

# 15 • Concluding Remarks

DAVID WOODWARD AND G. MALCOLM LEWIS

Despite daunting problems of interpretation and approach, it seems there are many indigenous artifacts made by traditional African, American, Arctic, Australian, and Pacific societies that can be described within the definition of map cited in the preface to volume 1 of the *History of Cartography*.<sup>1</sup> Broadening the definition of map has attracted interest from scholars in other fields: anthropologists, archaeologists, historians, art historians, historians and sociologists of science, and students of literature have found insights into how other cultures represent their worlds.

The vast majority of evidence of traditional cartography comes from the encounters these societies had with the West, with inevitable acculturation. Nevertheless, our authors have often been able to glean clues to the extent and function of precontact graphic spatial representations, which may have occurred in a variety of formats. Even the broad definition of map offered in the preface to volume 1 of this *History* may have been stretched in the previous pages. As we have seen, the categories of cognitive, performance, and material cartographies are often fluid, and “mapness” depends largely on the social and functional context in which a performance or artifact is operating. Descriptions of “performance maps” and occasionally even “cognitive maps” in a history of cartography may, however, be justified on the grounds that they supply an essential context for understanding the graphic forms that societies employ to articulate, represent, display, claim, and codify spatial knowledge.

Given the caveats about the use of the terms “traditional” and “cartography” (pp. 1–2 above), it is nevertheless useful to reconstruct—from the maps discussed and illustrated in this book—some of the general ways traditional cartography in these cultures differs from the cartography covered in other volumes of the *History*. At the very least, we believe that bringing together primary and secondary literature from widely scattered and often obscure journals in archaeology, anthropology, ethnography, cultural geography, history, and many other fields constitutes a bibliographical contribution. Likewise, the juxtaposition in one book of so many images gleaned from many archives, archaeological sites, museum collec-

tions, and libraries around the world—often with great difficulty—will by itself stimulate individual discoveries and parallels.

Such generalizations often need to be rooted in the wider context of art, architecture, and other cultural expressions. These characteristics may not be ubiquitous and universal—the contrast between the complexity, for example, of the Mesoamerican and Melanesian societies is enormous—but they may be prevalent enough to warrant highlighting. In turn, we will discuss the following themes as they relate to spatial representations: the topological structure of the representations, the fusing of the secular and sacred, the centering of society or the self in the cosmos, the inseparability of the landscape from events that occur in it, and the closeness of the representations to the human lifeworld.

## TOPOLOGICAL STRUCTURE

Maps made in traditional cultures do not incorporate the abstract projective, coordinate geometries and measured space currently associated with international cartography. Yet traditional maps do share a common geometry: it consists of topology, in which concepts of linearity, center and periphery, contiguity, and connectedness are far more relevant than coordinate locations in an abstract infinite plane.

A high proportion of traditional maps from the cultures examined in this book are in the form of linear itineraries. Most traditional societies had a richness and density of names for physical and human features on the land far surpassing that of modern European societies, with proper names for all manner of unsettled as well as settled locations. A very high proportion of these were associated with linear features such as rivers: for example, the six map segments showing the Waitaki River (South Island, New Zealand) and its source lakes drawn by Te Ware Korari in the sketchbook of Walter Mantell, with

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1. “Maps are graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world.” “Preface,” in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1: xv–xxi, esp. xvi.

place-names written along the sides of the maps by Mantell as told to him by the Māori.<sup>2</sup>

In maps made in traditional societies, the concept of using a systematic scale measured with the aid of standard units of distance was unlikely to serve the functions for which the maps were made. Since these maps were apt to stress the qualitative aspects of the landscape rather than quantitative measure, the whole issue of measurement becomes moot. The concept of distance was far more likely to be temporal, measured in terms of effort or in “so many days’” travel. Furthermore, the well known was understandably represented at a larger scale and placed at the center; the less well known was shown smaller and relegated to the periphery.

### SECULAR AND SACRED

It is impossible to separate secular from sacred in the maps of traditional societies. The decision to include sacred maps and cosmographies in the *History of Cartography* started with the decision to include *mappaemundi* in volume 1. Here was a genre of maps existing side by side with the portolan charts but made for a very different purpose and with a different structure. The cosmographical dimension is present everywhere in native representations of the world, where the landscape and universe are regarded not as a passive backdrop against which human events unfold, but as active participants in human life. The land owns the people, not people the land. It is here that the associations between mapmaking and religious practices become tightly knit. Here shamanic rather than topographic knowledge is the gateway, with its emphasis on initiation, special or mystical knowledge, and an overarching global scheme in which maps often include depictions of mythological personages and animals, as in Western astrology. Cartography becomes less of a gridded stage on which life takes place and more a model of how the spiritual world and physical world interact. Abstractions such as coordinate systems are rejected in favor of more concrete representations.

