THE HISTORY OF CARTOGRAPHY

VOLUME TWO, BOOK THREE

Cartography in the Traditional African, American, Arctic, Australian, and Pacific Societies

Edited by

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Eric Kline Silverman

SOCIAL LIFE, COSMOLOGY, AND POLITICS IN MELANESIA

The cultural diversity of Melanesia in the southwestern Pacific Ocean is astounding. Regional generalizations are bound to falter: some sociocultural exception to any posited rule will almost assuredly exist. Nevertheless, it is possible at least to sketch some common, nearly pan-Melanesian social and cultural parameters. Since all indigenous representations of space in Melanesia are the product or the reflection of social life, this brief discussion will provide a necessary context for understanding the social generation of local modes of cartography.

The peoples of the first migration from Southeast Asia spread into New Guinea, the larger islands off New Guinea, and Australia, which at that time were connected by a land bridge (fig. 12.1). Despite this common immigrant ancestry, enormous linguistic variation has arisen in the intervening millennia. New Guinea alone contains 750 separate Papuan (or non-Austronesian) languages, making it the most linguistically–and culturally–complex region in the world. The peoples of the second migration of speakers of Austronesian languages into the southwestern Pacific settled in pockets along the coastal areas of New Guinea and then spread eastward, slowly inhabiting Micronesia and Polynesia.

Genetically and linguistically, therefore, the societies of New Guinea and Melanesia have links to Australia, the rest of the Pacific Islands, and Southeast Asia. However, any cultural similarities with Southeast Asia and to a lesser extent Aboriginal Australia have long since disappeared. Cultural affinities with the other Pacific Islands exist–such as seafaring technology and culture and the presence of hereditary chiefs–but only for the coastal pockets of Austronesian language groups in Melanesia. For the most part, this chapter concerns Papuan or non-Austronesian societies. After a general introduction to social life in Melanesia, I ask the question: Are there maps in these oral societies? Then I discuss different "maps" and "mapping" techniques in the region.

Melanesian societies are traditional or prestate in terms of demography, technology, and the ability to harness energy. They are the product not of written contracts but

rather of social conventions such as gift exchanges that enable people to continually forge and negotiate relationships and alliances. Gift exchange, first studied by Marcel Mauss, is the basis for the constitution of traditional or prestate societies in particular.[1] Guided by the principle of reciprocity, gift exchange refers to the moral obligation to give, to receive, and to give back various objects such as food, tobacco, and valuables as well as labor and services. As a result, people are enmeshed in a web of obligations whereby they are constantly giving and receiving, thus holding the society together. All societies in Melanesia are at some level a group of people who speak a common language, share the same culture, and form a moral community united by gift exchange.

However, there are other foundations of societies in Melanesia, and although these vary greatly, they can be grouped along the lines of several conventions. Descent and kinship are perhaps the most common principles for determining membership in social groups. Here relationships are defined by connections to ancestors and by connections extended through siblings and other more distant relatives. Many of these groups, typically lineages and clans, trace their genealogy to totemic ancestors who engaged in cosmic creation.[2] These are what Simon Harrison calls "magical" societies.[3] Society and its constituent social groupings are locally understood to rest on inherent cosmological divisions that partition the world into discrete categories. Each category of the world was created by a totemic ancestor. For example, the ancestor

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1. Marcel Mauss, *The Gift: The Form and Reason for Exchange in Archaic Societies*, trans. W. D. Halls (New York: W. W. Norton, 1990); original French edition, *Essai sur le don*, 1925.

2. A lineage is a group of people who know their precise genealogical relationship to a common ancestor. A clan is a group of people who posit a genealogical relationship to a common ancestor but do not know the precise links. A clan is typically composed of different lineages. A totem is a nonhuman ancestor who formed a social group–usually a lineage or clan. Totems in Melanesia are commonly plants, animals, spirits, and humanlike heroes who have superhuman powers. The members of a group often have a special religious relationship to their totem; for example, they are prohibited from eating that species of plant or animal or consider items decorated with designs of the totem to be sacred.

3. Simon Harrison, "Magical and Material Polities in Melanesia," *Man*, n.s. 24 (1989): 1–20.

FIG. 12.1. REFERENCE MAP OF PAPUA NEW GUINEA AND SURROUNDING REGION.

of the pig clan, a spirit pig of unusual powers, might have created a portion of the local landscape and all the plants, animals, and topographic features within it. The descent group of the pig clan–those people who are descended from the pig totem–rightfully claim as their legal property that portion of the landscape and all that is within it. They are the custodians of that cosmological category.

"Material" societies are different. The foundation for these societies is represented in terms not of static cosmological divisions but of human action itself.[4] These societies and groups are typically based on residence, affinity or marriage, and work. In other words, "magical" societies justify the existence of groups through totemic ancestors who created portions or categories of the world before the creation of humanity. Human groups, as it were, simply fit into these preexisting categories. In "material" societies, groups justify themselves solely by their coming together as humans for some social reason; there are no prehuman cosmological or "magical" categories in which people align themselves.

Political authority in Melanesia, typically vested in men, is for the most part confined to the local social group, often the village or hamlet. It is unusual for lead-

ers to exercise actual power, as opposed to persuasion, beyond the moral boundaries of their cohorts. In most Melanesian societies political authority is fluid and exists only insofar as other men are willing to conform their aspirations to those of a leader. Most leaders base their authority on successful gift exchange, magical and ritual knowledge, warfare, and trade.[5] Some societies, usually Austronesian-speaking, have more formal political structures, even permanent offices such as chiefs. These are usually determined according to genealogical prominence such as lineage and clan primogeniture.[6]

It is important to understand that throughout Melanesia material wealth, although important, is not the sole determinant of prestige and rank. Authority and influ-

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4. Harrison, "Magical and Material Polities."

5. For more detailed discussion of Melanesian forms of leadership, see Maurice Godelier and Marilyn Strathern, eds., *Big Men and Great Men: Personifications of Power in Melanesia* (Cambridge: Cambridge University Press, 1991).

6. Primogeniture is the principle that ascribes prominence to the eldest member of a sibling set. In the case of clans and lineages, political prominence is given to the group that is descended from the senior or eldest ancestor.

ence also arise—in some societies solely arise—from ritual knowledge such as spells, magic, sorcery, and totemic names. Most representations of space in Melanesia are bound to the ritual system as well as to practices for determining the distinctions between social groups and their ancestors. As a form of knowledge, therefore, indigenous maps in Melanesia are primarily political rather than representational. In other words, they are arguments about how the world should be rather than objective constructs of how the world really exists.

The enormous cultural diversity of New Guinea is reflected in the wide range of spatial and cartographic portrayals. From an anthropological perspective all maps, like all forms of knowledge, are culturally embedded. That is to say, there is a definite link between modes of knowledge and the organization of society. Knowledge often reflects the dominant orientations and values of culture. This is especially true for societies that do not have independent educational institutions that strive to create and promulgate knowledge not bound to other aspects of society, such as ideology. In Melanesia, many forms of knowledge are intimately bound to politics and religion. This is often true for knowledge of the landscape and representations of space. Religion and politics determine those spatial features and relationships that are salient and suitable for "mapping." Maps in this sense are often part of a discourse in which men and sometimes women compete for ritual prestige, contest the primacy and importance of the totemic ancestors of rival groups, expand territory and access to resources, and adjudicate various disputes that at some level involve space. I am not just arguing that maps are cultural creations. This much is obvious, since people everywhere perceive space and the landscape through the conceptual frames their culture provides. I am suggesting that within Melanesian cultures maps are often political arguments in the sense that any representation of space is something that can and likely will be used to advance certain claims and deny the validity of rival claims. Although this chapter is primarily an introduction to different maps in Melanesia, it offers an underlying argument—that all mapping and spatial representation is culturally determined.

ARE THERE MAPS IN MELANESIA?

Given that traditional Melanesian societies are oral rather than literate, it is appropriate to ask: Are there maps in the region? Writing enables the fixing of discourse, knowledge, and ideology. Literacy, moreover, especially representational writing, tends to reduce the connotative power of language.[7] If we think about writing—scientific writing in particular, for indeed we in the West often view maps as a form of scientific knowledge—then we realize that ideas flow in a linear fashion, each point building on

the previous one and setting up the next statement. The goal of writing is to unpack, as it were, layers of meaning and render them in a sequential, precise fashion. We can see the text as a series of bounded words, conforming to an exact order, arranged on lines. By contrast, orality does not have this linear, visual component. It tends to be far more fluid, ambiguous, and metaphorical than writing. Furthermore, orality depends on the context of its production in ways that writing does not.

In oral cultures, it is difficult to separate the speaker from the "said" or the message maker from the message. Hence listeners are keenly aware of the social context within which knowledge is formulated, and they directly participate in it. The context of production or creation is a part of the message (or map), not something the message tries to escape. All claims in oral societies are thus readily open to contestation. Indeed, they invite it, since the recipients of the message or utterance, by virtue of their constant presence, participate in its creation. Once the oral message is presented, it can be transformed and imbued with unintended nuance more readily than a written map, which for all intents and purposes is a fixed rather than a protean message. As Walter Ong states, "Writing fosters abstractions that disengage knowledge from the arena where human beings struggle with one another. It separates the knower from the known. By keeping knowledge embedded in the human lifeworld, orality situates knowledge within a context of struggle."[8]

By virtue of the fluid nature of Melanesian political systems, which often pivot on the knowledge of esoterica, all claims to spatial information and all maps are political assertions. Although, I would argue, this is true for all societies, it is easier to hide these political dimensions behind a veil of objectivity in literary societies that institutionalize a discursive space where knowledge is supposedly acquired for the mere sake of knowledge. So indeed there are maps in Melanesia, but they tend to be less objective and more argumentive than in our society—arguments about political rivalries, ancestral prominence, ritual power, cosmology, and gender.

MELANESIAN MAPS

This section surveys the different types of maps, protomaps, spatial representations, and symbols in Melanesia.[9]

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7. Jack Goody, *The Domestication of the Savage Mind* (Cambridge: Cambridge University Press, 1977); but see Brian V. Street and Niko Besnier, "Aspects of Literacy," in *Companion Encyclopedia of Anthropology*, ed. Tim Ingold (London: Routledge, 1994), 527–62, esp. 532–34.

8. Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Methuen, 1982), 43–44.

9. There are representational maps by designation or intention and maps that represent space as a secondary quality. In anthropological

I have grouped these into seven heuristic categories: those pertaining to myth, genealogies and society, or objects and those that are verbal, graphic and written, artistic and ritual, or gendered.

This is my own classification rather than any indigenous categorization scheme. Nevertheless it encompasses the range of cartographic expressions in Melanesia and serves as a useful introduction to the topic. It would be enormously difficult if not impossible to correlate indigenous categories of maps and protomaps throughout all the language groups of the region. Furthermore, this degree of linguistic data is in most cases unavailable. To complicate matters, it is unclear how many Melanesian societies, if any, even have a vernacular word for "map." Although I recognize that other anthropologists could derive their own classifications, I believe these categories represent not only indigenous experience but also the trajectory of research in the region up to the present.

