SCIENCE

Countdown at Geneva

In the best of all possible worlds, the Geneva conference on the possibility of designing a workable system for monitoring nuclear explosions might close with a set of propositions about what could be accomplished scientifically under various political conditions. The propositions might state, for example, what kind of explosions could be detected by stations located outside the boundaries of the participating countries, by stations located inside those boundaries, and by an international inspectorate with free access to any area of suspected activity.

Under such conditions the degree of international freedom acceptable to the participating governments need only be specified, and everyone would know whether it was possible to ensure compliance to all, or to part, of an agreement to suspend the testing of nuclear weapons. But in the best of all possible worlds the conference would not be necessary, while in this world science does not quite fit this pattern, and neither does foreign policy.

In science there is sometimes a twilight zone of uncertainty between the definite confirmation of a proposition and the definite denial. The trouble is that just that matter for which a precise judgment is required may fall into this zone. In these circumstances we must be satisfied, if only for the present, with a situation in which one group of experts may offer one answer and another group of equally qualified experts another answer, or else a situation in which, if the experts agree on the answer, they still feel constrained to express that answer in terms of probabilities.

If scientific matters are not always clear-cut, how much less so are the implications of scientific findings for the conduct of foreign policy. In the present case, it is possible, on the one hand, for a government to fail to grasp that, even at its best, science in some areas can only offer high probabilities. The responsible administrative officials might demand such conditions of certainty as to foredoom the possibility of any monitoring system meeting those conditions. On the other hand, it is possible for a government to understand the logic of science only too well. A ruling body seeking, in a broader military or ideological context, to turn the problem of a monitored suspension of the testing of nuclear weapons to its own advantage would have plenty of room in which to maneuver.

Given a complex question, however, there is sometimes a special order for taking up the parts. To follow this order will increase the chances of coming to an agreement or, at least, of locating the sources of difference. Thus, it is helpful to settle what can be settled scientifically before going on to what must be settled politically. This is what is now being done. And we can imagine that the scientific questions themselves fall into a certain order. Thus, before considering how many inspection stations should be set up in a given system, it is proper to determine, first, from how far away bombs of a given size can be detected.

With the possibility, however, that small differences in scientific judgment may have large political consequences, something besides adherence to a rational order of business is also required—something for which adherence to that order is a first sign—namely, the desire, at least in this aspect of East-West relations, to have matters work out.—J.T.
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Meetings

Oceanic Depths

The Centre National de la Recherche Scientifique de France invited some 15 foreign and 40 French scientists to attend the 83rd International Colloquium, in Nice. The topic chosen for the meeting was the topography and geology of oceanic depths. The largest foreign delegation came from the United States and included K. O. Emery and H. W. Menard from the west coast, R. Dietz of the London bureau of the Office of Naval Research, and W. Heezen from the east coast.

The papers that were presented fell into one of four categories, by topic: the Pacific Ocean, the Atlantic Ocean, the Mediterranean Sea, and papers of general interest. Among contributions that were centered around the Pacific and Indian oceans, the colloquium discussed the nature and origin of the continental borderland of Southern California, the distribution of flat abyssal zones, and the seismic structure of great depths. The renewal of deep waters in the Norwegian Sea added to the knowledge of the physics of dependencies of the Atlantic Ocean.

The Mediterranean was, of course, thoroughly represented among the studies, and, besides some new views on the morphology of the precontinent and tectonoophysical characteristics, the age of the basin and the geology of the Tunisian-Sicilian unit came up for scrutiny. Of interest to geologists, biologists, and geographers was the study of deep-sea corals and Quaternary thanatocoenoses.

French contributions dealt mostly with studies pertaining to the Mediterranean, as did the Italian and Spanish papers.

Of general interest is the news that the bathymetric-topographic map of the French Mediterranean is now complete except for a few gaps near Corsica, which will be filled this year by the Calypso expedition. To complete the map of the Mediterranean will require the lifting of restrictions by the Spanish government. The hope was expressed that such a move might be forthcoming.

The meeting at the International Hydrographic Bureau (Monaco) disclosed the current status of the World Hydrographic Map and brought us up to date on the work of the Commission of Nomenclature of Topographic Features of Ocean. A proposal was made for a series of terms in English and French.

The possibilities of the use of television in submarine research were pointed out at the session in the Oceanographic Museum (Monaco).

