

**Ballast away!**

## BALLOON TO PLAY A SATELLITE ROLE



**A** 12-FOOT spherical balloon has been built to be floated in space by a future Explorer satellite of the U.S. Army.

The aluminum-clad balloon—or subsatellite as it is officially described—would be much larger than scientific satellites now planned, and thus far more visible in space.

Officials of the National Advisory committee for Aeronautics,

which designed and built the subsatellite, estimated that the sphere would be visible to the human eye at dawn and dusk at an altitude of 800 miles, and under optimum conditions as high as 1,600 miles.

The balloon, made of plastic film and aluminum foil, has been designed to provide accurate information on the density of space as it floats at high speeds around the world.

In a collapsed state, the balloon would be carried to orbiting speed and altitude along with the satellite proper. Then it would detach from its satellite and be inflated by a bottle of gas.

**I**N THE near vacuum of space, the balloon would orbit around the world like the instrumented satellite. Because of its light weight, however, the balloon would be highly sensitive to the slight air drag of space, and gradually fall behind the satellite. Studies of the distance between the satellite and sub-satellite would permit accurate measurements of the density of space.

The balloon experiment will be conducted by one of the two—or perhaps three—additional Explorer satellite firings authorized by the Defense Department as a prelude to probes of the moon by space vehicles. The satellites will be part of the International Geophysical Year, which ends in December.

What scientific experiments will be conducted by the additional Explorer satellites is being kept a tight secret by the United States National Committee for the International Geophysical Year. Committee spokesmen have declined to discuss any future satellite experiments on the ground that release of such information would tend to "build up" public hopes, which would be dashed if a launching failed.

**T**HE BALLOON experiment, it was learned, is being prepared for an Explorer satellite scheduled to be launched several months hence. It is hoped that the satellite and its balloon companion can be launched in a generally north-to-south orbit, thus making them visible over much of the United States.

The balloon and its bottle of inflating gas will weigh about 15 pounds. The instrumented payload of the first Explorer satellites weighed 18 pounds. The Army believes, however, that this "payload" can easily be increased by 50 per cent through improvements in the Jupiter-C launching missile.

A similar but much smaller balloon experiment has been prepared by the National Advisory Committee for Aeronautics for one of the satellites to be launched by the Navy's Project Vanguard. The Vanguard subsatellite will be only thirty inches in diameter.

The advisory committee is now studying the feasibility of launching 100-foot inflatable spheres to act as communications relay stations in space.

Meanwhile, Project Vanguard is scheduled to try to launch seven scientific satellites in the remaining months of the International Geophysical Year, with the first expected in mid-April. There is a possibility of an eighth launching.

Vanguard launched a test satellite on March 17.

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