The historiography of the topic can be stated briefly. Most discussions of indigenous cartography in Papua New Guinea and Melanesia are embedded in anthropological ethnographies. The material was largely understood to be somewhat incidental to mainstream disciplinary debates and goals. In this regard there is no tradition of this type of research in the region. We have no series of debates, no significant body of theory, and no corpus of well-defined empirical data. Much of the relevant work is recent, or at least post–World War II. Most of the works cited in this chapter can be situated within one of six paradigms. The first is British social anthropology, with its emphasis on social organization and the interrelationships between social groups. The second is American cultural anthropology, with its emphasis on the symbolic content of culture. The first stresses social organization and interaction; the second highlights more elusive issues such as meaning in ritual, myth, and cosmology. The third tradition, arising from early twentieth-century French thought, focuses on the importance of exchange as a mechanism for constituting social integration. A fourth orientation concerns the significance, economic as well as social, of trade relations between cultures and language groups. The fifth orientation is the pervasive issue of gender, which is crucial for all forms of Melanesian and Papua New Guinean social life and culture. The final orientation concerns indigenous modes of history and temporality, which often intersect with concepts of space.

MYTH AS MAP

Throughout Melanesia, mythology is a primary organizer for many aspects of social life and cosmology. As in traditional, oral societies throughout the world, an important feature of many Melanesian myths is spatiality or localization. Typically, Melanesian myths detail the actions and migrations of primordial ancestors who created the landscape and specific locations in the regional world. The myth is an oral map of the local understanding of space and important topographic features, which are commonly either ancestors themselves or their handiwork. Conversely, the viewed landscape makes sense or becomes meaningful through associated myths. In some cases the myths are actual maps, in other cases they are protomaps.

An excellent example comes from the Iatmul of the middle Sepik River.[10] In their cosmology, the universe began as a vast, featureless sea. Eventually a tract of land surfaced in which there was a large pit. Out of this pit emerged the first ancestor spirits, followed by culture heroes who populated the world. These predominantly male ancestors created the rest of the dry land that constitutes the world. These acts of creation occurred through the power of toponymy (naming). By calling totemic names during their primeval migrations, culture heroes created the topographic features of the world. These features are both discrete and linear. They are single, bounded features such as clumps of trees and isolated hills as well as continuous features such as rivers, coastlines, and chains of mountains. Each ancestor's migration route is a path (*yembii*) of totemic names. Paths often, but not always, follow what we would consider to be natural tracks of the landscape–for example, streams and ridges. In this sense the landscape is orally mapped through chains of paired polysyllabic names that are chanted and sung on ritual occasions. These onomastic maps are also vectors of space-time such that any feature of the landscape is a node or moment in an ancestral migration that encodes direction and temporality.[11]

In essence, then, the Iatmul landscape is mapped along named paths or vectors of space-time. It is common throughout Melanesia to map space in the form of paths. In other words, locations that appear to be bounded, discrete places are often linked in a definite order in mythic and historical time.[12] The "natural" arrangement of the landscape, we could say, is overlaid with a cultural arrangement linking features that are otherwise disconnected. In many cases the mythic-historical past is embodied in stones, which are frequently the most critical points for conceptualizing space and spatial relationships.[13] Rocks anchor traditional cartography and its recollection in myth. On the island of Tanna, Vanuatu, stones were the original ancestors who were mobile and quarrelsome. They eventually became "silent and immobile . . . a web of redoubtable places whose supernatural powers are still active and rule the world."[14]

Along the north coast of Papua New Guinea there is a regional mythical epic that details the exploits of an elder and a younger brother who created, among other cultural institutions, overseas exchange networks, outrigger canoes, and trade magic.[15] The myth represents not only space but, more important, the social relationships and trade networks that link different geographic zones in the region: the inland bush, the mangrove Sepik estuary, and the islands. As a map, the myth of the two brothers intertwines space and morality. Indeed, the map of space encoded in the myth is an expression of what it means to be a competent adult person—someone who is a good trader, nurtures long-distance relationships, possesses esoteric knowledge, and masters dangerous overseas canoe voyages. The myth also records that the two brothers exploded a mountain, and that pieces drifted down the Sepik River and became the offshore Schouten Islands. As the brothers made their way downriver, they created various locations, houses, and sago palm groves. In this sense the myth also represents specific locations as well as more generalized, spatial notions of morality.

The Mountain-Ok peoples of central New Guinea understand their localized region to have been created by the ancestress Afek. Recorded in myth, her actions created the socially significant landscape. Afek lived long before humanity. Nevertheless, humans inhabit villages and other locations that she created. In mapping space, the myth creates an experiential link between the past and the present. Whereas the mythic map discussed in the previous paragraph is a moral guide to action, this mythic map is a temporal bridge. "Sacred sites are not just the locations of mythic events in the past: they are, for this very reason, also places where things keep on happening."[16] In another part of this region the equivalent myth encodes information in culturally specific idioms about altitude, distribution of flora and fauna, residence mobility, and the association between geographic location and morbid-

ity—for example, the prevalence of malaria in lowland areas.[17]

Trobriand Island myths link geographic locations with specific events during which particular social institutions were created. The entire corpus of Trobriand myth is a geography not only of the region but also of social practices. When the order of mythic events is spatially located, a general pattern emerges along a northwest-southeast axis. According to Harwood, this process serves three functions. The first is cognitive and mnemonic. The second is generative: because of the common spatial patterning, retelling any single myth generates other myths. The third function helps preserve tradition. Tying each mythic element to a specific location prevents change in any one myth and its associated social institution from expanding to other locations and thereby shattering the entire mythic corpus and the culture as a whole.[18]

Related to mythic maps are celestial maps, which are not commonly reported in the anthropological literature

30–49; and idem, "Politics, Gender, and Time in Melanesia and Aboriginal Australia," *Ethnology* 36 (1997): 101–21.

12. For examples in New Caledonia, see Maurice Leenhardt, *Do Kamo: Person and Myth in the Melanesian World*, trans. Basia Miller Gulati (Chicago: University of Chicago Press, 1979); for examples elsewhere in Papua New Guinea, see Thomas Maschio, *To Remember the Faces of the Dead: The Plenitude of Memory in Southwestern New Britain* (Madison: University of Wisconsin Press, 1994), 182–84.

13. Miriam Kahn, "Stone-Faced Ancestors: The Spatial Anchoring of Myth in Wamira, Papua New Guinea," *Ethnology* 29 (1990): 51–66.

14. Joël Bonnemaison, *The Tree and the Canoe: History and Ethnogeography of Tanna*, trans. and adapted Josée Pénot-Demetry (Honolulu: University of Hawai'i Press, 1994), 116. Bonnemaison notes that the Tannese also image space as outrigger canoes. "Identity and territory went hand in hand: to be human was to be from somewhere, to have a name, and to belong to a 'canoe'" (137). Canoes also seem to be signs for space and locations on Gawa and elsewhere in the Massim region (off the eastern tip of the Papua New Guinea mainland). See Nancy D. Munn, "Gawan Kula: Spatiotemporal Control and the Symbolism of Influence," in *The Kula: New Perspectives on Massim Exchange*, ed. Jerry W. Leach and Edmund L. Leach (Cambridge: Cambridge University Press, 1983), 277–308, and Frederick H. Damon, *From Muyuw to the Trobriands: Transformations along the Northern Side of the Kula Ring* (Tucson: University of Arizona Press, 1990), 172–76 and 204–9.

15. David M. Lipset, "Seafaring Sepiks: Ecology, Warfare, and Prestige in Murik Trade," *Research in Economic Anthropology* 7 (1985): 67–94, esp. 72–73.

16. Dan Jorgensen, "Placing the Past and Moving the Present: Myth and Contemporary History in Telefolmin," *Culture* (Canadian Anthropology Society) 10, no. 2 (1990): 47–56, esp. 51. See also Robert Brumbaugh, "'Afek Sang': The Old Woman's Legacy to the Mountain-Ok," in *Children of Afek: Tradition and Change among the Mountain-Ok of Central New Guinea*, ed. Barry Craig and David C. Hyndman (Sydney: University of Sydney, 1990), 54–87.

17. George E. B. Morren, "The Ancestresses of the Minyanmin and Telefolmin: Sacred and Mundane Definitions of the Fringe in the Upper Sepik," in *Man and a Half: Essays in Pacific Anthropology and Ethnobiology in Honour of Ralph Bulmer*, ed. Andrew Pawley (Auckland: Polynesian Society, 1991), 299–305.

18. Frances Harwood, "Myth, Memory, and the Oral Tradition: Cicero in the Trobriands," *American Anthropologist* 78 (1976): 783–96.

for Melanesia. For the Iatmul of the Sepik River, all stars are owned by clans and lineages as the creation of their totemic ancestors. This is the primary importance of stars. Certain stars are associated with specific directions, but celestial bodies were not traditionally used to indicate direction when traveling through the bush or along the river by canoe. The Boigu, who inhabit the Torres Strait, see the Milky Way in the shape of a *kaygas* or shovel-nosed shark. The head of the shark shows the direction of the tides at night. If it looks east, the current runs west. If the head is in the south and the tail points to the north, the current runs east.[19]

GENEALOGIES AND SOCIETY AS MAPS

All Melanesian societies have one or more systems for remembering and determining genealogies. Many of the genealogical systems correspond to space and locations, often through migrations. Let us return to the Iatmul example. All individuals are given patrilineal personal names, which are also totemic—names of either specific primordial ancestors or the phenomena they created during their primeval perambulations. On the one hand, this means that all people living in the village collectively embody the totality of totemic space. On the other hand, the genealogy of any specific person is a protomap of a portion of totemic space in that the names of his or her relatives and ancestors will often refer to topographic features in a common region. Thus a man's name might refer to a river—say, Korosameri, a tributary of the Sepik River. The names of his siblings, parents, grandparents, and other relatives, including his children, have been drawn from features and events that occurred in the area of that river. These include sago palms, hills, valleys, villages, and such. As one reconstructs the genealogy of Korosameri the person, one recalls significant spatial features in the region of Korosameri the river.

In fact, I suggest that society as a whole is an embodiment of space or a form of social map. This occurs in at least two modalities. First, as discussed above, society as a collectivity of individuals can represent the totality of social spaces that were created by ancestors during their migrations. This occurs when living people embody, often through names, ancestors and their locations. The Iatmul village of Tambunum, for example, is divided into residence wards that correspond to lineages and clans. On one level, each individual represents a region or an area through the genealogical process described above. On another level, however, each lineage or clan is the progeny of an ancestor who created "paths" of the world. The division of the society into descent groups and the village into wards corresponds to the wider cosmological map of the world.

Second, many Melanesian peoples divide their world according to the social groups that inhabit different regions or migrated from them. The Sio, for example, who inhabit the north coast of the Huon peninsula, partition their world into four quadrants in accordance with pre-contact trading partners.[20] From the mountain villagers of the southern interior, the Sio traded pots for taro, sweet potatoes, bananas, bows and arrows, pigs, dogs, bark cloth, and tobacco. From the west they received wooden bowls, black pigments, and almonds, among other things. From the northern offshore islands in the Bismarck Archipelago the Sio traded for hand drums and betel nut mortars. To the east, along the coast, is Gitua village, which manufactures pots like the Sio. The link between these different peoples and directions was often the Siassi traders, who acted as middlemen. Each direction in the local world was associated with a distinct ethnic or language group and certain items of exchange. The village has a patrilineal moiety system: two social groups whose membership is based on paternity. The two divisions or moieties trace their ancestry respectively to Pasa and Mburu, the original ancestors, who divided the original Sio Island into a smaller seaward section and a larger landward section. These two groups are divided into another, geographic division: the eastern half, or the weather side during the southeast trade winds, and the western half, corresponding to the weather side during the northwest monsoon. Both locally (within the village) and externally (outside the village) the Sio partition their world into quadrants and divisions that map ethnicity, seasonality or weather, and objects onto geography.

