

SPACE

People May Own Satellite

► COMMUNICATION satellites sending telephone messages and TV across the oceans from people to people could be owned by the people.

Public ownership by subscription has been suggested by General Electric Company for up to 50% of the stock in a new company to be called Communication Satellites, Inc. No more than 10% of this proposed corporation could be owned by any one firm.

Many proposals have been made for operation and ownership of communication satellites. Makers of space vehicles, companies in the electronics field making parts for satellites, the United States Government and the international common carriers, such as American Telephone and Telegraph Company, the International Telephone and Telegraph Corporation and Radio Corporation of America, have been suggested as operators or owners.

The A.T. & T. has at the present time a monopoly on all voice communications going in and out of the U.S. The I.T. & T. has a monopoly on all written data, such as by telegraph, in and out of the country. The RCA has a monopoly on voice communications between foreign countries.

The House Committee on Science and

Astronautics has already held hearings to find out if additional legislation is necessary to deal with the problems of communications satellites.

The National Aeronautics and Space Administration testified on the technical difficulties of putting such satellites into operation. NASA has broad authority in space exploration and has recently given a \$3,000,000 contract to RCA for development of an experimental relay communications satellite to circle the earth at low altitudes.

The Federal Communications Commission, which controls commercial use and ownership of communications, also testified. So did the Office of Civil and Defense Mobilization, which has the responsibility of assigning radio frequencies for Government use.

Other agencies asked to advise the House on further action and problems of the satellites and their uses were the U.S. Information Agency, dealing with the international implications of such a world-wide system, the Defense Department, which is the biggest single user of communications facilities, and the State Department, responsible for U.S. foreign policy.

• Science News Letter, 80:52 July 22, 1961

SPACE

Satellite Tests Silicon

► EXPERIMENTS CARRIED in the recovered capsule of the Discoverer XXVI satellite will show how space affects silicon, which, with oxygen, is sand.

The crystal structure of silicon has been found to change when the non-metallic element is bombarded with protons in space. Since many solar cells powering satellites are made of silicon, it is important to find out how the silicon is damaged.

Discoverer XXVI carried eight chemical elements to be tested in the space environment: silicon, titanium, yttrium, bismuth, magnesium, nickel, iron and lead.

Other scientific experiments in this versatile space package included the study of sources and intensity of radio noise from space, monitoring the angular distribution of cosmic radiation in space, and finding the density of micrometeoroids and ion (charged) particles through erosion of a crystal.

The Discoverer Air Force satellite program was initiated to solve the problems of re-entry into the earth's atmosphere from space. Of the 26 Discoverers so far sent up, 18 went into orbit and 16 carried recoverable capsules, of which six have been recovered.

Ten capsules either took off into space instead of going into orbit or were lost in the ocean.

Several Discoverers have carried and tested devices for the Midas and Samos reconnaissance satellites.

The Discoverer XXVI capsule was recovered in the air northwest of Hawaii by a C-119 plane on July 9 at 10:32 p.m. EDT during its 32nd orbit. It traveled over the poles around the earth every 95 minutes in a path 146 miles away at its closest point and 503 miles up when farthest away.

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TECHNOLOGY

Single Computers May Serve Many Companies

► CURRENT DEVELOPMENTS in computing technology will give rise to a new kind of public utility, a Massachusetts Institute of Technology electrical engineer predicts at Cambridge, Mass.

Dr. John McCarthy and others at MIT are working now on methods of enabling a single large, high-speed electronic computer to work on many problems for many users simultaneously. This, he thinks, will be a step toward the establishment of central computing concerns, which will receive data over telephone lines, and transmit weather, economic and other forecasts to their clients.

"The new applications that time-sharing will permit," Dr. McCarthy said, "will be of as much additional benefit to science and to management as the introduction of the stored digital computer in the first place."

When electronic computers were new,

they were used mainly for such time-consuming tasks as preparing mathematical tables. Computers still are given many long runs, but they are being used increasingly now for tasks that they can execute in milliseconds.

Such usage results in more frequent pauses for the user to think, or make a correction, before the machine can proceed. To avoid wasting an expensive machine's time in this way, Dr. McCarthy and others working with him are devising methods of connecting several consoles to a single machine, so several persons can use it simultaneously and thus keep it busy more nearly continuously.

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