

the usual manual and photographic map production methods were used." Breaking with traditional production methods is becoming common: other atlases produced in a similar fashion have appeared recently. The maps were created using commercially available software. Atlas *MapMaker* was used to produce the base maps, which were saved as PICT files. The PICT files were then opened in Deneba Software's *Canvas*, and exported using *Canvas Separator* as Adobe *Illustrator* files. Final editing was done in *Illustrator*, and color separated negatives were created using a Linotronic 330 Imagesetter.

Census tract boundary files created by Strategic Mapping, Inc. were used for the base maps. This is understandable — digitizing the hundreds of census tracts in this area would have been a time-consuming task. However, SMI's boundary files do contain flaws. Slivers, gaps and spurious polygons are common. These flaws do not affect the presentation of the data, they only detract from the appearance of the maps.

This atlas gives an excellent overview of the distribution of ethnic groups in Metropolitan Los Angeles, and how these distributions are changing. Copies of the atlas can be acquired by sending a check for \$10 (payable to CSUN Trust Fund) to the Center for Geographical Studies, Department of Geography, California State University, Northridge, Northridge, CA 91330. Individual map pages are available for \$3, two for \$5.

DEFINING WHAT WE DO

Final meeting of the ICA Working Group on Cartographic Definitions, Bournemouth, England, 30 September 1991

Twenty-two individuals participated in a discussion of the report

presented by the chairman, Dr. Christopher Board, on the deliberations of the Working Group. The discussion began with the definitions of three terms — map, cartography and cartographer — proposed in the chairman's report. In view of the ICA Executive Committee's intention to propose a new Working Group to report on the main theoretical issues in cartography to report by May 1993, president D.R.F. Taylor explained that it was vital that working definitions were agreed upon at the meeting.

It is with some satisfaction that I can report that a consensus was achieved on the following definitions:

Map

A conventionalized image representing selected features or characteristics of geographical reality designed for use when spatial relationships are of primary relevance.

Cartography

The discipline dealing with the conception, production, dissemination and study of maps.

Cartographer

A person who engages in cartography.

It will be noted that these three definitions are intimately related, nesting together in the manner of three Russian dolls. We were conscious that cartographers ought to be prepared to say what a map was, because both the scientific community and the general public associated maps with cartography. In short we have attempted to find definitions acceptable to both cartographers and those outside the profession. Some explanation of the specific form of words was thought desirable. The notion of communicating geographical information through maps did not find favor because it implied

success, which was not achieved.

Attention then focused upon the definition of **map**. This had to be broad enough to embrace both the catholicity of Brian Harley's concept of representation in any kind of socio-political or cultural context, and also to include mental images that appeared to share many of the properties of paper maps. We did not feel constrained to mention digital or tactile maps per se. Digital geographically referenced data become maps when imagined or imaged as maps; and the use of tactile maps created spatial images. Conventionalized images incorporated the idea of there being rules or principles involved in representing the real world. For instance, Beran's landscape drawings were regarded as maps because they made use of conventions of mapmaking. Conventional also implied a restraint on the form of a representation that suited the socio-cultural milieu in which it was being used, but which allowed for changes in viewpoint throughout history.

Moreover, it was vital to indicate that the function of a map was to represent only a selection of what the real world consisted of and someone or some organization had deliberately to select what was to be represented. We felt it was helpful to specify that features and/or characteristics of what was generally and conventionally accepted as geographical provided the content of maps. Thus there could be identified a core content that normally excluded features or characteristics of spaces as small as desk-tops or as far away from the Earth as neighboring planets. It was decided that the utility of maps would be better expressed by employing the word "design" rather than the term "tool." Design carried with it the connotation of intention and a process, embedding within it the idea of a device or instrument for a specified purpose. Features or charac-

teristics are not to be regarded as alternatives, the "or" being inclusive.

Finally, maps were conceived as representations mainly concerned to express absolute and relative location of phenomena with reference to the Earth. When spatial relationships, which involve both location and arrangement (or geometry and topology), are the primary concern of the representing, the latter is a **map**.