OBJECTS AS MAPS

Various artifactual representations of space also serve as maps or protomaps in Melanesia. As discussed above, the Iatmul understand space in terms of ancestral migrations encoded in paths of names. Mnemonically, these paths are recorded in objects. Among eastern Iatmul, paths of names are represented by short pegs inserted in the stem of a palm frond called a *tsagi-mboe* (fig. 12.2). Farther upriver, among central and western Iatmul, spatial paths of names are expressed by knots in *kirugu* cords (fig. 12.3).[21]

19. *Boigu: Our History and Culture* (Canberra: Aboriginal Studies Press, 1991), 29–30. Celestial maps are common among the seafaring, outrigger canoe peoples of Micronesia and Polynesia; see David Lewis, *We, the Navigators: The Ancient Art of Landfinding in the Pacific*, 2d ed., ed. Derek Oulton (Honolulu: University of Hawai'i Press, 1994), 82–122; see also chapter 13 below.

20. Thomas G. Harding, *Kunai Men: Horticultural Systems of a Papua New Guinea Society* (Berkeley: University of California Press, 1985), 23, and idem, *Voyagers of the Vitiaz Strait: A Study of a New Guinea Trade System* (Seattle: University of Washington Press, 1967), 115–17.

21. Wassmann, "Nyaura Concepts," and idem, *Song to the Flying Fox* (both note 11).

FIG. 12.2. EASTERN IATMUL MAN HOLDING A *TSAGI-MBOE* IN TAMBUNUM VILLAGE. The man, Agumoimbange, is the hereditary leader of a lineage. Each peg represents a path of totemic names that corresponds to a path in the landscape.
By permission of Eric Kline Silverman.

FIG. 12.3. CENTRAL AND WESTERN IATMUL *KƗRUGU* (KNOTTED CORD). This knotted cord has the same mnemonic function as the *tsagi-mboe* in figure 12.2. Each cord is six to seven meters long. The larger knots are specific locations in an ancestral migration route. The smaller knots are the names of totems associated with each location. This cord, which belongs to a specific lineage, is associated with Palingawi, an ancestral crocodile.
By permission of Dr. Verena Keck, Universität Basel, Switzerland.

Among the Wopkaimin of the interior Hindenburg Mountains in central New Guinea, trophy arrays of animal bones are another unique form of Melanesian mapping. The individual bones that compose these maps refer to specific locations in the local landscape. But they are also grouped into registers according to a broader cultural division of space into three zones: hamlets, bordered by gardens and secondary forest, all encircled by rain forest (fig. 12.4). The different levels of the registers, which contain bones of the same species, refer to these different topographic regions.[22]

Ponam Islanders arrange ceremonial exchange gifts (food, valuables, household goods) into displays that diagram the social relations or networks between groups.[23] In essence the displays are maps of society. However, the displays also represent the spatial location of social groups—the land they actually inhabit or where they should be located according to the sponsors of the ceremony. In this sense these gift displays represent the inter-
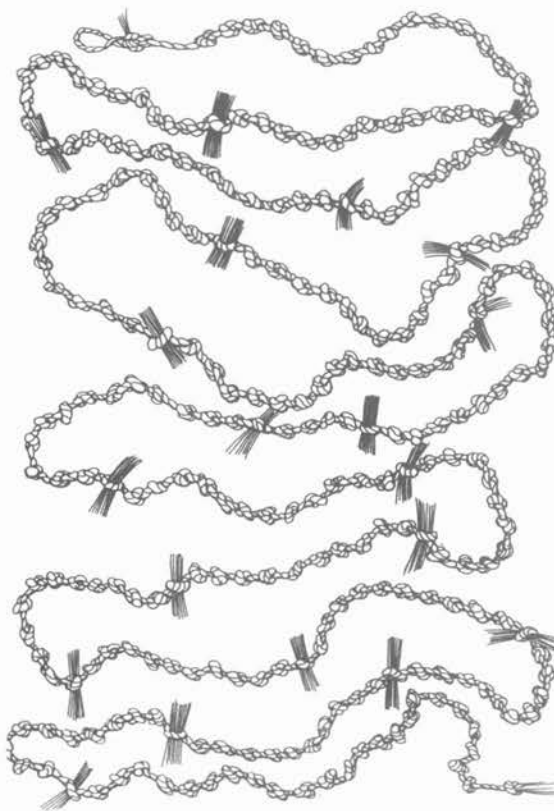
22. David C. Hyndman, "Back to the Future: Trophy Arrays as Mental Maps in the Wopkaimin's Culture of Place," in *Signifying Animals: Human Meaning in the Natural World,* ed. Roy G. Willis (London: Unwin Hyman, 1990), 63–73, and idem, "The Kam Basin Homeland of the Wopkaimin: A Sense of Place," in *Man and a Half: Essays in Pacific Anthropology and Ethnobiology in Honour of Ralph Bulmer,* ed. Andrew Pawley (Auckland: Polynesian Society, 1991), 256–65.

23. James G. Carrier and Achsah H. Carrier, "Every Picture Tells a Story: Visual Alternatives to Oral Tradition in Ponam Society," *Oral Tradition* 5 (1990): 354–75. Similar displays occur in various ritual exchanges on the island of Gawa. In one ritual context, plates of cooked pork and other food are offered to separate hamlets of the community. The plates "are laid out on the ground in a swath from roughly southeast to northwest according to the actual, relative position of each receiving hamlet. . . . Thus, the dispersed hamlets are represented in the model of a relational, directionally sequenced and linear whole within the community center." See Nancy D. Munn, *The Fame of Gawa: A Symbolic Study of Value Transformation in a Massim (Papua New Guinea) Society* (Cambridge: Cambridge University Press, 1986), 193–95 and esp. 204.
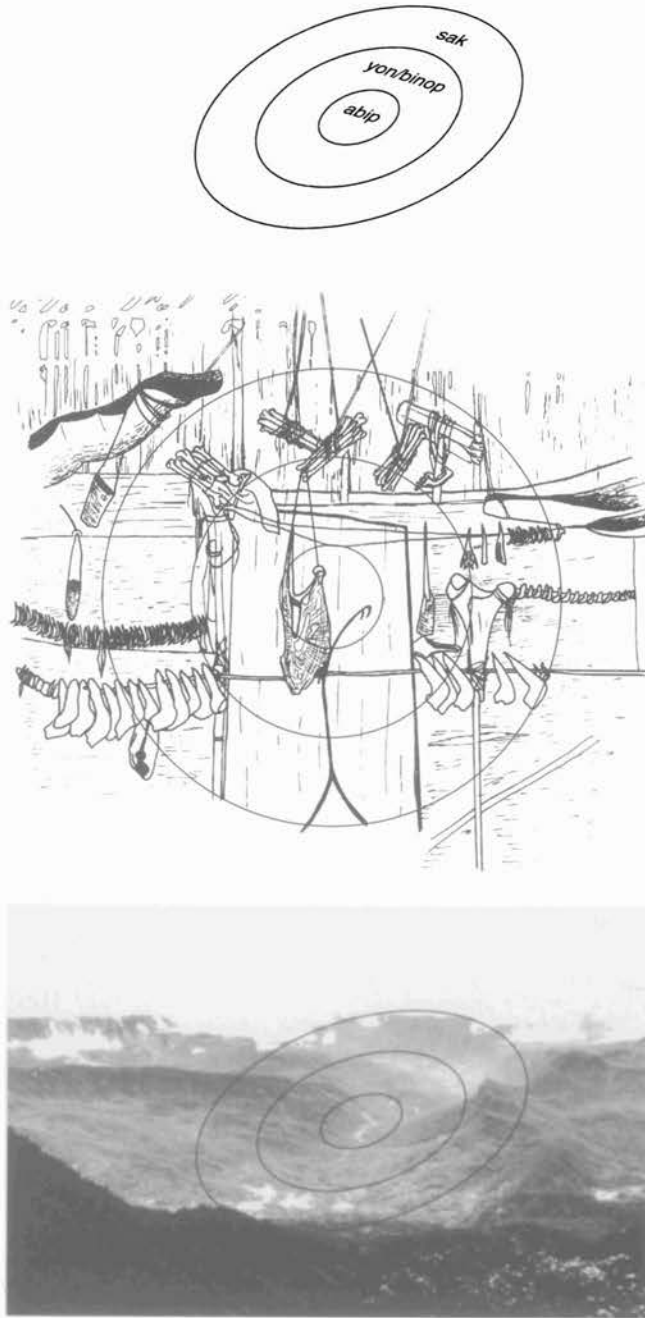
FIG. 12.4. WOPKAIMIN TROPHY ARRAYS OF ANIMAL BONES. The middle drawing represents the actual appearance of the trophy array; notice the different levels or registers of individual bones of the same species. The three concentric circles correspond to the tripartite division of the regional landscape: hamlets (*abip*), bordered by gardens (*yon*) and secondary forests (*binop*), all encircled by rain forests (*sak*).
After David C. Hyndman, "The Kam Basin Homeland of the Wopkaimin: A Sense of Place," in *Man and a Half: Essays in Pacific Anthropology and Ethnobiology in Honour of Ralph Bulmer*, ed. Andrew Pawley (Auckland: Polynesian Society, 1991), fig. 6. Photograph and permission courtesy of David C. Hyndman, University of Queensland, Brisbane.

section of social relations and space. They are actual or potential maps of sociality and geography.

Objects that are exchanged in regional networks also convey a sense of spatiality and thus can be considered a type of protomap. Let us examine the Huli, for example, a highland New Guinea society. In their "sacred geography," the Huli divide the world into specific regions. The main axis of this geography is the *dindi pongone,* a subterranean root or vine composed of an intertwined python and cane, oriented roughly north-south.[24] At certain points in the landscape, this mystical root touches the surface of the earth in the form of ritual sites and rivers. The Huli understand themselves to be at the center of this regional world. Theirs, however, is a world in a state of constant decline or dissipation of fertility, as evidenced by periodic earthquakes, famines, and social upheavals. To avert the general decay of cosmic fertility, Huli carry items available only in the lowlands to shrines in the upland region of their territory. There, ritual leaders subsist on these lowland foods, such as sago, sago grubs, bandicoots, fish, and water from specific rivers and lakes. In the overall context of regional trade, the quantities of these ritual items are meager, but they are symbolically important. Because of their central location, the Huli are ritual leaders who maintain the fertility of the cosmos. All directions and regional exchanges are understood in terms of the Huli-centric sacred geography and its north-south, python-cane magical axis.[25]

In another region of highland New Guinea, a variety of objects were exchanged: bird plumes, marsupial furs, green scarab beetles, cassowaries, native salt, pigments, pigs, and shell valuables. Many of these goods flowed in specific directions that were crosscut by the flow of other goods. In this regard, each item indexed both a direction or region and a specific social group. The object was a protomap insofar as its culturally constructed meaning, in part, arose from its sociotopographic place of origin and its direction of movement.[26]

In the Massim area, the site of the famous insular kula exchange first reported in depth by Malinowski, kula valuables–shell necklaces and armbands–are another form of indigenous protomap.[27] Prestige is accorded to men who successfully exchange the ornaments between

24. Stephen Frankel, *The Huli Response to Illness* (Cambridge: Cambridge University Press, 1986), 16–26.

25. Chris Ballard, "The Centre Cannot Hold: Trade Networks and Sacred Geography in the Papua New Guinea Highlands," *Archaeology in Oceania* 29 (1994): 130–48, esp. 142.

