

# 1 • Prehistoric Cartography in Asia

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## INTRODUCTION

It has been established that in prehistory humans had both the mental capacity and the communicative and graphic skills to make maps.<sup>1</sup> We can also take it for granted that whatever maps have survived are most likely to be found in the rock and mobiliary art of the period. For Asia as for the western parts of the Old World, prehistoric maps are to be sought in paintings, engravings, and pecked or “bruised”<sup>2</sup> figures executed on the walls of caves and rock shelters, on cliffs, rock outcrops, and large boulders. Some examples may also be found on pottery and in the decoration of metalware and slate, bone, or wood artifacts.

A search of the archaeological literature for reports and illustrations of Asian prehistoric art reveals a wealth of depictions of space, or objects or events in space, in rock art and mobiliary art. Given the enormous task of checking the archaeological literature of the entire continent, not to mention the attendant problems of the accessibility and language of that literature, my aims here are modest: to draw attention to a few examples of Asian rock art in which prehistoric cartographic thinking is manifested and to offer a framework for future studies. I hope also to broaden the vista on the conceptual history of a “mapping impulse” by showing that it is not only in Europe, the Middle East, and North Africa that the origins of mapmaking can be traced far back into prehistory.<sup>3</sup>

## THE MAPPING IMPULSE IN PREHISTORIC ART

Pictures and maps are conceptually linked, being two forms on a continuum of graphic communication.<sup>4</sup> Inasmuch as pictures and maps are not usually seen as interchangeable, the one merely a substitute for the other, some sort of distinction has to be made and a line drawn between a picture of a place and a map of a place. That line, however, has meaning only in the context of the thinking and intentions of the original artist. It is the message that gives the graphic image its form. The obvious difficulty in the case of prehistoric art is in recovering the original function and decoding a message

that had a meaning in prehistoric times but is now wholly unfamiliar. The result tends to be a distinction between picture and map that some may find unacceptably arbitrary. The line has to be drawn, however, and my aim here is to suggest a more rational basis for such classifications than has been characteristic of either the antiquarian literature on prehistoric maps or, indeed, traditional attitudes to the origins of mapmaking in the history of cartography. An underlying premise throughout this chapter is that the focus should be narrowed to those images that lend themselves to cartographic analysis. Others, made up of no more than a line or two, may have been just as much part of prehistoric spatial communication; given their incomplete survival or fragmentary form, however, no rational arguments can be applied to them and they have to be set aside.

One problem is to distinguish between pictures and picture maps in prehistoric art. Picture maps, as I have already suggested, have a mixture of pictorial perspectives, some elements being shown in profile and some in plan.<sup>5</sup> The former are usually anthropomorphic or animal figures, sometimes landscape features such as buildings. The plan element is usually an enclosure represented by a single or double line. Indeed, such an enclosure is often the crucial iconic indicator of a map in prehistoric art, since it portrays space—an area in which features (e.g., houses) may be distributed or events (e.g., trapping of

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1. Catherine Delano Smith, “Prehistoric Maps and the History of Cartography: An Introduction,” idem, “Cartography in the Prehistoric Period in the Old World: Europe, the Middle East, and North Africa,” and G. Malcolm Lewis, “The Origins of Cartography,” all in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1:45–49, 54–101, and 50–53, respectively.

2. Reported mainly from India. The color of the rock surface is changed by hammering (bruising), but there is no perceptible roughness: Douglas Hamilton Gordon, *The Pre-historic Background of Indian Culture* (Bombay: N. M. Tripathi, 1958), 114.

3. Delano Smith, “Cartography in the Prehistoric Period” (note 1). The topic is briefly introduced for South Asia in volume 2, book 1 of this *History*.

4. W. J. Thomas Mitchell, *Iconology: Image, Text, Ideology* (Chicago: University of Chicago Press, 1986), 9–10.

5. Delano Smith, “Cartography in the Prehistoric Period,” 62 (note 1).

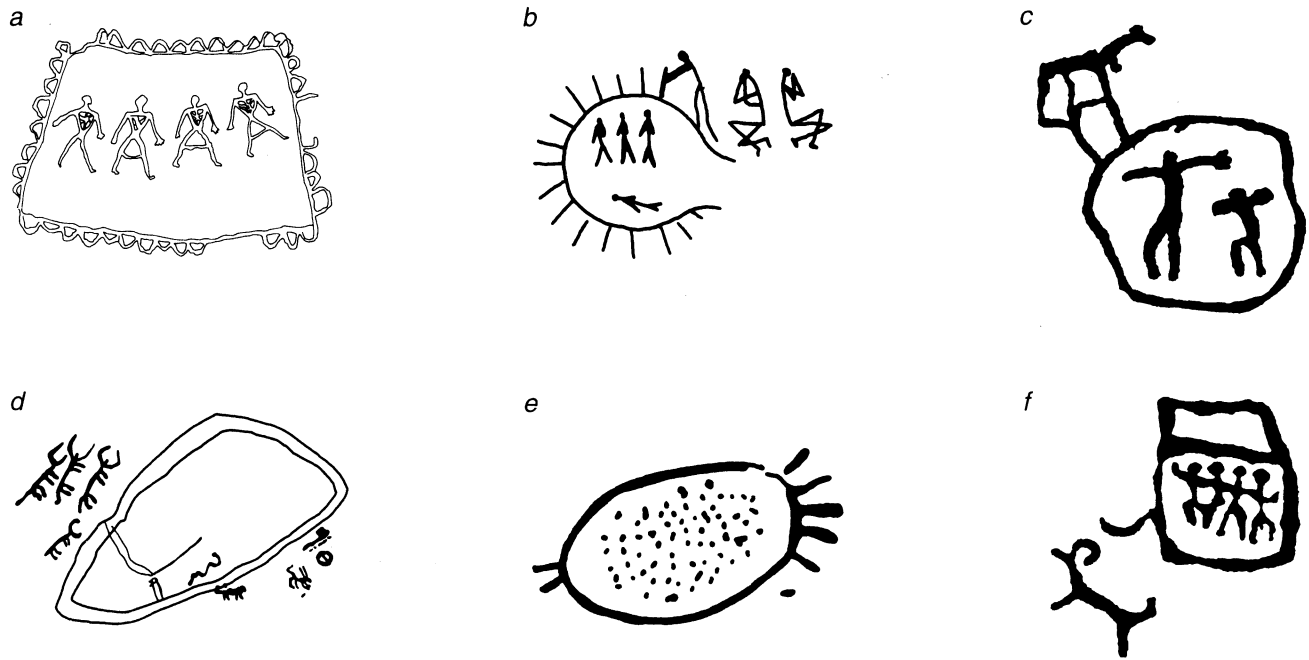


FIG. 1.1. EARLY REPRESENTATION OF ENCLOSURES IN PLAN. The idea of depicting an enclosure in plan was widespread in Asia in prehistoric times. These examples are drawn from the archaeological literature.

(a) A rock painting from Mirzapur described as people dancing within an enclosure.

After Rai Sahib Manoranjan Ghosh, *Rock-Paintings and Other Antiquities of Prehistoric and Later Times*, Memoirs of the Archaeological Survey of India, no. 24 (Calcutta: Government of India, Central Publication Branch, 1932; reprinted Patna: I. B. Corporation, 1982), 18 and pl. XXIa (fig. 2).

(b) In this rock painting, dating from the Mesolithic (ca. 8000–2500 B.C.), found at Bhimbetka and said to represent a child burial and mourning family, the open circle represents the outline of the tomb.

