Getting together on space

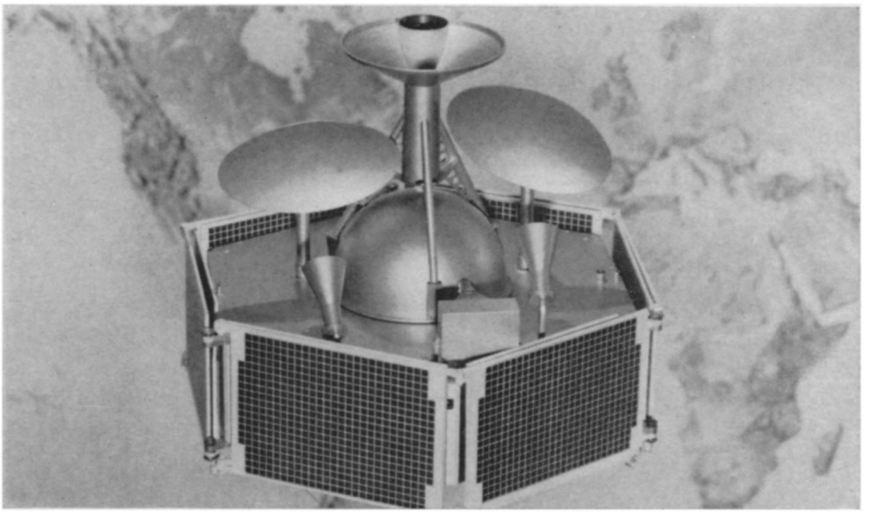
Since 1958, the United States space agency has entered into 250 international project agreements with some 74 nations and hundreds of foreign scientists. The list ranges from joint satellite probes to deployment of foreign scientists' experiments on the moon.

Despite this participation in individual projects, in which Europeans have bought finished United States hardware, foreigners have had little voice in the development of the United States space program. Apollo evolved without them, and so have other smaller projects.

The European response to United States space policy was neither to sit still and plan to buy everything from their rich cousins, nor to enter the space race themselves and try to keep up with the United States or Russia. Instead a number of European organizations have been established to keep a hand in space—the European Space Research Organization to supervise scientific satellite production, Conference Europeénne sur Télécommunications par Satellite for communication systems, and the European Launcher Development Organization, to put the satellites in orbit. The results have been spotty. While the satellite effort has been successful, the launcher development has been frustrated with meager fundings, fractured organization structures and divergent national interests. The last attempt in June to launch Europa I (the prelude to multi-staged Europas II and III) met with only limited success. Meanwhile the harbingers of doom have been forecasting the death of the European effort (SN: 8/9/69, p. 120).

Thus it was that the gestures over the past 10 months by the National Aeronautics and Space Administration to involve the Europeans intimately in the embryonic stages of a future United States space program (SN: 8/1, p. 93) have caught them somewhat off guard. What NASA has done in essence is lay out in detail the preliminary studies of the space station and shuttle and invite European participation in their evolution as a partner. That is, the Europeans would decide what they want to do and can do, and then do it—but pay for it.

The NASA approach has elicited a mixed response: Excitement is tempered by disbelief in the long-term prospects of participating in major programs such as the space station and shuttle; there is caution stemming from fear of dependence on the United States, and underlying dissatisfaction with an international agreement already in effect—INTELSAT, the international communications satellite organization. INTELSAT, although not a NASA agreement, is controlled by the United States consortium COMSAT.



CNES

Symphonie communications satellite: Africa service is an international issue.

The initial European response to the delicate wooing of NASA Administrator Dr. Thomas O. Paine was encouraging. It resulted in European participation for the first time in a NASA internal review, for the space station and the shuttle. ESRO and ELDO sent a liaison to Washington to work with NASA; ESRO began studies on a space station module and ELDO for a space tug.

Another change was the character of consultation between continents. United States-European space talks over the past 10 years have been conducted largely on the governmental level; in June the audience changed. Public briefings were conducted by NASA and United States aerospace contractors with over 250 European industrialists.

At the European Space Conference meeting in Brussels in late July (SN: 8/8, p. 126) a number of short-term decisions were made in regard to the present European program: to continue studies of a European space communication systems while undertaking with the United States a joint air traffic control satellite program; to continue and complete current developmental programs of Europa I and II launchers; to continue construction of these launchers, including vehicles to be built beyond the Symphonie program, a joint French/German communications system, and to start up a Europa III launcher program.

Two other decisions were made, however, which could affect these plans: to unite the conglomerate ESRO, ELDO, CETS and ESC into a European NASA, and to send Belgian Minister Theo Lefevre, with representatives from the United Kingdom, France and possibly Germany, to the United States in September. The representatives were commissioned to "examine with the United States" the general conditions, especially political and financial, for European participation in the United States program, as well as the availability of launchers.

Although certainly not an end-all answer to the complex and competitive European space scene, a solution to the launcher problem could open some doors for future cooperation. This, however, is not in NASA's hands. It in-

volves negotiations now going on within INTELSAT.

