News of Science

International Cooperation in Arid Zone Research

Scientists who took part in the International Arid Lands Meetings in New Mexico last spring [*Science* **122**, 61 (1955)] will find many of the ideas that emerged there embodied in the broad program for international cooperation in arid zone research that UNESCO is planning to sponsor for the 2 years ahead. This became plain when outlines of that program were reviewed by the Advisory Committee on Arid Zone Research at its tenth session in November.

It is difficult to assess the results of an effort that aims at speeding up the flow of ideas across international and interdisciplinary boundaries, but in the 5 years that this UNESCO group has been operating there is substantial evidence of favorable effects. UNESCO has not sought to become an operating agency that would carry on its own research. Rather, it has been a kind of international catalytic agent—operating at modest cost—that has brought the experience of many individuals and groups to bear on problems common to the arid lands.

Although a popular account of this work recently has been published [*UNESCO Courier* **8–9** (1955)], it may be helpful to note three concrete examples of the kind of benefits that are flowing. (i) Under its fellowship scheme UNESCO enabled a young Peruvian scientist to study at the Salinity Laboratory in Riverside and to work with the Central Irrigation Board in India. He is now heading up a small research station on arid lands problems, Peru's first venture of this character. (ii) Under UNESCO's scheme for sponsoring international symposia, a number of scientists concerned with plant ecology gathered at Montpellier in 1953. [*Plant Ecology, Proceedings of the Montpellier Symposium* (1955)]. This has stimulated wider interest in the application of ecological knowledge to pasture management in the whole Mediterranean area, and Emberger has been invited to consult with workers in the field around the Eastern Mediterranean during the current spring. (iii) Several new research stations are taking shape in that area (government plans will probably be announced shortly), and increased work has been stimulated at established ones. No one knows precisely how far the UNESCO influence has extended, but it is clear that the net results already are solid.

In the years immediately ahead, it is expected that efforts will be channeled along the following lines, some of them noted in an earlier article [*Science* **120**, 15 (1954)].

1) Reviews of the status of research will be commissioned and published on four areas of investigation: (i) the history of land use, particularly agriculture, in arid and semiarid regions, which will try to emphasize the lines of study of past resources use, such as archeological studies of ancient water-spreading systems, that may throw new light on the potentialities and possible permanence of contemporary land use; (ii) the modification of soil structure under various land-use practices, such as grazing, dryland farming, and irrigation farming; (iii) the water requirements of plants, especially the efficiency of transpiration, the relationship of transpiration and photosynthesis, and the regulation of transpiration; (iv) methods of prospection and evaluation of water resources, study of the hydrological balance of aquifers, and methods for their recharge. In each case, a series of specific papers will be invited from workers in countries where there has been new research and then collated in a volume that will be given international distribution. Examples of papers of this character contributed by United States scientists in recent years are Howe's "Utilization of sea water" [*Reviews of Research on Problems of Utilization of Saline Water* (1954)], Hayward's "Plant growth under saline conditions" [*Reviews of Research on Problems of Utilization of Saline Water* (1954)], McGinnies' paper on plant ecology in the United States and Canada [*Plant Ecology—Reviews of Research* (1955)], and Linsley's "Report on the hydrological problems of the arid and semiarid areas of the United States and Canada" [*Reviews of Research on Arid-Zone Hydrology* (1953)]. The volume on saline water currently is being revised.

2) In cooperation with the Government of Australia an international symposium on climatology will be held in Australia in October 1956. There, an invited group numbering approximately 50 will give attention to current research and possible future lines of investigation relevant to arid and semiarid areas. The emphasis will be on microclimatology, and the program will include such topics as evaporation and the water balance, the thermal balance, interrelationships of climatic elements and flora and fauna, and modification of microclimate.

3) After extended exploration of the need for integrated surveys of associated resource problems in arid regions, the committee thought it best not to finance its own pilot surveys in selected countries. The complications of personnel, organization, and method seemed too strong. UNESCO will give financial help to countries that desire to develop survey groups in their own areas, it will offer fellowships to persons preparing for that work, and it will sponsor a review of the experience thus far by such groups as the Lands Research and Regional Survey of CSIRO in Australia, the watershed survey teams of the Department of Agriculture in the United States, and the desert agriculture surveys in Israel. This concern with integrated surveys is rooted in a desire to see new resources field work in the arid zones geared to contribute as effectively as possible to sound conclusions on resources development. Single-purpose surveys centering on one problem have been the rule often in the past, and for a variety of reasons they may prevail in the future, but where it may be practicable to combine basic study of landforms, climate, soils, vegetation, and hydrology in the same area at the same time this is to be desired.

4) A small program of research grants will be continued. This will favor projects that have probable international significance in areas where other financial support is available. Samples of projects that have received partial UNESCO subventions in recent years are Duvdevani's study of dew at the Earhart Laboratory and Schmidt-Nielson's study of the physiology of the camel at Beni-Abbes.