Perhaps because they apparently share so many worldwide prevalencies, cosmographic maps have long attracted the attention of students of comparative religion and worldviews. Although no universal model can be identified, it appears that at its base there is a convergence toward an identification of three tiers of the cosmos (physical, emotional, spiritual) with some subdivision of the tiers. These three tiers or planes are often linked metaphorically by a tree known as the Tree of Life. The branches reach to the heavens, the dwelling place of spiritual beings; the trunk represents the physical earthly plane, a conduit and support between the planes “above” and “below”; and the roots, representing the emotional Underworld, provide nurture and sustenance to the physical and spiritual elements.<sup>3</sup>

Physical rules of space and time do not always apply to the spatial arrangements in the “geography” of the heavenly tier. This realm is understood as a dream world, accessible through dreams, trance states, or the offices of shamans and priests. To understand and communicate with the spiritual beings who inhabit this tier, it is necessary to construct an analogous “map” of the physical world inhabited by humans. Often the two are viewed as synonymous, as with the Oglala Sioux: “Star map and earth map, they were really the same, because what’s in the stars is on the earth, and what’s on the earth is in the stars.”<sup>4</sup>

It is for this reason that the maps of traditional African, American, Arctic, Australian, and Pacific peoples often have rich cosmographical meanings. Failure to recognize the power and ubiquity of these functions has led to severe errors of interpretation. One example, provided by Tim Maggs in the chapter on South African rock art, describes the different interpretations of the scene “fight and flight.” Authors writing before about 1980 tended to read it as a straightforward depiction of a battle between two hunter-gatherer groups, with lines understood as paths or rivers, making it an “event map.” Recent critics now point to a spiritual interpretation in which healing was regarded as a fight, often involving arrows, between the shaman in trance and evil spirits. The painting is now seen to represent elements of trance performance rather than an actual physical conflict in a geographical setting.<sup>5</sup>

### COSMOS, CIRCLE, AND CENTER

Historians of religion, notably Mircea Eliade, have stressed the frequency and essentiality of the concept of the “center” as a sacred place linking the plane of the human physical world with the spiritual planes above (sky) and below (Underworld), centered on an *axis mundi*. Since the “center” is viewed as the location of a “hole” or point of breakthrough between the cosmic zones, it is of special significance to the shaman, the agent viewed as capable of channeling the healing forces moving between the zones.<sup>6</sup> Ong elaborates this in relation to orality:

In a primary oral culture, where the word has its existence only in sound, with no reference whatsoever to any visually perceptible text, and no awareness of even

2. See pp. 520–23 and figs. 14.28–14.30.

3. See Mircea Eliade, *Shamanism: Archaic Techniques of Ecstasy*, trans. Willard R. Trask (New York: Bollingen Foundation, 1964), 259, 269–74.

4. Ronald Goodman, *Lakoña Star Knowledge: Studies in Lakoña Stellar Theology*, 2d ed. (Rosebud, S.D.: Sijte Gleška University, 1992), 18.

5. See p. 14 and plate 1.

6. Mircea Eliade, *Patterns in Comparative Religion*, trans. Rosemary Sheed (New York: Sheed and Ward, 1958), 367–87, and idem, *Shamanism*, 259–87 (note 3).

the possibility of such a text, the phenomenology of sound enters deeply into human beings' feel for existence, as processed by the spoken word. For the way in which the word is experienced is always momentous in psychic life. The centering action of sound (the field of sound is not spread out before me but is all around me) affects man's sense of the cosmos. For oral cultures, the cosmos is an ongoing event with man at its center. Man is the *umbilicus mundi*, the navel of the world.<sup>7</sup>

The graphic manifestation of this concept is the circle, a basic geometric unit on maps described in this book at both the global scale (cosmos) and local scale (house and settlement). At the global scale, it represents the horizon of the world and the shape of the cosmos.<sup>8</sup> Its deep-rooted use also recalls the prevalence of the circle in Babylonian, ancient Greek, medieval Christian, and Islamic world maps. The concept's use as a calendrical motif underlines the inseparability of representations of time and space in these societies. It pervades the division of the horizon into the cardinal points, and its subdivision into compass points, transculturally in Pacific star compasses and European compass roses alike.<sup>9</sup>

