THURSDAY PLENARY SESSIONS

Alberta Wood chaired the plenary session on Federal Systems: A Progress Report. Clearly only a sample of the current progress in the federal sector could be reported, although additional contributions are included throughout the rest of these two volumes. Robert McEwen reported on the U.S.G.S. digital cartographic data base. In his paper he notes that the U.S.G.S. has established a Digital Cartographic Applications Program to produce, manage, and distribute digital cartographic data. The data will include digital elevation models and digital line graphics and will have accuracy and content equivalent to the standard 1:24,000 scale maps. Small scale maps are also being digitized to allow the preparation of special index maps and computer graphics. An essential component of the program is the Digital Cartographic Data Base. The first phase of the data base has been implemented and consists of a data management system, data processing programs, index graphics and reports, and a series of highly structured data formats.

Robert Penney presented a paper on "The Ascendancy of Digital Cartography in DMA's Future". It points out that manual and automatic digitizing, are the focus of significant changes currently taking place in the Defense Mapping Agency (DMA). The flexibility of digital data, along with the evolving requirements of the Military Services, are leading to its use as an integral part of many new training and operational procedures and weapons systems. DMA is now laying the foundation in the Mapping, Charting and Geodesy (MC&G) community for an all digital production system in the 1990's. This paper addresses the evolution into this potential system using the developments that have led us to this posture as lessons for the future while covering the inherent problems that need to be solved.

Dave Holland discussed his paper "Large System Mapping and Related Data Base Experience". The paper reports that the Defense Mapping Agency has digitized a variety of map and chart related data. Our largest data base contains digitized terrain elevations. What started as an experimental effort in 1964 has grown to a large production data base operation. These holdings were

derived from maps and aerial photography. This paper describes the terrain elevation data base's contents, how it has been obtained and production changes that have taken place, based on experience.

Gene Johnson reported on the Soil Conservation Service's National Soils Data Base. In his paper he notes that in 1967 the SCS initiated a study to analyze the potential of a computer mapping system. The objective was to provide soil information in digital form for quick production of interpretive maps. On June 30, 1978, a system was accepted and put into full production. To meet the large demand, an automatic scanner was incorporated as part of the system. The system has the capability to correct errors, enter text, digitize culture, produce high speed plots, and produce a high quality map on an automatic drafting machine with a photo head. The system is capable of processing twenty-four 10" x 15" soil maps in a period of eight hours. Future uses will include digitizing soil information for other programs of the SCS to be used in conservation planning, land inventory and monitoring, river basin studies and flood hazard analyses.

Larry Hugg discussed the 1980 Census update. He emphasized the geographic products and the related summary tapes. He stressed that the 1980 Census will provide data with more geographic detail than any previous decennial census. All of this information will be available on computer Summary Tape Files (STF's) as well as printed reports and microfiche. The STF's will contain more detailed cross-tabulations of data and certain data will be at a more detailed geographic level than found in printed reports. Certain geographic products associated with the 1980 census have been developed and can be used in different aspects of geographic information processing. These products include the Master Area Reference File (MARF), census outline maps, and GBF/DIME files.

The final plenary session focussed on interactive mapping systems and was chaired by Roger Tomlinson. Fred Broome discussed interactive map design. He contended that the opportunity to use an interactive graphic station to make maps has traditionally been oriented to specific error detection and correction and, in some cases, to preview production map models. The map user community is often defined by cartographers as

cartographers, yet that community increasingly includes users without prior map design or map production experience. He suggested that map design criteria can be structured to permit inexperienced map users to design maps. Criterion such as neat line, figure ground to object relationship and legends can be pre-programmed in a manner which allows interactive map design. This would allow both the inexperienced user and the cartographer to enter the design process. Research should be carried out to track design decision by monitoring the commands to the computer system.

Tom Waugh discussed his paper "Interactive Compilation Using GIMMS". He described the COMPILE subsystem of the GIMMS and discussed the purpose of this module and its design and implementation. The emphasis on main-frame use of GIMMS and its effect on the user interface and the method of operation were demonstrated. A user language, he noted, should focus on providing access to most system features while not compromising the interactive compilation needed for cartographic users. He demonstrated his system with a videotape presentation.

Dennis White presented a paper on interactive color mapping. In it he states that the quickness with which interactive CRT maps can be produced allows for more experimentation, and therefore more appropriate color selection, in a given amount of time, than by traditional printing methods. In his paper, interactive color mapping is discussed in three ways: from the perspective of the physical, physiological, and perceptual characteristics of colors; from the perspective of the nature of the data being mapped and the corresponding graphic symbolization; and from the perspective of current hardware and software available for this kind of mapping.

Harold Moellering discussed his paper "Strategies for Real-Time Cartography". In it he notes that one can now look past current interactive cartographic systems for display, analysis and map production to the potential of more powerful and flexible real-time interactive cartographic situations and includes the manipulation of a number of aspects of spatiotemporal dynamics. These include cartographic object manipulation and surface exploration, the display of cartographic data as it changes through time, and combinations of the above.