After Vishnu S. Wakankar, “Bhimbetka—The Prehistoric Para-

animals) may take place. Thus, in a picture map the focus of interest may be the event itself rather than the place where it is happening. Nevertheless, such representations embody the essential concepts of a map: distributions are shown, and the idea of plan representation is manifested. One must bear in mind that spatial distributions are represented in prehistoric art according to what we recognize as topology, the key principle of which is contiguity: what is next to something is shown next to it, while considerations of direction, distance, and shape are of little or no importance.<sup>6</sup> A prehistoric map may have been perfectly “accurate” on these terms though it appears “distorted” to the modern eye. This is particularly true of prehistoric plan maps.

Asian prehistoric art includes a number of rock paintings or engravings that reflect these cartographic considerations. For example, in one of the paintings in the rock

dise,” *Prachya Pratibha* 3, no. 2 (July 1975): 7–29, fig. 7, no. 9. (c and d) From historical Syunik, Armenia.

After Grigor Hovhannesi Karakhanyan and Pavel Geworgi Safyan, *Syownik'i zhayrhapatkernerë* (Yerevan, 1970), figs. 176.2 and 237.2.

(e) Among the figures of horsemen and animals engraved on rock 90 in Script Valley (Bichigtin-Am), Bayan Khongor Province, Mongolia, is a subcircular feature very similar to some features in Franco-Cantabrian Paleolithic and Mesolithic cave art that were interpreted as “game enclosures.”

After N. Ser-Odzhav, *Bayanligiyn Khadny Zurag*, ed. D. Dorj (Ulan Bator, 1987), 118, fig. 89.

(f) Petroglyph from Yin Shan, China, captioned as showing a “dance, presumably inside a hut.”

After Chen Zhao Fu, *Cina: L'arte rupestre preistorica*, Italian trans. Giuliana Aldi Pompili (Milan: Jaca Books, 1988), 178 and fig. 25.

shelters of Mirzapur (Uttar Pradesh, India) a rectangle with a double outline including a scalloped outer border encloses a group of stick figures (fig. 1.1a). The painting is said to represent “four persons drawn in a pale red colour . . . dancing within an enclosure.”<sup>7</sup> For those who would argue that the enclosing lines might be nothing more than an abstract frame provided by the artist, let me stress that frames or borders in any form are almost never found in European rock art. There is no evidence that the situation is different in Asia. Moreover, such

6. Delano Smith, “Cartography in the Prehistoric Period,” 67–68 (note 1).

7. Rai Sahib Manoranjan Ghosh, *Rock-Paintings and Other Antiquities of Prehistoric and Later Times*, Memoirs of the Archaeological Survey of India, no. 24 (Calcutta: Government of India, Central Publication Branch, 1932; reprinted Patna: I. B. Corporation, 1982), 18 and pl. XXIa (fig. 2).

pictures tend to make sense only if interpreted as part of an assemblage, despite the lack of evidence that the contiguity we see today was intended by the original artist. Another example is found among the Mesolithic paintings in a Bhimbetka rock shelter (Vindhya Range, Madhya Pradesh, India). This painting has been described as representing a “child burial and mourning family” within a hut or some sort of enclosed space (fig. 1.1*b*).<sup>8</sup> Yet another example comes from paintings in the village of Kollur (Tamil Nadu) in southern India. Said to date from the end of the first millennium B.C., the design is described as showing animals and “a few lines [which] suggest a place of defence, possibly something like a primitive fort.”<sup>9</sup> Similar depictions have been reported from Armenia. One subcircular enclosure, from historical Syunik (near modern Sisian), contains two stick figures (fig. 1.1*c*).<sup>10</sup> Another irregular shape, drawn with double lines, can be seen as an empty enclosure remarkably similar to that described on the Rajum Hani’ stone (from Jordan) as an animal pen (fig. 1.1*d*).<sup>11</sup> From Mongolia comes a report of a rock-carved outline similar to those of Paleolithic Europe interpreted by Henri Breuil as hut or game enclosures (fig. 1.1*e*),<sup>12</sup> from China we have an outline with four figures inside what may be a hut (fig. 1.1*f*), and from India come two examples of figures in a hut with a tiger-skin rug on the floor (fig. 1.2*a, b*). In all these examples, huts and buildings are represented in plan, as if seen from above. In view of this, they can be considered part of the story of the early history of map-making. There are also, however, images in prehistoric rock art in which all the components are in profile, as in figure 1.2*c*. These we classify as pictures rather than as picture maps or antecedent picture maps.

Two outstanding assemblages in Asian prehistoric rock art merit close attention, particularly for the way they illustrate the problems of identifying a prehistoric map. Both show what purport to be groups of buildings depicted in profile, but whereas one example readily fits our criteria for a cartographic representation of place, by the same token the other remains in our view essentially a picture of a place, rather than a map of that place.

The first are the Boyar petroglyphs (Minusinsk, on the Yenisei River). There are two main groups, known respectively as the Major and Minor Boyar petroglyphs.<sup>13</sup> It is the former that has received the most attention in the literature. They are said to date from the first millennium B.C. In style, the markings belong to the art of the stock-raising Khakass tribesmen who inhabited the surrounding steppes during the Bronze Age. They were first discovered by archaeologists in 1904. The pecked figures decorate outcrops of red Devonian sandstone at the top of a steep hill in such a way as to form a continuous frieze. Visible from afar, they present a view that has been described

as “a majestic sight” giving the place “an air of unique originality.”<sup>14</sup>

The frieze is crowded with figures of animals (deer and cattle), humans engaged in various activities, and domestic utensils (pails or bowls like those still used for koumiss) (fig. 1.3). About sixteen individual buildings are discernible, all shown in profile. There are two types—what seem to be log houses with sloping roofs, and others that reflect the conical timber-framed tents of the local yurts. The whole scene is thought to portray a village on the occasion of some ceremony or feast. Apart from the huts, no landscape features are depicted. Nothing is shown in plan. Moreover, there is nothing to confirm that the assemblage was created, or intended, as a single composition. On the contrary, although we are invited to regard it not as a “mere collection of drawings but [as] a single whole composed of well-developed individual compositions,” the suggested link is simply the more or less orderly arrangement of the buildings. Moreover, it is admitted that the creation of the various figures and groups occurred over a period, albeit rather short.<sup>15</sup> It is thus difficult to see the Major Boyar petroglyph as a picture map rather than a picture, however attractive, of a

8. Vishnu S. Wakankar, “Bhimbetka—The Prehistoric Paradise,” *Prachya Pratibha* 3, no. 2 (July 1975): 7–29, esp. fig. 7, no. 9; reprinted (but without some illustration and appendix material) in *Indische Felsbilder von der Arbeitsgemeinschaft der Ge-Fe-Bi* (Graz: Gesellschaft für Vergleichende Felsbildforschung, 1978), 72–93, esp. 93 and fig. 7, no. 9. Some semicircular lines have been interpreted as indicating a snare or trap, as in the case of one Mesolithic painting from Putli Karar in Madhya Pradesh, India, described as a scene in which a deer is heading “towards snare traps placed on poles”: Erwin Neumayer, *Prehistoric Indian Rock Paintings* (Delhi: Oxford University Press, 1983), fig. 26*d*.

9. N. S. Ramaswami, “Prehistoric Rock Paintings Discovered in Tamil Nadu,” *Indian News*, 6 February 1984, 7. I owe this reference to Joseph E. Schwartzberg.

