

GEOPHYSICS

Both Satellites Needed

See Front Cover

► WHEN THE U. S. earth satellite is launched, it will complement rather than rival its Russian counterpart.

Because the two satellites will be following different orbits, each will be in a position to provide better data on specific studies than the other.

The Red satellite now circling the planet earth is traveling the "Polar" orbit, a highly inclined orbit. The U. S. satellite, scheduled for launching this spring, will follow a much shallower orbit, almost "Equatorial."

This means the Russian satellite is in a better position for cosmic ray studies because it crosses those latitudes where the change in cosmic ray intensity is greater. The Polar route also permits better research on the auroras or "northern lights," because it cuts through the auroral regions.

The U. S. satellite, on the other hand, will be in a far better position to pick up information for geodetic studies, such as the earth's bulge. It also will provide more precise information of the earth's magnetic field during its run around the earth.

Both orbits provide equal opportunity for solar studies.

The choice of orbits by both the Soviet Union and the United States was made more because of geographical reasons.

As long as the Russians wanted to fire their satellite from within Russia, they had to choose a highly inclined orbit. The orbit is always at least the latitude of the launching site.

Planners for Operation Vanguard, the U. S. satellite program, had to be content with the Equatorial orbit when they decided on using Florida as their launching site. This decision was made primarily because Patrick Air Force Base at Cape Canaveral is fairly well equipped to do the job.

In the very early stages of planning the

orbit for the U. S. satellite there was some talk that an Equatorial orbit would be politically more feasible, although less scientifically feasible. It was suggested that a satellite traveling the Equatorial route would be flying over territory where permission could be obtained with little or no difficulty. This consideration, however, did not figure heavily in the final decision.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows the sub-satellite that the U. S. National Advisory Committee for Aeronautics (NACA) is contributing to our satellite program.

The sub-satellite, a 30-inch "balloon" made of a polyester plastic film bonded to aluminum foil, will be used to measure the resistance or drag encountered by the satellite in its travels around the earth. Together with its inflation tank it will weigh 0.69 pound. W. J. O'Sullivan holds the deflated sub-satellite which will be ejected and inflated automatically when it reaches peak altitude. The gas will then be released since it serves only to "iron out" wrinkles in the balloon.

One additional advantage of a Polar route is that it cuts over more land area than the Equatorial orbit, permitting more land-based tracking stations for scientists.

Science News Letter, October 19, 1957

MANPOWER

Manpower Expert Attacks Reports Shortage Ended

► THE GOVERNMENT'S top spokesman on scientific manpower has charged that there is still a serious shortage of scientists and engineers despite "some newspaper reports" to the contrary.

"The scarcity of scientists, engineers and skilled technicians is a very real fact in American life. It will continue to be a national problem for at least another eight

to ten years," Dr. Howard L. Bevis, chairman of the President's Committee on Scientists and Engineers, warned.

Dr. Bevis told the Upper New York-Ontario section of the American Society for Engineering Education that "The nation's scientific and technological manpower is still a precious resource, despite some newspaper reports that we have caught up with the shortage and that there is, in fact, a surplus of engineers."

He claimed the reports have grown out of cutbacks in some defense contracts, chiefly affecting the aviation and electronic industries.

These are "surface ripples in narrow, specialized areas of the economy," he declared.

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