5) Major emphasis during the program proposed for 1957–58 is to be placed on the sector of the arid zone that lies between and includes Egypt and India. Aid to the research stations and fellowship grants to promising younger scientists will be concentrated in this area. Probably a special symposium will be held in this area. Here, in lands where great civilizations have flourished in delicate adjustment to scanty rainfall, there is heavy pressure of population on the land, and there is keen interest in new water-development undertakings. Pro-

motion of improved practices in the heavily grazed grasslands has been a major concern of the Food and Agriculture Organization in cooperation with the member countries through special working parties on pasture and fodder developments. FAO also has sought to direct constructive attention to the problems of drainage and salt accumulation in irrigated areas throughout the Middle East, problems that threaten the future stability of agriculture in large areas [FAO, *Report on Near East Regional Meeting on Irrigation and Drainage Practices* (1954)]. Success along these lines will require patient and knowing education aimed at applying present scientific knowledge of grazing and irrigated lands to local situations. Drastic readjustments in land use, land tenure, and community organization will be necessary in many instances. However, even with the most sensitive and effective educational work, there will remain major questions that will be solved only as a result of new research in the field. Thus, the UNESCO encouragement of basic investigations by well-trained staffs should lay the groundwork for extension and development activities a decade later.

In harmony with this effort to encourage some consistent government attention to basic research on problems of aridity in the zone between Cairo and New Delhi, the advisory committee has recommended early publication on an appropriately large scale of maps showing the water budget. Investigators of all aspects of arid lands have recognized the need for understanding water surplus or water deficit. These are covered in a project recently completed by Carter at the Laboratory of Climatology [D. B. Carter, "Climates of Africa and India according to Thornthwaite's 1948 classification," *Lab. Climatol. Publs.* **7**, 4 (1954)].

Financing of this UNESCO program beyond 1956 will depend on authorization from the general conference to be held next November. The arid zone work is listed as one of two "major projects" to be reviewed in the budget at that time. The tentative budget was examined by the executive board last November and now is before the member governments for consideration. At the meeting of the United States National Commission for UNESCO last autumn, there was extensive discussion of the arid zone activities, and there was some talk of organizing a national group or committee to deal with these activities. In a few countries, such as Mexico, this already has been done.

Any effort at international cooperation in encouraging research runs the risk of setting up top-heavy organization. There also is risk of loading the program so fully upon government agencies and, therefore, intergovernmental agreements that the easy, free movement of thought between individual scientific workers or scientific societies is impeded. So far UNESCO seems to have avoided these hazards, just as it has avoided becoming an operating agency on arid zone research. New ideas, fresh illumination, perfected techniques come from men working alone or in small groups. At best, an international organization can make it easier for them to communicate, a good deal easier to find official recognition and support, and much easier to move their findings into the arena of action.

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New Marine Biological Laboratory in Brazil

A new marine biological laboratory, the Laboratorio de Biologia Marinha de São Sebastião, was inaugurated last September at the beach of Segredo, 6 kilometers south of São Sebastião, State of São Paulo, Brazil. The laboratory faces the channel between the continent and the mountainous island of São Sebastião. The first main building is equipped with electricity, gas, and tapwater, despite the fact that the whole laboratory is in close proximity to an almost untouched tropical forest on a small hill nearby. Another building was built as living quarters and mess hall for guest investigators and their families.

Segredo Beach borders a small bay limited at both ends by small rocky hills; the beach itself is covered with fine white sand. Being an almost untouched place, it still exhibits the tropical fauna and flora, marine as well as terrestrial, at their best. Its position is not far from the point where the island of São Sebastião southwards comes to an end; this makes available for the laboratory a great variety of biotopes: the channel, the open sea, and rocky and sandy beaches washed by calm as well as rough seas. The main building has a short access to the sea and was built approximately 4 meters from the maximum high tide.

The Laboratorio De Biologia Marinha de São Sebastião can be reached easily by ship (two weekly trips from Santos) or by car or bus (two daily trips, 6 hours from São Paulo). It is operated by a foundation (Fundação de Biologia Marinha), of which the University of São Paulo and its Departamento de Fisiologia Geral e Animal are founding members. It was built partially from grants made available by the University of São Paulo, the National Research Council of Brazil, and the Rockefeller Foundation. It is intended to be a place where Brazilians and foreigners who are interested in marine biology can find adequate means of research. Training courses for graduate students in biological sciences will be part of future laboratory activities. For more information write Prof. Paulo Sawaya, Caixa Postal 2926, São Paulo, Brazil.

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AAAS Socio-Psychological Prize

Through the generosity of an anonymous donor, the AAAS offers an annual prize of $1000 for a meritorious essay in socio-psychological inquiry. The conditions of competition for the prize to be awarded at the 1956 annual meeting, New York, 26–31 Dec., are as follows.

1) The contribution should further the comprehension of the psychological-social-cultural behavior of human beings —the relationships of these hyphenated words being an essential part of the inquiry. Whether the contributor considers himself to be an anthropologist, a psychologist, a sociologist, or a member of some other group is unimportant as long as his essay deals with basic observation and construction in the area variously known as social process, group behavior, or interpersonal behavior. For ease of reference in the rest of this statement, this general area will be called "social behavior."

2) The prize is offered to encourage studies and analyses of social behavior based on explicitly stated assumptions or postulates, which lead to testable conclusions or deductions. In other words, it is a prize intended to encourage in social inquiry the development and application of dependable methodology analogous to the methods that have proved so fruitful in the natural sciences. This is not to state that the methods of any of the natural sciences are to be transferred without change to the study of social behavior, but rather that the development of a science of social behavior is fostered through observation guided by explicit postulates, which in turn are firmly grounded on prior observations. It may be taken for granted that such postulates will include a spatial-temporal framework for the inquiry. It may properly be added that the essay should foster liberation from philosophic-academic conventions and from dogmatic boundaries between different disciplines.

3) Hitherto unpublished manuscripts are eligible, as are manuscripts that have been published since 1 Jan. 1955. Entries may be of any length, but each should present a completed analysis of a problem, the relevant data, and an interpretation of the data in terms of the postulates with which the study began.