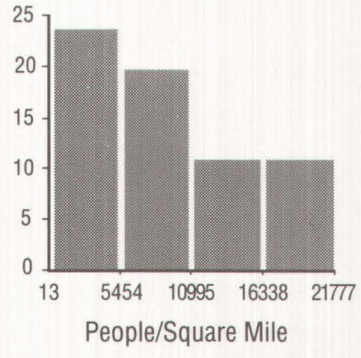
break points can be inserted and class breaks can be moved or removed by pointing to positions on the x axis of the histogram.

The article, which includes numerous color illustrations, begins with some rather unsophisticated comments about choropleth mapping that demonstrate limited knowledge of cartography. The first maps they show, for example, are of *raw population totals* rather than standardized data. The main thesis of their system is also somewhat at odds with accepted practice. They view the role of a choropleth map as being to "convey the planner's intentions to map viewers" rather than to communicate the data accurately.

In spite of these weaknesses, the system they describe along with its potential application provides some food for thought. The most interesting example in the paper involves an application in which a choropleth is used in planning for regional development. They describe a situation in which a planner "well recognizes the tendencies that the eastern areas in the Tokyo region have excessively dense populations and the population density becomes sparser closer to the western area." The sequence of steps (taken from Table 2 of the paper) are listed below along with reproductions of a series of three histograms generated.

a. INITIAL HISTOGRAM

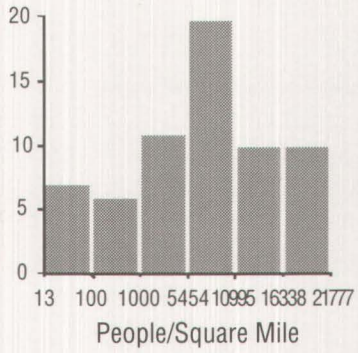


Intention: Understand the rough statistical distribution tendencies.

Operation: Divide the statistical data into four groups.

Impression: It is difficult to understand the characteristics of the areas in the lowest class.

b. INTERMEDIATE HISTOGRAM

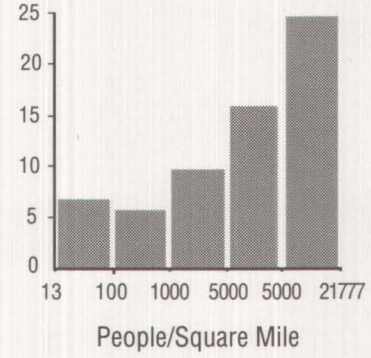


Intention: Classify the areas in the lowest class into several classes so that the characteristics in the western area can be expressed.

Operation: Select 100 and 1,000 people/sq. km. as the boundaries.

Impression: The areas belonging to the fourth class are considered as the object for development. The higher classes are too detailed, since the areas in these classes are not objects for development.

c. FINAL HISTOGRAM



Intention: Emphasize that the most crowded areas are spreading over a wide area.

Operation: Delete two higher boundaries and select 10,000 people/ sq. km. as an appropriate boundary.

The paper concludes with some comments concerning the need to pay more attention to selection of the appropriate thematic symbolization for phenomena being mapped and a brief mention of the problems of data classification when maps in a time series are to be compared. This later issue is one that needs more attention by cartographers.

Roselle, Marsha and Deller, Howard (1988). Maps of the imagination. *School Arts*, September 1988; pp. 40-42,78.
reviewed by Debra Daggs, Penn State University

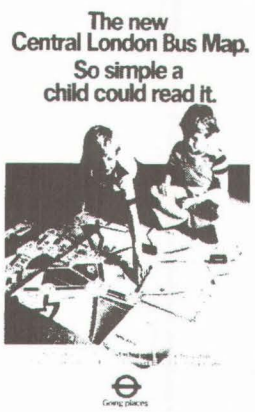
Roselle and Deller present an exciting art project which introduces students of Cedarburg (Wisconsin) High School to the history of cartography and encourages individual creativity. The project is so rich with educational potential that I am reluctant to state what students "should" learn as they design and create decorative maps. Through the instructional sequence, students certainly will gain an appreciation of decorative maps and the process of scholarly research. Highlighting period style as Roselle and Deller recommend, for example, teaches students to attend to graphic material in a new and more informed way; such a simple but significant lesson may extend well beyond this art project. Further, by selecting different styles and themes, students will generate a range of decorative maps, materials required to discuss changes in representational technique over time between artist-cartographers.

