ulations and of centralizing responsibility for seeing that regulations were applied uniformly. Previously, AEC regional offices had had a fair degree of latitude in negotiating contracts.

In the process of amending its regulations on research contractors the AEC clarified its controls on installations where it owns or substantially controls the land and where unclassified research is carried out. At this, several universities bridled, arguing that the AEC's proposed regulations significantly changed conditions which had been negotiated in earlier contracts. Harvard took the position that the proposed changes represented, as one university official put it, "an encroachment on freedom of inquiry."

The major points at issue were these.

The proposed regulations required prior AEC approval for employment of Soviet bloc aliens and for all visits of Soviet bloc nationals to the AEC-financed installations. In the case of other aliens employed at the installations, the filing of personal-background information was to be required.

Harvard objected to clauses which would have permitted the AEC unilaterally to change the list of Soviet bloc countries and to limit the number of casual visits to the accelerator (visits not planned in advance of the visitor's arrival in Cambridge) made by Soviet bloc nationals.

The controls on information, as proposed in the AEC draft regulations, would have required a scientist employed at the accelerator, before sending any published or unpublished data to a Soviet bloc scientist, to enter into a formal exchange agreement with his correspondent which guaranteed, in return, information of similar value. Harvard argued that, as contractor, it would be legally responsible for policing the agreements and that it regarded this as an impossible position.

The AEC's interest in controlling the export and import of scientific information between the United States and the Soviet bloc follows the tit-for-tat policy laid down by the State Department for the whole program of scientific and cultural exchanges between the United States and Communist countries. This is based on the thesis that the Soviets and their associates follow the policy on scientific information that it is better to receive than to give.

As a result of long negotiations, restrictions on the exchange of published work were lifted. In the case of unpublished work, there is now no requirement for a formal exchange agreement, but an employee of the installation who sends data to a Soviet bloc opposite number is expected to do his best to secure reciprocity. He is also required to provide the laboratory director with a copy of the material sent to insure that it will be available to American researchers.

Harvard had no objection to obtaining AEC approval if it decides to employ a Soviet bloc national—there are none now on the accelerator staff—and that change was included in the new contract. Standard biographical information on alien employees is required, but the period of personal history to be covered was reduced from 26 to 15 years.

Prior AEC approval for visits of Soviet bloc nationals is required, but genuine spur-of-the-moment visits are permitted without AEC authorization. In the matter of international conferences, where AEC money or personnel are involved, the AEC insists on retaining the right to clear Soviet bloc participation, just as the agency insists on approving the itineraries of Americans who travel on AEC funds.

On the matter of AEC unilateral rights to change the list of Soviet bloc countries and to limit casual visits, the Harvard–M.I.T. joint committee secured the option of terminating the contract on 90 days' notice in response to such action.

Should classified work develop at any time, the contractors have the option of allowing the project to continue under full security regulations for classified work or asking the AEC to transfer the project in question elsewhere.

As it now stands, the modified security sections are viewed in Cambridge as "reasonable," according to Harvard's vice president for administration, and presumably the contract will be signed when a snarl in the interpretation of labor legislation is straightened out.

It would be misleading to ascribe the compromise contract simply to the lively negotiations between the Cambridge group and the AEC legal section. The dispute arose during a reorganization of the AEC when the agency was engaged in an attempt to adapt itself to changing conditions, and it is known that the AEC commissioners and the agency's General Advisory Committee, made up of scientists from outside government, were concerned with the security provisions and actively favored a liberalization of rules on unclassified research where possible.

It is worth noting that the AEC must deal not only with the universities, which perform much of its research, but with Congress, which appropriates its money. And Congress regards practically anything related to nuclear research as highly sensitive and would be unsympathetic to a laissez-faire policy on aliens and especially on Soviet-bloc nationals around an AEC-supported installation, particularly an expensive one like the Cambridge accelerator, which cost $12 million to build and gets about $5 million in federal funds annually for operating costs.—J. W.

Space: U.S. and Soviet Scientists Get Along on Detailed Planning for Two Cooperative Projects

The working plans for a modest program of cooperation in outer space were agreed on last month by a group of Soviet and American scientists meeting in Rome. Success came, as Hugh Dryden, NASA deputy administrator and chief of the U.S. delegation pointed out, through "the realization on both sides that the only hope at the present time is to stay in areas that are not at the apex of the cold war."

Not only blessed but actually invented by the political chiefs of the two countries, the plans detailed at Rome mark a path that, by comparison with other attempts at Soviet-American cooperation, has been lined with roses all the way. Within a few months of John Glenn's orbital flight last February, and after an exchange of letters between Khrushchev and Kennedy, Soviet and American scientists met at Geneva and formulated the outlines of a world geomagnetic survey, a cooperative system of meteorological satellites, and joint experimentation with the passive communications satellite, Echo II. The bilateral proposals were approved speedily by both governments and announced at the United Nations in December, and at Rome the scientists worked in joint groups to fill in the specific details. These are to be withheld from the public until late in May, pending final review by both sides. Arrangements for one of the three projects—the geomagnetic survey—have not yet been completed, but the American delegation views the obstacles as temporary and believes they

can be overcome when the scientists meet again at Geneva in May.

