ASTRONAUTICS

"Moons" for Many Nations

Small earth satellites could be launched by other nations not now participating in the satellite race. Money and adequate launching sites are among the chief deterrents.

➤ ANY NATION in the world with a modern jet air force, the money and the desire could launch a baby satellite.

This is the opinion of American scientists who say there is "no hard trick" to putting a satellite weighing a few pounds into orbit.

Within recent weeks some satellite-have-not countries have indicated that they would like to join the select company of the United States and Russia in this field. Namely, Red China said she would launch satellites and England and Canada are talking seriously of doing the same.

These three nations, with or without help from the U. S. or the U.S.S.R., could in all probability launch their own brand of satellite in a year or two. With help, they might be able to do it sooner.

So could France, West Germany, Switzerland, Sweden, Japan and Australia.

All these nations have had some experience with different types of rockets and propulsion systems. Together with information made available by the United States there appears to be no reason why they could not launch an artificial earth satellite weighing upwards of five pounds. That is, the American scientists point out, if they wanted to.

By the same token, almost any nation in the world with jet airplanes could launch a satellite by using a fly-up technique wherein the jet plane substitutes partially for the first stage rocket.

The biggest stumbling blocks for other nations to attempt a satellite launching are money, trained crews, final design work and testing, final hardware development, and testing and launching sites.

Nevertheless, several countries in the world are toying with the idea of launching their own baby moons.

Although Red China, for example, could most certainly launch a satellite with Russian help, there seems to be no reason why she cannot go it alone. Despite the fact that little is known of Red China's rocket developments, it is known that she has highly competent scientists in this area and that Russia has conducted rocket tests in Red China.

England, France and Switzerland, on the other hand, have all produced modest-sized liquid propellant rockets. Japanese scientists, starting from scratch, have produced quite significant findings, using their own high altitude rockets. Australia has a suitable launching site.

When tallied up, it becomes evident that the U. S. and the U.S.S.R. may not be the only satellite-have nations in the world for long.

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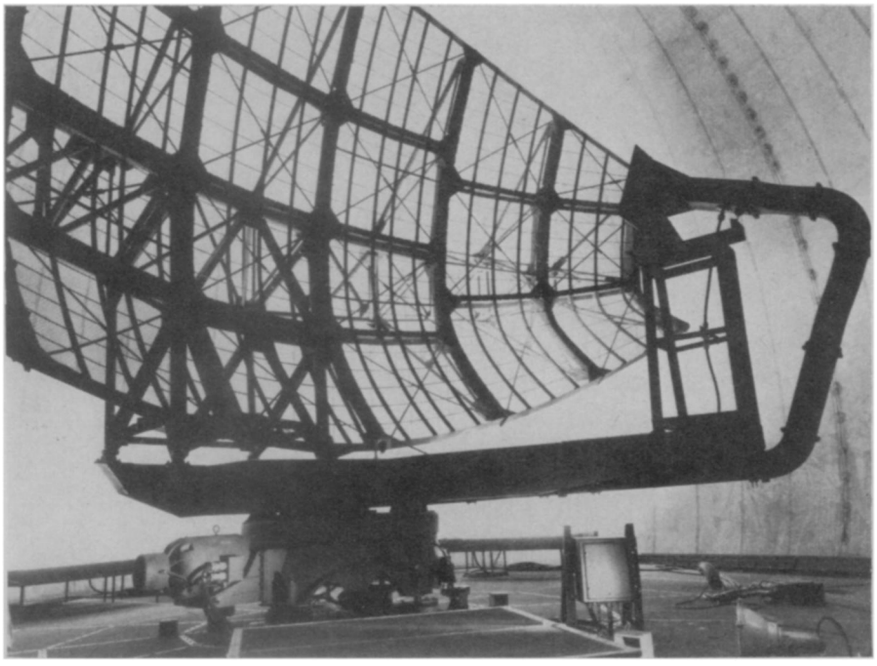

MISSILE MASTER—This advanced long-range search and height-finding surveillance radar, the FPS-33, shown inside the shielded radome, has been installed in the U. S. Army Missile Master system at Fort George G. Meade, Md. A high gain antenna, which increases range coverage by more than 50% is one of the major advancements in the new radar. The new antenna also increases elevation angular coverage reducing the overhead "cone of invisibility." The missile target indicator system provides for increasing target brilliance and decreasing background noise thus helping to reduce operator fatigue.

GEOPHYSICS

U. S. Satellite Scientists Would Invite Others

➤ THE UNITED States might invite foreign scientists to include their experiments in U. S. satellites.

This might be followed by an invitation to foreign scientists to test any scientific rockets or satellites they may develop in their own countries at U. S. launching sites.

Both possibilities are currently being discussed by U. S. scientists who want to maintain the fine degree of international scientific cooperation built up during the International Geophysical Year. Although the IGY officially comes to an end on Dec. 31, 1958, the U. S. has made it known that it will continue to launch artificial earth satellites.

By offering our own satellites and both our know-how and established launching sites to foreign scientists, the U. S. might provide scientists of other nations with an opportunity they do not now have.

Talk among U. S. scientists on the possibility of extending these invitations to foreign scientists centers around the welcome participation of the top people from abroad.

Such a move on the part of the U. S. would also yield dividends in the form of increased scientific understanding about the world around us, these scientists feel.

At present, few countries in the world have the ready-made facilities to carry out satellite experiments of their own. In addition, few have the trained personnel or the necessary funds to even partially duplicate the U. S. satellite launching set-up.

Science News Letter, June 21, 1958

ASTRONOMY

Satellite's Radio Signals Scintillate Like Starlight

➤ THE RADIO signals from U. S. satellites scintillate in the same way that stars twinkle.

An Australian scientist reports on the radio "twinkling" of Explorer I and Vanguard I in *Nature* (June 7).

To confirm that the satellites' radio scintillations were due to effects in the high atmosphere, the twinkling of heavenly sources of radio waves was measured at the same time. "Most of the high values" occurred on the same days, Dr. O. B. Slee of the Radiophysics Laboratory, Commonwealth Scientific and Industrial Research Organization, Sydney, found.

Both fast, irregular fluctuations, identified as scintillations, and an "apparently regular modulation" were recorded as transmitted by the artificial earth satellites.

Science News Letter, June 21, 1958