

kind of interdisciplinary research effort geared directly to the solution of such pressing domestic problems as environmental contamination, and the problems of technology assessment (SN: 1/10, p. 44).

What McElroy calls the "new thrust" money will generally be spent under the flag of the new acronym IRRPOS, which is pronounced "urrross" and means Interdisciplinary Research Relevant to Problems of Our Society. He envisions the establishment of teams of physicists, chemists, biologists, social scientists, engineers and technicians, as large as 150 or more, for specific assaults on such questions as nuclear power in the Chesapeake Bay area, the preservation of Lake Tahoe or reversal of the eutrophication of Lake Erie.

"You can't fund this kind of thing with \$50,000 grants," says McElroy. "You've got to put in \$1 million at a time."

And while only \$13 million in future money is specifically earmarked for IRRPOS, McElroy expects substantial amounts of ordinary research project funds and other types of university support money to be diverted to this effort.

Though this is far from the basic research support to which NSF has concentrated in the past, it is possible now because recently enacted legislation (SN: 9/13, p. 201) broadened the Foundation's mandate to include social science and applied research support.

And not only is it important to the Nixon Administration and to the Congress which must act on the NSF authorization, it is, says McElroy, "in response to pressure from the scientific community."

He cites the focus of the last meeting of the American Association for the Advancement of Science (SN: 1/3, p. 5) for his contention that some of the nation's best scientists are turning their attention in these directions, and the Foundation must be responsive.

He sees the need as so pressing that \$6 million of this year's money is being earmarked for the interdisciplinary programs, and already has under consideration some 150 grant applications under the general heading of IRRPOS.

McElroy insists that the "new thrust" programs are not at the expense of support of work in the traditional scientific disciplines. In the Foundation proposals, for instance, may be found additions of \$2.7 million for engineering sciences, \$1.3 million for chemistry, \$1.6 million for biological sciences, \$3.7 million for physics, \$0.8 million for earth sciences and \$0.6 million for oceanographic research. There are also modest increases for such special research programs as the International Biological Program and the Ocean Sediment Coring Program, as

well as a new \$15 million responsibility for the International Decade of Ocean Exploration.

McElroy's agency did find money this year to take over from the Department of Defense operation of the Arecibo Observatory in Puerto Rico, including an estimated \$3.8 million for necessary resurfacing of the bowl. But NSF was unable to find funds to take over from the Atomic Energy Commission support of the Princeton-Pennsylvania Accelerator, which is scheduled to lose its appropriation in fiscal 1972. And other outstanding research going begging at Defense, such as Dr. Herbert Friedman's work in X-ray astronomy, has not yet found an NSF home.

Nevertheless, since, "We, too, had to take note of the President's efforts to hold down spending," says McElroy, the Foundation's traditional role in the support of science education is being heavily slashed.

The Foundation will drop from 6,066 to 4,262 the number of graduate trainees it will support. And though undergraduate education, graduate fellowships and advanced science education programs hold roughly still or grow a trifle, the traineeship cut accounts for the slash in student development funds from \$47.6 million to \$41.2 million.

The Foundation is not wiping out traineeships, says McElroy, but this was considered a good time to hold back on future commitments while other avenues of student support—loans, for instance—are broadly examined higher up in the Administration. And "the effect won't be felt for a year." By then, he hopes, something new may have developed.

In addition, support for summer refresher institutes is off from \$36.5 million to \$20.1 million and the general area of instructional program development is down from \$29.3 million to \$26.8 million with college science improvement programs taking the heaviest cut: down from \$6 million to \$4 million.

Presidential Science Adviser Lee A. DuBridge contends that the tailing off of support for graduate students in NSF is compensated for elsewhere. He points to increases of 13,000 new graduate education grants to be made available through the Government's health agencies and 32,000 more through the Veterans Administration.

