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Orbiting Words

In the last 20 years the number of telephones in the world has risen from 27 million to more than 192 million. This vast communications network is linked intercontinentally by radio, which varies in dependability with changes in the ionosphere, and by a few transoceanic cables. People here and abroad have been quick to see in communications satellites a way to escape from the present limitations on overseas communications.

Scientists of the American Telephone and Telegraph Company recently proposed to the Federal Communications Commission that the company be licensed to start an experimental program within a year. Ultimately, company officials would like to operate 50 active repeater satellites in random polar orbits to link 13 pairs of transmitter-receiver stations in different parts of the world. The cost of this system, which would provide 600 telephone circuits between each pair of terminals, would be about $115 million, if each satellite could be launched for $1 million and the ground installations cost $65 million. If a two-way television channel were to be added for each pair of terminals, costs would rise to $170 million.

It is apparent that A.T.&T. officials think the satellite proposal both technically and economically feasible. In this they are not alone. W. F. Hilton, writing in the British journal the *New Scientist* (6 October), states that relaying telephone calls by satellite will be "the most lucrative" of the civil uses of space and advocates a British program. He assumes that a satellite system could compete economically with cables and radio with only 50-percent launching success and a 1-year life for the satellites. If 90-percent launching success and a 22-year life could be attained, the cost of transoceanic calls could be reduced to one-fortieth of the present rate.

Both the British and the A.T.&T. proposals assume that the satellites would be launched "at cost." This means at immediate cost, but in this country Congress will have to decide whether account should be taken of the hundreds of millions of dollars that have made launching possible. Other policy questions arise. Should A.T.&T. be given a head start in commercial exploitation of space? What about the interests of other corporations? The same questions will have to be asked about other nations, for each has a valid claim to the use of space and to a fair allotment of frequency channels.

The limitations on available frequencies will, in fact, offer one of the greatest obstacles to establishment of a satellite network. The competition for channels is intense; the best channels for satellite use are already allocated for radar, public and private radio, radioastronomy, and experimental satellites. Should channels for commercial satellites be taken away from private users, whose allocations are under the control of the Federal Communications Commission, or from the military and civil defense, whose allocations are under the control of the Interdepartmental Radio Advisory Committee?

Even if satisfactory agreements can be worked out within the U.S., formidable obstacles remain. If the United States and the United Kingdom can agree on their shares of responsibility and on wavelength, they will still have to negotiate agreements with members of the International Telecommunication Union, which serves as the authority for frequency allocations among 101 nations. A formidable task for science and diplomacy!—G.DuS.