

funding and now dropped (SN:9/2/-67, p. 225).

Notable among these are radio astronomy projects at Cornell University, which operates the 1,000-foot radio telescope at Arecibo in Puerto Rico, and others at the California Institute of Technology, the University of California in Berkeley, and the Universities of Michigan and Illinois.

Although the cuts for the Arecibo installation are expected to be more damaging than for the University of Illinois, the latter serves as an example of the predicament.

Dr. George C. McVittie, British-born head of the astronomy department that operates the 400-foot radio telescope near the campus, last January requested NSF support for its radio sky survey and other programs. Now he finds that not only will he be lucky to get some one-fourth of the \$219,000 required to pay staff salaries for a year, but that he will owe the university \$40,000 by the end of June.

**The degree** of Congressional disenchantment with science can be measured by the blow dealt to the National Institutes of Health, which traditionally has been given more than it asks.

This year the budget called for about \$1.13 billion, an increase of \$76 million in new obligational authority, which would have been only enough to pay for the rising cost of living. The House Appropriations Committee, however, cut out about \$38 million, pushing the suggested appropriation below the prior year's appropriation for the first time in the agency's history.

The committee acknowledged in recommending the cut that NIH will have to reduce the "pace and scope" of its research grants. Most of the cut, \$32.6 million comes from grant funds.

**Much of the** Department of Defense's expenditures is not included in the approximately \$40 billion piece of the budget that is considered controllable and therefore subject to cutting. Among controllable Defense expenditures, however, the Sentinel antiballistic missile defense system survived a first hurdle with Senate approval of \$227.3 million for land acquisition and construction.

The Air Force's manned orbiting laboratory, budgeted this year at \$600 million, has been attacked as a duplication of the National Aeronautics and Space Administration's elaborate Apollo Applications Program. The latter was originally budgeted at \$440 million, but has been cut down by Congress to \$253 million. This cut accounts for more than half of the total cut from the original \$4.4 billion NASA budget, which may mean that Congress is going to have little sympathy for space stations, including MOL.

## MEMORIES OF THE STEVENSON

### Explosive ship to test seismic network

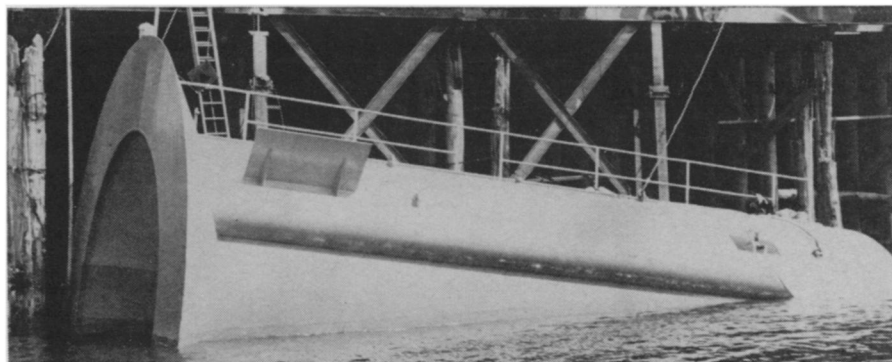
It seemed simple enough. The Advanced Research Projects Agency wanted a big underwater explosion to test its worldwide nuclear-blast-detection network. All the Navy had to do was sail an old liberty ship named the Robert Louis Stevenson, loaded with four million pounds of explosives, out into the North Pacific near the Aleutians, open the seacocks to flood the ship and let nature take over. As the ship sank, pressure fuses set for 4,000 feet would automatically detonate the blast.

**It didn't work** (SN: 10/7/67, p. 349). Instead of sinking like a stone, the Stevenson took so long about it that it drifted off and got lost in a fog-bank. After a month of searching, the Navy finally found its ship, 11 miles away from the intended blast site, sitting bolt upright in 2,800 feet of water, not

zontal towing position into a nose-up attitude that will allow the second tank to sink it both quickly and, more important, straight down. To make sure of where it has gone, a transmitter-equipped buoy will detach itself and bob to the surface, connected to its charge by a thin cable.

Pressure fuses will again be the detonators, since they should pose no problem as long as the object sinks properly at its intended spot. The explosive charge, 250 tons of aluminized ammonium nitrate, will be much smaller than the Stevenson's, largely, according to ARPA, because the Navy was also using the earlier attempt as a way of getting rid of a collection of obsolete bombs, mines and torpedo warheads.

Although the site has been chosen chiefly for its distance from major com-



Portland Oregonian

*Born to sink, the seagoing canned bomb awaits loading at its Vancouver dock.*

nearly enough to trip the fuses. Nervous officials ordered a dive-bombing run, in an effort to set off the explosion by concussion, but two dozen 2,000-pounders raised not a peep. Finally the Navy announced that the fuses had deteriorated from their long immersion, the ship was therefore safe, and the whole affair was being scuttled.

But ARPA still wants to test its network. So, late this summer, it plans to set sail with a strange green and orange vessel whose sole goal is to sink quickly on demand.

**Variously described** as a giant watermelon, thimble and beer can by ARPA and the Illinois Institute of Technology Research Institute, which is building the thing, the unmanned object is 50 feet long, with a diameter of 20 feet expanding outward into a 30-foot-wide skirt. A tugboat will tow it into position, which project officials hope will be the same spot off Amchitka Island where the Stevenson should have gone down.

There a radio signal will (everybody hopes) open the first of two ballast tanks to swing the capsule from its hori-

mercial fishing areas, the State Department plans to notify governments that fish Aleutian waters of the date, time and exact location of the test. Japan has the largest interest in the area, although Korea and Canada may also be concerned. Russia, which sent a trawler and a minesweeper to observe the Stevenson blast, will also be told.

The idea for the watermelon-thimble-beer can began the year before the Stevenson didn't work, so it has not been created simply to do what the liberty ship could not. The Stevenson was used largely because it was convenient and coincided with the Navy's bomb-disposal plans.

**At first**, engineers working on a towable explosives-holder were considering the rubberized fabric bags, shaped like giant sausage skins, which some oil companies were then using to transport and stow petroleum products. Because of various reasons, however, which ARPA will not specify (secrecy suggests that the Stevenson's memory still hurts), they chose the bizarre metal cannister now being constructed in a Vancouver, Wash., shipyard.