10. Grigor Hovhannesi Karakhanyan and Pavel Geworgi Safyan, *Syownik’i zhayrhapatkernerē* (Rock carvings of Syunik), in Armenian with Russian and English summaries (Yerevan, 1970), fig. 176.2. For other examples of Armenian rock art, see A. A. Martirosyan and A. R. Israelyan, *Naska’nye izobrazheniya Gegamskikh gor* (The rock-carved pictures of the Gegamskiy Khrebet) (Yerevan, 1971), text in Armenian and Russian, with English summary, 54–66.

11. Karakhanyan and Safyan, *Syownik’i zhayrhapatkernerē*, fig. 237.2 (note 10). For the Rajum Hani’ stone, see Delano Smith, “Cartography in the Prehistoric Period,” 61 and fig. 4.3 (note 1).

12. N. Ser-Odzhav, *Bayanligiyn Khadny Zurag* (Rock drawings of Bayan-Lig), ed. D. Dorj (Ulan Bator, 1987), 118 (fig. 89). I am grateful to Paul Dimond of the Far Eastern Department of the Foreign and Commonwealth Office, London, and to the British Embassy, Ulan Bator, for their kind help in obtaining this work. For examples from Breuil and others in a European context, see Delano Smith, “Cartography in the Prehistoric Period,” esp. 68–69 and fig. 4.10 (note 1).

13. M. A. Devlet, *Bol’shaya Boyarskaya pisanitsa/Rock Engravings in the Middle Yenisei Basin* (Moscow: Nauka, 1976), in Russian and English.

14. Devlet, *Rock Engravings*, 14 (note 13).

15. Devlet, *Rock Engravings*, 15 (note 13).

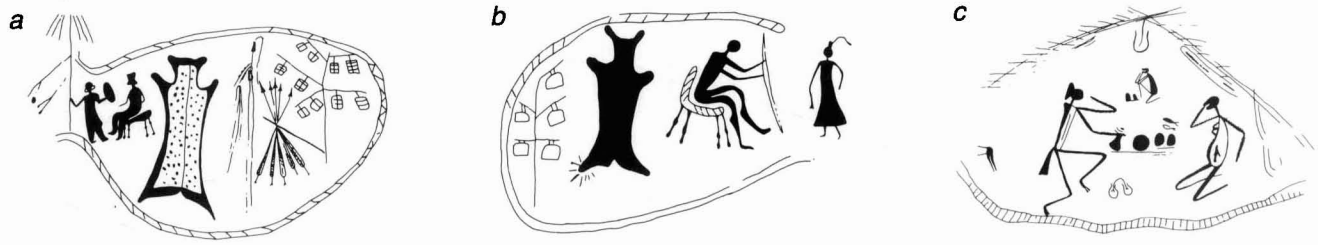


FIG. 1.2. DEPICTION OF ENCLOSURES AND BOUNDARY LINES IN INDIAN ROCK ART. Huts and compounds may be portrayed viewed from above (in plan, as in examples *a* and *b*), or from ground level (in profile or perspective, as in example *c*). The encircling line in the painting shown in *a* has been described as indicating a shelter or boundary and the scene in *c* as taking place in “a tent-like structure. . . . The double line in the foreground could be a stone arrangement to hold the vertical posts of the structure”; Erwin Neumayer, *Prehistoric*

*Indian Rock Paintings* (Delhi: Oxford University Press, 1983), 89. Examples *a* and *b* are from Satkunda (Madhya Pradesh). Although they were probably painted early in the historical period, their style is derived from that of the Chalcolithic (last millennium B.C.). Example *c* dates from the Mesolithic and comes from Lakhajoar. Sizes of the originals: 22 × 35 cm; 22 × 34 cm; 24 × 38 cm. After Neumayer, *Rock Paintings*, 136 (figs. 128 and 129) and 89 (fig. 44).

real or imagined prehistoric settlement “at the moment of a traditional calendar feast.”<sup>16</sup> In the absence of any enclosing line, it is impossible to decide whether the drawing was originally intended to represent a number of buildings scattered over an area (as if in three dimensions) or whether the huts were just drawn wherever there was suitable space on the cliff face.

### PICTURE MAPS

In contrast, a cliff painting from Cangyuan (Yunnan Province, southwestern China) can be shown to fit our definition of a picture map.<sup>17</sup> It dates from the last millennium B.C. At first glance, it is not dissimilar to the Boyar petroglyphs (fig. 1.4). As in the Boyar petroglyphs, a large number of animals (dogs and pigs), humans, and buildings are shown, all in profile. Here the buildings appear to be huts, ten or more in number, each supported by the stilts or piles characteristic of traditional local vernacular architecture. A single line forms a rough ellipse, while several other more or less straight lines converge on each other or on the ellipse. All the huts are within the enclosure, and their disposition leaves little room to doubt that the ellipse represents the village boundary or fence, to which lead paths or tracks along which animals and people are walking in the direction of the village compound.<sup>18</sup> Particularly interesting is the way each perimeter hut has been arranged in relation to the village fence, its supporting piles neatly meeting the boundary line, so that the huts on the far side of the enclosure had to be drawn upside down according to the dictates of topology.<sup>19</sup> Thus, in the Cangyuan cliff painting—unlike the Boyar petroglyph—spatial relationships are clearly demonstrated. Moreover, the composition does not seem to be

a case of accidental superimposition, since the neat meeting of the critical lines implies that they were executed in relation to each other. Rather more confidently, then, we can call the Cangyuan painting a (picture) map.

### PLAN MAPS

Identifying objects and landscape portrayed from above is always difficult and is particularly so in rock art, where

16. Devlet, *Rock Engravings*, 18 (note 13).

17. Wang Ningsheng, *Yunnan Cangyuan bihua di faxian yu yanjiu* (The rock paintings of Cangyuan County, Yunnan: Their discovery and research) (Beijing: Wenwu Chubanshe, 1985), illustration on 35, description on 33–34 (English abstract only). Chen Zhao Fu, *Cina: L'arte rupestre preistorica*, Italian trans. Giuliana Aldi Pompili (Milan: Jaca Books, 1988), illustrates the map as a line drawing (102–3), although there are photographs of the cliff in general (pl. 14) and of other painted groups (pls. 64–69).

18. Wang, *Yunnan Cangyuan bihua*, 33–34 (note 17); Chen Zhao Fu, “Ancient Rock Art in China,” *Bollettino del Centro Camuno di Studi Preistorici* 23 (1986): 91–98, esp. 97; Yunnan Sheng Lishi Yanjiusuo Diaochazu (Investigative team of the Yunnan Historical Research Institute), “Yunnan Cangyuan yuhua” (Cliff paintings of Cangyuan, Yunnan), *Wenwu*, 1966, no. 2:7–16, 38, and for an English summary, Richard C. Rudolph, ed., *Chinese Archaeological Abstracts*, Monumenta Archaeologica, vol. 6 (Los Angeles: Institute of Archaeology, University of California, 1978), 556 (with Lin Sheng given as author).

19. Similar topological depictions can be found on European maps and in topographical paintings in the seventeenth century. See, for example, P. D. A. Harvey, *The History of Topographical Maps: Symbols, Pictures and Surveys* (London: Thames and Hudson, 1980), 59 (fig. 29), 96–97 (figs. 53 and 54); the road maps of John Ogilby or Emmanuel Bowen, where the hill signs are inverted to indicate “up” or “down” gradients from the traveler’s point of view; and other examples from sixteenth-century Holland in Cornelis Koeman, “Die Darstellungs-methoden von Bauten auf alten Karten,” *Wolfenbütteler Forschungen* 7 (1980): 147–92.