The interpretations to date of the Communications Satellite Act of 1962 have prohibited selling to any nation launch vehicles to orbit regional communications systems that would be in direct competition with INTELSAT. The French, therefore, have continued support for ELDO launchers—Europas—so that she could go her own way in communicating with her interests in Africa and Southeast Asia. Pressure is now on INTELSAT to allow regional communications systems, but with stipulations that these would not result in great financial loss to the 76-member organization, or be technically inconsistent with INTELSAT. Such accommodations, however, may still not satisfy the French since some areas could hardly be considered regional.

Two English arguments against the Europa development, however, are strong. One is money. The Europeans contribute a little over $300 million yearly to space; Europa would eat up more than $1 billion over the next seven years. This would limit any substantial European participation in the space station/shuttle developments of the United States. In addition, say the English, when Europa is finally finished, it would be outdated by the reusable launcher, the shuttle.

But the launching of communications satellites is not the only reason for European commitment to its own program, no matter how costly or late-on-the-scene it may be. The Germans see Europa as a stimulus to their own national industry and technology. And German scientists believe, and probably justifiably so, that they are ahead of the United States in these areas.

But another key question is more difficult to answer: Should the Europeans make a financial commitment to the space station/shuttle development, to what extent would the finished products be accessible to them?

This question will necessitate some commitment from the Nixon Administration. Although it was reportedly Mr. Nixon who asked and then encouraged the NASA overtures to Europe, he has yet even to support publicly the NASA budget struggle involving the space station/shuttle programs now going on in Congress.

Moreover, some Congressional leaders are not too eager to endorse a program that they see as a continuation of the drain and sharing of technology and space know-how to the world.

So whatever the result of the Lefevre visit, the revised INTELSAT agreements or cooperative free market exchange and enthusiasm, the delivery of the promises may still be a time consuming political decision. □

SCIENCE NEWSBRIEFS

Geneva protocol

President Nixon last week submitted to the Senate for ratification the 1925 Geneva Protocol against the use of chemical and biological agents in warfare. Although the United States first proposed the protocol, it has never ratified it; some 85 other nations have.

The President asked for certain reservations; for example, chemical warfare could be used by the United States in retaliation against an enemy that used it first, although biological warfare could not.

Also, the President said, "It is the United States understanding of the protocol that it does not prohibit the use in war of riot-control agents and chemical herbicides. Smoke, flame and napalm are also not covered by the protocol."

The President had earlier announced the United States would cease its biological warfare research and development programs except for defensive purposes (SN: 2/21, p. 194). □

Corn blight

A mutant of *Helminthosborium maydis,* a fungus which causes southern corn blight, is infecting corn all over the Central United States, and could reduce the crop by 10 to 50 percent.

Seed companies and state universities are working to produce enough resistant hybrids for planting next year. But unless Latin American nations are able to furnish enough resistant seed for export to the United States, the likelihood of there being enough resistant seed for the 1971 planting is small, say U.S. Department of Agriculture officials.

The fungus thrives in warm, humid conditions, and has been reported as far north as Illinois. Losses in individual fields have been from 10 to 100 percent, but the over-all percentage loss of this year's corn crop will not be known for several weeks.

The bulk of the nation's corn production is used for livestock feeding, and the severe loss will probably be felt in higher meat prices. □

Sensor trouble

Anti-intrusion sensors designed for use in Vietnam for broad area surveillance will be the subject of Congressional scrutiny this fall in hearings before the Senate Armed Services Committee, according to its chairman, Sen. John Stennis (D-Miss.). He and some committee members are concerned with the worth of the already costly program; others have indicated alarm over possible future uses to which the sensors might be put in the civil sector.

Developed for the once-called "McNamara Line" and now termed "electronic battlefield," the devices encompass many kinds of specially designed electronic and acoustical detectors for deployment in isolated regions. Critics of the network emphasize the lack of discrimination inherent in such a system—it is unable to tell a friend from an enemy. □

Antismog race

America's great Clean Air Car Race got off to a slow start at 3:00 a.m. on Aug. 25 in a 3,600-mile course from the Massachusetts Institute of Technology campus in Cambridge, Mass., to California Institute of Technology at Pasadena, Calif. Featuring propane-gas, electric, steam and even conventional gasoline engines, the more than 40 cars are designed as low-pollutant emitters. Entrants are competing for $5,000 first prizes in each of five engine categories.

Started two years ago by students at the two universities as both a lark and a means to promote the development of vehicles having low exhaust emission levels, the annual event is now attracting entrants from schools all over the nation. It also has produced material and technical support from fuel and auto manufacturers, as well as the National Air Pollution Control Administration. □

NSF appointee

President Nixon will nominate Dr. Raymond L. Bisplinghoff, dean of the School of Engineering at Massachusetts Institute of Technology, to be deputy director of the National Science Foundation. An aeronautical engineer, Dr. Bisplinghoff has served as associate administrator for advanced research and technology for the National Aeronautics and Space Administration and as special assistant to the administrator of NASA. □

Transportation study

A joint study of the Department of Health, Education and Welfare and Transportation aims at pinpointing what happens to local transit systems when lower fares are offered to the elderly, many of whom are unable to afford or drive automobiles and are thus often nearly immobile if public transportation is inadequate.

The six-month, $18,000, project is being sponsored by HEW's Administration on Aging and DOT's Urban Mass Transportation Administration.

One of the main goals is to see if reduced fares stimulate use sufficiently to create revenues as great as if the higher fares remained in force, as well as to determine other factors such as the need for route changes to serve the elderly. □