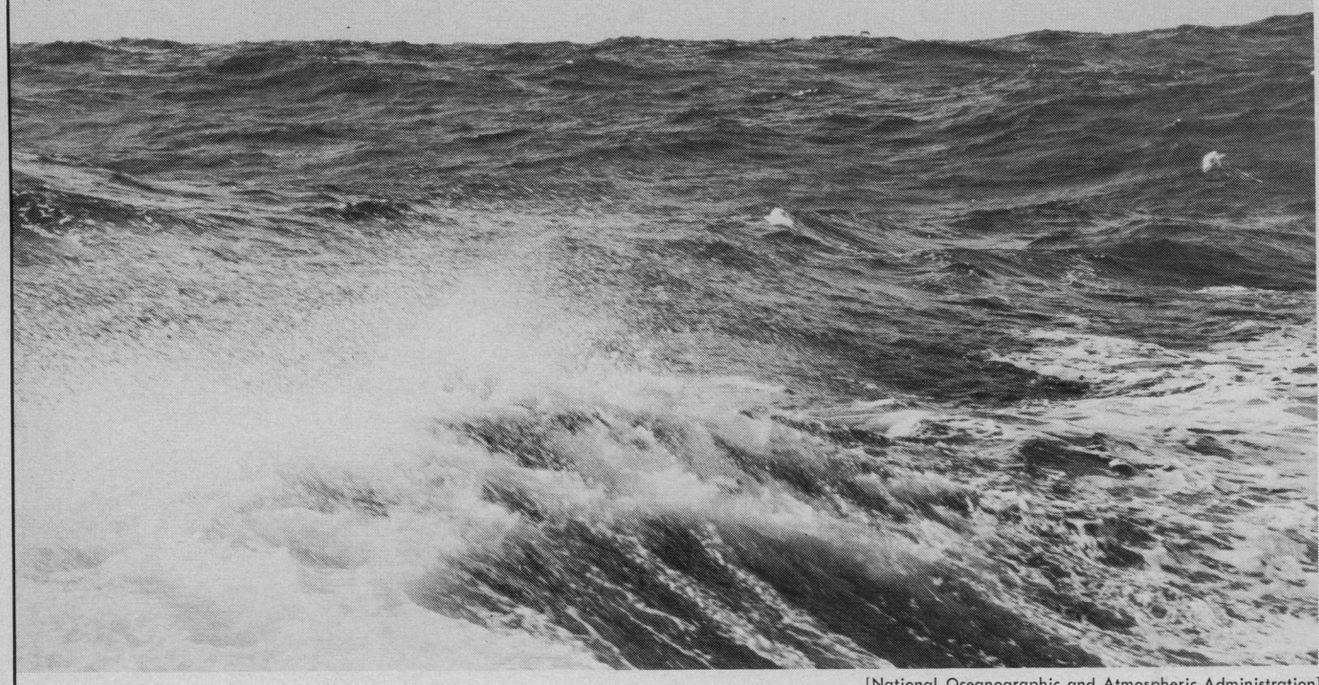

[National Oceanographic and Atmospheric Administration]

**28–29 December**

## Ocean Symposium

Over the past 10 years, the American scientific community, as well as the executive and legislative branches of the federal government, have been inundated with reports relating to the ocean, to oceanography, to marine technology, and to the importance of all of these fields within the framework of today's social, economic, and geopolitical problems. The present sequence started with the 12-chapter report of the National Academy of Sciences Committee on Oceanography entitled *Oceanography 1960 to 1970*. The sequence essentially ended with the outstanding report of the Stratton Commission, *Our Nation and the Sea*. An incredible number of man-hours has been spent both in producing these numerous documents and in reading and commenting on them. Most of the U.S. scientific community is now sated with reports on oceanography, and the question that is most often heard now is "What are we really *doing* about the oceans?"

The American Association for the Advancement of Science has planned a 2-day symposium on the oceans as part of their Annual Meeting in Philadelphia. This symposium is planned to bring us all up to date on the present status of ocean science; to provide a summary of the issues facing the country today insofar as the ocean is concerned; to discuss the future of the ocean insofar as the United States is concerned; and to describe and discuss the federal role in the national program in oceanography.

The best way to determine what, in fact, is happening in the ocean arena today and to predict what lies ahead is to have as speakers the top men in the ocean business, and this is indeed what the AAAS Section on Atmospheric and Hydrospheric Sciences has managed to accomplish. On the morning of 28 December, John Calhoun (chairman, National Academy of Sciences Ocean Affairs Board) will chair a session planned to bring the American scientific community up to date on the present status of our knowledge in the five major fields of marine science: physical oceanography, chemical oceanography, marine geology and geophysics, marine biology, and marine engineering. For too long, the marine scientists have been isolated from the engineers. This situation, in part, is because the results of marine scientific work have not generally been available to engineers nor have these results been translated into useful knowledge for the engineers who are involved in trying to accomplish something meaningful in the ocean. That era, however, now appears to be ending, and the scientists and the engineers will brief us on the present state of the art in their respective fields (morning session on 28 December).

On the afternoon of 28 December, the session will be concerned with today's major issues in oceanography. Chaired by E. Seabrook Hull (editor, *Ocean Science News*), the session will include discussions on marine pollution, coastal zone management, the law and the sea, the role of industry, and international problems and opportunities.

