Antarctic Research Symposium

26–29 December 1968
Dallas, Texas

The United States Antarctic Research Program (USARP) was established to follow up the Antarctic research carried out during the International Geophysical Year (IGY), 1957–58. USARP constitutes a national research program, administered, funded, and coordinated by the National Science Foundation as an expression of the country's interest in research opportunities afforded by the Antarctic. Under the terms of the Antarctic Treaty the United States has joined with 15 other nations in "ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony . . . on the basis of freedom of scientific investigations . . . as applied during the International Geophysical Year." Biology and geology, which received little or no recognition under the IGY, have become important parts of the USARP.

A symposium on Antarctic research is scheduled (26–29 December 1968) during the Annual Meeting of the American Association for the Advancement of Science. Its purpose will be to present a series of research and review papers in the various scientific disciplines actively pursued under USARP. The symposium seeks to highlight the contributions of Antarctic research to the solution of major problems on the frontier of science rather than describe the Antarctic program or the Antarctic itself. Concurrently, throughout the week of the meeting a series of motion pictures on Antarctica, covering many aspects of research not included in the sessions, will be shown.

Following the introductory session on the afternoon of 26 December, six scientific sessions, from the 27th through the 29th, will cover aspects of the upper atmosphere, the earth sciences, and biological activities. The feature paper of the introductory session will be given by Laurence M. Gould (past president of AAAS and currently president of the Scientific Committee on Antarctic Research of the International Council of Scientific Unions; chairman of the Committee on Polar Research, National Academy of Sciences–National Research Council; and a veteran of Antarctic geological research since 1928).

T. O. Jones (former head of Office of Antarctic Programs and now director of the Division of Environmental Sciences, National Science Foundation) will speak on the Foundation's responsibilities and success in international cooperation under USARP. L. O. Quam (formerly with the Office of Naval Research and now chief scientist of the Office of Antarctic Programs) will open the symposium.

A major expeditionary effort to the ends of the earth, such as the USARP, cannot be successfully mounted without competent logistic assistance. The orderly development of the scientific work in the field is wholly due to the assistance rendered by the Field Requirements and Coordination Program of the National Science Foundation and logistic support by the Naval Support Force, Antarctica.

The scientific program on meteorology entitled "Cold Poles and Heat Balance" will emphasize the role of the major heat sink of the earth on the global circulation of the atmosphere. Following this will be a session on the upper atmosphere documenting the unique advantage of Antarctica in the study of electromagnetic phenomena and solar-terrestrial relations. Emphasis will be given to germane experiments conducted in both polar regions on conjugate phenomena.

The ecosystems of a harsh land and of a productive ocean provide biologists with challenging problems and unique insights into the adaptation of organisms to environment. The introduction will serve to bring out the overall activity of United States biologists under the Antarctic program and the regional distribution of research. A survey of the principal classes of marine organisms with reference to their distribution and relationship to Antarctic ecosystems will be followed by a discussion on primary productivity in Antarctic waters with reference to phytoplankton cycles and distribution. The terrestrial ecosystems will emphasize the ecology of the land vegetation. The biological session will conclude with a summary of research on birds and seals of Antarctica and of their role in the Antarctic ecosystem.

The Antarctic research vessels *Eltanin* and *Hero* and the Coast Guard icebreakers provide the major platforms for oceanographic research in the Antarctic Ocean. The problems of the Antarctic polar front, or convergence zone, and of the origin of the cold, deep waters of the oceans are among the topics which challenge the oceanographer.

The glaciology session will present new concepts on the length and nature of the Great Ice Age and will feature the potential for detailed deciphering of the climate of the past existing in a 7100-foot ice core recovered from a hole drilled to the bottom of the ice cap at Byrd Station.

The symposium will conclude with a discussion of new geologic, geophysical, and paleontological evidence for Gondwanaland and continental drift.

L. O. QUAM
National Science Foundation, Washington, D.C.

Speakers and Topics

26 December

Introductory Session

Chairman and Opening Remarks: Louis O. Quam.

International Cooperation–T. O. Jones (National Science Foundation).

History of Scientific Committee on Antarctic Research (SCAR)–Laurence M. Gould (University of Arizona).

