

Special Notice for Advance Registrants at the Toronto Meeting

Due to limited supplies, many advance registrants did not receive a free copy of the 1981 *Science* cover calendar with their registration materials at the AAAS Annual Meeting in Toronto. If you are one of these people, please send your name and address to Sue Stinchcomb, AAAS Sales Department, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Calendars will be mailed as soon as possible.

We sincerely apologize for the inconvenience.

Earlier this winter, the AAAS R&D Budget and Policy Project sponsored preparation of a report, *Congressional Action on R&D in the FY 1981 Budget*, which summarizes congressional action, up to adjournment of the 96th Congress in mid-December, on President Carter's recommendations for R&D in the FY 1981 budget. A limited number of single copies of both the *FY 1981 Congressional Action Report* and the *FY 1982 Preliminary Analyses* are available from the Office of Public Sector Programs at the AAAS address.

For the sixth year the AAAS R&D Budget and Policy Project will convene a colloquium in Washington, D.C., at which leaders from government, industry, and the scientific and technical communities will discuss issues of current concern relating to research and development and public policy.

The R&D and Public Policy Colloquium will be held 25-26 June 1981 at the Shoreham Hotel in Washington, D.C. In keeping with AAAS policy, the meeting will be accessible to handicapped participants.

The colloquium will address federal R&D, the FY 1982 budgets of Presidents Carter and Reagan, emerging policies on R&D of the new Administration and the 97th Congress, R&D and industry, and defense R&D. *Research and Development: AAAS Report VI* will be available in book form in time for the June colloquium.

Research into Effects of a CO₂-Climate Change Suggested

The kinds of research most needed to help nations and institutions cope with a carbon dioxide (CO₂)-induced climate

change are the focus of a new report issued by AAAS and the U.S. Department of Energy (DOE).

Environmental and Societal Consequences of a CO₂-Induced Climate Change: A Research Agenda is the product of a 2-year collaboration between the Carbon Dioxide Effects Research and Assessment Program of DOE and the AAAS Climate Project.

The study assumes a continuation of increasing CO₂ levels in the atmosphere and concentrates on the impacts this will have on societies.

Roger Revelle, chairman of the project's steering group and professor of science and public policy, University of California, San Diego, has noted the following eight elements which describe the CO₂ problem:

- 1) The problem is global. All countries have added carbon dioxide to the atmosphere and all will be affected by its consequences.
- 2) The probable outcome is beyond human experience. Temperature averages will be warmer than those within the past 100,000 years.
- 3) The problem is long-range. As the use of fossil fuels increases, the gradual buildup of carbon dioxide in the atmosphere will continue, with effects which may not be felt for many years.
- 4) The buildup of carbon dioxide in the atmosphere is only one aspect of the global energy situation. The buildup of atmospheric CO₂ will be affected by the mix of energy sources as well as by the rates of energy use.
- 5) The role of the less-developed countries will be more important in the future. The percentage of fuels used by these countries will increase, and a large portion of the energy they use is likely to come from fossil fuel.
- 6) International agreements concerning the CO₂ problem will be very

difficult to arrange. Each nation and society can be expected to act in its own interest, often at the expense of other societies.

- 7) Quantitative estimates of costs and benefits are not now possible. Many factors, including the rate at which fossil fuels are used in the future and how well institutions respond to climate change, make it impossible to assess long-range costs and benefits.
- 8) The range of probable outcomes can be estimated. Increased understanding of the problem will make it possible to begin to put together policies which will increase the benefits and decrease the costs of a CO₂ climate change.

The report suggests three major areas for future research. These are

- Assessments of potential risks and benefits. This includes situations where human intervention is unlikely to be effective, that is, a major change in the west Antarctic ice sheet, or the effects on marine and freshwater ecosystems.

- Enhancing beneficial effects and lessening harmful ones. Research is called for in agriculture, forestry, and animal husbandry. The report recommends developing crop strains which will take full advantage of higher temperatures and CO₂ levels.

- Societal and institutional responses. A range of possible scenarios should be compiled by scientists in different disciplines. How people in different cultures respond to perceived risk and how decisions are made need to be analyzed.

The AAAS/DOE report urges that scientists from the broadest possible range of disciplines be involved in planning a research program on the questions raised by the CO₂ situation. Participation by the governments as well as by the scientists from less-developed countries is deemed critical in establishing long-range research projects.

Copies of the report, *Environmental and Societal Consequences of a Possible CO₂-Induced Climate Change: A Research Agenda*, are available from the National Technical Information Service, U.S. Department of Commerce; \$12.50, printed copy; \$3.50, microfiche.

For more information about the activities and publications described in AAAS News, write to the appropriate office, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036, unless otherwise indicated.