On the basis of this preliminary experience it seems to be worth while to bring this investigative technique to attention.

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Association Affairs

International Arid Lands Meetings in New Mexico

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A major effort to advance international cooperation of scientists from many fields in study of the future of arid lands will be made in New Mexico this spring. The American Association for the Advancement of Science is sponsoring an *International Arid Lands Symposium and Conference* in three parts. The symposium will be held at the University of New Mexico in Albuquerque on 26–29 April, a field trip in the Rio Grande Valley between Albuquerque and El Paso will take place on 30 April and 1 May, and a conference for a smaller group will be held at the New Mexico Institute of Mining and Technology in Socorro on 2–4 May.

The idea for such a gathering came from the Committee on Desert and Arid Zone Research of the Southwestern and Rocky Mountain Division of the association. It was approved last summer by the national AAAS board of directors which then sought support for carrying out the project. Helpful grants toward the cost of the symposium and conference since then have been received from the National Science Foundation and the Rockefeller Foundation. UNESCO has granted funds toward the cost of travel of foreign participants and has convened a meeting of its Advisory Committee on Arid Zone Research in the same region at that time so that members of the committee may take part.

Discussions planned for the symposium and conference will build upon several international arid zone gatherings of the past 5 years. A broad view of desert problems was developed at the Israel conference in 1952 [*Desert Research,* Research Council of Israel Special Publication No. 2 (1953)]. Hydrologic questions received primary attention at the Ankara symposium [*Proceedings of the Ankara Symposium on Arid Zone Hydrology,* UNESCO (1953)]. Biologic aspects of deserts, both hot and cold, were considered at London [*Proceedings of the Symposium on the Biology and Productivity of Hot and Cold Deserts,* Institute of Biology (1954)]. Plant ecology was the central interest of the Montpellier Symposium in 1953 [report now in press]. Solar energy and wind power were the major topics in the symposium held at New Delhi last autumn [F. Daniels, *Science* **121**, 121 (28 Jan. 1955)].

The New Mexico meetings will differ from the previous ones in several important ways. They will concentrate attention on the frontiers of knowledge over a wide range of interrelated fields. There will be a small number of papers—all invited—and substantial time for discussion following them. Scientists from different fields will address themselves to the same problem. The final day of the symposium will be devoted to discussion in small groups dealing with problems that cut across several disciplines. Since the conference must be limited in numbers so as to promote fruitful exchange of ideas, participation will be by invitation only. The participants will focus attention on a few lines of investigation that seem, in the light of the symposium, to promise benefits from international or interdisciplinary collaboration. Rather than summarize the results of past work, the discussion will, it is hoped, concentrate on new directions for research.

The future utility of the resource base for large segments of the arid zone around the world is far from secure. If their occupancy is to be maintained or extended, the exchange and application of present information must be accelerated and new understandings must be won. The fact that the meetings will be held in a region whose future seems closely linked with the solution of troublesome questions of salinity, silting, and land use should add weight to this emphasis.

See advertising pages of this issue for registration and housing information. For copies of the program or other information, write American Association for the Advancement of Science, 1515 Massachusetts Avenue, NW., Washington 25, D.C., U.S.A. Cable: Advancesci Washington.

It is estimated that scientists from more than 25 countries will take part. The range of the problems to be considered and of the experience of those invited to give papers is shown in the following preliminary program.

Symposium: What Is the Future of Arid Lands?

26 APRIL

Evening lecture, 8 P.M. (open to the public). *Chairman,* George W. Beadle, department of biology, California Institute of Technology, Pasadena, and president of the AAAS, welcome for the Association; The Honorable John Simms, Governor of New Mexico, welcome for the Southwest; Tom J. Popejoy, president of the University of New Mexico, welcome for the University; Joe Dennis, department of chemistry, Texas Technological College, Lubbock, and president of the Southwestern and Rocky Mountain Division of the AAAS, welcome for the Division. Address by Homer L. Shantz, Santa Barbara, Calif., "History of arid zone development and the problems and potentialities of arid lands."

27 APRIL

Technical session I, Variability and predictability of water supply in arid regions. Questions: How predictable is precipitation in an arid region? Are there distinct drought cycles? What are the prospects for usable ground water occurrence in arid areas? What is the practicability of locating and estimating volume and rate of natural recharge of underground water supplies? Within a given watershed, to what degree can the water sources and water yield be determined? *Chairman,* Reed W. Bailey, director, Intermountain Forest and Range Experiment Station, U.S. Department of Agriculture, Ogden, Utah.

9 A.M. C. W. Thornthwaite, director, Johns Hopkins Laboratory of Climatology, Seabrook, N.J.

9: 30 A.M. Jean Tixeront, ingenieur en chef des Travaux Publics, Tunis.