FIG. 1.3. VILLAGE SCENE FROM THE LATE BRONZE AGE. Petroglyphs from the Boyar Ridge, Minusinsk, form a frieze carved into a south-facing rock face. The only landscape features depicted are the buildings (rectangular log huts and more rounded or conical yurts), all shown in profile. The section here (the right two-thirds of the Major Boyar petroglyph) forms a continuous frieze. Despite the impression of a spatial dimension, it is difficult to be sure that a perspective view was intended and that the figures forming the top row of the frieze as it

appears on the cliff face are supposed to be in the distance, a problem that would be resolved were there a surrounding line suggesting an enclosure. Natural features are absent. Moreover, the individual figures are so disconnected that there must be uncertainty about whether the assemblage is a palimpsest or a composition.

Size of the entire original: ca.  $1.5 \times 9.8$  m. After M. A. Devlet, *Boʻshaya Boyarskaya pisanitsa/Rock Engravings in the Middle Yenisei Basin* (Moscow: Nauka, 1976), fig. VI.

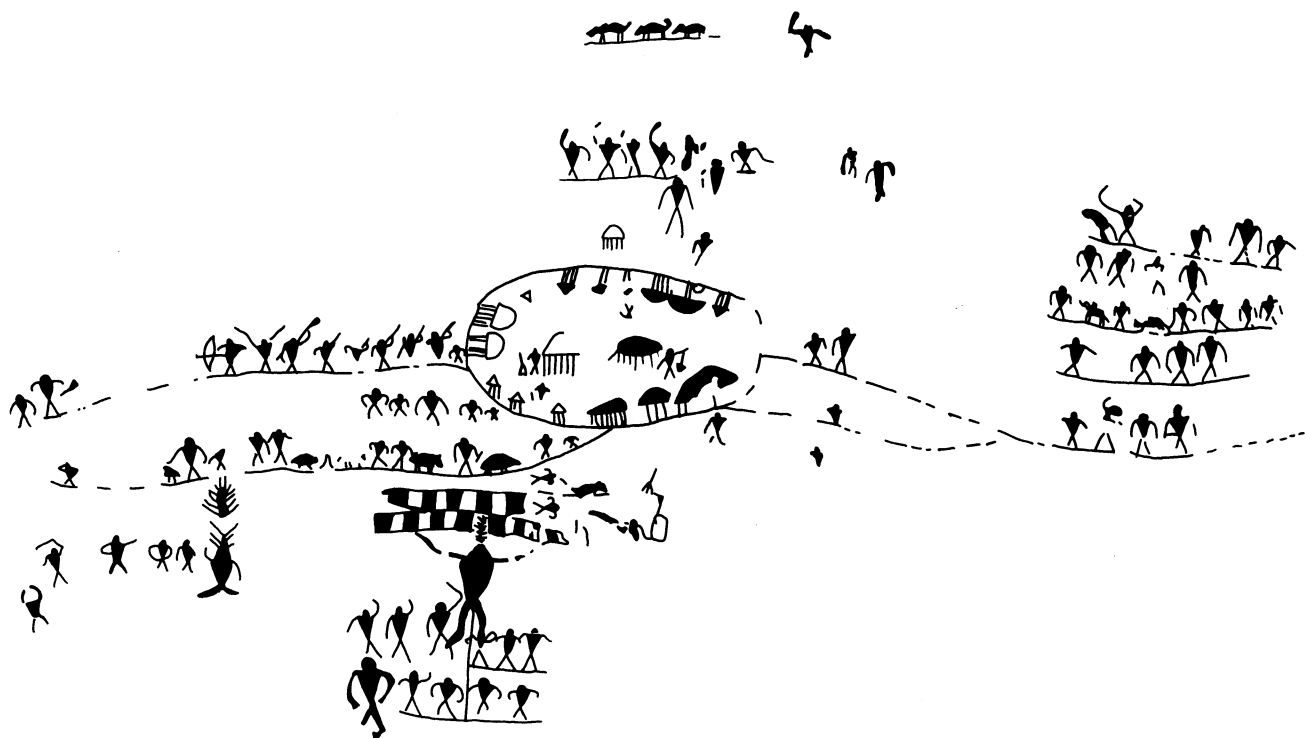


FIG. 1.4. PICTURE MAP OF A LATE PREHISTORIC VILLAGE. This picture map, at Cangyuan, Yunnan Province, China, is painted in red on a cliff face. The huts are supported on piles, and the proximity of most to the village fence or boundary is made clear according to the rules of topology. Paths lead to the village. One large hut, or perhaps two, occupies the central

open space. Nine other major groups of pictographs were discovered in the area in 1965.

Size of the original: ca.  $175 \times 310$  cm. After Wang Ningsheng, *Yunnan Cangyuan bishua di faxian yu yanjiu* (Beijing: Wenwu Chubanshe, 1985), 35.

all external evidence' is lacking.<sup>20</sup> Plan maps from the historical period are usually recognized from their context, from their titles or other writing, by the correspondence of their images with other cartographic artifacts, or by the familiarity of the drawn outline. Nothing like this can exist for the prehistoric period. Interpretation of a prehistoric image as representing an object or a place as seen from above has to rest primarily on intrinsic visual characteristics. Only then can circumstantial evidence be taken into consideration together with ethnographic analogy.

In an earlier attempt to reduce the arbitrariness of those intuitive interpretations of plan maps that have swelled the antiquarian literature, I suggested that specific criteria, derived from a systematic analysis of the visual aspects of a modern large-scale topographical map, can serve as a model against which to judge the "cartographicness" of a prehistoric, or other wholly "silent," image.<sup>21</sup> I proposed various diagnostics, but three can be singled out as the key ones: the degree to which an assemblage of individual motifs, or signs, can be regarded as having been intended as a single composition, however many separate technical operations might have been needed in its production; the relevance of the individual motifs or signs (they should include landscape features); and their relative frequency (bearing in mind that a single sign, e.g., for a hut, does not on its own constitute a map). With these criteria in mind, I searched the Asian literature for potential map examples. Although nothing as large or complex as the petroglyph assemblages of Bedolina or Giadighe in the Italian Alps<sup>22</sup> has yet been reported from Asia, smaller groups of figures, some strikingly similar to those of Mont Bégo (France), are to be found in the upper Yenisei River valley, the Altai Mountains, and in Mongolia.

The petroglyphs of Mugur-Sargol are found on rocks and cliffs in the valley of the upper Yenisei. Several subjects are portrayed. One of the most common is faces, often with horns or antennae, thought to represent the painted or masked faces of local shamans.<sup>23</sup> There are also geometric figures in which various combinations of rectangular or subrectangular outlines and internal markings have been systematically arranged to create four different signs: solid outlines (squares or rectangles); compartmentalized outlines (generally squares); stippled outlines; and empty outlines. Each of the petroglyphs in question comprises usually one solid shape or a subdivided shape and one or more stippled or empty shapes (fig. 1.5). They have been interpreted by archaeologists as representations—in plan—of the local herders' yurts and stockyards (fig. 1.6). Devlet, for instance, comments on the variety of Mongolian-type yurts found among the Tuva, noting that "in plan such dwellings look like houses

in the petroglyphs of Mugur-Sargol," and that similar "hut and enclosures" or "hut and yards" petroglyphs can be found in the Altai Mountains.<sup>24</sup> Many were never completed, and others have since been damaged by erosion and are now too fragmentary to be deciphered with any confidence.

