press, but only on grandiose proposals spanning large areas and many disciplines. Thus it is pointed out that the US IB programme could take on a study of the effects of defoliation in Vietnam (as has been suggested) but it would not rank as a programme in its own right.

The newly formed executive committee for the US IBP is a six-man affair with Frank Blair as chairman. It is supported by two other committees, PROCOM, the Program Coordinating Committee, and INTCOM, the International Coordinating Committee. Altogether the reshuffle has pared the membership of the committee from about 100 people to thirty. In consequence of the rather thorough rethinking and re-organization that have taken place over the past 9 months which have been greatly influenced by the public hearings in Congress, the US IBP goes into 1969 still not rich but in a mildly optimistic frame of mind.

NUTRITION

Eat up your Veg.

LAST week a report was published which suggests that more than £5 million may be lost each year because children are too undernourished to concentrate on their school work. Prepared by Dr G. W. Lynch of the social nutrition unit at Queen Elizabeth College, the report is an extension of earlier work carried out by the unit which indicated that fasting for 18 hours each school day is by no means uncommon among children from low-income homes. (*Medical Officer*, January 24.)

In 1967 the unit estimated that about two thirds of a million children in Britain are likely to be undernourished for reasons of poverty alone. This estimate was based on extracts from various statistics—chiefly from Government surveys of income and expenditure and national food surveys. A second study a year later showed that 25 per cent of a sample of eighty children in the East End of London aged between 10 and 11 regularly went to school without breakfast. Compared with other children, their milk intake, dental health and school records were poor.

A more recent finding reported by Dr Lynch is that among ninety-six working class schoolchildren, only a third had a main-course meal in the evening; ten had sandwiches only and three had nothing. Parents often seem to be under the impression that their children eat

a large lunch at school, but out of seventy-five children, fifty-seven habitually left certain foods, which were almost always vegetables. Thirty-six of these children had parents who never asked them what they had eaten for lunch, and Dr Lynch comes down heavily on the indifference of adults about children's eating habits.

He adds that the adverse effects of poor nutrition on learning ability are well known. Based on expenditure by local education authorities in 1966 on secondary schools, he suggests that if poor nutrition impaired the learning ability of one in four schoolchildren by as little as 25 per cent and for only one-quarter of a school day, a loss of more than £5 million would be involved—£1 million more than the Government's estimated saving in stopping free milk for secondary schoolchildren.

Dr Lynch's samples are admittedly small and his results do rely rather heavily on the assumption that the children are telling the truth. Nevertheless, his findings are unlikely to whip up much support for the Government's decision to end next April the scheme by which free school meals are provided for the fourth and subsequent children. As a next step, Dr Lynch says that the aim is to launch a national survey covering a wider cross-section of the population.

INDUSTRIAL RESEARCH

Tax against Innovation

THE view that industrial innovation in Britain is hampered by the prevailing system of taxation is put forward by Dr Gordon Fryers, managing director of Bayer Products, in one of three contributions to a symposium, *Innovation and Profitability*, published by the Science of Science Foundation at five shillings. The other contributions to the symposium, by Mr Herbert Hollomon, lately Assistant Secretary for Commerce in the United States, and Mr P. G. Peterson, chairman of Bell and Howell, have previously appeared in printed form. Dr Fryers's contribution to the symposium, which is intended as background material for a meeting to be held later in the year, was first presented in 1968 to a private meeting of the Science of Science Foundation.

The case for believing that the British system of taxation acts as a brake on new developments has often been made, but Dr Fryers has taken the trouble to construct some numerical comparisons of the profitability of two kinds of enterprises—those which innovate and those which are content to sell what they have always produced. One of his illustrations is that of a hypothetical company which is able to sell a new product at prices 80 per cent greater than those obtained for equivalent products by an older company. The nub of his argument is that the extra costs of research, promotion and manufacture will yield a pre-tax profit of only 19 per cent, compared with the figure of 15 per cent which, Dr Fryers says, is more or less representative of the profitability of companies in the United States in somewhat static phases of their history. With British corporation tax at 42.5 per cent, Dr Fryers says that an innovative company seeking to distribute half its profit (after tax) will be left with just over 5 per cent of its turnover to invest in expansion. It is only natural, in those circumstances, that

growth should be slow. What Dr Fryers' critics will want to know is whether even a thoroughly innovative company can hope to spend some 25 per cent of its turnover on research and promotion and still hope to win profit to finance rapid growth from even a liberal taxation system. Undoubtedly there is still a great deal to be said about the link between profitability and innovation, but the iniquities of systems of taxation may be less to blame than the indifference of shareholders to the prizes which can be won by successful innovation.

