

Anticipating the ax



NASA

Dr. Paine: Optimism amid stringency.

As President Nixon and battalions of aides struggle to ready the fiscal 1971 space budget for delivery to Congress, the National Aeronautics and Space Administration is already trimming programs for which money will not be available.

The most dramatic cutback is the slowing down of the Apollo (see page 61) program and elimination of Apollo 20. In addition NASA plans to shut down its Electronics Research Center in Cambridge, Mass., possibly as early as June. Opened in September 1964, ERC is the space agency's youngest center, employing slightly more than 800 people.

The Viking unmanned Mars-landing mission formerly scheduled for 1973 is being delayed until the next favorable launch opportunity, which is not until two years later. And production of the manned space flight program's mighty Saturn 5 booster will be halted indefinitely after number 15 comes off the line this fall. This is the booster presently earmarked for Apollo 19.

The effect of these cutbacks, combined with the need for still more economy, will trim an estimated 50,000 jobs from the agency's in-house, contractor and university work force by the end of 1971, says NASA Administrator Dr. Thomas O. Paine.

Dr. Paine, however, does not sound nearly so dismal a note as did his predecessor, James E. Webb, under similar circumstances. Webb used to predict technological crises, catastrophic unemployment and Russian space spectacles whenever budget cuts were imminent.

Though labeling the forthcoming budget, expected to be slightly more than \$3.6 billion compared with this year's \$3.7 billion, "a fairly stringent reduction" from the agency's desires,

Dr. Paine describes it as "a level that we can still have a first-class program with."

Among the major programs likely to be retained in President Nixon's budget are a pair of Mars orbiters in 1971, Jupiter flybys in 1972 and 1973, a combined Venus-Mercury flyby in 1973 and the Apollo Applications Program's orbiting workshop in 1972. A major effort is scheduled to begin on the planned earth-to-orbit shuttle vehicle, possibly with about \$100 million in fiscal 1971, and a less-advanced study of a permanent space station for the middle or late 1970's.

WORKING NETWORK

Go, and catch a falling star

Five years ago the Smithsonian Astrophysical Observatory set up a network of 16 unmanned camera stations in the Midwest to photograph very bright meteorites and fireballs. This Prairie Network sought to determine the orbits, size and loss of mass of meteorites flaming through the earth's atmosphere, and, it was hoped, assist in recovering some of the objects.

The cameras have caught the flash of many meteorites during that time. But until this month not a single one that had been photographed was later found on the ground.

Then, on Jan. 3 three of the network's stations recorded a bright fireball over wide parts of the Midwest. Analysis of the photographs at SAO's headquarters in Cambridge, Mass., enabled the scientists to pinpoint the probable location of impact to about one square mile. Gunther Schwartz, field manager of the network, set off on a ground search, hindered by a ground-blanketing snowfall that had occurred during the interval.

On his third day in the field, at 2:45 p.m. Jan. 9, he found the meteorite in the snow in the middle of an infrequently traveled country road near Lost City, Okla.

The object, rushed to the Smithsonian Institution in Washington for preliminary study, is a 22-pound bronze meteorite chondrite, a common variety of stony meteorite that constitutes about 35 percent of all meteorite falls recovered.

The scientific significance rests not so much with the object itself as with the quick recovery and the photographic record of its path into the atmosphere. The fast recovery will allow scientists to do radioisotopic analyses of the meteorite's very short-lived isotopes, a fruitful clue to meteorite history usually missing from most objects recovered. Slices were immediately sent to three laboratories for such study.

But the scientists are also excited by

the photographs. On more than 700 occasions pieces of rock and metal seen to fall to earth have been later recovered. But only once before, at Příbram, Czechoslovakia, on April 7, 1959, has a photographed meteorite been recovered.

The latest find, according to the photographs, had an orbit which took it beyond the orbit of Mars and into the asteroid belt. Its orbit is less elliptical than most asteroids.

"This gives us an opportunity to extrapolate back in space," says Roy S. Clarke Jr., associate curator for the division of meteorites of the Smithsonian's National Museum. "This now ties the whole thing up together in a way that's very nice. We have its orbit, a detailed record of its passage through the atmosphere, and we know where it's been in the planetary system." Such information should prove invaluable in interpreting the data derived from the meteorite and fitting it into some scientific perspective useful in better understanding the solar system.

In this sense, the scientists are happy the object is one of the most common types of meteorites rather than an off-beat variety. Anything they learn from it will help cast light on the over-all population of meteorites, generally believed to be small stray asteroids. □

NEW ENGLAND SYSTEM

Watchdog for floods

Not all floods are the same. Floods from melting snow, in the North Central United States, for example, give a fairly clear warning; in New England, flash floods usually hit fast and hard.

Last year the U.S. Weather Bureau computerized its flood-predicting facility and successfully foretold the onset—and the extent—of spring floods in the Midwest (SN: 3/29, p. 302).

As of last week, flood watchers are tackling the more challenging task presented by New England weather, as the U.S. Army Corps of Engineers put into operation, after a year and a half and \$800,000, what it calls "the world's most comprehensive, fully automated" flood alert system. Using a computer and advanced electronics to measure rising water levels and meteorological changes, the system permits the prediction of floods or hurricane tides.

The nerve center for the system as well as New England headquarters for the Corps is at Waltham, Mass. The New England installation is serving as a test bed for later, broader coverage.

"We will observe and evaluate performance of this system with great interest as we consider the installation of similar systems in other regions," says Lieut. Gen. Frederick J. Clarke, chief