The Mongolian rock paintings differ from the petroglyphs of the upper Yenisei in content as well as technique. The paintings are found in the Transbaikal region as well as in Mongolia proper. They show a single rectangular outline within which there may be either an irregular scatter or just a few rows of dots (figs. 1.7 and 1.8). Also within the rectangle, or sometimes beside it, are one or two anthropomorphic figures. Sometimes there is also the upper part of a bird, with outstretched wings. The composition is thought to represent, in plan, the graves of local tribesmen. These stone-built burial places show up clearly in the surrounding grasslands, each grave outlined by stone slabs set on edge and covered with a scatter of pebbles or small stones (fig. 1.9). The graves are thought to date from any time since the Bronze Age.<sup>25</sup> If some appear comparatively new, this is explained as the effect of wind erosion, which has removed, or prevented, any covering of soil.<sup>26</sup> Featured in rock art, such "grave plans" seem to be rich in religious symbolism.

20. Various attempts to portray subjects in different planes of vision have been reported from Asian rock art. See, for instance, Douglas Hamilton Gordon, "The Rock Engravings of Kuppallu Hill, Bellary, Madras," *Man* 51 (1951): 117-19, esp. 118, where fig. 1a is said to show a woman as viewed from above while the man beside her is shown in profile. Ya. A. Sher, *Petroglify Sredney i Tsentral'noy Azii* (Petroglyphs of Middle and Central Asia) (Moscow: Nauka, 1980), 202-5, attempts an analysis of the relative frequency of plan and profile representation in a number of pictures of animals harnessed to vehicles such as plows or wagons, the plan representations emerging in the minority (18-25 percent): the "harnessed animals are also shown in profile but in such a way as if they are placed on a flat surface with backs and legs mixed up; these we shall call in plan" (p. 202).

21. Delano Smith, "Cartography in the Prehistoric Period," 61-62 (note 1).

22. Delano Smith, "Cartography in the Prehistoric Period," 78-79 and figs. 4.28, 4.29 (note 1).

23. M. A. Devlet, *Petroglify Mugur-Sargola* (Petroglyphs of Mugur-Sargol) (Moscow: Nauka, 1980), e.g., 226 and 229; and idem, *Petroglify Ulug-Khema* (Petroglyphs of Ulug-Khem) (Moscow: Nauka, 1976), 10-25, figs. 5, 6, 7, and 13.

24. For instance, Devlet, *Petroglify Mugur-Sargola*, 234; see also Devlet, *Petroglify Ulug-Khema*, 27 (both note 23).

25. E. A. Novgorodova, *Alte Kunst der Mongolei*, trans. Lisa Schirmer (Leipzig: E. A. Seemann, 1980), pl. 62, "Plattengrab vor der Freilegung," and idem, *Mir petroglifov Mongolii* (The world of Mongolian petroglyphs) (Moscow: Nauka, 1984), 93 (fig. 34).

26. Folke Bergman, "Travels and Archaeological Field-work in Mongolia and Sinkiang—A Diary of the Years 1927-1934," in *History of the Expedition in Asia, 1927-1935*, 4 vols., by Sven Anders Hedin (Stockholm: [Göteborg, Elanders Boktryckeri Aktiebolag], 1943-45), 4:1-192, esp. 4-6.

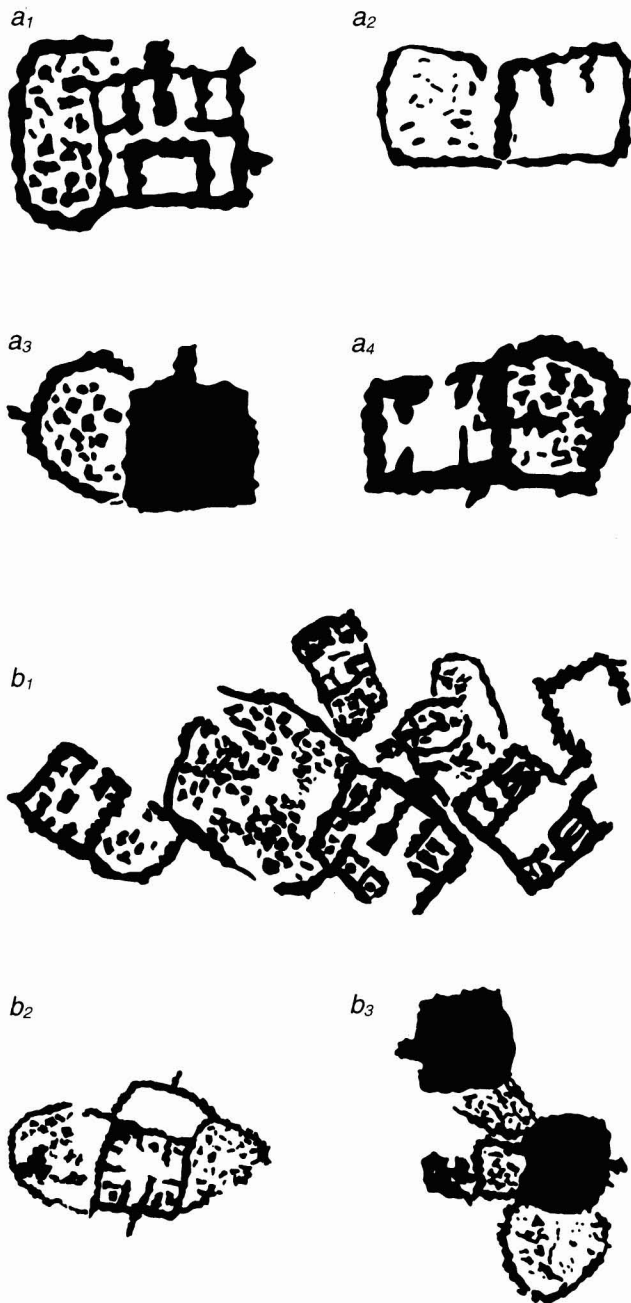


FIG. 1.5. "HUT AND YARDS" DEPICTED IN PLAN. These petroglyphs come from Mugur-Sargol. The solid and compartmentalized shapes have been interpreted as representing the winter yurts typical of the middle Yenisei region, and the stippled outlines as the adjacent stockyards or enclosures. Examples in *a* are relatively simple combinations of hut signs, suggesting an individual hut or yurt with stockyard as shown in figure 1.6, and enclosure signs, whereas those reproduced in *b* are much more complex arrangements (to judge from the interconnecting lines) and could thus be representing a group or village of yurts. After M. A. Devlet, *Petroglify Ulug-Khema* (Moscow: Nauka, 1976), 26–27 (parts of figs. 16 and 17); idem, *Petroglify Mugur-Sargola* (Moscow: Nauka, 1980), 234 (fig. 17.2).



FIG. 1.6. PICTURE OF A YURT. This home of herdsmen is seen from higher up the mountainside. It is this familiar perspective that inspired local rock artists to represent the homestead in plan. Note the rectangular chimney holes of the yurt, the surrounding stockyards and pens, and the way the closely grazed turf stands out in contrast to the rough grass beyond, the whole making a distinctive landscape complex effectively captured in the rock art. This example comes from the upper Yenisei.