Anglo-Saxon papers concentrated on studies done in the Atlantic, Pacific, and Indian oceans. The hope was expressed that information now being gathered by personnel of Lamont Geological Observatory might become available to all through a lifting of restrictive regulations now in force.

New bathyscaphes are being built, and the Belgians plan to produce one which would be able to plunge to the greatest oceanic depths. Most work done with these devices is done by the Americans and the French.

The meetings were climaxed by the inauguration of the new facilities of the Oceanographic Station of the University of Paris, at Villefranche sur Mer. Jacques Bourcart, geologist and oceanographer of the Sorbonne, is director and will spend one quarter of each year at the station. He expressed the hope that research people of all nations will not hesitate to make use of the laboratories.

The colloquium closed with a resolution that it will be necessary to call another meeting in the rather near future.

ROGER H. CHARLIER
Station Oceanographique de l'Université de Paris,
Villefranche-sur-Mer, France

Meteoritical Society

The 21st meeting of the Meteoritical Society will be held 31 August and 1 September 1958, in Winslow, Ariz., and at the nearby Barringer Meteorite Crater. Scientific sessions, to which visitors will be welcome, will begin at 9:00 A.M. on 31 August at the La Posada Hotel. The field trip to the crater will be on the following day.

Forthcoming Events

August


31–8. Corpuscular Physicsy Collo quium, 2nd intern. (by invitation), Montreal, Canada. (P. Demers, Institut de Physique, Université de Montreal, P.Q.)
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Equipment

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- Recorder provides 44 or 68 channels of on-off information in two models. Marking is made on electrically sensitive paper. Five chart speeds from 2 to 32 in./hr are available. Actuation is accomplished by contact closure for each channel. (Lindly & Co., Dept. 214)

- Infrared cell of effective path length up to 1600 m permits determination of air pollutants at concentrations less than 1 part per million. Ozone, carbon monoxide, or oxides of nitrogen or sulfide may be determined. Two cells are arranged to be used simultaneously, one in the sample beam and one in the reference beam of the manufacturer's model 21 spectrophotometer. (Perkin-Elmer Corp., Dept. 201)

- Annunciator for monitoring automatic systems uses static magnetic controls instead of relays. The magnetic elements are capable of the logic functions: and, not, or, and memory. A circuit can be included which will return the system to its previous state when power has been restored after a power failure. (Panellit, Inc., Dept. 197)

- Auxiliary recorder may be used with the manufacturer's infrared spectrophotometers to provide versatility in recording. Signals are picked up from the spectrophotometer by means of a potentiometer mounted on the instrument's pen-drive shaft. Three modes of operation permit recording of 100-percent transmittance, or any 10-percent transmittance or any 20-percent transmittance at full scale. A fourth mode permits 100-percent transmittance to be compressed for recording on punched cards. The recorder operates simultaneously with the built-in recorder of the instrument. (Baird-Atomic Inc., Dept. 202)

- Microwave amplifier for 2 to 4 kMc/sec operation provides 1-w peak pulse power output at 30-db gain or 100 mw continuous-wave with 20-db gain. Connection is available for pulse modulation or automatic-gain-control applications. Gain may be controlled over a 30-db range. (Alfred Electronics, Dept. 187)

- Pyrometer is a dual-range instrument for measurement of surface temperature. A low range, 0° to 500°F, and a high range, 0° to 1500°F, may be selected by a switch. Compensators are corrected automatically for changes in ambient temperature. Accuracy is ±1.5 percent. (Pyrometer Instrument Co., Inc., Dept. 205)

- Voltmeter combines a laboratory-standard meter with a feedback multi-stage high-gain amplifier to provide accuracy of ±1/4 percent r.m.s. voltage measurement with 10-megohm input impedance. Voltage range is 0.002 to 500 r.m.s. Frequency response is constant from 50 to 2000 cy/sec. (Trio Laboratories, Inc., Dept. 207)

- Pulse-code generator provides high-speed pulse programs at high impedance and high power output for study of memory components and digital logic. Ten-bit codes are provided at clock rates to 1 Mcy/sec with controllable repeat at selected intervals. Output is variable from 50 ma to 5 amp peak current. (Electro-Pulse, Inc., Dept. 208)

- Torque tester measures torque in inch pounds and deflection in degrees for all types of torsion springs. A set of arbors and adapters permits a wide variety of sizes to be measured. Springs of wire size up to 1/4 in. diameter with torques from 1/2 in. oz. to 48 in. lb can be checked. (Carlson Co., Dept. 209)