26. Christopher Healey, *Maring Hunters and Traders: Production and Exchange in the Papua New Guinea Highlands* (Berkeley: University of California Press, 1990), 170–233.

27. See especially Bronislaw Malinowski, *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea* (London: Routledge and Kegan Paul, 1922). For recent work and a bibliography on the kula sys-

the islands of the region. The goal is not to retain the shells but to acquire them only for a time and then to transfer them to other kula partners. The necklaces circulate clockwise, the armbands move counterclockwise. The entire kula system is envisioned as a circle composed of individual paths. The valuables themselves, in a sense, are protomaps of direction (clockwise or counterclockwise) and of the different paths they have traveled. Over time, individual ornaments acquire unique and valued histories that encode this spatial information. These histories are publicly known throughout the kula ring, since they lend the valuables additional prestige. The more extensive the exchange and hence spatial history of a kula necklace or armband, the greater its value.

There are few kula shells of the highest grade or value. "Men of substance in kula strive to obtain each of these shells at least once during their career, and others know whether they have achieved this or not. . . . There is thus a general correlation between the beauty, notability and age of shells, and the seniority and fame of transacters."[28] The highest grades of shells have histories that extend for several generations. They are known throughout the kula ring and have been exchanged around the entire ring enough times to become famous and to have acquired a personal name.[29] Inasmuch as a man could not fake his career in kula exchange–any more than he could fake his beauty, name, or age–the same can be said for kula ornaments.

Shields in the Trobriand Islands also represent space in a complex, graphic fashion. Trobriand society is matrilineal; children are born into the descent groups of their mothers, not their fathers. The importance of maternity is emphasized by local conception ideology whereby pregnancy does not result from heterosexual intercourse; the male role is denied. Rather, conception arises from women's being impregnated by matrilineal *baloma* ancestor spirits who float over the sea from Tuma, the land of the dead.

The Trobriand shield (fig. 12.5) has three symbolic codes. First, there are the indigenous mythological and totemic explanations of the design elements (fig. 12.6). Second, the shield represents an X-ray view of human copulation, a representation that seems to call into question local conception ideology. In figure 12.7, the figure on the left clearly shows the sexual act, whereas the figure on the right shows female genitalia. Third, the Trobriand shield expresses a complex relation between religion, sexuality, and geography. In figure 12.7, the figure on the left is Topileta, gatekeeper of the Underworld, who has large flappy ears (depicted on the shield) and an insatiable sexual appetite. Tuma, the Underworld (figure on the right), is the island where Trobriand men collect cowrie shells. But it is also said that "man's penis . . . dwells in Tuma, the vulva, the land of the cowrie shell." Thus we

see the juxtaposition of sexual intercourse, specifically female genitalia, and a geographic-religious location. Furthermore, "Tuma, the world *below*, is said to be a reflection of the society of the world *above*, Boyowa. . . . Implied in the design is the symbolic equation: Tuma = Topileta = Boyowa. For what takes place in Tuma (reincarnation) implies procreation (Topileta) in the upper world, Boyowa."[30] Tuma is the land of the dead; this location privileges reincarnation from matrilineal spirits. Topileta, we have seen, is an image of sexual intercourse or procreation, not asexual reincarnation. This results in actual sexual reproduction in the land of the living, or Boyowa. In other words, the shield juxtaposes an image of sexual intercourse with a trifold map of the cosmos: the lower world of the dead, the upper world of the living, and the intervening gatekeeper of the Underworld.

But there is more. Evidence from mythology, the meaning of Trobriand place-names (e.g., certain locations have the names of clitoris, semen, and copulation), and regional variations in behavior that stress either masculinity or femininity suggest that the Trobriand Islands were organized according to north (male) versus south (female) and east (male) versus west (female) polarities. These directional polarities parallel the cosmological opposition depicted on the shields between, first, male and female, and second, generative fertility (via the lower maternal land of the dead) and the upper masculine land of heterosexuality.[31]

The Daribi of the Mount Karimui area use the sun as a reference point for conceptualizing the moral valences of space. As the main "road" of the culture, the westward movement of the sun as well as flowing water leads to the place of the dead. As Roy Wagner puts it, "The directionality of the world is that of man's own life, so that sunset and the inexorable motion of water take on the significance of human mortality."[32] Moreover, men are associated with upper directions, women with lower

tem, see Jerry W. Leach and Edmund L. Leach, eds., *The Kula: New Perspectives on Massim Exchange* (Cambridge: Cambridge University Press, 1983).

28. Munn, "Gawan Kula," 304 (note 14).

29. Shirley F. Campbell, "Attaining Rank: A Classification of Kula Shell Valuables," in *The Kula: New Perspectives on Massim Exchange*, ed. Jerry W. Leach and Edmund L. Leach (Cambridge: Cambridge University Press, 1983), 229–48.
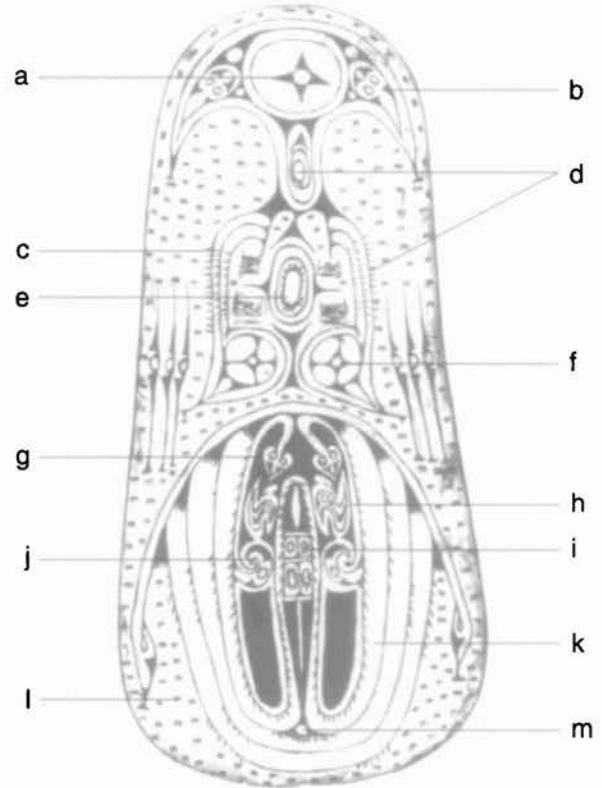
30. Patrick Glass, "Trobriand Symbolic Geography," *Man*, n.s. 23 (1988): 56–76, esp. 60–61.

31. Glass, "Symbolic Geography," 70–71.

32. Roy Wagner, *Habu: The Innovation of Meaning in Daribi Religion* (Chicago: University of Chicago Press, 1972), 113. Wagner writes: "Daribi say that 'the sun and the water go to the same place'; water is thought to rise in the east . . . and on top of Mount Karimui, the various peaks of which are designated as the sources (*gomo*) of the major local streams, and flow westward. It moves to the north of the mountain, gradually accumulating in the Tua River, until it flows away to the west. The fact that the river then turns and flows eastward to the south

a *Kubwana*, Venus or the morning star that rises when *sikwaikwa* birds and *lekoleko* (fowls) begin to crow.
b *Kaiuna* or three-headed snakes.
c *Saina* or decorative lines.
d *Sasona*, small fish found in creeks and in shallow waters on the beach.
e *Siwai*, a species of flat fish.
f *Ubwala* or stars of lesser importance visible in the morning hours.
g Heads of snakes.
h *Vikia* or frigate birds caught by the snakes.
i *Haia* or rings of shell used in series as earrings.
j *Sikwaikwa*, a bird the size of a starling that gives a sharp short call before sunrise.
k *Ludakaidoga*, the rainbow.
l Multiplicity of marks representing holes pierced by spears in the shield.
m *Buli-buli*, the tail of the manucodia.

FIG. 12.5. TROBRIAND SHIELD DESIGN. The oval, carved wooden shield is colored with red, black, and white.
Size of the original: 70.5 × 31.5 cm. Copyright the British Museum, London (+6317).

FIG. 12.6. INDIGENOUS EXEGESIS OF THE TROBRIAND SHIELD DESIGN (FIG. 12.5). This diagram depicts the various design elements of the shield in figure 12.5 and their indigenous referents. They generally refer to mythology and totems. This level of meaning–the conscious, verbally articulated level–attends to individual motifs rather than a single theme or pattern.
After Patrick Glass, "Trobriand Symbolic Geography," *Man,* n.s. 23 (1988): 56–76, esp. fig. 1.

A 'X-ray' view of ejaculating penis
B Testicle
C Fallopian tube
D Symbolic fish
E Clitoris
F Shaven hair around anus
G Anus
H Vulval tattoo
I Labia
J Vagina
K Outline of female genitals
   in normal sexual congress

a Womb
b Fallopian tube
c Decorative lines (*saina*)
d Small fish (*sasaona*)
e Flat fish (*siwai*)
f Testicle
g Snake tattoo
h *Vikia* or frigate bird tattoo
i *Haia* shell rings
j *Sikwaikwa* bird tattoo
k Labia
l Spear markings
m Anus
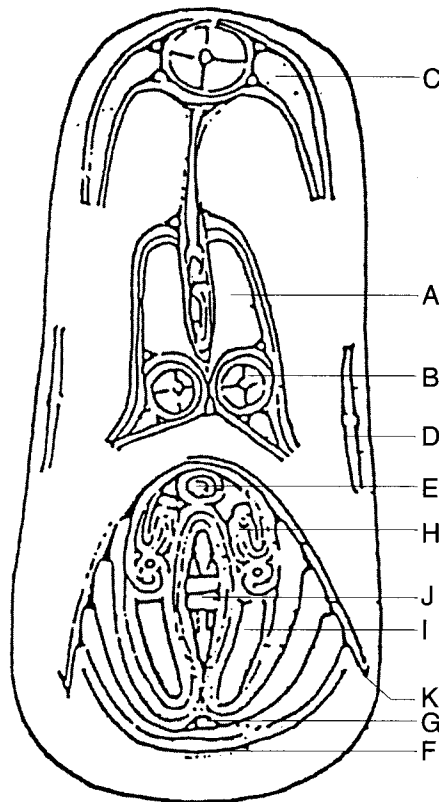
TOPILETA
(gatekeeper of
the Underworld)
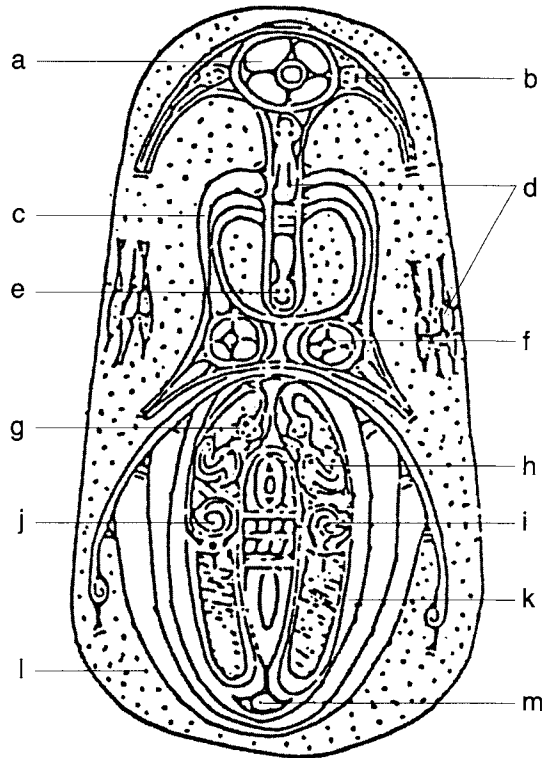
TUMA
(the Underworld
and Trobriand
Heaven)

FIG. 12.7. TROBRIAND SHIELD DESIGN: X-RAY IN-TERPRETATION AND COSMOLOGICAL-GEOGRAPHIC CODE. This diagram highlights the shield design as it pertains to the human anatomy (compare figs. 12.5 and 12.6). In particular, the diagram on the left illustrates sexual intercourse, while the diagram on the right represents female genitalia and associated tattoos.

