ville, Maryland, considers that it would be apparent by now if the virus were harmful to man.

The coleslaw case illustrates the general point that the viruses occur naturally and man is habitually exposed to them. Even if insect viruses do in fact harm man, adding more to the environment will not make much difference. In nature the insect viruses often cause death late in the host's life cycle and after the insects have already caused damage. All that is done by applying a viral insecticide, argue the proponents, is simply to advance the time of the insects' exposure to the virus. (In the example of the cabbage loopers, says Heimpel, use of the virus would lead to fewer, not more, virions in the coleslaw because the loopers would be killed younger and the young caterpillars shed less virus than the older ones.)

An important consideration is the extent to which insect viruses can cross to forms of life other than insects. Some groups of insect viruses resemble viruses known to infect animals and plants, but the two groups which show the most promise as pesticides, the nuclear polyhedrosis viruses and the granulosis viruses, seem to be entirely restricted to insects. According to the report* issued by the WHO experts, there is little or no direct evidence that any of the insect viruses can replicate in vertebrates or in vertebrate cell cultures. One exception is a Japanese experiment—never confirmed—indicating that the DNA from the polyhedrosis virus of the silkworm can infect human amnion cells.

The virus now nearing registration, the cotton bollworm nuclear polyhedrosis virus, has passed a series of safety tests, including attempts to infect animals such as rhesus monkeys and tissue culture studies in human and other cells. The possibility that insect viruses may cause long term effects in man such as cancer or birth defects is very difficult to test. According to the WHO report, the importance of the problem is "greatly minimized" if it can be shown that the virus in question cannot multiply in human cells at normal body temperature and that the nucleic acid of the virus cannot infect human cells.

Probably the chief theoretical hazard presented by insect viruses is that, although they do seem to attack only insect cells, the molecular basis for this specificity is quite unknown. "Unless we have a grasp of the basic issues of why the viruses are specific, there will always be questions that are unanswerable," says one biologist who, because he has not made a thorough

Briefing

Congress Shifts RANN's Priorities

Congress has passed the authorization bill for fiscal 1974 for the National Science Foundation (NSF). In addition a final appropriation report has been agreed to in substance and will be passed when Congress reconvenes this month. The measures, together, dramatically alter priorities for that agency's most visible and politically sensitive program of Research Applied to National Needs (RANN). RANN, according to the appropriation report, will only be able to spend $72 million in fiscal 1974, which is only $2 million more than it had in fiscal 1973, and well below the $91 million authorized. Furthermore, the authorization report states that RANN must spend "no less than" $25 million on energy research and "no less than" $8 million on earthquake research. Thus, the result, according to RANN chief Joel A. Snow, who is now puzzling over how to meet these guidelines, will be to reduce other RANN work—in social systems, environment, advanced technology applications—by 25 percent from the 1973 level to $39 million. "We thought we had the most balanced program possible," he commented. "But obviously when Congress' actions reverse your priorities you look at it pretty hard." He also added that he thought that Congress put these new requirements on his program somewhat inadvertently. "It was the result of having four committees reviewing the budget at once."

Aside from RANN's meager increase, NSF as a whole has been appropriated less money for fiscal 1974 than it was given last year. Congress is scheduled to approve a $566.6 million appropriation with an added $3 million for the special foreign currency program, giving a total of $569.6 million. Last year, NSF was appropriated a total of $645.7 million, which included $7 million in special foreign currencies.

Nevertheless, NSF administrators are saying that although they've been appropriated less money, they may end up spending more in fiscal 1974 than in fiscal 1973. Last year, during its impoundment bonanza, the Office of Management and Budget (OMB) withheld $60.4 million of the sum Congress appropriated for NSF. If OMB permits these holdover funds to be spent during fiscal 1974, NSF could have at its disposal as much as $630.3 million. However, since no major anti-impoundment law has passed Congress, OMB might well go on withholding funds this year too.

NSF's authorization report inserted floors or "spending minima" on other programs beside RANN, to insure that whatever else happens, those programs will get some money. Among them is oceanographic ship construction and conversion money, including funds to enable the Antarctic research ship *Eltanin*, which was ordered mothballed last year before completing a circumpolar cruise (*Science*, 16 February), to complete its work. Institutional improvement, graduate student support, and science education improvement programs also received spending minima. The appropriations report specifies a maximum of $5 million for construction of the Very Large Array telescope. The $635.6 million authorization total includes up to $1.6 million for the Director of NSF and his staff to perform the new job of advising the government on science policy, a task NSF officially assumed last 1 July.

Last year, NSF's budget became altered by OMB through impoundment. One anti-impoundment device, called "proportional obligation," initiated by the House Committee on Science and Astronautics, was struck from the final NSF measure. Nonetheless, Congress is urged in the report to continue to study anti-impoundment measures.—D.S.

* "Considerations on the Use of Viruses for the Control of Insect Pests and Disease Vectors" (World Health Organization, 1972), described by WHO as "not a publication."