regarding the nature and quality of the data produced by such studies, and the way in which the data can and should be used. For example, when is a threshold a true threshold and when is it a culturally determined number?; and how do we assign differential weights to the various components making up a set of environmental indicators?

Environmental scientists must come to grips with the problems of mathematical modeling of environmental systems. Some models are based on oversimplifications, while other models for smaller systems are highly multivariate with all variables incorporated in the modeling procedure. Which is the best approach for a given system? How sensitive are environmental models to changes in assumptions?

The half-day symposium entitled "An Evaluation of Forrester-type Growth Models" (26 December), arranged by Otomar J. Bartos of the University of Colorado, will examine growth simulations by comparing them with the known past. While these tests encounter numerous technical difficulties, a comparison of the actual development of four American cities with that predicted by the model suggests that the simulation is too pessimistic.

Does this comparison constitute a meaningful test of the model? What other ways of evaluating the model are there? What improvements, if any, are possible? The scientists participating in this symposium will seek answers to these questions.

Achieving Public Interests in Management of Land Resources

In Congress, in state legislatures, in county and regional planning bodies, and among the concerned public, there is a growing recognition that more effective land-use control is necessary to achieve more attractive, functional, rational, and environmentally sound patterns of land-use. The problems involved in the management of land resources are familiar, but rational solutions have been lacking.

Despite the apparent wide consensus on the importance of land-use controls to improve the quality of life, protect the environment, and meet the needs of population growth, the actual techniques of social control to accomplish land-use objectives are still quite primitive. Existing constitutional doctrines and legal theories for such control are narrowly based and social institutions for rationalizing the interrelated elements of land-use into effective public policies are woefully inadequate.

The symposium "Property Rights and Controls: Techniques and Institutions for Achieving Public Interests in Management of Land Resources" (27 December, Washington Hilton), arranged by Norman Wengert of Colorado State University, will examine what is known and what needs to be done to develop improved land-use controls.

Attorneys, economists, land management experts, sociologists, regional planners, political scientists, and others will be included in the program. Particular topics on which individuals will speak include: constitutional limitations on the control of land-use; relationships between population density or dispersal and land-use settlement and control; policies and problems related to land-use controls in megalopolis; managing growth in a fragile environment; prospects and problems of new towns; emerging federal interests in land-use controls and developing patterns of intergovernmental relations; and the political realities of land-use control.

This symposium promises to be one of the outstanding programs in this year's meeting as well as one having considerable relevance for the greater Washington, D.C., area.

NEPA: In Context, in Detail, in Court

Three programs in this year's meeting will focus on aspects of the National Environmental Policy Act (NEPA). One will examine broadly the act itself in the context of recent court decisions; the philosophy, methodology, and vigor of government agencies complying with NEPA; and the developments in environmental impact analysis.

A second will focus on the changes in the design requirements and the economic and national security issues surrounding the Trans-Alaska pipeline in order to examine the social-environmental decision process.

The third will examine and assess collaboration between lawyers and scientists in the environmental and public interest areas.

The National Environmental Policy Act of 1969 establishes a new standard of public accountability for the federal administrative agencies. NEPA places added responsibilities upon the agencies and the public alike to develop an environmental ethic and higher level of planning for public projects.

The act requires that the agencies now issue a comprehensive environmental impact statement on each federal action significantly affecting the quality of the human environment. As is now well known, noncompliance with the requirements of NEPA creates a cause of action enforceable by a citizen's lawsuit in the federal courts.

Despite the issuance of the primarily procedural guidelines of the Council on Environmental Quality and the development of the preliminary interagency draft review procedure, there is still a wide disparity in the quality of the statements which the agencies prepare. It has been the courts which have sharpened the substantive content of the impact statements.

Practical uncertainty still surrounds the state of the art of systematic environmental analysis and a proper balance must be struck between the data demanded for compliance with the act and the expense, staffing, and time limitations imposed upon the agencies.

At the Interface of Law and Science

The symposium entitled "The National Environmental Policy Act: At the Interface of Law and Environmental Science" (28 December), arranged by James W. Curlin of the Environmental Policy Division of the Library of Congress, will bring together lawyers, scientists, and administrators to discuss various aspects of NEPA in an interdisciplinary forum. Legislative history of the act will be discussed in the context of recent court decisions.

Agency representatives have been asked to discuss the current philosophy and methodology applied by their respective agencies in complying with NEPA. Representatives of the conservation organizations and intervener groups will comment on what they preceive as weaknesses or strengths of the agencies' approaches. Environmental scientists will discuss current developments in the methodology of envi-