

training could fire the missile, recover the cameras, process the films in a few hours, and then report the results to a mainland weather data-processing center where they could be integrated with reports from surface stations.

Nuclear Test Control

On 5 January, the day that the East-West conference on nuclear tests resumed in Geneva, the United States announced that new data indicate that it is more difficult to identify underground explosions than had previously been believed. Immediately the *New York Times* published an article headed "Hopes Lessened for Atomic Curb." On 25 December the *Times* headline on the same subject had read "Test Ban Accord is Seen by Spring."

The text of the U.S. statement follows. It was prepared by the President's Science Advisory Committee with the concurrence of the Department of State, the Department of Defense, and the Atomic Energy Commission. The names of the seismologists responsible for the study that was the basis for this statement were not announced at the time the statement was released by the White House. No details were given.

"Since the Geneva conference of experts last summer, United States seismologists on behalf of the Government have continued to study all available data on the problem of detecting and identifying underground explosions, including new data obtained from the underground tests conducted in Nevada this past October. These studies and new data indicate that it is more difficult to identify underground explosions than had previously been believed.

"The Geneva conference of experts last summer concluded that, although it is not possible to identify an underground explosion by seismic means alone, it is possible to identify a large fraction of seismic events as natural earthquakes when the direction of first motion of the seismic signal is observed at several, appropriately located stations. This procedure reduces the number of seismic events which would be unidentified and could, therefore, be suspected of being underground tests.

"Analysis of all available seismic data on underground tests, including the data new since last summer, has shown that this method of distinguishing earthquakes from explosions is less effective than had been estimated by the Geneva conference of experts. These analyses and new data also indicate that the seismic signals produced by explosions are smaller than had been anticipated and that there are consequently about twice as many natural earthquakes equiv-

alent to an underground explosion of a given field as had been estimated by the Geneva conference of experts.

"These two factors mean that there will be a substantial increase in the number of earthquakes that cannot be distinguished from underground nuclear explosions by seismic means alone. For example, the total number of unidentified seismic events with energy equivalents larger than five kilotons may be increased ten times or more over the number previously estimated for the system recommended by the Geneva conference of experts.

"The effect of this new analysis and data on the capabilities of the system recommended by the Geneva conference of experts, as well as modifications of that system which could restore its originally estimated capability against underground tests, are at present under study by United States scientists.

"The Department of State advises us that the results of this continuing analysis have been communicated to the United Kingdom and the Union of Soviet Socialist Republics delegations at the present Geneva conference on the discontinuance of nuclear weapon tests, and that the United States delegations will be prepared to discuss this information with experts of the other delegations. This will assure that all the parties at the present Geneva conference have available the best scientific information and analysis in their consideration of the problem of detecting and identifying underground tests."

Soviet Solar Rocket

The rocket that the U.S.S.R. launched toward the moon on 2 January passed the moon on 4 January and went into orbit in an elliptical course around the sun on 7 January, according to reports from scientists in the Soviet Union. The Soviet news agency Tass reported that in its first 5 days of flight the rocket, which was moving 621,000 miles ahead of the earth, had traveled approximately 9 million miles from the point in space occupied by the earth at the time the rocket was fired. The earth, speeding along in orbit at 18.6 miles per second, traveled about 8,370,000 miles in the same period.

On 14 January the rocket reached its nearest point to the sun, about 91 million miles, and achieved its maximum speed of approximately 20 miles a second. At the most distant point in its recession from the sun, the vehicle's speed is expected to drop to some 17.34 miles a second. Soviet scientists predict that once every 5 years the rocket may come close enough to the earth to be visible with powerful telescopes.

The new planet is the last stage of a multistage space rocket. The stage weighed approximately 1½ tons without fuel. The combined weight of the instruments, together with the power sources and the container, amounted to 794 pounds. In addition to two radio transmitters, which went dead on 4 January when the rocket was 373,125 miles from the earth, the vehicle carried special equipment designed to produce a sodium cloud—an artificial comet. This comet was formed on 3 January and was visible for several minutes in the constellation Virgo. It was possible to photograph the comet with optical instruments equipped with light filters isolating the sodium line of the spectrum.

Population Genetics at Purdue

Purdue University has announced the establishment of the Population Genetics Institute to coordinate an expanding research program in population genetics. The major objective of the institute will be to investigate the effects of various mating systems under varying environmental conditions. In addition to theoretical studies, problems will be investigated experimentally with laboratory organisms such as *Drosophila*, *Tribolium*, and mice. Heretofore, population genetics work has been carried out in the departments of dairy and poultry science, the Purdue statistical and computing laboratory, the North Central States regional poultry breeding laboratory and the pioneering research laboratory for animal genetics, the Animal Husbandry Research Division, Agricultural Research Service, U.S. Department of Agriculture.

Facilities for the institute in Purdue's new Life Science Building will include offices, fully-equipped laboratories, and three specially designed controlled-climate chambers. The facilities of the statistical and computing laboratory, including a digital computer, will be used for expanding the theoretical or mathematical approach to problems of population genetics.

A. E. Bell, professor of poultry science, has been appointed chairman of the institute. Others from the Purdue staff named to the institute include V. L. Anderson, B. B. Bohren, S. C. King, W. H. Kyle, J. H. Martin, T. G. Martin, and H. E. McKean.

Report on Medical Education

American medical colleges had a record enrollment of 29,473 students in 1957-58. Sixty of the 85 operating medical schools reported major construction, costing \$47 million, in the planning, beginning, or completion stages. Forty-nine