The meteorological program will greatly extend the world's advance knowledge of weather patterns. It involves the rapid exchange of cloud pictures from each nation's weather satellites, beginning in early 1964, and ultimately the coordinated launching of such satellites to provide broader coverage of the earth. By 1964 the Russians will be ready with their first weather satellite, and the U.S. will be replacing Tiros with a second-generation satellite, the Nimbus. Information will pass continuously between the two countries on teletype and facsimile wires to be constructed between the world weather centers at Suitland, Maryland, and Moscow, and it will be transmitted fast enough to be used in weather forecasting. European countries along the route of the line will be permitted to tap it for weather information on a cost-sharing basis. The basic costs are to be equally divided between the U.S. and the U.S.S.R.

The cooperation provided for is limited. The cloud pictures transmitted will be selected by nationals of each country at their respective weather centers, and although the meteorologists at the two ends may interrupt the facsimile transmission and talk directly by telephone, there are no plans now to exchange personnel. This may come later. But as Dryden explained, "the whole matter of space technology in Russia is completely classified, and if you are going to base agreement on breaking that wide open at the present time, then we have no kind of agreement."

Similar limits are set on the plans for joint use of Echo II, the communications satellite scheduled for launching this summer. Since Echo's altitude will not be sufficient for simultaneous visibility from the U.S. and the U.S.S.R., the British observatory at Jodrell Bank will be the intermediary. The Soviets have, however, agreed to provide tracking information for those parts of Echo's orbits over Russia that are not visible from the U.S.—a first breach in the previously independent national tracking systems.

Privately, outside the areas of formal agreement, the delegates discussed cooperating on the Soviet probe of Mars and our probe of Venus, and the scientists on these projects are to meet again at Warsaw in June. Coordination of interplanetary probes, with the two countries using different instrumentation and exchanging the results, would give both countries better coverage, and Dryden, though he does not expect the June meeting to lead directly to this, believes such coordination not unlikely in the future.

With the broad outlines already set at Geneva, the Rome meeting was a working conference of scientists. From all reports, the relations among them were personally friendly and professionally satisfying. The American delegation did not include any political advisors, and although there was a representative there from the Soviet foreign office who at first tried to exercise some control over the Soviet delegation, he was overruled by Academician Blagonravov, the delegation's chief, and the Soviet scientists appeared to be in firm control. Keeping their demands modest and refraining from asking too much, the scientists made a small beginning in the work of keeping earthly antagonisms away from outer space. The implications for politics are uncertain, but for science, the potentials are clear.—ELINOR LANGER

Announcements

A new **hearing** and **deafness** research center will be dedicated 20 May at the University of Michigan Medical School. Known as the Kresge Hearing Research Institute, it will conduct basic and clinical research, and will provide a teaching situation for physicians and scientists. A staff of approximately 50 will be accommodated within a year. **Merle Lawrence**, physiology professor at the university, has been named director of the center.

Meeting Notes

Papers are being solicited for a conference on the **physics of entry into planetary atmospheres**, sponsored by the American Rocket Society and Massachusetts Institute of Technology, 26–28 August, in Cambridge. The program will feature discussion of the flow environments and electrical phenomena occurring in the high-speed entry of bodies into the atmosphere of the earth and other planets. Deadline for submission of abstracts: *15 May*. (R. F. Probstein, Department of Mechanical Engineering, M.I.T., Cambridge 39)

The Society for Applied **Spectroscopy** plans its annual meeting for 14–18 October, in San Diego, Calif. The program will feature advances in theory and practice in all major areas of mass spectroscopy. Scientists who wish to present papers at the meeting must submit titles and abstracts of 250-300 words. Deadline: *15 June*. (E. P. Wadsworth, Chemistry Dept., San Diego State College, San Diego 15, Calif.)

The Third International Conference on the **Mössbauer Effect** will be held 4–7 September in Ithaca, N.Y. The conference, sponsored by the Advanced Research Projects Agency of the Department of Defense, through the Materials Science Center of Cornell University, will feature discussion on the theory of the Mössbauer Effect, applications of techniques of recoilless radiations, and use in experimental studies of relativity. Deadline for inquiries: *15 May*. (A. J. Bearden, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, N.Y.)

Recent Deaths

Lloyd J. Briggs, 88; retired director of the National Bureau of Standards; 25 March. An inventor and pioneer in atomic research, he headed a government committee in 1939 whose research aided in the development of the atomic bomb. This group grew into the Manhattan project, and later the Atomic Energy Commission. He was former chairman of the National Geographic Society Research Committee and a member of the National Committee for Aeronautics. Dr. Briggs was a director of the American Standards Association, former president of the American Physical Society, the Washington Academy of Sciences, and the Philosophical Society of Washington.

He was a fellow of the National Academy of Sciences, and a member of AAAS, the American Philosophical Society, American Academy of Arts and Sciences, Institute of the Aerospace Sciences, Physical Society of England and the Newcomen Society of England.

Henry J. Goulding, 92; associate professor emeritus of mechanism and engineering drawing at the University of Michigan; 18 March.

Leandro M. Tocantins, 62; professor and director of the Cardeza Foundation for Hematological Research of the Jefferson Medical College of Philadelphia; 22 March.