The diagram also represents the cosmological or religious dimension of the shield design. The figure on the left represents Topileta, the gatekeeper of the Underworld. He has large flappy ears and a voracious sexual appetite; both elements are represented in the design. The figure on the right is Tuma, the island Underworld and Trobriand heaven. The two figures represent respectively sexual intercourse and procreation in the land of the living versus asexual reincarnation in the land of the dead. This opposition is reflected in various locations in Trobriand geography having male or female gender associations.

After Patrick Glass, "Trobriand Symbolic Geography," *Man*, n.s. 23 (1988): 56–76, esp. figs. 2 and 3.

spaces. Daribi map space and therefore human action through a cosmological system that hinges on two axes: male-female and life-death. This spatial system is represented on a microcosmic scale by the Daribi house. Whereas men live in the direction of sunrise, women inhabit spaces associated with sunset, death, and stagnant water. "The 'direction' of life, coming and going, bringing in, preparing, and finally discarding or excreting food, is along the central, east-west corridor," [33] the front of the house being toward the east, the rear door facing west. Inside the house, men live in the upper and frontal areas (*oboba*), which are associated with the direction of sunrise, trees, and *sezemabidi* or arboreal and largely masculine tree spirits. Women live in the rear, lower areas of the house (*iba*), the spaces associated with the direction of sunset, water, the dead, and the *izara-we,* jealous and dangerous women who live underground. Overall, as Wagner notes, there is a correspondence between space, gender, houses, and the alimentary system of the human body that forms, in my terminology, a multivalent protomap.[34]

VERBAL MAPS

Melanesian societies map space in verbal modes such as poetry, song, and chant. Orality itself is a type of map that encodes space, location, direction, and place. Many non-Austronesian languages (and likely Austronesian ones as well) have elaborate systems of spatial deixis wherein events, actions, persons, and things must be located in space in order to be articulated through language. Spatial deixis refers to linguistic markers (e.g., bound morphemes) and words that orient the speakers or the topic of conversation in space. These locational markers often involve such directions as east-west (perhaps following the course of the sun or rivers), upward-downward, and here-there. For example, in the Wahgi language, all things are located, Michael O'Hanlon says, "as up- or down-river from the speaker, as towards the river, away from it, or across it; as on higher or lower ground. These precise orienting terms are used even within the house. . . . In contrast, far distant places (to which Wahgi business men and women and politicians now regularly travel) are all classified as lying in the same direction: Port Moresby, Sydney, and New York are all described as 'down-river and below.'" [35] In some cases, such as the highland Wahgi, deixis is anchored to a specific topographic region like a valley, thus rendering the linguistic notation of direction problematic outside that localized region.[36]

Earlier I discussed totemic names and chants that are a form of map for the Iatmul. Among the Kaluli of the Papuan Plateau, songs sung during the Gisaro ceremony are a form of verbal, musical map. These nostalgic songs

contain numerous references to locations in the region. Each location that is mentioned in a song is linked to the life of a deceased or absent person. The songs map socially significant spaces through "the interweaving of geography and personal allusion." [37] The "tracks" formed by the songs do not necessarily follow existing trails, although they sometimes do. The landmarks that form the track of a song are often topographic features—trees, streams, ridges—but also include culturally rather than naturally salient spaces such as clan-owned lands and social paths formed by marriage between two groups. These maps add an element of pathos to space and location. In fact, a song is considered a failure if it does not make the listeners weep.[38]

During long-distance kula voyages from the island of Tubetube, helmsmen's songs constituted a verbal map of the region. These songs consisted of lists of places interspersed with phrases describing the movement of the boat. They also contained indicators of the canoe's proximity to land, such as the direction of flying birds. Tubetube helmsmen's songs begin with a wailing sound (Aeeee!) that is repeated between each named place. One song goes:

> Aeeee!
> Dabwelo [name of an island] koina [to it]
> Aeeee!
> Koyagaugau [name of an island] tagitai [we see it]
> Aeeee!

and so forth. Sometimes other phrases are interspersed between the names of the islands, such as village names and landing places. Poetic phrases are also included, such as *kalitamena ipigapigabu* (literally, "in the sea it is sparkling," which may refer to phosphorescence in the wake of the canoe, or simply the reflection of light on the

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of Mount Karimui, thus diverging from the course of the sun, is generally ignored or held to be inconsequential" (111).

33. Wagner, *Habu,* 123.

34. Wagner, *Habu.*

35. Michael O'Hanlon, *Paradise: Portraying the New Guinea Highlands* (London: British Museum Press, 1993), 14. See other examples in James F. Weiner, *The Empty Place: Poetry, Space, and Being among the Foi of Papua New Guinea* (Bloomington: Indiana University Press, 1991), 72–78; Volker Heeschen, "Some Systems of Spatial Deixis in Papuan Languages," in *Here and There: Cross-Linguistic Studies on Deixis and Demonstration,* ed. Jürgen Weissenborn and Wolfgang Klein (Amsterdam: John Benjamins, 1982), 81–109; and Alfred Gell, "The Language of the Forest: Landscape and Phonological Iconism in Umeda," in *The Anthropology of Landscape: Perspectives on Place and Space,* ed. Eric Hirsch and Michael O'Hanlon (Oxford: Clarendon Press, 1995), 232–54.

36. Michael O'Hanlon, personal communication, 1994.

37. Edward L. Schieffelin, *The Sorrow of the Lonely and the Burning of the Dancers* (New York: St. Martin's Press, 1976), 184.

38. Edward L. Schieffelin, "Mediators as Metaphors: Moving a Man to Tears in Papua, New Guinea," in *The Imagination of Reality: Essays in Southeast Asian Coherence Systems,* ed. A. L. Becker and Aram A. Yengoyan (Norwood, N.J.: Ablex, 1979), 127–43.

waves). When the song refers to long distances between islands, birds are often mentioned to indicate the relative closeness of land.[39]

GRAPHIC AND WRITTEN MAPS

Despite the absence of literacy, traditional Melanesian societies did have forms of graphic maps. Typically these maps were regionally bounded and centered on some culturally salient location. As in most societies, the group is usually at the center of the map or worldview, whereas other groups or societies, often speaking different languages, are at the periphery. A Iatmul man in 1994 drew me a map of the world in the dirt. It centered on the pit out of which emerged the first cosmological spirits and ancestors. Ancestral migrations that created the paths of the world were depicted as vectors radiating in all directions from the center.

The Mejprat of Irian Jaya have a somewhat similar system. They understand a region to consist of two divisions: the river, or "hosts," and the bush, or "guests." This division is crosscut by a moiety system that regulates marriage. The region was united by the *wor n'su*, a tunnel system radiating from a center. The mouths of the tunnels are ritual places, organized like points on the compass.[40] These locations and tunnels are grouped into pairs of brother and sister "ropes" that are ultimately descended from the first opposite-sex human sibling pairs. Visually this spatial system was represented by signs painted on the chests of neophytes during male initiation, which depict "the regional system as a centre of two circles or diamond shaped figures from which eight (or four) tunnels radiated" (fig. 12.8).[41]

The Yupno, inhabiting the Finisterre Mountains, map their local universe as an inclined oval valley bounded on all sides by mountains (figs. 12.9 and 12.10). This map contains bodily imagery. The world is oriented by the course of the Yupno River, which flows eastward into the sea, through the only opening of the valley. The river

> is regarded as the creator Morap, "the one who dwells in abundance." Above ("West") is the source from which humanity originated, washed ashore in bamboo pipes (*teet*, the term which also stands for "right") by the Yupno River, literally "the one which washes everything ashore and deposits it on the banks"; at the bottom ("East") where the Yupno flows into the sea, is the land of the dead, the island of Nomsa, "the thing which rises like a fern stalk from the sea. . . . The source of the river (above and at the back) is Morap's head, the estuary (below and to the front) is his feet. Morap is looking downstream.[42]

Furthermore, this regional spatial representation is replicated by the Yupno house, which is oval, with a single

FIG. 12.8. EXAMPLES OF MEJPRAT SIGNS DEPICTING THE *WOR N'SU* (TUNNEL SYSTEM). These three signs were painted on the chests of male neophytes during initiation ceremonies. Each sign represents the local regional system that is united by the *wor n'su* tunnels. The tunnels radiate from the center of the region, as depicted in the diagrams.
After John-Erik Elmberg, *Balance and Circulation: Aspects of Tradition and Change among the Mejprat of Irian Barat* (Stockholm: Ethnographical Museum, 1968), fig. 10.

opening at the front and a long fireplace running down the middle.

Not surprisingly, this closed or bounded map of the Yupno world is now changing. The maps in figure 12.11 were drawn by male elders who had never left their territory, in response to the request, "Please draw on this ground the territory where you live, where the people live who talk the same language as you."[43] Compare these bounded maps with those drawn in response to the same request by men who had left the region for a short time to visit the coast (fig. 12.12). In figure 12.13, by contrast, showing maps drawn by middle-aged and young men who had worked on plantations or lived in cities, we see shifts toward geometric rendition and almost planimetric precision. The geometric shift could be the result of increased familiarity with literacy and the kinds of precision that are required in the context of Western-oriented business, plantation administration, and the angular architecture of Western buildings and cities. The representational maps might have resulted from increased familiarity with different regions (a sense of "nature" divorced from "culture") and the notion of what could be termed planimetric representation. In both cases, the cartographic shift

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39. Martha Macintyre, personal communication, 1994.

40. In the Trobriand Islands, key points of the compass are indicated by the axes of the chief's house and the chief's yam house (Damon, *From Muyuw to the Trobriands*, 193 [note 14]).

41. John-Erik Elmberg, *Balance and Circulation: Aspects of Tradition and Change among the Mejprat of Irian Barat* (Stockholm: Ethnographical Museum, 1968), 102–3.

42. Jürg Wassmann, "The Yupno as Post-Newtonian Scientists: The Question of What Is 'Natural' in Spatial Description," *Man,* n.s. 29 (1994): 645–66, esp. 658.

43. Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. 129–45. Although Wassmann remarks that the Yupno did not traditionally draw maps in the soil (129), this discussion of Yupno maps seems appropriate.