10 A.M. Luna Leopold, Water Resources Division, Geological Survey, U.S. Department of the Interior, Washington, D.C.

10: 10 A.M. F. Dixey, director of Colonial Geological Surveys, Imperial Institute, London.

10: 20 A.M. C. C. Wallén, assistant director, Swedish Meteorological and Hydrological Institute, Stockholm.

10: 40 A.M. John H. Dorroh, Jr., hydrologist, Soil Conservation Service, U.S. Department of Agriculture, Albuquerque.

10:50 A.M. Terah L. Smiley, geochronologist, Laboratory of Tree-Ring Research, University of Arizona, Tucson.

11 A.M. Discussion.

11: 45 A.M. Summary by the chairman.

Technical session II, Better Use of Present Resources. Questions: What are the possibilities of increasing and maintaining sustained production from grass and forest lands without accelerating erosion? What are the consequences of utilizing arid lands beyond their capabilities? What constitutes wise allocation of available water supplies among the various needs in arid land drainage areas? How can production be increased from existing water supplies? Can irrigated lands be occupied permanently? *Chairman,* Kanwar Sain, chairman, Central Water and Power Commission, Ministry of Irrigation and Power, New Delhi, India.

2 P.M. R. O. Whyte, agronomist, Agriculture Division, Food and Agriculture Organization of the United Nations, Rome.

2: 30 P.M. L. N. McClellan, assistant commissioner and chief engineer, Bureau of Reclamation, U.S. Department of the Interior, Denver, Colo.

3 P.M. Hilgard O'Reilly Sternberg, Centro de Pesquisas de Geografia do Brasil, faculdade nacional de filosofia, Universidade do Brasil, Rio de Janeiro.

3: 10 P.M. L. A. Richards, physicist, Salinity Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Riverside, Calif.

3: 20 P.M. Cyril Luker, field representative, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C.

3: 40 P.M. Raymond Price, director, Rocky Mountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Fort Collins, Colo.

3: 50 P.M. Pedro Armillas, archeologist, Instituto Nacionale de Anthropologia, Mexico City.

4 P.M. Discussion.

4: 45 P.M. Summary by the chairman.

Evening lecture, 8 P.M. (open to the public). *Chairman,* Peter C. Duisberg, Southwestern Irrigated Cotton Growers Association and Desert Products Company, and chairman, Committee on Desert and Arid Zone Research of the Southwestern and Rocky Mountain Division, AAAS. Address by Charles E. Kellogg, assistant administrator for soil survey, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C., "Current status of arid zone research and development."

28 APRIL

Technical session III, Prospects for Additional Water Sources. Questions: How practicable is it to induce precipitation? How practicable is it to demineralize saline water? How practicable is it to reuse waste waters? What are the social and economic implications of these programs? *Chairman,* E. J. Workman, president, New Mexico Institute of Mining and Technology, Socorro.

9 A.M. Edward G. Bowen, chief, Division of Radiophysics, Commonwealth Scientific and Industrial Research Organization, Sydney, Australia.

9: 30 A.M. Sheppard T. Powell, consulting engineer, Baltimore, Md.

10 A.M. W. F. J. M. Krul, professor at the University of Delft, and director, Government Institute of Water Supply, The Hague, Netherlands.

10: 10 A.M. Vincent J. Schaefer, director of research, The Munitalp Foundation, Schenectady, N.Y.

10: 20 A.M. Glenn W. Brier, chief, Meteorological Statistics Section, U.S. Department of Commerce, Washington, D.C.

10: 40 A.M. H. E. Hayward, director, Salinity Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Riverside, Calif.

10: 50 A.M. Louis Koenig, associate director, Southwest Research Institute, San Antonio, Tex.

11 A.M. Discussion.

11: 45 A.M. Summary by the chairman.

Technical session IV, Better Adaptation of Plants and Animals to Arid Conditions. Questions: What screening procedures would lead to the selection of more productive plant and animal species for arid regions? What are the genetic and physiological bases for drought resistance in plants and animals? What are the prospects of increasing drought resistance through genetic research? How can we develop a program of revegetation? What are the economic possibilities in the development and utilization of arid land plants and animals? What are the possibilities of maintaining larger human populations in arid areas? *Chairman,* Olaf S. Aamodt, technical specialist, plant sciences, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md.

2 P.M. Colonel Omar Draz, Egyptian Army Veterinary Corps, director, Desert Range Development Project, Desert Institute, Heliopolis, Egypt.

2: 30 P.M. R. Merton Love, professor of agronomy, Agricultural Experiment Station, University of California, Davis.

