This seminar disucssed the design and use of a small system, including its use in thematic mapping. A small cartographic system, as defined by A. R. Boyle, chairman of the seminar, is one which is centered around a minicomputer which allows interactive editing and incorporates the ability to produce many variations of a map in a short time. The small system should cost no more than $100,000.

Speakers represented Canada, Great Britain, the Federal Republic of Germany, and the United States. They discussed the various systems being used or implemented in their respective organizations.

Dr. A. R. BOYLE of the University of Saskatchewan (Canada), as chairman, provided an overview of small systems development in his paper entitled "Small Automated Cartographic Systems." State and local governments, governmental agencies and similar authorities considering converting their cartographic operations from manual to automated procedures must give consideration to the financial commitment required and to the component entities of a cartographic system. He discussed the work of the Graphic Systems Design and Application Group at the University of Saskatchewan, which has been involved in developments in automated cartographic systems utilizing available hardware and software.

The Natural Environment Research Council of Great Britain is involved in a wide range of disciplines in environmental science. SARAH B. M. BELL, representing the Council's Experimental Cartography Unit, described her organization's system and its use as a practical tool in regional problems of the environment. Her paper, written with D. P. BICKMORE, was entitled "Interactive Cartography at the Experimental Cartography Unit."

Dr. J. M. ZARZYCKI, Director of the Topographical Survey, Survey and Mapping Branch, of the Canadian Department of Energy, Mines and Resources, discussed "The Approach to Automated Cartography: Topographic Data Banks in Canada."

The major thrust of the Topographic Survey is towards the completion of 1:50 000 topographic maps of Canada and the revision of existing maps. Digitized terrain information, initially looked upon as a by-product of maps, is now stored in digital data banks which permit simple access, update, and retrieval of information. The terrain information data base and data bank concepts are integral parts of the system. Other features of the system, including hardware, were also discussed.

"Computer-Assisted Thematic Mapping With a Dedicated Minicomputer" was the title of the paper presented by WOLF D. RASE of the German Federal Research Institute for Applied Geography and Planning. This organization is developing a small, user-oriented information system for spatial research and planning on the Federal level. The computer-assisted production of thematic maps is one of the most important functions in this system. The hardware for mapping purposes consists of a digitizer, a flatbed plotter, and an interactive storage display. These graphic devices are controlled by a minicomputer with some peripheral equipment. Three groups of applications, including error-minimizing digitization of points and boundary networks; drafting of thematic maps with different levels of quality up to immediate use for printing; and the interactive design of maps and diagrams, were also discussed.

RICHARD PRYTULA of Canada's Dynamap, Ltd., discussed the considerations that should be taken into account when acquiring an interactive graphics system. He concluded that the system should meet the agency's needs; it should be efficient, flexible and have the full support of the manufacturer.

HOWARD CARR of the U. S. Army Engineer Topographic Laboratories (Fort Belvoir, Virginia) briefly described current hardware developments and associated software at the Army Engineer Topographic Laboratories.