From M. A. Devlet, *Petroglify Mugur-Sargola* (Moscow: Nauka, 1980), 235.

Okladnikov suggested, in accordance with traditional beliefs, that the dots represent the souls of those buried there, that the role of the bird (probably the sacred eagle) is protective, and that the human figures, usually depicted with joined hands, act as intercessors.<sup>27</sup> Some archaeologists have gone further and, like Novgorodova, iden-

27. A. P. Okladnikov, *Der Hirsch mit dem goldenen Geweih: Vorgeschichtliche Felsbilder sibriens* (Wiesbaden: F. A. Brockhaus, 1972), 148; this is a translation of Okladnikov's *Olen' zolotyie roga* (Deer with the golden antlers) (Leningrad, 1964). I am grateful to Guntram Herb for help with the translation of parts of *Der Hirsch*. See also A. P. Okladnikov, *Ancient Population of Siberia and Its Cultures* (Cambridge: Peabody Museum, 1959), 48; idem, "The Petroglyphs of Siberia," *Scientific American* 221, no. 2 (1969): 78–82, esp. 78–79; D. Dorzh, "Rock 'Art Galleries' of Mongolia," *Canada Mongolia Review* 1, no. 2 (1975): 49–55, esp. 50; and Esther Jacobson, "Siberian Roots of the Scythian Stag Image," *Journal of Asian History* 17 (1983): 68–120, esp. 100.

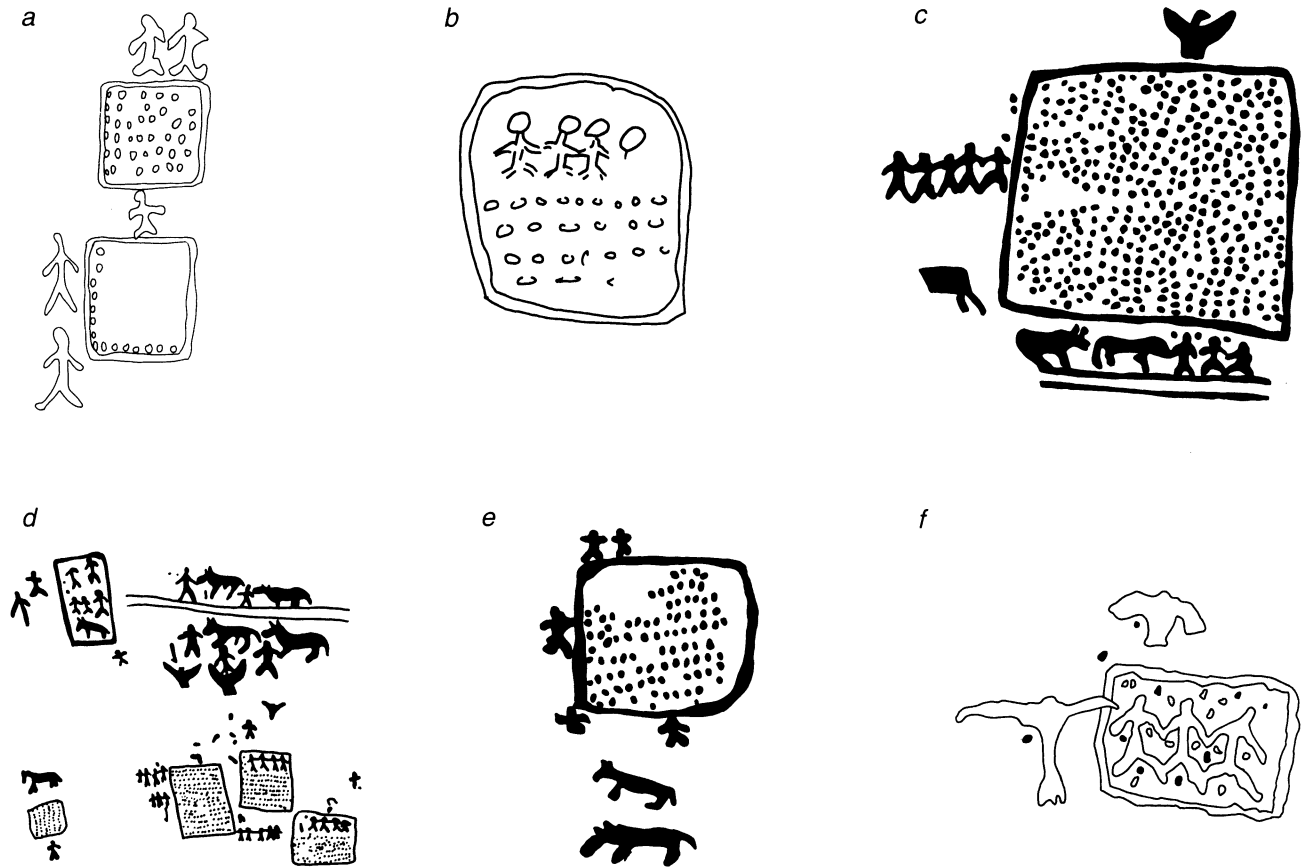


FIG. 1.7. GRAVE PLANS FROM SEVERAL SITES IN MONGOLIA. These rock figures are found in the same parts of Mongolia characterized by a certain type of traditional burial that can still be seen on the grass steppes and that they seem to match (see fig. 1.9). It has been suggested that the rectangular outline with an internal pattern of dots represents these stoned-edged graves and the pebbles scattered over their surface. The anthropomorphic figures might represent those buried there or their relatives who, hands joined, intercede for the departed. The bird is widely used in Asia to represent the human soul, and the eagle is associated with some Siberian cults. (a) From Hövsgöl-Nuur, Mongolia. After A. P. Okladnikov, *Petroglify Mongolii* (Leningrad: Nauka, 1981), 88 (fig. 2). (b) From Dood-Chulgan, Mongolia. After E. A. Novgorodova,

*Alte Kunst der Mongolei*, trans. Lisa Schirmer (Leipzig: E. A. Seemann, 1980), pl. 72.

(c) From Ich-Tengerin-Am, northern Mongolia. After A. P. Okladnikov and V. D. Zaporozhskaya, *Petroglify Zabaykal'ya*, 2 vols. (Leningrad: Nauka, 1969–70), 2:238 (fig. 67.2).

(d) Ocher paintings from Gachurt, Mongolia, said to represent the earthly world and netherworld. After E. A. Novgorodova, *Mir petroglifov Mongolii* (Moscow: Nauka, 1984), 93 (fig. 34).

(e) Ocher paintings from the end of the first millennium B.C. at Gachurt, Mongolia. After Novgorodova, *Mir petroglifov Mongolii*, 92 (fig. 33).

(f) After Okladnikov and Zaporozhskaya, *Petroglify Zabaykal'ya*, cover illustration of volume 1.

tified these paintings as Late Bronze Age or Early Iron Age representations of the “world of the living and world of the dead.”<sup>28</sup>

### CELESTIAL MAPS

When it comes to searching for early examples of celestial maps—maps of all or part of the visible sky or even of a particular constellation—Asia presents something of a paradox. On the one hand, this is a continent that saw some of the earliest developments in astronomy, as well as in the complex of interrelated ideas and beliefs that Berthelot has called “astrobiology” (use of the stars to

determine the agricultural seasons).<sup>29</sup> On the other hand, neither rock art nor the history of cartography literature seems to have explored the contribution of prehistoric astronomy and celestial mapping.<sup>30</sup>

As in historical tribal societies, in prehistoric societies

28. Novgorodova, *Alte Kunst der Mongolei*, 113 (note 25).

29. René Berthelot, *La pensée de l'Asie et l'astrobiologie* (Paris: Payot, 1949). Nontropical Asian peoples on the whole determined the seasons by the sun rather than the stars.