3 P.M. Knut Schmidt-Nielsen, professor of zoology, Duke University, Durham, N.C.

3: 10 P.M. Enrique Beltrán, director, Instituto Mexicano de Recursos Naturales Renovables, Mexico City.

3: 20 P.M. B. P. Uvarov, director, Anti-Locust Research Centre, London.

3: 40 P.M. Michael Evenari, professor of botany and vice president, The Hebrew University, Jerusalem.

3: 50 P.M. L. M. Pultz, principal horticulturist, Agricultural Research Service, U. S. Department of Agriculture, Beltsville, Md.

4 P.M. Discussion.

4: 45 P.M. Summary by the chairman.

Evening lecture, 8 P.M. (open to the public). *Chairman,* Gilbert F. White, president, Haverford College, chairman, AAAS Planning Committee for the meetings, and U.S. member, UNESCO Advisory Committee on Arid Zone Research. Address by B. T. Dickson, botanist, retired chief, Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization, Canberra, Australia, "The challenge of arid land research and development for the benefit of mankind."

29 APRIL

Discussion groups.

1) "Possibilities for drought prediction in arid areas," *chairman,* Erik K. Reed, regional chief of interpretation, National Park Service, U.S. Department of the Interior, Santa Fé, N.M.

2) "Possibilities for weather modification and control in arid areas," *chairman,* S. E. Reynolds, Research and Development Division, New Mexico Institute of Mining and Technology, Socorro.

3) "Prospects for improved estimation of underground water resources and recharge rates," *chairman,* R. W. Sundstrom, district engineer, Ground Water Branch, Geological Survey, U.S. Department of the Interior, Austin, Tex.

4) "Irrigation and industrial possibilities of desalination and planned use of saline water," *chairman,* T. F. Buehrer, head, department of agricultural chemistry, College of Agriculture, and Agricultural Experiment Station, University of Arizona, Tucson.

5) "Possibilities for water conservation and maintenance of favorable salt balances on irrigation projects," *chairman,* M. R. Huberty, head, department of irrigation and soils, University of California, Los Angeles.

6) "Prospects for grassland range improvement and conservation in arid areas," *chairman,* K. S. Valentine, associate professor of animal husbandry, New Mexico College of Agriculture and Mechanic Arts, State College.

7) "Potential relationships between soil conservation practices and watershed yield in arid areas," *chairman,* Robert B. Hickok, supervisor, Southwest Watershed Studies, Agricultural Research Service, U.S. Department of Agriculture, Albuquerque.

8) "Importance of wildlife conservation in arid areas," *chairman,* Walter P. Taylor, visiting lecturer, The Claremont Graduate School, Claremont, Calif.

9) "Possibilities for development of drought-resistant plants for arid areas," *chairman,* Lora M. Shields, department of biology, New Mexico Highlands University, Las Vegas.

10) "Possibilities for desert plant utilization in arid areas," *chairman,* E. F. Castetter, dean, graduate school, and chairman, department of biology, University of New Mexico, Albuquerque.

11) "Possibilities for animal improvement and utilization in arid areas," *chairman,* H. L. Stahnke, head, Department of Biological Science, Arizona State College, Tempe.

12) "Administrative and legal problems of arid land development," *chairman,* R. H. Walker, dean and director, Agricultural Experiment Station, School of Agriculture, Utah State Agricultural College, Logan.

13) Special symposium and discussion group. "Problems of the upper Rio Grande—a typical arid zone watershed," *chairman and program,* to be announced.

30 APRIL–1 MAY

Field trip. The field trip (limited to the first 222 who apply) will leave Albuquerque the morning of 30 April and will proceed to El Paso, Tex., by way of the Estancia Valley and White Sands. Major stops will be made at White Sands, the malpais area west of Carrizozo, and other points. During the evening in El Paso, John H. Leasure, chairman, National Convention of the Cactus and Succulent Society of America, will show colored slides of cacti for those who are interested. On the return from El Paso to Albuquerque on 1 May, the trip will go up the Rio Grande Valley with stops at a large irrigated pecan orchard, a cotton farm, Elephant Butte Dam, and other locations. (Further details about final itinerary and arrangements may be obtained from Dr. J. Linton Gardner, P.O. Box 127, State College, N.M., U.S.A.)

2–4 MAY

Conference (attendance by invitation only). Host institution, New Mexico Institute of Mining and Technology, Socorro.

There is much to be said for the view that the human intellect is a tool devised for dealing with our material environment and is most reliable when so engaged. Divorced from action on the environment, the human intellect turns in on itself and functions as uselessly as a squirrel in a cage, or as the engine of a car before the clutch has been let in.
—EDITORIAL, *Nature,* 19 Aug. 1939.