Summation

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Conference Chairman

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Program Chairman

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Edson: I would like to conclude this meeting with brief observations from three participants.

Schmidt: First, I want to thank the many people behind the scenes who put weeks of effort into this conference and the U.S. Geological Survey for providing this beautiful facility--actually this conference is the first large meeting to take place here. Credit also goes to some other agencies that supported the conference--the Bureau of Census, the Central Intelligence Agency, the National Ocean Survey, and Harvard University. Last but not least I thank the chairmen, panelists, and all committee workers.

Two goals of this conference were to be comprehensive and to get people of similar interests together. I think everyone will agree that the second objective was accomplished. As for the first objective, we were comprehensive in scope but not in depth. Because of time limitations each topic could not be covered completely. Many fine programs and efforts were not even mentioned: the surface representations of Bob Samson at Kansas University, the direct digital inputs from photogrammetry and scanned satellite photographs, the important works of Junkins and Junkietis at the University of Virginia, the ASIPS plotting programs done by FORSIC at Ft. Bragg, N.C., and the program libraries of National Technical Information Service and Professor Wittick at Michigan State University. What is the solution? Moritz suggested that future conferences treat either hardware or software alone.

Again, thank you for your participation and patience.

Boyle: One concern of this conference has been the little guy. He needs the facilities for professional digitizing and drafting, but they aren't available to him. One reason is the lack of support from Federal organizations. The Government departments are very busy and consequently not really responsive to the small user's need.

The conference discussion also showed concern for what I would like to call "dogmatic all," a term borrowed from logic design. I refer to having to choose between incremental or absolute coordinates, or to choose between lines, polygons, or grid cells. I don't believe in this, but rather that a mixture of spaghetti and ice cubes can work and be optimized for special jobs. Several times I felt that the audience inferred a definiteness from the panelists which I think was not intended or needed.

McCullagh: In the software sessions the emphasis of the panelists was on data input, editing, and storage. Little concern was shown with analyzing the input data. A big advantage of digital input is that you can analyze the data and display it in modified form. We should produce maps that are analytical products. Maybe the argument against analytical maps is that if you are producing topographic maps or specialized maps in large quantities, it may be difficult to also produce analytical maps. Maybe such analysis is more of a research necessity. Perhaps when we begin producing vast numbers of topographic maps for the smaller users, we should also produce analytical maps for the local levels. Maybe we could produce a series of analytical maps for every topographic map. Since the information is available, a relatively small amount of digital processing would produce the map very quickly.

In software development, pseudo-interactive systems will become important for the smaller user. Systems like INPOM and ASPECTS, which give a small and nasty result but nevertheless a view of the data, will also become more important. These systems are not only quick, but small enough to fit on the small user's computers.

We should be making computer software systems usable. At present they are not usable by noncomputer-trained cartographers. The producers of new digitizing systems are trying to avoid this problem. For instance, at Kansas University Professor Nunley has a project that has little to do with cartography except that it produces maps. Instead, the project is concerned with making the user comfortable--when he is sitting in front of the computer, he has a nice chair, shag carpet, and so on.

In the future we must be concerned with the needs of industry and research. We have heard a great deal about the necessity for education outside industry, for the users of these maps, but maybe we need more education inside industry. In-house cartographers and draftsmen could be taught the necessary skills in their own organizations. Education is usually the only way to get people in other fields to become useful and accept new principles.

Considering accuracy versus time and cost--maybe we don't need accurate topographic maps, but generalizations with reasonable accuracy. Perhaps industrial organizations are going overboard on the accuracy criterion for much of their mapping. It must be cheaper and quicker to be less accurate.

We also have various research needs. Harvard is working on color implementation, and the Computer-Aided Design Department at Cambridge, England, is using color to display three-dimensional images (Scientific American, May 1974). Perception cartographers and software cartographers need to communicate--on the whole they don't understand each other. We also need to produce plastic bottles more cheaply. We must investigate new pastures.

Edson: In concluding this meeting, I will tell you a few facts about this conference. Over 360 people representing 200 institutions, 50 professions, and 11 countries, including the U.S. and Texas, have attended the sessions. And the proceedings have been carefully recorded on about 5 miles of magnetic tape.

In his keynote address Radlinski challenged us to talk to one another, and I believe we did. But the communication must continue. If you have

found fault with this meeting in some way, I reluctantly ask you to tell me. I am not offering to conduct another meeting, but I assure you that constructive remarks will be passed on to anyone who has the courage to plan the next conference. If you think the conference has been worthwhile, tell your friends. And by all means, keep talking to one another. This meeting and the 1969 parent meeting are two points on an exponential curve of learning. Let's keep it on the rise.

Aangeenbrug: The Director of the Bureau of the Census is particularly concerned about the growing technological problems in map perception arising from the use of computer microfilms. We have interested several other agencies and the National Science Foundation in a conference for spring 1975, which will probably include discussions of perception, data bases, and networks. The 1975 conference will be followed by two conferences in 1976 and 1977. Attendance at the 1975 conference may be by invitation only because we want to have more working sessions. If you are interested, write me and I will keep you informed. I think the next conference will also be godfathered by the skilled chairmen of this conference.

Edson: My final remark is in tribute to my coworker, Warren Schmidt, who has spent so much of his time on this conference. I declare the meeting adjourned and thanks for coming.