INSTITUTIONS

Modicum of Unity

SIXTY thousand British scientists, all of them qualified and fully paid up members of their professional institutions, now have a new voice raised in their defence. The five bodies to which they belong announced last week that they have agreed to form the Council of Science and Technology Institutes, which will do for the scientists roughly what the Council of Engineering Institutions does for the engineers. The Institute of Biology, the Royal Institute of Chemistry, the Institute of Mathematics and its Applications, the Institution of Metallurgists, and the Institute of Physics and the Physical Society are the founder members of CSTI, which comes into being formally on February 1. There is in principle no reason why other institutions should not join it, but CSTI says that membership will be confined to institutions which require a degree or equivalent as a standard for full membership, and which cover general fields of science or technology rather than a particular industry.

The CSTI has given itself a number of objectives. One of the things it takes most seriously is the job of improving the image of science among the young, although there seems to be no immediate notion of the way this can be done. It will also act as something of a pressure group for the interests of scientists, when the five institutions have a common view to present; this function is likely to find its greatest usefulness in salary discussions, though it may also be used in the general run of science policy issues. More humdrum activities will include provision of joint services, collection of information and coordination on matters such as the description of qualifications and educational policy.

The new body does not see itself as a rival to the Royal Society—indeed, as is customary on these occasions, it believes that its activities will be complementary. Others are entitled to take a different view, and some will feel that in attempting to represent the interests of all scientists more clearly, the CSTI will be doing what the Royal Society should have been doing long ago. How effective the representation is likely to be will depend on how often the five institutions can agree on policy, which may not, perhaps, be often enough.

The five institutions already have some collaborative ventures under way. One is the Scientists' Appointments Service, an attempt to persuade British scientists to come back from the United States. There are plans for extending this service; one possibility is that the CSTI will run charter flights back from the United States, loaded with British scientists bound for interviews. At the moment, one of the drawbacks of the

service is that interviewing can only be done if the British company can be persuaded to pay fares. (Although fares would represent a small proportion of the cost of recruitment, companies seem oddly reluctant to pay them.) The CSTI also inherits joint work which has so far been done on an *ad hoc* basis, principally concerned with NHC examinations, and a scientists' salary review.

ROYAL SOCIETY

Units

METRICATION is one of the few issues of public policy in which the Royal Society has recently been taking an active interest. Since 1967 it has convened two conferences to discuss the new SI units with school teachers and, as part of its campaign, is producing two pamphlets on the new units as guides for primary and secondary school teachers. The first of these, *Metrication in Secondary Education*, has now been published (Royal Society, £2 per 100).

This document has a complicated origin. To begin with, the Royal Society produced a single pamphlet designed for school teachers at all levels. At the meeting with teachers in March 1968, this was criticized for its unleavened style, and it was decided to publish two separate pamphlets—one for primary and the other for secondary schools. In the event, the society produced two drafts for the conference with teachers held last September. Both looked like style books for a learned journal, but the conference approved the secondary school pamphlet, which is now published. In an unremarkable way, it lists the six basic SI units and the accepted derived units with their symbols, and will no doubt be a useful, although dull, guide for the teacher and teenager.

The draft pamphlet for primary schools, a watered down version of its elder brother, was criticized in September as too stodgy and lacking flair. Teachers at that conference pleaded for a bright eye-catching paper that people used to primary school texts and children would read. The revised version is due by the early summer, and all kinds of people will be looking out for it.

TRACTION

Slow Start for Electric Cars

A SURVEY of the prospects for electric cars in the United States, commissioned by the Department of Health, Education and Welfare, reaches unsentimental conclusions. "It seems it can be done", the writers of the report conclude, "but a vast amount of further technical effort is called for if the large scale use of electric vehicles is to become a reality even twenty years from now". In particular, the report calls for "a major and sustained effort in battery development", with a coordinated research programme under Federal sponsorship. The report was prepared for HEW by J. H. B. George, L. J. Stratton and R. G. Acton of Arthur D. Little.

The report considers six types of vehicle, all of which make different demands on energy supply and power plant. The most demanding of the six, unfortunately, is also the commonest: the family car, which makes up 80 per cent of all the vehicles in the United States. Only one power source, the high temperature alkali/