peptides, they were bought commercially, so no personal acknowledgment was required, but it is customary to indicate the source of such materials so that others can replicate the experiment. The Scripps group in their article leave the impression that synthesis of the peptides—not a negligible skill—was performed in-house: "We chemically synthesized part of the R protein," they say, whereas in fact a chemist at Peninsula Laboratories did so.

The Scripps group did offer Doolittle a coauthorship on their paper, but emphasize that they did so only on account of the computer search he undertook. They did not tell him the paper described use of the synthetic antigen method, or show him a copy of the manuscript. Doolittle declined the offer, correctly supposing it was just the computer search that they wished to recognize. Whether they should have acknowledged the conversation about Walter's work is a question that depends in part on how much help the information was to them. In favor of an acknowledgment not being necessary is the fact that the information was volunteered, not solicited.

"We think we are fairly generous acknowledgers," comments Lerner. "We are not going to thank Doolittle for an idea he didn't give us. Verma has been abundantly acknowledged—he is a coauthor on two of our papers even though all he did was provide us with two clones. As for the synthetic antigens, peptides can now be synthesized by machine. We designed those peptides and synthesized them in every way except for doing what the machine did."

By not telling Doolittle of their own approach, however, the Scripps group gained an advantage which Doolittle sees as unfair. From that moment, as he puts it, "These people knew they were in a horse race and I didn't. Wherever the idea came from, they knew we would be publishing soon and because of that, their work went astonishingly fast. That was the other thing that gave me pause—how could they have done the work so quickly? As a result, it was very hasty work experimentally, and they got the wrong answer."

Lerner sees nothing remarkable in the speed with which his experiment was conducted. But it does so happen that the experiment is thought by some virologists to be incorrect, at least in its major premise that the R protein of Moloney virus is a new gene product consisting of some 96 amino acid units. "Lerner didn't find anything new; there is no R protein," says Oroszlan. According to

(*Continued on page 628*)

AID Science Funds Emerge in New Guise

Two years ago Congress voted to establish an Institute for Scientific and Technological Cooperation (ISTC) to foster technological links between the United States and developing countries. But the institute, which was enthusiastically endorsed by prominent members of the scientific establishment, was promptly killed when the Senate refused to appropriate any money for it. Recently, however, elements of ISTC have been resurrected in new guises.

A reorganization under way in the Agency for International Development (AID) will create a new high-level Bureau for Science and Technology, which will administer AID grants to universities in the United States and abroad. It will also be the focal point for coordinating and supporting AID's research and development activities.

The director of the new bureau will be none other than Nyle Brady, the man who was chosen to head ISTC before it foundered in the Senate. Brady, whose nomination is now pending before the Senate, was formerly director of the International Rice Research Institute, the Philippines-based research center that spearheaded the development of high-yielding varieties of rice.

Aficionados of the workings of the foreign aid bureaucracy point out that Brady will rank above other AID bureau chiefs, for he is the only one to hold the title of senior associate administrator.

Another direct descendant of the ISTC proposal is an unprecedented arrangement under which the National Academy of Sciences will receive a $36 million grant from AID to support science and technology in developing countries. About half the grant, which will extend over a 5-year period, will be used to fund research and development projects in developing countries. The arrangement was finalized last January. Funds for the grant are coming from the office of the science adviser to the administrator of AID. When Congress decided not to fund ISTC, it added some $12 million a year to AID's budget for science and technology and gave the science adviser discretion over how the additional money should be spent. The grant to the Academy will account for the bulk of this new fund.

The Academy's program will be conducted by the Board on Science and Technology for International Development (BOSTID). According to John Hurley, BOSTID's deputy director, the funds will be used to support research and development in such areas as nontraditional food crops and fast-growing tree species. BOSTID itself has expressed the need for such studies in past reports to AID.

The grant represents a major new departure for the Academy, and the arrangement was agreed to only after considerable internal discussion in the governing council. For the first time the Academy will be taking on responsibility for managing a large government program, thereby relinquishing some of its vaunted independence from the federal bureaucracy.

—Colin Norman

Triage Applied to British Universities

British universities are digesting the bad news about government funding over the next 3 years. The universities, which depend on the treasury for the bulk of their budgets, face cuts of upwards of 11 percent in operating funds by the 1983–1984 academic year and enrollment reductions of 3 to 5 percent. An estimated 3000 academics could get the sack. Although budgets at all 47 universities will be reduced, the pain will be shared unevenly. Ten institutions face relatively slight cuts. At the other end of the scale, a luckless five will suffer reductions of from 17 to 27.5 percent in annual funding. Most are scheduled for cuts at more or less the average 11-plus percent.