Examples of the circular motif are so numerous in this book that citing only a few must suffice. For instance, in the day-to-day life of the Oglala Sioux of North America, the circle is employed for their tipi, their camp circle, and their ceremonial arrangements.<sup>10</sup> The circle motif also occurs at regional and local scales, perhaps reflecting a microcosm of the cosmographical usage. Circular cartographic histories and boundary maps were common across Mesoamerica; Mayan maps, for example, are described as *pepet dz'ibil* (circular paintings or writings). Two Mixtec maps made in the 1580s are circular, and an Aztec example is the *Mapa circular de Cuauhquechollan*.<sup>11</sup>

In Australian Aboriginal art, circles are one of the most common elements. In much Western Desert art, for example, "real spatial relations are . . . represented by symmetrically ordered roundels . . . [that] stand for sites, and the lines that join them are the Dreaming paths that connect the sites in myths."<sup>12</sup> Similarly, the Warlpiri in central Australia stylize the representations of sites joined by ancestral travels using combinations of circles and lines. Thus a line of three campsites would be shown as three circles joined by straight lines. In central Australia, painting is performed on media that are rarely rectangular: large, irregular surfaces such as rock walls, the human body, or ovate artifacts such as shields, dishes, sacred stones, ceremonial posts, and bull-roarers. It is only since the early 1970s that right angles have suddenly modified ancient design practices.

The common representation of traditional settlements by circles is in direct imitation of the form of such settle-

ments. As in the case of some eighteenth-century Catawba representations in North America, it is possible to distinguish native from Western settlements by the use of circles or rectangles. For southern Africa, Maggs explains that the circle is the basis of agriculturist settlement patterns and that rectangular building forms were introduced only in colonial times.<sup>13</sup>

## LANDSCAPE AND EVENT

Representations of the spatial layout of the landscape are important to traditional groups, but any such depictions of the distribution of places cannot effectively be separated from the key events that happened there in a culture's past. In Australian Aboriginal Dreamings, the artists characteristically choose sections of country having many mythologies, whether related to their own families or to the group as a whole. Myths are incorporated, as with the origin of the large plain created by the thrashing about of two fighting snakes, the male from the north and the female from Pikilli.<sup>14</sup> Likewise, the Māori names for every conceivable feature of land, however small, frequently allude to persons or events and thus perpetuated their memory and preserved the history of the past. These elements of the landscape have been called "the survey pegs of memory."<sup>15</sup> In Mesoamerica too the itinerary is often blended into the map, as in the *Mapa de Sigüenza*, to represent both the events and places in the movement of the Aztecs from their traditional origins in Aztlan to the founding of Tenochtitlan in the Valley of Mexico. In the *Codex Xolotl*, the Acolhuas of Texcoco used a map to record the historic conquests and marriages of

7. Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Methuen, 1982), 73.

8. The global prevalence of the "center" rooted in horizon astronomy and in cultural ethnocentricity is described in Paul Wheatley, *The Pivot of the Four Quarters: A Preliminary Enquiry into the Origins and Character of the Ancient Chinese City* (Chicago: Aldine, 1971), 428–36, and Yi-Fu Tuan, *Topophilia: A Study of Environmental Perception, Attitudes, and Values* (Englewood Cliffs, N.J.: Prentice-Hall, 1974), 37–44, 153–60.

9. See Charles O. Frake, "Dials: A Study in the Physical Representation of Cognitive Systems," in *The Ancient Mind: Elements of Cognitive Archaeology*, ed. Colin Renfrew and Ezra B. W. Zubrow (Cambridge: Cambridge University Press, 1994), 119–32.

10. J. R. Walker, "The Sun Dance and Other Ceremonies of the Oglala Division of the Teton Dakota," *Anthropological Papers of the American Museum of Natural History* 16 (1917): 51–221, esp. 160.

11. See pp. 210 and 212 and figs. 5.23 and 5.25.

12. See p. 381.

13. See p. 99 and plate 4 and p. 19.

14. *Ayatjara, Art of the First Australians: Traditional and Contemporary Works by Aboriginal and Torres Strait Islander Artists*, exhibition catalog (Cologne: DuMont, 1993), 347 (no. 111).

15. Te Aue Davis, Tipene O'Regan, and John Wilson, *Ngā Tohu Pūmahara: The Survey Pegs of the Past* (Wellington: New Zealand Geographic Board, 1990), 5.

Xolotl and his family and thus expressed their rights to territory.<sup>16</sup>

Underlying this blending of time and space is a deep-rooted desire on the part of these societies, wherever possible, to attach *qualities* or attributes to places and events. The notion of studying space as an abstract plane—or time as an abstract philosophical concept—does not usually occur.

