

international financial responsibilities that its financial strength thrusts on it.

IMF is a remarkable institution, designed towards the end of the Second World War as an international bank, a lender of the last resort. The principle is that the fund's resources are provided by governments, which alone are entitled to borrow from the fund. (There is no physical transfer of resources, but only a collection of pieces of paper on which governments agree to contribute in fixed proportions whenever IMF has to make a substantial loan.) For most of the post-war period, the fund's resources have been used to help governments of industrialized countries out of financial difficulties — Britain, for example, has been a frequent borrower. Since 1974, however, the fund has had a wider role to play in helping poor countries lacking oil to stay afloat. In concert with the commercial banks, IMF in the past decade has played a central part in the recycling of the financial surpluses of the oil-exporting states, borrowing from the oil producers and lending on to their potential customers. The trouble is that the flaw in these arrangements has come to the surface. Poor countries that have imported oil with borrowed funds are saddled with a load of debt which they cannot hope quickly to repay.

Except in the US Congress, the seriousness of the problems thus created has been widely appreciated. Three years ago, for example, the Brandt Commission on the plight of the developing countries of the world, argued that only a substantial increase of IMF's capacity to lend to governments in trouble could prevent a further impoverishment of the poorest countries of the world. The objective was not to provide them with further gifts of cash or in kind, but simply with loans that would give them a breathing space and a chance to put their financial affairs in order. In the event, the members of IMF have responded only cautiously to this obvious need. Earlier this year, they decided not to double IMF's capacity to lend, but merely to increase it by a half. For the United States, the largest member of the fund, the extra hypothetical contribution to the fund amounts to \$18,700 million. The Congress is unable to agree that such a sum should be made available in an emergency, and this week's meeting will have broken up long before the issue is decided, one way or the other.

Why should such an obvious need be so casually denied? The arguments are several, and mostly based on misconceptions. The most glaring of these seems to be the persisting confusion that increasing the resources of IMF is tantamount to giving away the sum of money concerned. In reality, however, what is required of the United States is merely the equivalent, on an international scale, of an investment in a domestic commercial bank. Another paradoxical argument is that the proposed increase of IMF's lending capacity will eventually be used to enable governments deeply in debt to the international commercial banks to keep up with their repayments, thus saving important parts of the commercial banking system from bankruptcy. It is, however, mystifying that serious politicians should be prepared to contemplate the bankruptcy of governments overseas and of important financial institutions on their doorsteps simply so as to prove to the banks that much of their past lending (often wished on them by governments) has been unwise. The consequences of that could be the collapse of the international monetary system, and the disruption that would follow everywhere. □

## An education crisis

### *US high schools are not responding to treatment.*

WHAT is to be done about public high-school education in the United States? In the air of crisis that has grown up since the appearance last April of the report *A Nation at Risk* from the Commission on Education, only one thing has become clear: teachers' salaries must be increased if well-qualified recruits are to enter the profession — and those now in post persuaded to stay (see *Nature* 25 August p.671). The point is freshly documented in a report published recently by the Carnegie Endowment for the Advancement of Teaching (*The Condition of Teaching — a State*

*by State Analysis*). Among other things, the report shows how great is the variation of teachers' pay from one state to another (an average of \$33,000 a year in Alaska, a mere \$14,000 in Mississippi), how rapid has been the flight of graduates from careers as teachers and how quickly the drift away from the schools is growing. But more pay is merely a necessary condition for preventing further deterioration in the high school and may never materialize if the central government continues to insist that the states must find the extra money from their own resources. In the circumstances, what conditions would have to be fulfilled if a lasting improvement of high-school education were to be engineered?

The obvious temptation is to go back to the 1950s, when the late Jerrold R. Zacharias was able confidently to call for a "commitment of the American scientific community to enlarge its presence in the classroom". For a time, it seemed as if Zacharias's crusade would succeed. A small army of professional scientists, mostly academics, was indeed drawn into the hugely entertaining process of devising new courses and experiments for high schools. Curriculum development spread from physics to chemistry and biology, while what is still quaintly called the "new" mathematics became firmly established in the schools. Throughout the 1960s, it seemed as if the scientific community was indeed prepared to keep the promise for which Zacharias asked. But then (in 1970) the funds for curriculum development began to shrink — and the outside helpers began to melt away.

Now, with hindsight, it is strange how little tangible evidence remains of that period of great excitement. No doubt confident teachers in the high schools teach more authoritatively than they would otherwise have done, while there has been a great boom in the teaching of biology. But high-school courses in physics, for example, are no more popular now than they were before the sputniks appeared in the sky. Opportunities for teachers of science to improve their skills are far too few. And, with honourable individual exceptions, the links between high-school science and the remainder of the scientific profession have withered away. The problems besetting the teaching of science in US schools are neither an exception (see p.350 for Soviet problems) nor the rule; in Britain, for example, the numbers of students opting for science courses in secondary schools are growing steadily, performance in school-leaving examinations is improving and there may just be enough momentum in the system to ensure that these tendencies continue.

Naturally enough, professional societies in the United States are alarmed at what has happened. The American Institute of Physics has filled the current issue of its house-journal *Physics Today* with a series of contributions designed to demonstrate that physics should be the cornerstone of science education, that physics teachers are too badly paid, that recruitment must be substantially increased and that industrial corporations have an important part to play in revivifying the teaching of science at high-school level, and that it would be possible for people who have retired as active physicists to help out at neighbouring high-schools to everybody's advantage. But if there are resources that might be recruited to the schools, there are probably activities other than the teaching of physics in which they could be profitably employed. Mathematics is a greater need, so too is language learning.

What this implies is that it may be necessary, in a large proportion of high-schools in the United States, to prepare young people for a lifetime in a technical society without being able to offer them an adequate understanding of it. That is an alarming but not disastrous prospect. Mathematics and language are at least the means by which high-school graduates can hope to find out by their own wits what the modern world is like. And that is why, as different school systems in the United States work out their individual responses to the cries of crisis from the centre, they should be dissuaded from solutions of what seems to be the problem which are altogether too literal. It is true that technical skills will be even more important in the future than they are at present, but it does not follow that they should or even can be taught effectively without a thorough foundation of even older skills. □