FIG. 12.9. YUPNO MAN DRAWING THE "WORLD." The rugged terrain of the Yupno Valley is bounded by mountains, literally "fences," on three sides. Villages are situated in small adjacent valleys or on mountain ledges. The valley is the "world" in the traditional Yupno view. Its oval shape has one opening, which is to the east where the Yupno River (the middle line) flows to the sea. The smaller ovals depict fenced-in villages.
By permission of Dr. Verena Keck, Universität Basel, Switzerland.

can be traced to greater knowledge of practices and regions outside the traditional territory. Finally, the maps in figure 12.14 were created by children lacking any school education, and they are reminiscent of those drawn by male elders who had not traveled. The children's maps do not express the same level of cosmological knowledge as those of male elders (e.g., the circular encompassment of the entire region), nor do they express the influences of the outside world—openness, angularity, regimentation, and planimetric representation (compare also a map of the region, fig. 12.15).[44]

Among the Chambri of the middle Sepik River, Gewertz elicited "a series of drawings executed by Yarapat to illustrate Chambri land claims. He drew these maps in
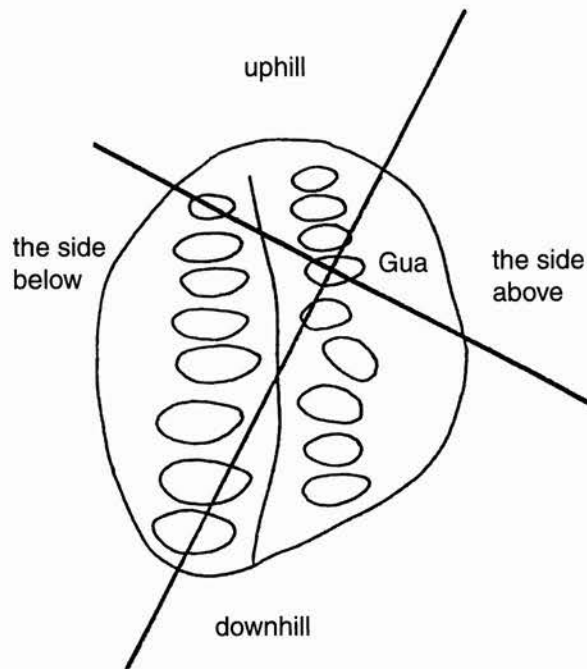

FIG. 12.10. THE YUPNO'S LOCAL UNIVERSE. The drawing represents the valley from the perspective of Gua village as a bounded oval surrounded by mountains. Uphill is west–not north, as in the usual orientation of Western maps–and the Yupno River flows east. Thus the local world is divided into quadrants based on the flow of the river and a general north-south inclination of the land.
Courtesy of Dr. Verena Keck, Universität Basel, Switzerland.

my presence, rejecting the first two as inadequate but pleased with the accuracy of his final version."[45] His first map arranged villages not according to geographic location but in terms of traditional alliances and exchange patterns, in other words, economic and ritual reciprocity (fig. 12.16). The second map, which Yarapat drew as a correction to his first map, incorporated geographic location and distinguishes between Chambri villages and hamlets in the Sepik Hills (fig. 12.17). The third map again is geographically anchored, but now the distinction is between Chambri villages and their Iatmul rivals, with whom there have been ongoing land disputes (fig. 12.18).

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44. Wassmann comments on the production of these maps: "Although the Yupno do not traditionally draw in the soil, nor mark short routes in the soil in order to support a simple route description, all men, without exception, complied with the request without problems. Women, however (girls excepted) could not be moved to participate in the task. All participants drew their territory with a little stick on an even soil surface. As a rule, they were alone; no conversations were allowed. No help was offered, neither by the anthropologist nor by any fellow Yupno. At most, the question was repeated once" ("Worlds in Mind," 129).

45. Deborah B. Gewertz, *Sepik River Societies: A Historical Ethnography of the Chambri and Their Neighbors* (New Haven: Yale University Press, 1983), 144–48, esp. 144.
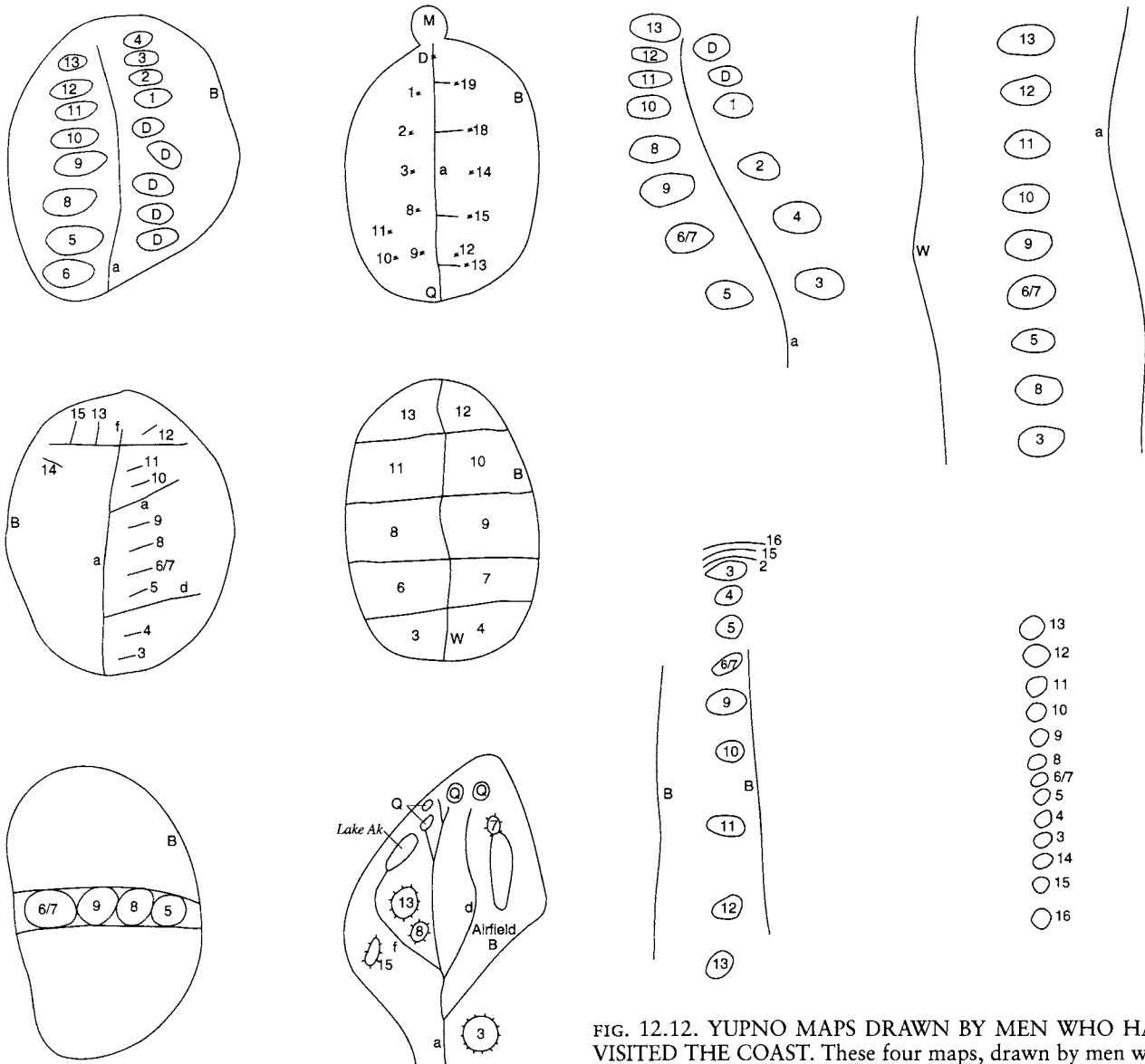
FIG. 12.11. YUPNO MAPS DRAWN BY MALE ELDERS. These six maps were drawn by Yupno men whose lives were confined entirely to the local region. The men were asked to draw the area where they and others who spoke the same language lived. Of particular importance is that each map is clearly bounded by the Finisterre Mountains in accordance with the traditional cosmology (see fig. 12.10). The central features are the river and villages, represented as ovals.

For figures 12.11–12.14, the numbers 1–20 represent twenty Yupno settlements, other non-Yupno villages are labeled D; the most important rivers are labeled in lowercase letters a–g, other rivers are labeled F; W indicates a path; Q a spring; M the sea; and B mountains (fences). See figure 12.15. After Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. fig. 1 (A1–A6).

Each of the three maps is accurate, but the spatial accuracy obtains only in a specific context of political claims

FIG. 12.12. YUPNO MAPS DRAWN BY MEN WHO HAD VISITED THE COAST. These four maps, drawn by men with limited experience outside the region, lack the closed boundaries of the maps in figure 12.11 but still retain a traditional orientation–the river and a line of bounded villages. See also figure 12.15.

After Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. fig. 1 (B1–B4).

and relations of power. In other words, each of the three maps is an attempt to illustrate the relevant geographic and social relationships for advancing claims about the loss of Chambri land to rivals. The first map illustrates social relationships largely in terms of egalitarian exchanges between hereditary trading villages. The second map, which now encompasses actual geographic locations, sets off Chambri lands from those of the Sepik Hills. The third and final map clearly was intended to illustrate geographically rightful Chambri lands and intru-
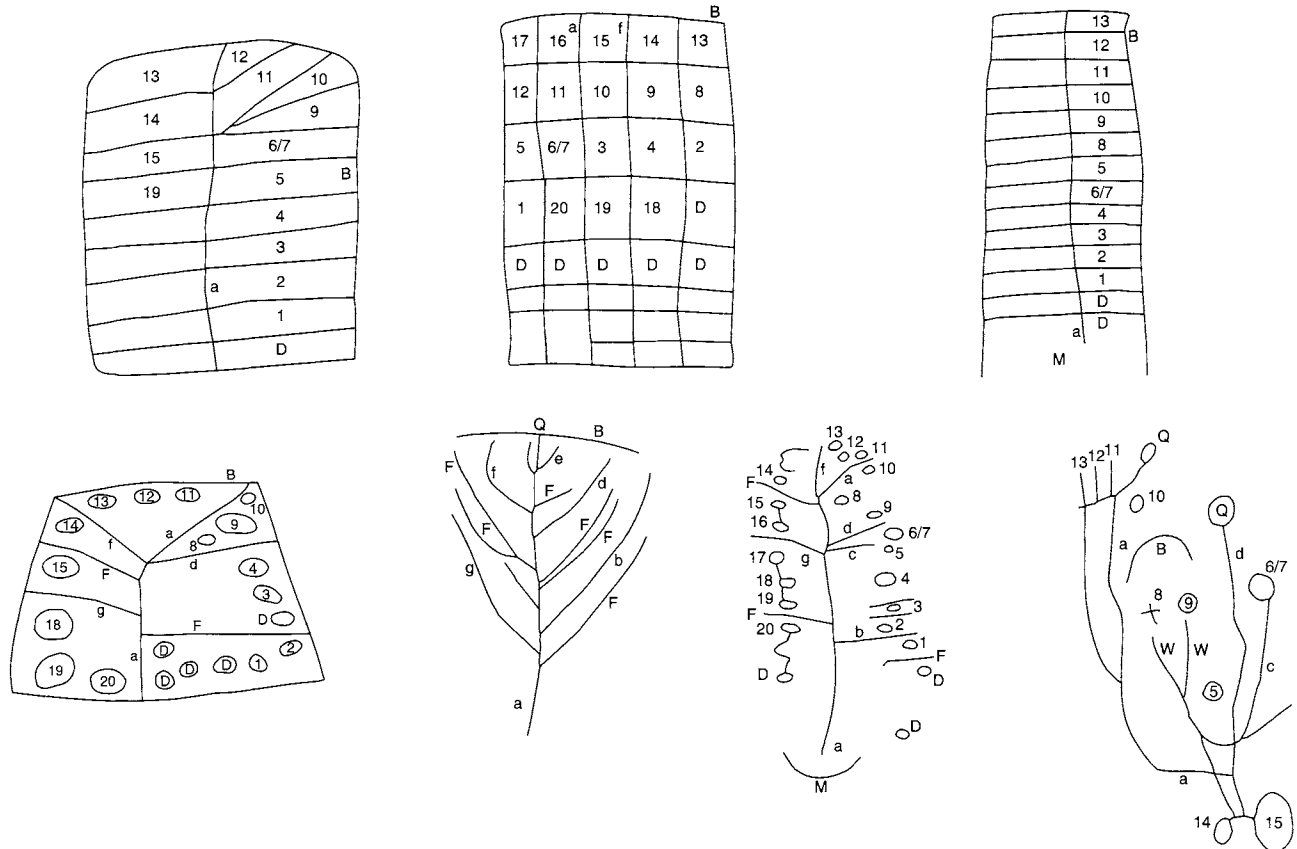
FIG. 12.13. YUPNO MAPS DRAWN BY MEN WHO HAVE EXTENSIVE EXPERIENCE WORKING ON PLANTATIONS AND LIVING IN CITIES. These maps stress two cartographic shifts. The first four maps express increased familiarity with geometric regularization and linearity; these maps, we could say, are more literary. The last three maps are representational in that they attempt to depict the region as it exists in nature rather than mediated entirely by cultural conventions. See also figure 12.15.

After Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. fig. 1 (C1–C7).

sions into those lands by Iatmul rivals. This map, Yarapat hoped, would persuade Papua New Guinea land courts to decide future land cases in favor of the Chambri. Despite the incorporation of literacy, these Chambri maps still reflect the constant and fluid nature of traditional representations.[46]

ARTISTIC AND RITUAL MAPS

What I term artistic and ritual maps are also found in Melanesia and Papua New Guinea. Like many of the examples discussed above, these maps are created through what are primarily noncartographic practices. In other words, the representation of space is not the primary focus of the object or event. Hence, these are dramatized protomaps.

Iatmul use four paint colors to adorn human bodies during ceremonies as well as for ritual art: white, black, red, and yellow. The colors form a type of protomap in two respects. First, individual colors refer to specific locations where the pigment is found, since each occurs in only a few places. Any color thus indexes a finite number of spaces. In the context of ritual, however, the geographic evocation of colors is narrowed to a specific lineage or clan—the group that is sponsoring the ritual and whose bodies and sacred objects are painted. These lineage and clan-owned locations are nodes in the ancestral migration routes of the descent group. The color evokes totemism and, specifically, ancestral migrations, which have temporal, spatial, and directional dimensions. When people see the color within the context of art and ritual, they are reminded of these locations and migrations as well as of the ancestors who created them.[47]

46. Gewertz, *Sepik River Societies*, 148.

47. On New Ireland, Malangan funerary art is also related to the memory of the landscape and to land-use rights. The sculptures are not maps per se; you cannot read the landscape from them. But the same
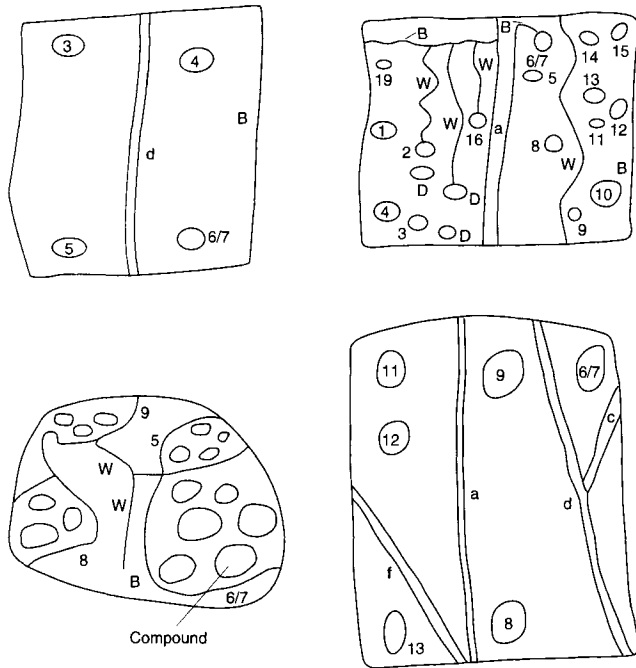
FIG. 12.14. YUPNO MAPS DRAWN BY UNSCHOOLED CHILDREN. These children's maps represent the region as a simple, limited, and bounded space with a central riverine axis and oval villages. They are similar to those drawn by male elders who spent their whole lives within the region (fig. 12.11 above). See also figure 12.15.
After Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. fig. 1 (D1–D4).

FIG. 12.15. REFERENCE MAP FOR FIGURES 12.11, 12.12, 12.13, AND 12.14. The numbers 1–20 represent Yupno settlements and the letters a–g represent the most important rivers.
After Jürg Wassmann, "Worlds in Mind: The Experience of an Outside World in a Community of the Finisterre Range of Papua New Guinea," *Oceania* 64 (1993): 117–45, esp. 130.

The same can be said for the shell ornaments that adorn dancers and art, since these objects are only found along the coast. They are acquired through gift exchange along two main routes. First, there is down-the-line exchange from the north coast, across the Sepik Plains, to the river. Second, Iatmul travel down the river to visit trading partners in coastal and lower Sepik villages. Like paint colors, therefore, shell ornaments evoke space and thereby form a type of map. But shells tend to evoke not so much ancestral-totemic space as contemporary space, travel, and distance.

One set of prehuman Iatmul ancestors that emerged from the primordial pit are *mai* spirits. These clan- and lineage-specific spirits exist in trios as either elder brother–younger brother–father or brother–sister–father. They created villages along their totemic paths before the emergence of humans. During the *mai* ritual, the masked and costumed dancers who represent the spirits emerge from behind a raised platform and sing totemic songs through bamboo voice modulators as they dance. The backdrop for the platform is a representation of three mountains woven from leaves and bamboo (plate 23). As a map, these three mountains represent the three regions of the
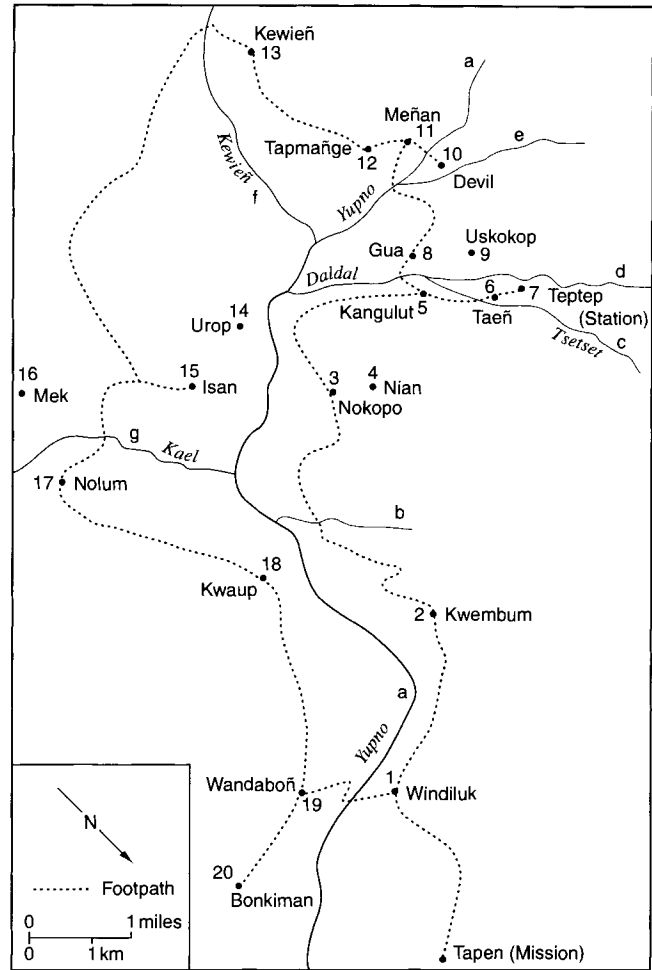
world that were created by village ancestors: the land to the north of the Sepik River, the land to the south, and land in the aquatic part of the world (the river and ocean). Each of the three major clans of the village claims one mountain representing a region of the world, which was created by its ancestors. Iatmul represent land as mountains, since the original state of the universe was water, out of which land appeared. Land is constantly being threatened by erosion from the Sepik River, and thus tall mountains are an image of terrestrial stability. Moreover, the horizon of the Sepik River is framed by the interior

mnemonic templates govern the memory of images and the landscape (Susanne Küchler, "Landscape as Memory: The Mapping of Process and Its Representation in a Melanesian Society," in *Landscape: Politics and Perspectives*, ed. Barbara Bender [Oxford: Berg, 1993], 85–106).
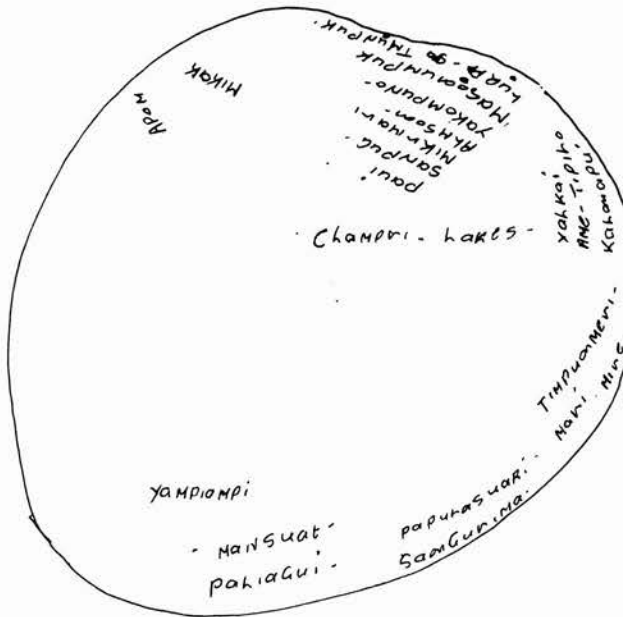
FIG. 12.16. CHAMBRI MAN'S MAP OF VILLAGES WITH-OUT CONSIDERATION OF GEOGRAPHIC LOCATION. This map portrays villages and hamlets as trading partners or sets of alliances. They are arrayed in a rough circle around the village of Yarapat (the mapmaker). The map depicts how villages are grouped in social space according to the Melanesian logic of reciprocity: proximity is measured by social closeness, not by space per se. Hence this map does not represent actual geographic location.
From Deborah B. Gewertz, *Sepik River Societies: A Historical Ethnography of the Chambri and Their Neighbors* (New Haven: Yale University Press, 1983), 145.
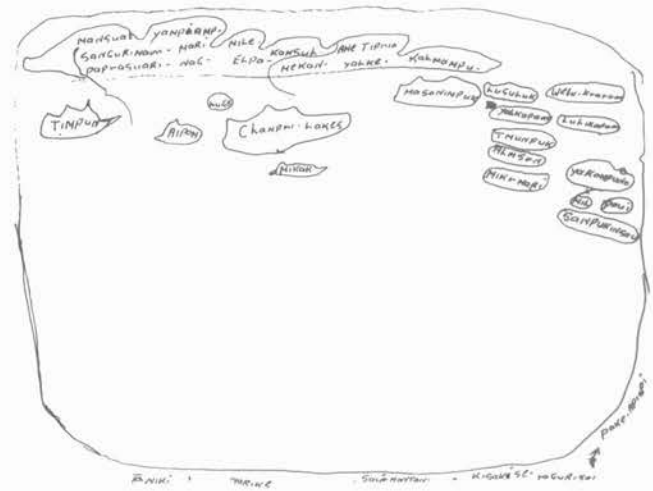