### CLOSENESS TO THE HUMAN LIFE WORLD

In indigenous societies few representations and facts are viewed outside the context of human activities. These societies tend to be empathic and participatory rather than objectively distanced. The “objectivity” of oral performers is enforced by formulas, whereas writing “separates the knower from the known” and sets up conditions for personal distancing or disengagement.<sup>17</sup> This theme of participation is echoed by many of the authors in this book. In the context of Melanesia, Eric Silverman stresses that the context of production or creation is a part of the message (or map), not something the message tries to escape. In the performance cartography of such societies, the recipients of the message participate in its creation by their constant presence during the ritual, and they can transform it. Melanesian maps thus become political assertions about political rivalries, ancestral prominence, ritual power, cosmology, and gender; less objective and more contentious than in our society. Likewise for lowland South America, Neil Whitehead speaks of the “participatory universe” in which the interconnection between people and the cosmos is crucial to maintaining the cosmic order. This defines the “epistemological contrast between the participating individual and the possessing individual that defines the source of difference between indigenous and nonindigenous cartography of South America.”<sup>18</sup>

The participatory nature of indigenous mapmaking is also evident in the process of encountering Western culture. Since almost all the maps discussed and reproduced in this book were made by indigenous peoples after contact with Western culture, it is important to identify their motivations for making them. In the history of colonial contact, they of course have served the purposes of the colonizers in a wide variety of economic or political contexts: exploration, trade, treaties, or other negotiations. Indigenous maps have also been commissioned by ethnographers studying cultural concepts of space and place, but here again they have accommodated the needs of Western scholars. In the virtual absence of truly indigenous artifacts, it is difficult to establish precisely how the extant examples might aid in reconstructing precontact maps that no longer survive. Yet this evidence, along

with contemporary written descriptions, provides the only window on earlier practices.

It is only recently that the tables have been turned as modern indigenous peoples are engaged in what has been called a “cartographic resistance.”<sup>19</sup> An example of this worldwide mapmaking movement is provided by the Biodiversity Support Program, a consortium formed by the World Wildlife Fund–U.S., the Nature Conservancy, and the World Resources Institute, commissioned in early 1994. In many instances the efforts have been dramatically successful in promoting local environmental issues; in other cases it is too early to assess the long-term success of these efforts. But the relation of these mapping techniques to the traditional indigenous cartographies described in this book remains to be elucidated, since many modern movements have largely arisen quite independent of traditional mapmaking techniques.<sup>20</sup>

The closeness to the lifeworld is also demonstrated by the tendency for oral cultures to use spatial concepts that are more concrete than abstract. For example, geometric figures are assigned the names of objects, such as “moon,” rather than the abstract “circle.”<sup>21</sup> Likewise the cardinal directions, a fundamental way of structuring the world image based on the diurnal movement of the sun, are far more than abstract concepts but have mythical realities of their own expressed in conventional colors or associated objects. The circle-cross symbol for the cosmos is common in a number of cultures, from North and South American Indians to the Dogon in north central Africa, where it represents the god’s gesture at the end of

16. See pp. 205–7.

17. Ong, *Orality and Literacy*, 43–44 (note 7).

18. See p. 326.

19. David Turnbull, “Constructing Knowledge Spaces and Locating Sites of Resistance in the Modern Cartographic Transformation,” in *Social Cartography: Mapping Ways of Seeing Social and Educational Change*, ed. Roland G. Paulston (New York: Garland, 1996), 53–79, esp. 72–75.

20. This indigenous mapping movement is described by Peter Poole, “Land-Based Communities, Geomatics and Biodiversity Conservation: A Survey of Current Activities,” *Cultural Survival Quarterly* 18, no. 4 (1995): 74–76. He lists some sixty projects in the Biodiversity Support Program found in Argentina, Bolivia, Brazil, Paraguay, Peru, Venezuela, Belize, Dominican Republic, Honduras, Nicaragua, Panama, Canada, United States, Ethiopia, Guinea-Bissau, Kenya, Senegal, Indonesia, Philippines, Thailand, Papua New Guinea, Nepal, and Bangladesh. This movement is also discussed in other articles in this special issue of *Cultural Survival Quarterly* and in some of the essays in Doug Aberley, ed., *Boundaries of Home: Mapping for Local Empowerment* (Gabriola Island, B.C.: New Society, 1993). A recent example of an atlas made for expressing the environmental concerns of forty-two Ke’kchi and Mopan Mayan communities in southern Belize, with color choices and symbolism quite different from a conventional Western atlas, is found in Toledo Maya Cultural Council, *Maya Atlas: The Struggle to Preserve Maya Land in Southern Belize* (Berkeley, Calif.: North Atlantic Books, 1997).