And McElroy points out that some of the slack may be taken up by a new program "in the works" to provide education for a new breed of highly trained technologists. This program, as he envisions it, will go well beyond the master's degree level into advanced graduate training, but will be geared to the production of personnel other than research scholars. □

HEALTH

More care than research

President Nixon is asking Congress to approve a \$1.8 billion rise in Federal health spending in fiscal 1971, bringing outlays to a total of \$20.6 billion. While the figure looks impressive, it has not sent scientists dancing in the streets. Most of the money will be eaten up by Medicaid and Medicare programs and even there it will go more to support increasing costs than to expand aid.

In fact, the Nixon Administration plans to introduce legislation in this session of Congress that will actually cut back Federal outlays in some of the most expensive aspects of Medicare and Medicaid—namely, hospitalization. Its intention is to decrease its portion of spending, shared with state treasuries, for long-term stays in nursing homes and mental hospitals. Health, Education and Welfare officials say they wish to discourage use of such facilities for custodial purposes. The revised emphasis could save an estimated \$200 million.

Instead, if the legislation passes, the Government will focus its money on supporting ambulatory care programs, including construction of new facilities, and preventive health measures. One specific target in preventive medicine is rubella or German measles. The Government plans to foot a \$16 million bill for immunization programs.

Excluding Medicare and Medicaid funds, the health budget President Nixon proposes will total about \$9 billion, or \$335 million more than requested in his budget for fiscal 1970, which has yet to win Congressional approval in the wake of last month's veto of the HEW bill (SN: 1/31, p. 121). Distributed over the whole range of Federal health-related programs, from manpower training to health care delivery centers to biomedical research, \$335 million does not go far. Considering inflationary factors, programs singled out for increased funds will be operating generally at a level close to that in 1970, and projects not marked as high priority items will suffer a loss.

The spiraling cost of health care, attributed to new demands on a system deficient in manpower, facilities and efficiency, is one priority item. Programs aimed at defining and testing new approaches for health care delivery are slated to receive \$213 million, an increase of \$29 million from last year. Much of this money is channeled through the National Center for Health Services Research and Development, operating under HEW.

Regional Medical Programs, considered a keystone in efforts to coordinate

health services of medical schools, local hospitals and community programs, will spend \$68 million in 1971. With an increase of \$19 million, projects in 55 national regions will fund advanced education and training for 188,000 doctors and nurses and 21,000 allied health personnel.

Funds for initial training of health personnel, particularly medical students, will increase \$82 million over the 1970 level to \$1 billion. In spite of the boom in Federal support of medicine in the last two decades, the number of new physicians has not risen proportionately to other biomedical scientists. For example, funds poured into biomedical research programs have enabled medical schools to increase their faculties by 422 percent since 1950 to 20,500 persons. The enrollment of medical students, however, has climbed no more than 42 percent in the same period to 37,200 students.

Biomedical research is not only being told that it has taken too much talent for too long and will have to give some back; it is also being told to clamp down on spending in the laboratory. Money dispersed by the National Institutes of Health is the mainstay of fundamental medical research in the United States. The NIH institutes and divisions that parcel out those funds for biomedical research will get a mere \$38 million boost, and raises will go to only a few selected programs while the rest tighten their belts. The total NIH budget, encompassing research, administrative costs and training programs, will be \$1.5 billion in 1971, up \$103 million.

The chosen programs are those concentrating on what are judged to be high priority health problems and those in which newly acquired data are significant enough to suggest that a breakthrough in disease control is imminent.

■ Evidence that viruses play a role in at least some types of cancer is strong (SN: 10/4, p. 308). Research directed toward study of a ubiquitous particle called the C-type RNA virus, toward herpes simplex viruses and toward attempts to isolate alleged human cancer viruses of all types will take the limelight. Funds for special cancer-virus programs will total \$60 million, or 50 percent more than last year.

■ Arteriosclerosis and its most serious manifestation, coronary heart disease, plus chronic lung ailments, including emphysema, will be attacked through research programs totalling \$35 million, a \$20 million boost.