While the universities are publicly financed, the distribution of funds is made by the University Grants Committee (UGC), a peculiarly British institution originally designed to bolster university autonomy. The 20 members of the committee, most of them academics, are appointed by the minister of education. The UGC is technically an advisory committee, but its advice is always followed. Its deliberations are not public, and its members

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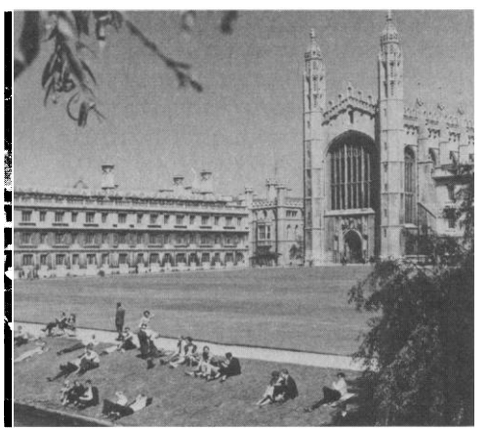
are unfailingly discreet about committee matters.

During the 1960's, the UGC stirred little controversy as it was able to hand out funds fairly freehandedly to an expanding university system. As budgets tightened in the 1970's, the



UGC generally followed a policy of fair if smaller shares for all. The present necessity of making painful choices was forced by Britain's economic woes and the Thatcher government's broad cuts in public spending. An impending decline in the university-age population resulted in calls for contraction of the system. It fell to the UGC to orchestrate the recessional.

The committee in early July sent out a letter announcing in round figures what each university can expect but, true to tradition, left it to individual institutions to determine how to apply the cuts. To each, however, UGC offered guidance on what programs should be cut, curtailed, or expanded. Science and engineering got favored treatment; in general, the more applied the discipline, the better. In biological sciences, for example, boosts were suggested for genetic engineering, and cuts for ecology. (Research is funded not by the UGC but by five research councils.)

Among the institutions that got off relatively lightly were Cambridge, Oxford, and Edinburgh. Consigned to middling misery with the majority was the sprawling University of London, apparently in part because support for the large number of foreign students there will not be forthcoming.

The big losers were Salford, Aston, Bradford, Keele, and the University of Manchester Institute of Science and Technology (UMIST). Mutterings of elitist bias were heard since these are new universities that typically evolved from technical schools. Aston and Salford may have suffered from being too close to other universities in Birmingham and Manchester, respectively. But their defenders point out that, at a time when the British are lamenting their own technological laggardness and high unemployment, Aston and Salford have superior records of placing graduates in jobs and of excellent relations with industry.

—John Walsh

Innovation Act After the Fall

The Reagan Administration is scornful of the idea that direct federal action can improve the innovation process in industry and has demonstrated its attitude by vigorously pruning funds for such efforts. When the House Science and Technology subcommittee on science, research, and technology held 3 days of hearings recently on the subject, therefore, the proceedings had something of the air of an inquest. But Administration witnesses insisted that they concur with the aims of such programs while rejecting their approach.

The focus of the hearings was the Stevenson-Wydler Technology Innovation Act of 1980, which was enacted just before the Reagan election victory transformed the political atmosphere in Washington. The act, named for former Senator Adlai Stevenson and former Representative John W. Wydler, neither of whom sought reelection, provides support for various initiatives to promote innovation and technology transfer. The Department of Commerce and the National Science Foundation were charged with administering programs created by the law. Virtually all funds under the act for Commerce Department programs and much of those for NSF were knocked out by Reagan budget makers. A main target was funds earmarked for Commerce support of centers for industrial technology and other purposes. The Carter budget requested $8.8 million for Stevenson-Wydler-inspired programs in 1982. The Reagan revised budget asks nothing for them and that is what will be available.

The National Science Foundation fared better. The Carter 1982 budget called for a total $45.8 million for a variety of innovation programs; about $17 million survived in the Reagan revision. Included for 1982 is $9.5 million for industry-university cooperative research projects, $1.7 million for a program devoted largely to support of university-industry cooperative research centers (industry is providing more than $2 million for five such centers), and about $1 million for studies on innovation and technology transfer. Some $5 million is also left for a small-business research program that is not part of the Stevenson-Wydler package.

The Administration viewpoint was enunciated by Commerce Deputy Secretary Joseph R. Wright, who argued that technological innovation and the improvement of productivity are the responsibility of the private sector and will prosper when the economic climate is favorable. Wright said that the Administration has a comprehensive plan to restore such a climate. The main points of the plan are reductions in federal expenditures, regulatory reform, stable monetary policy, and tax policies that provide incentives for investment in plant and in more research.

There is, however, a "necessary and proper role" for federal agencies, said Wright. "We believe that this role has less to do with federal selection of specific types of commercial technologies for development and more to do with making sure that we are collecting the right type of pertinent data and properly assessing, analyzing, and communicating it to the private sector."

Wright said that the Commerce is reorganizing its departmental economic and policy development activities. Previously fragmented functions will be placed under the authority of a new, upgraded office, that of Under Secretary for Economic Affairs, so that the Commerce Department can make a greater contribution to fashioning economic policy within the Executive.

Congressional partisans of the recently built, now largely dismantled federal innovation apparatus appeared to take only mild consolation from this promised buildup of data gathering and policy-making capacities.***—John Walsh***