30. To judge from available literature, where little is said about the cup marks and cup-and-ring marks that are so common in Europe and that are the most open to interpretation as maps of stars. They are mentioned in Chen, *Cina*, 181 (note 17).





FIG. 1.8. GRAVE PLANS FROM ICH-TENGERIN-AM, MONGOLIA. Described erroneously by Okladnikov (1972) as Bronze Age rectangular courts or yards (*hose*), these markings from Ich-Tengerin-Am are consistent with all others from Mongolia recognized elsewhere by him, as by other archaeologists, as representations of graves. (See A. P. Okladnikov, *Der Hirsch mit dem goldenen Geweih: Vorgeschichtliche Felsbilder sibiens*

[Wiesbaden: F. A. Brockhaus, 1972], 148 [fig. 41]. See also his earlier descriptions of them as grave plans in Okladnikov and Zaporozhskaya, *Petroglify Zabaykal'ya*, 2:54, drawing 4, and Okladnikov, *Ancient Population of Siberia and Its Cultures* [Cambridge: Peabody Museum, 1959], 48.)

From E. A. Novgorodova, *Alte Kunst der Mongolei*, trans. Lisa Schirmer (Leipzig: E. A. Seemann, 1980), fig. 72.

celestial observation would have been closely related to some fundamental aspects of life. In areas devoid of obvious landmarks (such as the sandy deserts of the Gobi, the snowy wastes of the high plateaus, or out at sea), stars would have been used in wayfinding.<sup>31</sup> In regions of seasonally undifferentiated climate (such as the humid tropics of Southeast Asia), the appearance and disappearance of certain constellations, notably the Pleiades, are still used to mark the agricultural calendar.<sup>32</sup> Through association of ideas, these stars may have come to signify fertility.<sup>33</sup> Finally, in all parts of Asia as elsewhere in the world, astronomy is closely linked with cosmology, especially through the need for celestial observations to fix ground points for the earthly counterparts of a society's cosmological ideas. Yet examples of such interpretations in prehistoric art are lacking. There may be general discussion of, for example, the way the orientation and layout of settlements and the location and placing of cer-

emonial monuments and other microcosmological symbols may depend on the sighting and position of certain stars or the relevance of the notion of the earth as

31. For a discussion of the need for maps in wayfinding in primitive societies, see Delano Smith, "Cartography in the Prehistoric Period," 59 and references therein (note 1).

32. I. C. Glover, B. Bronson, and D. T. Bayard, "Comment on 'Megaliths' in South East Asia," in *Early South East Asia: Essays in Archaeology, History and Historical Geography*, ed. R. B. Smith and W. Watson (New York: Oxford University Press, 1979), 253–54, refer to the Tetum speakers of Portuguese Timor, who use the Pleiades to determine the start of each stage of rice cultivation, agreeing that "the need for astronomical calculations is present in parts of South East Asia, despite the low latitudes and the relative lack of seasonal climatic variation" (254).

33. A. H. Christie, "The Megalithic Problem in South East Asia," in *Early South East Asia: Essays in Archaeology, History and Historical Geography*, ed. R. B. Smith and W. Watson (New York: Oxford University Press, 1979), 242–52.



FIG. 1.9. TRADITIONAL BURIAL PLACE FOUND IN MONGOLIA. Stone slabs set upright or on edge define the tomb, usually containing more than one skeleton. Smaller stones litter the grass covering. The force of the wind tends to prevent the accumulation of soil over the burial places with the

result that they may sometimes have been as commonplace in the landscape as the dwellings of living herdsmen. From E. A. Novgorodova, *Alte Kunst der Mongolei*, trans. Lisa Schirmer (Leipzig: E. A. Seemann, 1980), fig. 62.

a microcosm rather than as part of the macrocosm.<sup>34</sup> Taking the rather special case of the design of capital cities on cosmic models, Wheatley thinks that by the time the first Chinese urban centers were taking form (second millennium B.C.), their layout would have been reflecting beliefs that could even then have been “as ancient as man himself . . . that had taken their rise coevally with the human mind, and [that] had become so inextricably interwoven with the pattern of human thought that they were not consciously recognized as beliefs at all.”<sup>35</sup> And Needham has suggested that one reason astronomy came to be a science of cardinal importance in China so early was that observation of the stars had arisen “naturally out of that cosmic ‘religion,’ that sense of the unity . . . of the universe.”<sup>36</sup> But other than pointing to evidence that equinoxes and solstices were being determined as early as the Shang dynasty (sixteenth to eleventh century B.C.) and that solar eclipses were recorded by the end of the third millennium B.C. at the earliest,<sup>37</sup> there is a general silence on the prehistoric manifestation of such activity

in celestial mapmaking. It would be surprising, however, if this “very long and continuous tradition of celestial cartography”<sup>38</sup> were not to be found somewhere in the prehistoric record. We have to await the evidence.

34. A substantial literature is available on the relation between cosmological belief and the layout of towns throughout the historical period. For China, see Paul Wheatley, *The Pivot of the Four Quarters: A Preliminary Enquiry into the Origins and Character of the Ancient Chinese City* (Chicago: Aldine, 1971), esp. chap. 5, “The Ancient Chinese City as a Cosmo-magical Symbol”; for the Greco-Roman world see, for a start, Joseph Rykwert, *The Idea of a Town: The Anthropology of Urban Form in Rome, Italy and the Ancient World* (London: Faber and Faber, 1976); for landscape in general, in Renaissance Europe, see Denis E. Cosgrove, *Social Formation and Symbolic Landscape* (London and Sydney: Croom Helm, 1984), and also Douglas Fraser, *Village Planning in the Primitive World* (New York: George Braziller, 1968).

35. Wheatley, *Pivot*, 416 (note 34).

36. Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 3, with Wang Ling, *Mathematics and the Sciences of the Heavens and the Earth* (1959), 171.

37. Needham, *Science and Civilisation*, 3:284 and 409 (note 36).

38. Needham, *Science and Civilisation*, 3:265 (note 36).

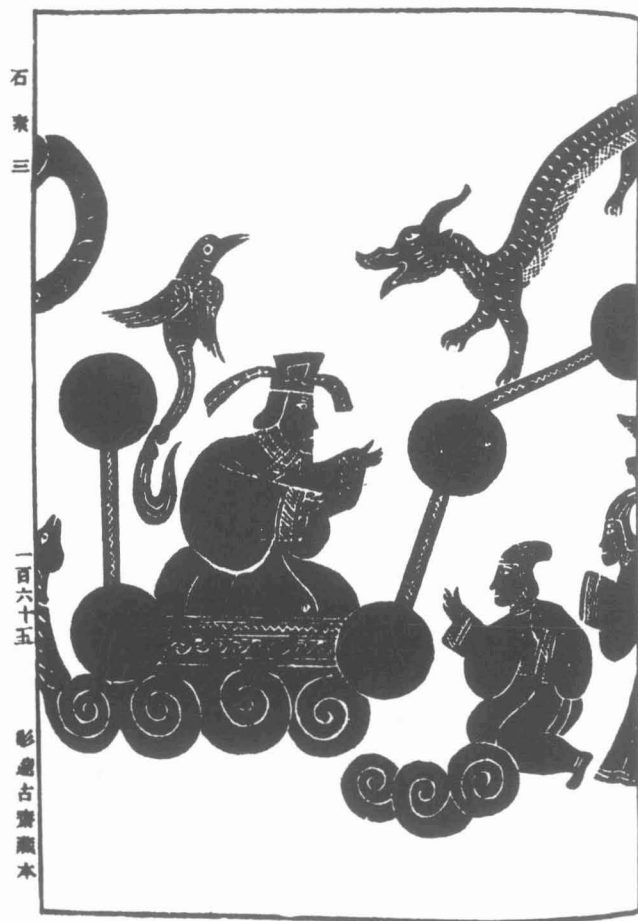


FIG. 1.10. CELESTIAL DIAGRAM FROM THE *JIN SHI SUO*. Despite the very early documented development of astronomy in China, few examples of constellations or groups of constellations have so far been reported from prehistoric art. Yet the idea of joining dots by lines to represent asterisms, as in this tomb painting featuring the Great Bear, is known to go