■ Dental researchers predict that new developments implicating particular bacteria as a cause of caries, and work on adhesives to seal off and protect the surface of teeth, may spell the elimination of tooth decay within the decade.

Their work will be supported by \$5 million in new funds for a total of \$6.7 million.

■ Birth control and human development in the early years of life also get priority treatment. Fundamental studies for new approaches to contraception (SN: 6/7, p. 555) will gain \$13 million for a \$28.5 million sum. The relationship between maternal malnutrition and infant malnutrition, and its association with intellectual development,

will be explored in studies costing upwards of \$6.5 million.

The National Institute of Mental Health is also in for increases countered by decreases. For community mental health services, the President is asking \$83 million or \$25 million more than this year. But the overall request for NIMH, which like NIH supports basic research through the grants system, is down \$3.9 million from fiscal 1970 when it had \$350.6 million. □

EDUCATION AND WELFARE

More than defense

For the first time in 20 years, the Federal Government will spend more money on human resources than on national defense. Approximately 41 percent of the total fiscal year 1971 budget will be spent on domestic programs that include education, welfare, manpower and social security, with only 38 percent going to defense, and an additional 21 percent for miscellaneous expenditures. The 41 percent outlay, representing \$81.9 billion is an increase of 21 percent over last year and an increase of 10.8 percent over the estimated 1970 figure.

Spending on programs relating to the poor is up to \$32.9 billion, an increase of 10 percent over the estimated 1970 figure, and represents 16.4 percent of the budget.

Under welfare programs, especially, reform is the watchword. Actually the second biggest category of spending is the Government's catch-all income security plan of \$50.38 billion, up from the estimated 1970 figure of \$48.83 billion. Probably the most significant program here is the Administration's own Family Assistance Plan designed to reform the existing outmoded welfare system by providing both income and work opportunity for the poor. Under the program, a family of four would receive an annual payment of \$1,600, but payment would be reduced as the family's outside income increases. A work-incentive feature that furthers economic self-sufficiency is worked into the program.

Although that program would cost the Government about \$4.4 billion to operate, it is less than the \$7.0 billion figure now being spent on welfare, and the budget allows only \$500 million for it at first since it is expected to take time before the plan will begin operating effectively.

Also under the income security programs are benefit increases for social security and an increase in duration of benefit eligibility for unemployment compensation.

The Office of Economic Opportunity, the instrument that paves the way for

the Government to move into unexplored poverty areas, was allotted \$2.08 billion, an increase of \$132.2 million over its previous budget, even though a number of its programs have been shifted to other departments. The largest increase for OEO is in the research and evaluation area, with the responsibility for finding effective ways of dealing with problems unique to low income persons. After programs coping with these problems are fully developed the Administration plans to shift them to the appropriate department.

The increase in this area represents a figure of \$97.1 million, 201 percent above 1969 and 50 percent above 1970. According to John Wilson, assistant director for Planning, Research, and Evaluation of OEO, the increase is one of the first to bear the imprint of the new Administration.

Through research and evaluation, the Administration also hopes to raise student achievement. In the field of education, a substantial investment of \$10.7 billion, about the largest amount in the nation's history and 5 percent of the entire budget, is being made. However, only a third of this will be handled through the Office of Education. For OE, the budget allows \$3.56 billion, which is 20 percent less than that provided by the HEW appropriations bill recently vetoed by the President. On the other hand, it is a slight increase over the \$3.54 billion 1969 figure.

Here, the most controversial issue is the aid to children in school systems swollen by nearby Federal installations. Although the budget lists no aid for the program, the President promises to fund \$425 million in the near future. This is up from the 1970 figure, but less than requested by Congress.

Mr. Nixon feels that by restructuring the system, he can save the Government \$196 million for fiscal 1970, and \$400 million in the coming year. His idea is to concentrate aid in those areas with real need by granting them more funds than the wealthier local school districts.