Cartography is about maps. It is a discipline without doubt. We avoided using loaded and divisive words like science, as we shied away from the exclusivity of a profession. A discipline by some definitions implies a set of rules for conduct, or in cartography rules about mapping. The four activities involved in mapping cover the whole process undertaken by cartographers. They range from the abstract theoretical and other mental processes, through practical map making, distribution and marketing, to all forms of study. Study includes training and education in mapping, just as much as using maps to inform people about the world they live in or what it was like in the past.

Cartographers engage in cartography, implying a level of involvement which is both deliberate and binding. We thought it better expressed the nature of commitment of cartographers to mapping than involvement, which could be relatively loose. "Engaging in" was more appropriate than "practice" because the latter carried too strong a connotation of manual drafting or handiwork, a specific but not the only end-product of cartographic activity.

Present at the meeting were: Kirsi Artimo (Finland); Christopher Board (UK); David Cooper (UK); Jorge Fernandez (Spain); Ulrich Freitag (Germany); Jean-Philippe Grelot (France); Olof Hedbom (Sweden); Dexter Johnston (Australia); Naftali

Kadmon (Israel); Tositomo Kanakubo (Japan); Miljenko Lapaine (Yugoslavia); Sandy Moir (UK); Takashi Morita (Japan); Barbara Petchenik (USA); Wolfram Pobanz (Germany); Andrew Tatham (UK); Zsolt Török (Hungary); Regina Vasconcellos (Brazil); Mahes Visvalingam (UK); Bogodar Winid (Poland); Michael Wood (UK); Chris Worth (Australia). Discussion on the three definitions is welcomed and should be sent to Mr. Tositomo Kanakubo, Japan Map Center, or to Jean-Philippe Grelot, Institut Geographique National, 136bis rue de Grenelle, 75700 Paris, France.
Christopher Board

VIDEODISC PROJECT

The Department of Geography of the University of Wisconsin-Milwaukee will be receiving a grant from the U.S. Department of Education to develop an Interactive Videodisc and Database on Geography and Mapping. The videodisc, which is scheduled for completion in 1993, will use images from the American Geographical Society Collection to illustrate the topic of mapping.

In addition to thousands of still frame images of maps, charts, globes and photographs, the videodisc will contain linear video segments and animation which highlight and explain the processes involved in mapping and various map elements. The videodisc will be accompanied by an interactive database of the imagery. The technology, applicability, and potential of this media for map education and research will be evaluated.

Contact Mr. Mark Warhus, Office for Map History, Golda Meir Library, University of Wisconsin-Milwaukee, PO Box 604, Milwaukee, WI 53201; (414) 229-4104, fax (414) 229-4380.

HRB WORLD MAP

It took HRB engineers about two years to digitize a map database capable of displaying an area as large as the whole world or as small as a 140-mile grid (or 19,600 square miles). Now, that database is available to employees and to educational institutions.

The database provides six selectable map features: shorelines, topography (height above sea level), bathymetry (ocean depth), cities, hydrology (rivers, canals, and lakes), and political boundaries.

Because no single map database can provide fast displays and high visual quality over the entire range of map scales, the database developed at HRB consists of five different parallel databases or "tier levels."

Other map databases are commercially available but have drawbacks. Often they lack coverage of the entire Earth or provide fewer map features. Some show the maps only in outline form, which can result in a confusing picture. Others have such high resolution that it takes too long to generate the display.

The HRB World Map is stored on twelve 5.25" high-density disks. The database runs most effectively on an 80386SX or 80386DX, EGA or VGA, PC with a math co-processor and hard disk. The entire set of 12 disks costs \$200 for a single PC or \$1,000 for a site license. Schools and universities can purchase the map database as an instructional tool at the low cost of \$100 per site. The HRB world map is chiefly intended for users who develop their own map-oriented application programs and who need a digitized map.

For information, contact Marge Johnson, HRB Systems Inc., Science Park, State College, PA 16801; (814) 238-4311.