

compensate for the loss, more basic questions involving the nature and future of the unmanned missions were being raised.

**Only one spacecraft**, not two, is being built for the Mariner Mercury-Venus flybys in 1973. This is largely due to financial limitations, although recommendations to NASA have been made that duplicate missions not be pursued unless the two craft perform different functions.

The other alternative to insuring success of a given mission would be to build the unmanned spacecraft as delicately as manned spacecraft are built—with redundant systems in case of failure. In space jargon this is called “man-rating” a vehicle. In addition to larger boosters needed for the weight of duplicate systems, however, such a procedure requires much more time and money. “Whether this is a wise thing to do,” says Dr. James C. Fletcher, the new Administrator for NASA, “involves making a trade-off between that and the money that you lose from a failure.” Mariners 1 and 3 failed as did two of the seven Surveyors. All five lunar orbiters, however, were successful. □

When the manned space shuttle is built, it would carry craft such as the Mars orbiter to earth orbit where the craft would then propel itself on to the planets. Unmanned launch failures might then be a thing of the past.

#### NSF BUDGET

### RANN gets rundown

The National Science Foundation's proposed budget for fiscal 1972 not only provided more total funds for the agency but also called for a certain shift in priorities (SN: 2/6/71, p. 94). Apparently in response to a growing body of opinion that scientific research should be directed toward solution of current social, environmental and health problems, NSF proposed a substantial increase in its support of applied research projects. The increase came at the expense of direct student and postdoctoral support and institutional science programs.

**The total budgeted** for national and special research programs, \$166.6 million, was double the 1971 amount. Of this, \$81 million came under the heading of Research Applied to National Needs (RANN), the Foundation's new program for the funding of applied research in such fields as earthquake engineering, enzyme technology, energy resources and weather modification. At the same time, institutional support for science was cut from \$34.5 million to \$12 million and science education support, including student fellowships and traineeships, was cut from \$100.6 million to \$77.3 million.

The House Committee on Science and Astronautics, the first of the four Congressional committees that must screen the NSF budget, has now rearranged the priorities, shifting some budgetary support back to educational and institutional grants. The over-all budget total of \$622 million remains unchanged, but the committee has cut RANN to the tune of \$30.6 million and shaved off \$11.7 million worth of scientific research project support. The money was redistributed, with an additional \$22 million for science education support, \$16.8 million for institutional support for science and \$3.5 million for specialized research facilities and equipment.

**There were** two basic reasons for the shuffle in funds. On the one hand, the committee apparently felt that, for an experimental program, RANN was expanding too rapidly. Dr. Philip Handler, president of the National Academy of Sciences and a member of the National Science Board, told the committee during hearings that he viewed RANN as “a large experiment,” and contended that its predecessor, Interdisciplinary Research Relevant to Problems of Society (IRRPOS) had been none too successful. “Today, one cannot make any great claims that it has really solved a major problem which is pressing on our society.”

On the other hand, there was a great deal of dissatisfaction with the cuts in educational support. Congressmen had received numerous complaints from the educational community and the general public. In fact, one committee spokesman said practically everyone was unhappy with the NSF budget. “The only one satisfied with it was the NSF.”

**In making** its budget proposal NSF emphasized the importance of increasing the understanding of society's problems and played down the educational and institutional cuts. The reallocation in funds, the agency argued, would not really result in an actual reduction in expenditures for science education and institutional programs. The increase in research projects would, according to NSF head Dr. William D. McElroy, “provide for the training of many science and engineering graduate students through employment on research projects.” In addition, he said, NSF research programs would be conducted primarily through colleges and universities.

From the committee's point of view, there was also a question of labeling and of maintaining Congressional control over expenditures. Though the NSF plan would probably provide some support for students, there was no real assurance of how much. “It's hard for Congress to control how money is spent unless it's labeled properly,” explained a committee spokesman. □

#### HEROIN ADDICTION

### Finding partial solutions



Dept. of Justice

*Complete withdrawal won't be easy.*

The horrors of heroin addiction are becoming increasingly evident as the problem takes on epidemic proportions in its rapid spread throughout the United States. Formerly clean cities in the Southeast and Midwest and affluent suburbs everywhere are feeling the effects. Dr. Bertram S. Brown, director of the National Institute of Mental Health, told a Senate subcommittee on narcotics last week that there are not 125,000 but 250,000 heroin addicts in the country. Some experts even double this figure.

The physical and psychological effects of addiction and the cost of supporting the habit make the heroin problem even more severe than other forms of drug abuse. The user becomes hooked. He develops a tolerance to the junk and needs increasing amounts until the drug becomes the center of his life. Apathy and reduction of hunger physically deplete him, and pneumonia, tuberculosis and venereal disease are easily contracted. Bad drugs or unsterile needles cause hepatitis and other blood infections. In 1969 in New York City 900 people died of overdoses of heroin. Of these, 200 were teenagers.

**Psychologically** the junkie is worthless to himself and to society. He can't stay in school or hold down a job. Preoccupation with obtaining drugs keeps him in constant trouble with his family and the law. New York City addicts had to steal \$10 billion last year to support their habits.

This personal and sociological decay lend urgency to the problem and have forced authorities into half-way solutions. Of these, methadone treatment is the most successful (SN: 4/12/69, p. 364). Methadone, an inexpensive synthetic material similar to heroin, is used to help addicts detoxify.