FIG. 12.17. CHAMBRI MAN'S MAP OF VILLAGES AND HAMLETS INCORPORATING GEOGRAPHIC LOCATION. This map, which is a revision of the map in figure 12.16, begins to depict locations in actual geographic orientation. In this map the center portrays the true geographic locations of islands in Chambri Lake. Outside the lake, however, space is still depicted in terms of social relations, namely, the distinction between the Chambri (mapped geographically) and villages in the Sepik Hills (mapped only in accordance with "distance" from Chambri locations). In essence, then, the center of this map represents geographic space, whereas the surrounding villages are simply mapped according to the logic "not-Chambri," or "peripheral."
From Deborah B. Gewertz, *Sepik River Societies: A Historical Ethnography of the Chambri and Their Neighbors* (New Haven: Yale University Press, 1983), 146.

highlands to the south and the Prince Alexander Mountains to the north. Similarly, the offshore islands such as Wogeo and Manam Islands, visible from the coast and the mouth of the Sepik, are tall volcanoes. In this sense the representation of the three regions of the world as mountains is both geographic and idiomatic.[48]

Another ritual mode of mapping occurs during the *ida* festival of the Umeda, who inhabit the interior West Sepik Province. This elaborate masquerade occurs in four stages. At each stage there is an association between an animal, a mode of human experience (e.g., eating, copulating, killing), a part of the body, a phase of the human life cycle, and most important for our purposes, space conceptualized as a continuum from "inside" to "outside." This continuum is divided into four categories, each correlated with social space. Thus the progression from inside to outside involves the ritual passage through the social categories of people you eat with, people you hunt with, potential marriage and sexual partners, and people who essentially live outside your moral universe and thus are eligible as homicide victims. In this framework, the ritual map dramatizes not actual geographic space but rather social space that is understood in terms

of a spatial metaphor of inside-outside. Even in nonritualized contexts, this type of spatial mapping is common in Melanesia (fig. 12.19).[49]

GENDERED MAPS

In many Melanesian societies there is a key relation between gender and the cultural construction of space. As a social practice and a cognitive scheme, gender is a type of lived map. To begin, let me emphasize that many cartographic representations in Melanesia are the result of male action within the ritual domain. To a large degree, Melanesian ritual entails male claims about human and cosmological fertility and reproduction. Moreover,

48. Baskets made by Murik women of the Sepik estuary often have dyed patterns and pleats that symbolize tides, rocks, and islands (Kathleen Barlow, "Women's Textile Arts and the Aesthetics of Domestic Life among the Murik of Papua New Guinea," paper presented at the American Anthropological Association annual meeting, San Francisco, 1996).
49. Richard P. Werbner, *Ritual Passage, Sacred Journey: The Process and Organization of Religious Movement* (Washington, D.C.: Smithsonian Institution Press, 1989), 149–54.
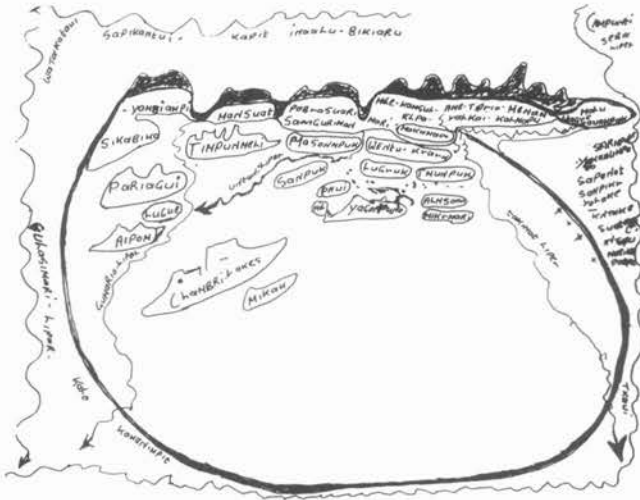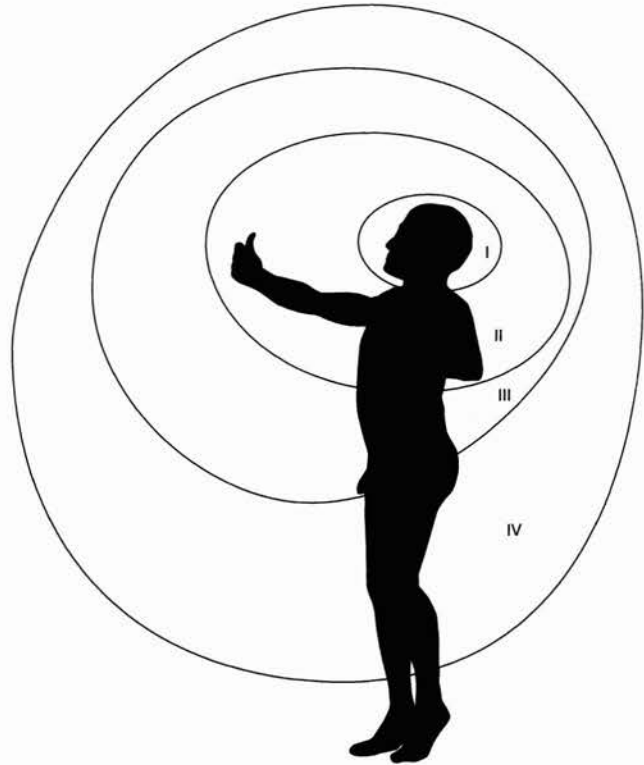
FIG. 12.18. CHAMBRI MAN'S MAP OF CHAMBRI VIL-
LAGES AND IATMUL RIVALS. This, the final map drawn by
Yarapat, expands the depiction of locations in geographic
space to an entire region. It sets off Chambri villages from their
Iatmul rivals, who are off to the right of the map; the four x's
divide the two rival groups as they exist in geographic space.
However, that Yarapat does not mark the boundary between
Chambri villages and the Sepik Hills (above, center) shows
that social distance remains a part of the depiction of space.
Still, in this map, unlike the first one, there is an attempt to de-
pict rival and allied villages in terms of location rather than
simply as pairs.
From Deborah B. Gewertz, *Sepik River Societies: A Historical
Ethnography of the Chambri and Their Neighbors* (New
Haven: Yale University Press, 1983), 147.

Mode of experience	Category of character	Microcosm	Macrocosm	Space	Time
I Eat	Fish	Head	Eating partners	Insiders	Youth
II Shoot	Arrows	Arms	Hunting partners		
III Copulate	Cassowaries	Penis/pelvis	Sexual partners		
IV Kill	Mud men	Torso	Killing nonpartners	Outsiders	Age

FIG. 12.19. STAGES OF THE UMEDA *IDA* RITUAL. The rit-
ual is performed by the Umeda of the interior West Sepik
Province. Each of the four stages occurs along a continuum
from "inside" to "outside." These spatial divisions are en-
coded as parts of the body, social relationships, time, mytho-
logical figures, and salient modes of local experience. Space or
relative location, we could say, is an organizing scheme for the
important dimensions of Umeda culture.
After Richard P. Werbner, *Ritual Passage, Sacred Journey: The
Process and Organization of Religious Movement* (Washing-
ton, D.C.: Smithsonian Institution Press, 1989), fig. 30.

many societies understand men to have stolen ritual *sacra*
from women in the distant past.[50] When indigenous maps
are part of the wider esoteric system that is owned or
controlled by men, they can be said to be ideological
statements about men's often exclusive contribution to re-
productive power and fertility. These verbal and nonver-
bal statements become meaningful only when juxtaposed
to what are believed to be female powers.

Gender influences space in other respects. Many
Melanesian societies have paths within and outside the
village or hamlet that are reserved exclusively for one gen-
der. Women are forbidden, for example, to walk along
the main paths in Iatmul villages that lead to the all-
male cult house. Instead, they have their own paths. In
Mekeo villages, bachelors and widowers are not to walk
along the main path in the center of the village during
daylight.[51]

The Foi, who inhabit the Mubi Valley, understand the
Mubi River to be the main geographic axis of orientation.
This absolute spatial marker flows southeast. The flow of
the river is a metaphor for the course of human life: both
move toward the sunrise and the place of ghosts. By con-
trast, the source of the river is associated with red sunsets,
life-giving powers, and sexually attractive youth. The

movement of pearl shells parallels the flow of the river.
These valuables, which are obtained at the source of the
river, are used in marriage exchanges and thus enable life
and sociality. Generally speaking, upstream has a male
inflection, whereas the river flows in a feminine direction.
Similarly, Foi delineate male and female space within do-
mestic houses. This gendered map of the Mubi Valley also
has a somatic or alimentary metaphor: the source is as-

50. Alan Dundes, "A Psychoanalytic Study of the Bullroarer," *Man,*
n.s. 11 (1976): 220–38; Terence E. Hays, "'Myths of Matriarchy' and
the Sacred Flute Complex of the Papua New Guinea Highlands," in
Myths of Matriarchy Reconsidered, ed. Deborah B. Gewertz (Sydney:
University of Sydney Press, 1988), 98–120.

51. Epeli Hau'ofa, *Mekeo: Inequality and Ambivalence in a Village
Society* (Canberra: Australian National University Press, 1981).

sociated with the mouth and eyes, whereas the direction of death is associated with the anus. Finally, a relative upper-lower division overlays the absolute male-female partition of the valley. Things that are above are associated with male hunting; things that are below conjure female fishing and horticulture.[52]

CONCLUSION

Overall, this chapter has provided a heuristic scheme that introduces and organizes the variety of ways traditional Melanesian societies represent space and create proto-maps and maps. Two themes emerge. First, indigenous mapping techniques are the product of culture. They are socially embedded in the salient themes and categories used to organize social life. I have followed the noted symbolic anthropologist Clifford Geertz, who wrote: "The concept of culture I espouse . . . is essentially a semiotic one. Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs."[53] I have argued that indigenous maps in Papua New Guinea and Melanesia are guides constructed by and for local people as they navigate through culture, social life, and the lived environment. Their maps are not just about space but are ultimately about culture. There may indeed be universal, cross-culturally valid forms of mapping, but indigenous experience is localized rather than universal. Local lives

have local meanings. Like all forms of knowledge, maps can be fully understood only with reference to local realities.

Second, the oral nature of traditional Melanesian societies and the relation between knowledge and power often situates indigenous maps in a contested political space. This, I believe, is understood by most Melanesians and Papua New Guineans. Social life is a complex web of meanings. But meanings are often the product of contests over material and symbolic capital—of competition over resources and prestige. Maps represent these competitions insofar as they are fashioned by men and sometimes women who have vested interests in the social construction and allocation of space, location, direction, and topography. Indigenous mapping is not objective, and thus cartographic discourse is part of wider social practices through which Melanesian and Papua New Guinean lives are imbued with meaning, passion, and strategy.

52. James F. Weiner, *The Heart of the Pearl Shell: The Mythological Dimension of Foi Sociality* (Berkeley: University of California Press, 1988), 46–50. For similar spatial divisions along the lines of gender, see Wagner, *Habu*, 43–44 (note 32), and Brenda Johnson Clay, *Pinikindu: Maternal Nurture, Paternal Substance* (Chicago: University of Chicago Press, 1975), 86.

53. Clifford Geertz, *The Interpretation of Cultures* (New York: Basic Books, 1973), 5. See also Eric Kline Silverman, "Clifford Geertz: Towards a More Thick Understanding?" in *Reading Material Culture*, ed. Christopher Tilley (Oxford: Basil Blackwell, 1990), 121–59.