27 December (morning)

Cold Poles and Heat Balance

Chairman: M. J. Rubin (ESSA).

Influence of Antarctic on Global Circulation of Atmosphere–Henry Van Loon (National Center for Atmospheric Research).

Antarctic Atmosphere as a Test Tube for Theories in Meteorology–Heinz Lettau (University of Wisconsin).

Macro Climate and Heat Balance–Paul Dalrymple (U.S. Army Natick Laboratories).

Stratospheric and Mesospheric Circulation–Paul Julian (National Center for Atmospheric Research).

27 December (afternoon)

Conjugate Phenomena

Chairman: Ray R. Heer, Jr. (National Science Foundation).

Investigation of the Ionosphere and Magnetosphere Using VLF Techniques–Robert A. Helliwell (Stanford Electronics Laboratories).

Investigation of the Effects and Interaction of Solar Evaporated Particles with the High Atmosphere–James R. Barcus (University of Denver).

Riometer Study of the Dynamics of Conjugacy over a Few Hundred Kilometers at D Region Altitudes–G. C. Reid (ESSA).

Aurora Studies from Aircraft Flying Conjugate Paths over Alaska and the Tasman Sea–T. Neil Davis (University of Alaska).

Study of Magnetospheric Conjugacy Using Micropopulation Techniques–Charles R. Wilson (University of Alaska).

Comparison of Simultaneous Cosmic Ray Flux in the Two Polar Regions–Martin A. Pomerantz (Bartol Research Foundation of the Franklin Institute).

28 December (morning)

Dynamics of Antarctic Ocean

Chairman: Mort D. Turner (National Science Foundation).

Antarctic Water Structure and Polar Front Zone–Arnold L. Gordon (Lamont Geological Observatory).

How Variable Is the Antarctic Circumpolar Current?–Henry Stommel and J. Bowen (Massachusetts Institute of Technology).

Antarctic Contribution to Water Circulation–Bruce A. Warren (Woods Hole Oceanographic Institution).

International Weddell Sea Expedition–Robert Elder (U.S. Coast Oceanographic Unit).

28 December (afternoon)

Antarctic Marine and Terrestrial Ecosystems

Chairman: George A. Llano (National Science Foundation).

Biogeographic Aspects of Some Antarctic Ecosystems–Joel W. Hedgpeth (Oregon State University).

Dynamics of Trophic Relationships in the Southern Ocean–Sayed Z. El-Sayed (Texas A&M University).

Ecology of Land Plants–Emanuel D. Rudolph (Ohio State University).

Long-Term Studies on Antarctic Birds and Seals–William J. L. Sladen (Johns Hopkins University).

29 December (morning)

Glaciology

Chairman: A. P. Crary (National Science Foundation).

Accumulation of the Antarctic Sheet–Colin Bull (Ohio State University).

Thickness of the Ice Sheet and Character of Floor–A. P. Crary (National Science Foundation).

The Deep Bore Hole and Potential Ice Core–Chester C. Langway (U.S. Army Terrestrial Sciences Center).

Glacial Geomorphology of Victoria Land–George H. Denton (American Geographical Society) and Robert Nichols (Tufts University).

29 December (afternoon)

Antarctica-Gondwanaland-Continental Drift

Chairman: Louis O. Quam.

Geologic Evidence–J. C. Crowell or L. A. Frakes (University of California).

Evidence from Geochronology–Martin Halpern (Southwest Center for Advanced Studies).

Paleontological Evidence–Paul Tasch (Wichita State University).

New Evidence from Vertebrate Paleontology–E. H. Colbert (American Museum of Natural History).

Ocean Spreading and Paleomagnetism–J. R. Heirtzler (Columbia University).

General Program Notes on the AAAS Annual Meeting (26–31 December 1968) appear in the 4 October issue of Science. *Hotel reservation forms and meeting and tour registration forms appear in this issue of* Science. *Reports of symposia at the Meeting appear in the following issues: 13 September, "Sport and Its Participants"; 20 September, "The Control of Fertility"; 27 September, "Unanticipated Environmental Hazards"; and 11 October, "Continuing Education for Engineers."*