SPACE

Telstar TV Satellite Launched

Clear scenes of France and England shown on U. S. television sets via the new satellite indicates the feasibility of an orbital communications network.

➤ THE DREAM of global television came closer on July 10 when the first television images were beamed from the United States by way of the Telstar communications satellite to England and France. Pictures were clearly received.

The experimental satellite, a passive one from which the TV signals are bounced earthward, was rocketed into orbit by a Delta vehicle on July 10 from Cape Canaveral. The relay station in orbit, which weighs 170 pounds, was developed by the American Telephone and Telegraph Company. It is the first privately owned satellite to be launched. (See p. 43.)

The Project Telstar cooperative agreement between the National Aeronautics and Space Administration and AT&T provides for:

1. The Bell Telephone Laboratories to design and build Telstar satellites at its own expense, test them according to NASA specifications and deliver them to the launch site at Cape Canaveral. Two launchings and two optional backup launchings are included.

2. AT&T to reimburse NASA for the Delta launch vehicles, launch and tracking services. Cost amounts to approximately $3 million per launch.

3. Bell System engineers and scientists to conduct the communications experiments—television, voice and high-speed data—using the company's ground stations at Andover, Me., and Holmdel, N. J. Results are reported to NASA.

4. NASA to provide Bell Telephone Laboratories with telemetry and spacecraft acquisition information, including data from a radiation experiment aboard the satellite, received by its world-wide satellite instrumentation network. (These stations are located at Blossom Point, Md.; East Grand Forks, Minn.; Ft. Myers, Fla.; College, Alaska; Mojave, Calif.; St. Johns, Newfoundland; Woomera, Australia; Winkfield, England; Johannesburg, South Africa; Antofagasta and Santiago, Chile; Lima, Peru; and Quito, Ecuador).

5. NASA and Bell Telephone Laboratories to analyze the data and all results to be made available by NASA to the world scientific community.

Results of the Telstar experiment will be applied to the overall NASA communication satellite research and development program, the objective of which is to provide the technology necessary to establish an operational system of communication satellites at the earliest possible date.

A program for testing communication satellites is being undertaken by NASA and organizations in the United States, Europe and South America. The AT&T, International Telephone & Telegraph Co., British General Post Office, French National Center for Telecommunication Studies, West German Post Office, Brazilian Department of Posts and Telegraphs, and Telespazio of Italy are providing ground stations and will conduct communications experiments.

The organizations in England, France, Germany, Brazil and Italy are participating on a voluntary basis. Technical agreements were negotiated with NASA. No exchange of funds is involved.

The station at Andover, Me., and those in England, France and Italy were used for transatlantic TV programs. Relay, NASA's active repeater communication satellite, scheduled for launch soon, will also be used.

The British station, located at Goonhilly in southwestern England, is equipped with a steerable parabolic antenna approximately 85 feet in diameter and a "maser" amplifier. The station is also equipped to transmit and receive television and still pictures using British, European and American line standards as well as telephone and data communications. The site was selected to obtain a maximum period of mutual visibility to the United States via the satellites and because it is remote from sources of radio interference.

The French station, located at Pleumeur-Bodou on the Brittany peninsula, is almost identical to the AT&T facility at Andover and is equipped to conduct television, voice and data experiments.

Telespazio plans to construct a large facility at Fucino, about 50 miles northeast of Rome. However, the organization will participate with an interim station this year by receiving voice signals from the satellites with a 30-foot parabolic antenna.

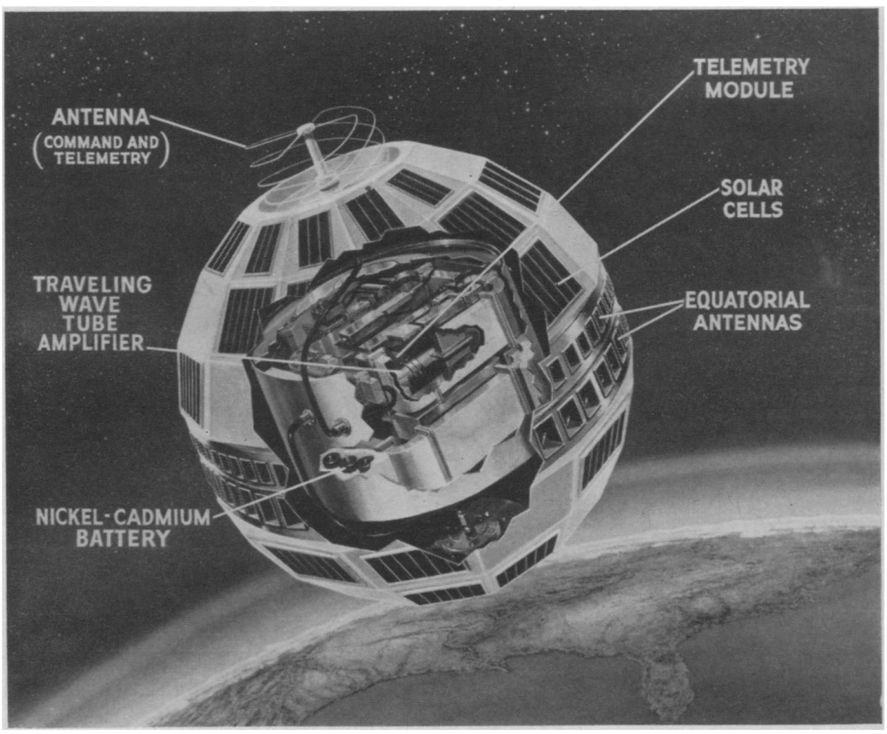
The Deutsche Bundespost, the Post Office of the Federal Republic of Germany, has awarded contracts for construction of a station near Raisting, about 30 miles south of Munich. The wide-band antenna will be a 75-foot diameter parabolic dish with a horn-reflector feed. The performance will be similar to the stations at Andover and Pleumeur-Bodou, France. It is scheduled to be in operation late in 1963.

Voice and data transmissions via Relay will be conducted from the IT&T 40-foot dish at Nutley, N. J., and a 30-foot dish near Rio de Janeiro, in 1962.

NASA has negotiated contractual agreements with the AT&T and the IT&T to conduct the Relay communications tests at their facilities in the United States.

Technical requirements and plans for conducting the experiments are coordinated by a committee whose chairman is Dr. Leonard Jaffe, director of communication systems, NASA.

• Science News Letter, 82:37 July 21, 1962



TELSTAR SATELLITE—This cut-away drawing shows the structure of American Telephone and Telegraph's experimental communications satellite, Telstar.