In the English language there is probably no phase more internally contradictory than "the foreseeable future." The one thing that we know about the future is that it is not "foreseeable." Any discussion of the future of oceanography in the United States must be highly speculative at best. However, on the morning of 29 December the AAAS will hold a session entitled "The Oceans and the Future." What we have tried to do is corral the very best man in each area to give us his feelings on what the future holds in each of five specific areas: food from the sea, minerals from the sea, weather and the sea, national defense and the sea, and man in the sea.

The final session on the afternoon of 29 December is dedicated to "The Federal Role." This session will be chaired by George Reedy (former press secretary to President Johnson and mem-

ber of the Commission on Marine Science, Engineering and Resources). Robert M. White (administrator, National Oceanographic and Atmospheric Administration), has already agreed to participate for that agency. Representatives are also invited from the Environmental Protection Agency, the President's Office of Science and Technology, the House of Representatives, and the Senate. This last session could very well be the highlight of the 2-day meeting and might point the way toward this country's future direction in marine science.

Over the past several years, much has been said about the importance of the oceans to our national welfare; much has been written about the importance of the ocean to the future welfare—even to the survival—of mankind. The AAAS wants this symposium to provide a rare insight into the present status of marine science, the marine issues which face the country today, the hope which we might expect for the future, and the role which the federal government must play in converting these hopes into marine realities.

The day of the "Madison Avenue" approach to the oceans is over. We have all heard of the "untapped treasure troves on our continental shelves," of the "potential of the ocean for feeding the world's starving millions," and the fact that "the seas cover 71 percent of the earth's surface." It is time that we cut through the flowery prose, the well-formed phrases, and the glowing rhetoric to get to the basic facts at issue. How much do we know about the oceans today? What are the real problems we now face for which the solutions lie in the ocean? What does the future look like insofar as the oceans are concerned? And finally, what role does the federal government play in all of this? This symposium will answer these questions by bringing together in one place and at one time the top people in the field. This will be a good session, and hopefully from it will come the guidelines within which will be shaped the national policy relating to the oceans for the years ahead.

HARRIS B. STEWART, JR.
*National Oceanographic and Atmospheric Administration, Atlantic Oceanographic and Meteorological Laboratory, Miami, Florida*

**30 December**

## Technology and Growth in a Resource Limited World

The role of technological innovation, in meeting the challenge of the environmental crisis, and in meeting the longer-term challenge of providing an expanding range of economic opportunities for those people—both in the United States and elsewhere—who have not yet achieved a reasonable share of the affluent society, without the stimulus of a continuously expanding population and increased use of nonrenewable resources.

**30 December (morning)**

Arranged by Robert U. Ayres (International Research and Technology Corp., Washington, D.C.).

Robert U. Ayres, Introduction.

Dennis L. Meadows (Massachusetts Institute of Technology), *Long-Term Resource Forecast.*

Ronald Ridker (Resources for the Future, Inc., Washington, D.C.), *Population and Economic Growth.*

Allen Kneese (Resources for the Future, Inc.), *Implications of a Recycling Economy.*

Mancur Olson (University of Maryland), *Social Implications of No-Growth.*

Herman Kahn (Hudson Institute, Croton-on-Hudson, N.Y.), *International Implications of No-Growth.*

**30 December (afternoon)**

Anthony Wiener (Hudson Institute), *Institutional Innovation: Changing Functions of Corporations.*

Clark Rees (New York City Planning Commission) and Herbert Fox (New York Institute of Technology), *Urban Technology—Does It Imply Growth or No-Growth?*

J. H. Hollomon (M.I.T.), *Role of Government as Promotor/Inhibitor of Innovation.*

Robert U. Ayres, *The Future of Innovation.*

**30 December**

## A Search for the Recognizable Goals and Constraints of the Steady State Earth

With the recognition that the population and the per capita use of materials cannot grow indefinitely, the concept of the Steady State Society is being discussed at a number of centers. These discussions generally consider the constraints placed on human population and activity if man is to survive on this planet, the goals that must be reached for society to seem worthwhile, and the technology needed to meet these goals and constraints. This seminar provides a forum for several of these centers of discussion, as well as an opportunity to hear of alternatives to the Steady State. Without reacting to the many immediate fragmentary needs that meet us daily, the speakers will consider the nature of the dynamic society of fixed population, on the finite earth, with finite resources.

**30 December (morning)**

Arranged by Perry L. Blackshear, Jr. (University of Minnesota, Minneapolis).

Daniel J. Fennell (Institute on Man and Science, Rensselaerville, N.Y.), *Individuals and Organizations in the Steady State Society.*

Mulford Q. Sibley (University of Minnesota, Minneapolis), *A Political Scientist's View of the Steady State Society.*

Earl Cook (Texas A&M), *Energy in the Transition to the Steady State.*

**30 December (afternoon)**

Ariel Lugo (University of Florida), *An Ecological View of the Steady State Society.*

Arthur Kantrowitz (Everett Research Center, Everett, Mass.), *Alternatives to the Steady State Society.*

George Buglierello (University of Illinois, Chicago Circle), *Science Technology and Society.*

*Plan to visit the AAAS Science Film Theatre in the Grand Ballroom of the Bellevue-Stratford Hotel. Open 27–30 December from 10 a.m. to 3 p.m. with continuous showings during the lunch hour. As a special feature, the National Bureau of Standards "Noise Presentation" will be shown each day at 10 a.m., 12 noon, and 3 p.m.*