

SEMINAR ON STATISTICAL MAPPING

This seminar, held in two sessions on Monday and Wednesday afternoons, dealt with statistical mapping, map generalization and classification. Papers were presented by JEAN-CLAUDE MULLER, RICHARD SCHWEITZER and RONALD ABLER. Critiques of the papers were made by the other seminar participants who included ROBERTO BACHI, WALDO TOBLER and GEORGE JENKS, chairman of the seminar.

At the Monday session JEAN-CLAUDE MULLER of the Department of Geography at the University of Georgia presented a paper on "Statistical Accuracy and Map Enhancement in Choroplethic Mapping." Many cartographers have been concerned with the contradictory relationship between statistical accuracy and map readability in choroplethic mapping. Map readability is not the only limiting factor in choropleth map accuracy. As the number of classes of a choropleth map decreases, the generalization process makes the map more informative by deleting details (noise) that do not belong to the ideal picture (signal) of the distribution presented. This recovery process of the underlying meaningful pattern on a map by generalization is called map enhancement. Study of the contrast within and between various choroplethic map patterns shows that 1) patterns are significantly affected by the number of classes, and 2) the smaller the number of classes, the sharper the contrast in the cartographic pattern, and the more amplified the differences between the maps. Solutions for conciliating statistical accuracy and map enhancement were also described.

The paper, "Undergeneralization and Figure-Ground Relationships in Statistical Mapping," summarizes the remarks of GEORGE JENKS of the University of Kansas. He stressed the clarity of the map message as the overriding factor in statistical mapping. The map designer should retain only that information which is essential to the map message. Map clarity, therefore, demands the development of suitable visual figure-ground relationships.

In the second session, the Comparative Atlas, a project of the American Association of Geographers, and the Urban Atlas, produced by the Bureau of the Census, were described and discussed. Both projects were compared in terms of the type of maps, method of production, and the underlying rationale.

"The Urban Atlas Project: Historical and Cartographic Review" is the title of the paper presented by RICHARD SCHWEITZER of the Bureau of the Census. He reviewed the development of the Urban Atlas Project from the viewpoint of the cartographic techniques used. He discussed alternative approaches and the type of decisions that were made in producing the final atlases. Impetus for the atlas stemmed from the need to supplement voluminous statistical tables of 1970 census tract data with a companion graphic summary. A dozen variables for sixty-five of the Nation's largest standard metropolitan statistical areas (SMSA's) are being plotted in color through automated mapping techniques. The inherent nature and requirements of census work requires adhering to choropleth map presentations. Given the heavy use of maps by the Bureau of the Census, the innovativeness of the FR-80 Computer Output Microfilm Recorder and of the micrographic negative contributes significantly to meeting this demand.

RONALD ABLER of the Pennsylvania State University's Geography Department discussed the second atlas project in his paper entitled "The Comparative Atlas of America's Twenty Largest Metropolitan Regions." The purpose of the project was to provide Federal, State, and local officials with information on the occurrence and intensity of problems in large American cities. The comparison and analysis of geographic patterns is facilitated by this standardized presentation directed towards the lay map reader. Several questions were raised in the preparation of the atlas, as for example, which cities to map, what topics to map, map scales and cartographic techniques, and the organization of the atlas. At the time of conception, however, automated cartography had not reached the level of development and refinement necessary for such an undertaking.

Following the presentations two questions were raised by the seminar chairman: 1) Is the selection of a choropleth or isopleth map a function of an individual's perception or is it a policy decision; and 2) does the use of a 4x4 color-cross map, which yields 16 color variations, really facilitate understanding for the map reader. These questions were discussed from the viewpoint of both papers.