21. Ong, *Orality and Literacy*, 51 (note 7).

the earth's creation. Similarly, the Kongo cosmos is "represented ideographically as a cross or diamond with circles attached at each end. The end points of the cross and diamond represent the four cardinal directions, and the circles illustrate the sun moving through its four phases: dawn, noon, sunset, and midnight."<sup>22</sup>

The media on which maps appear are less important to indigenous groups than the meanings of the concepts they embody. In the case of Aboriginal Australia, Peter Sutton stresses that a traditional image of a sacred water hole or a depiction of a certain Dreaming is usually transposable between media: "The same design may be painted, for example, on a boy's body during initiation, on the walls of a wet-season shelter, on a painting made for sale, on a bark or log coffin, on a biscuit box lid, on an aluminum dinghy, or on a pair of sneakers."<sup>23</sup> As a result of this deemphasis on the importance of the artifact, the loss of the objects, and hence also of their meanings, is characteristically high.

Indigenous map media also reflect the "closeness to the lifeworld" characteristic of such societies. The notion of "traditional" is sometimes associated with the idea of choices and constraints in a given society. Although constraints are present in all societies, the material culture of indigenous societies is particularly limited by the local availability of materials, the nature of the climate, and the socioeconomic facts of life.<sup>24</sup>

As the illustrations throughout this book strongly suggest, however, there is still a great richness and variability in the media of indigenous cartography that matches the diversity of the societies that produced it: rock paintings and engravings, stone arrangements, earth sculptures, bark paintings or drawings, decorated weapons such as clubs, shields, and spear-throwers, digging sticks and bowls, bull-roarers, colored sand, antlers, walrus tusks, palm fronds, shells, cotton or maguey cloth, indigenous paper, ceramic vessels, walls, bas-relief and three-dimensional sculpture made of stone or molded stucco, birchbark, ivory, and wooden boards.

### THE WAY AHEAD

The chapters in this book contribute to a pool of ideas, interpretations, and images from which, as future volumes of the *History of Cartography* are published, we can perhaps draw conclusions about what kinds of cultural and social conditions are necessary for societies to want or need to make maps.

Volume 2 of the *History* is the first full-length global attempt to describe and explain traditional cartographies.

With the demise of traditional economies and lifestyles, it could be looked on as an attempt to review the topic before it ceases to exist. Alternatively, with the vigorous attempts being made by minority groups in most traditional societies to conserve and rediscover their cultural heritage, it may be seen as an exercise in the repatriation of ideas and materials.

There is clearly ample opportunity to build on what has been introduced in this book. Although we have attempted to cover the main traditional cultures, there are omissions and inconsistencies. There is still work to be done—even at the most preliminary stage—on the indigenous cartographies of the western part of New Guinea, Irian Jaya (now part of Indonesia), the Philippines, Madagascar, Argentina, Chile, and Uruguay. Analyses of cosmographical and celestial mapping are sorely needed for areas otherwise fully discussed. Rock art—notoriously difficult to interpret—has been tackled for some areas but by no means all. Modern indigenous mapping has been a primary source for some authors but is not referred to by others, and accounts of mapping written by Europeans and maps drawn for Europeans in colonial times have been discussed at length by several contributors but covered more thinly by others. The risks and consequences of multiple authorship have perhaps been at their greatest in this book: approaches have ranged through those of the cultural historian, the archaeologist, the geographer, the cultural anthropologist, the cartographer, and the librarian. But the contradictions and lacunae that have resulted can also be viewed as opportunities to further enrich the record from a number of disciplinary viewpoints.

Western cartography has much to learn from the maps in this book. Far from being denigrated, they can be regarded as sources of ideas that enrich modern mathematical cartography and geographic information systems. If cultural traditions of cartography are recaptured and incorporated into the new technologies, the maps of the future will not be crudely generic, cold, and static, but far richer, warmer, and more dynamic than any we have ever seen. Such maps would help us form hypotheses about the world at different scales of representation and also instill a love of the physical and cultural landscape.

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22. See p. 27.

23. See p. 366.

24. Yi-Fu Tuan, "Traditional: What Does It Mean?" in *Dwellings, Settlements and Tradition: Cross-Cultural Perspectives*, ed. Jean-Paul Bourdier and Nezar Alsayyad (Lanham: University Press of America, 1989), 27–34, esp. 28.

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