Roselle, an art teacher, and Deller, a map historian, bring appropriate expertise to bear on this project. They provide a list of

resources, however, to assist those with backgrounds different than their own, Included in the bibliography, for example, is Post's Atlas of Fantasy (1979), which is suggestive of the ways English teachers might adapt the project. In fact, as Roselle and Deller indicate, the project lends itself to an interdisciplinary approach. The actual configuration can be molded by your imagination.

Horne, Mike; Roberts, Jonathan and Rose, Douglas (1986, 87). Getting there: an assessment of London Transport's endeavour to improve bus passenger information literature for central London, 1979-1985. *Information Design Journal* 5:1, 2.

Abstract: "This paper discusses the problems of putting across information about bus travel in London. In Part 1 the authors describe the basic needs of bus users,



referring to the development of the conventional bus map over recent years. The steps by which various redesigns were proposed and tested are recounted, leading to a proposal by Roger Graef and Andrew Holmes for a radical rethink of the whole concept of bus route cartography. The development of a new bus map for central London, launched in 1981, is described in detail. In Part 2, reactions to the new map are described and the new design is analyzed, with an examination of cartographic problems such as complex routing, road naming, railway station location and one-way streets."

cartographic artifacts

HISTORICAL ATLAS GIVEAWAY

Thirty-five thousand schools across the country will receive a free edition of the Society's new *Historical Atlas of the United States* this year. The value of this gift to the nation's students is approximately one million dollars.

This cartographic guide to the discovery, exploration, and growth of the United States contains more than six hundred antique, period, specialized, and original maps, as well as hundreds of photographs, illustrations, charts, and graphs, many specially commissioned by the Society. *(NGS Update, fall 1988, no. 12)*

NASA OFFERS SHUTTLE PHOTOS

In the course of the first 24 space shuttle missions from April, 1981 to January, 1986, astronauts exposed over 32,000 hand-held photographs of earth. NASA's Space Shuttle Earth Observations Office has announced the availability of indexes and catalogs of these photographs. For a brochure describing the photo program, prices, availability and how and where to catalogs, write: EDC, Mail Code SN15, NASA JSC, Houston, TX 77258.

LITERATURE IN CARTOGRAPHY: 1988

The following is a progress report in cartography by Michael Blakemore entitled "Cartography and Geographic Information Systems" in *Progress in Human Geography* 12 (December 1988) 525-537. He writes that progress continues into 1988, with widening international horizons and an ever-growing literature. A total of 106 publications--books and journal articles--are cited. Four areas are emphasized: research, commerce and government; history of cartography; digital mapping and GIS; storage and dissemination. Quoting: "That cartography is in a buoyant state in North America is indicated by the numbers of researchers being trained in the field. The set of essays in honor of George Jenks (Gilmartin, 1987) illustrates how one individual can have a considerable impact in the development of the discipline."

GEOGRAPHICAL ABSTRACTS

Geo Abstracts G: Remote Sensing, Photogrammetry and Cartography is no longer a separate publication. It has been incorporated into *Geographical Abstracts: Physical Geography*. This monthly abstracting publication will also include the following sections: landforms and the quaternary, climatology and hydrology, and sedimentology.

There appears to be two reasons for this change in arrangement. There is a need to increase the number of abstracts published in line with the continued expansion of available material; and, an investigation of subscription patterns revealed that the majority of subscribers have already subdivided the seven existing sections into two major sections of physical geography and human geography. Additional information can be obtained by writing to Elsevier/ Geo Abstracts, Crown House, Linton Road, Barking, Essex IG11 8JU, United Kingdom.

new maps

WORLD. The European Community and the Third World: a network of cooperative agreements. Luxembourg: Office for Official Publications of the European Community, 1988.