Meanwhile, there are a few pointers on what to look for. The lines on certain pieces of Chinese Neolithic pottery have been interpreted as celestial symbols and the circles as sun and moon signs.<sup>39</sup> In Han tomb decoration, at the start of the historical period in China, it was already conventional to represent groups of stars by “ball-and-link” patterns—dots or circles connected by lines (fig. 1.10).<sup>40</sup> Armenia and adjacent parts of Central Asia appear to have been a particular focus of prehistoric and early historical astronomical activity. Recently discovered petroglyphs in the mountains of Armenia are said to contain representations of “various constellations” and “ingenious calendars.”<sup>41</sup> Here too are found geometric symbols of “the sun, the moon, the lightning, the stars, as well as whole complexes of symbols, which bear in themselves the concept of the stellar system,” said to be “directly related with myths and legends originating from



back at least to the Han period (206 B.C.–A.D. 220).

From Feng Yunpeng and Feng Yunyuan, *Jin shi suo* (Collection of carvings, reliefs, and inscriptions, 1821); modern edition in 2 vols., Guoxue Jiben Congshu, vols. 157 and 158 (Taipei: Taiwan Shangwu Yenshuguan, 1968), 2:164–65.

the cult of the starry sky, the moon and the luminaries.” Cosmological myths are given anthropomorphic or animal forms, each associated with a star. The sun is shown as a “radiant wheel,” often connected with the idea of a chariot, drawn by bulls. Many of these rock markings

39. T. I. Kashina, “Semantika ornamentatsii neoliticheskoy keramiki Kitaya” (Semantics of ornamentation of China’s Neolithic pottery), in *U istokov tvorchestva* (At the sources of art) (Novosibirsk: “Nauka,” 1978), 183–202, cited in Ildikó Ecsedy, “Far Eastern Sources on the History of the Steppe Region,” *Bulletin de l’Ecole Française d’Extrême-Orient* 69 (1981): 263–76, esp. 271 n. 18, who warns against seeing meanings in the signs without first studying the relevant cult or culture.

40. Needham, *Science and Civilisation*, 3:276–82 and figs. 90 (p. 241) and 102 (in pl. XXVI) (note 36).

41. Miroslav Kšica, *Umění staré Eurasie: Skalní obrazy v SSSR* (The art of ancient Eurasia: Rock pictures in the Soviet Union) (Brno: Dům Umění, [1974]), 71 (summaries in Russian, German, English, and French).

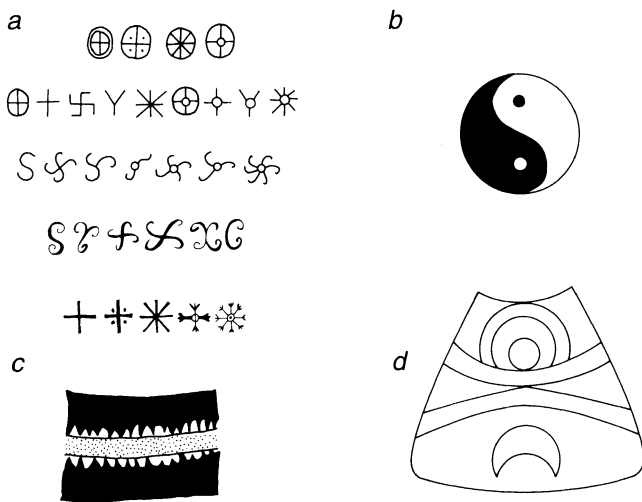


FIG. 1.11. MAPPING THE COSMOS. The nature of the cosmos, the relation between this world and the next, and the means of access from this world to the next were as important preoccupations of prehistoric peoples as of those living in historical times. More common than the occasional map are signs associated with these preoccupations. Four groups of these are shown here:

(a) An array of what are widely known as “sun and fire” symbols.

After F. Fawcett, “Notes on the Rock Carvings in the Edakal Cave, Wynaad,” *Indian Antiquary* 30 (1901): 409–21, esp. 413; he found many examples from this array among the prehistoric rock paintings in Indian caves and rock shelters.

(b) The Chinese “yang and yin” sign encapsulates fundamental life principles also personified in sun gods and moon and earth goddesses and signified by the signs in a.

(c) The color red is widely associated with death and the after-life. In the “death pattern” on Chinese mortuary pottery, the central band of dots is red and indicates the area forbidden to the living; the triangles mark their territory, the earthly world. After Johan Gunnar Andersson, *Children of the Yellow Earth: Studies in Prehistoric China*, trans. from the Swedish by E. Classen (New York: Macmillan, 1934), fig. 137.

(d) Rock-cut design from Japan, possibly “descriptive of [a] cosmic myth.”

After Neil Gordon Munro, *Prehistoric Japan* (Yokohama, 1911), 192.

are also said to be found as decoration on pottery from the third millennium B.C. and later to have been incorporated into Urarti hieroglyphs (800–600 B.C.).<sup>42</sup> Manuscripts taken in the Middle Ages from early pagan sanctuaries confirm the meaning of each celestial sign. A prehistoric astronomical observatory has been excavated at Metsamor (Armenia) dating back to perhaps the third millennium B.C., its axes coinciding with those of modern observatories and its azimuth oriented to the star Sirius.<sup>43</sup> Star signs—“octagonal stars contained in a trapezium”—are carved on stone structures in the highest part of the observatory. Yet despite the usually close association of astronomical and cosmological observance, when Oklad-

nikov uncovered an arrangement of stone slabs placed like rays around a circular platform dating from the Bronze Age, he associated this with the practice of a sun cult rather than with astronomy.<sup>44</sup>

## COSMOLOGICAL MAPS

As already noted, the dividing line between celestial and cosmological beliefs in early societies is a fine one. Both ethnographic and archaeological literature testify to the cosmological and eschatological beliefs of various Asian societies in historical and prehistoric times. If there are any lingering doubts about the meaning, or meanings, of the various signs, the archaeologist has recourse to the ethnographic literature, for the use of these signs tends to have remained an important aspect of traditional art in many regions of Asia. Maps made up of these signs are found throughout the region and from all times in the historical period.

Two broad groups of cosmological signs can be distinguished. In one group can be put the general signs of a cult, such as sun signs. In the other are the signs that relate to a specific aspect of that cult, such as the question of access from this world to the next. The former can include a formidable variety of cosmological signs. For Asia, Fawcett reproduced no fewer than thirty-two types of “sun and fire” symbols, characteristic of Asian art in general, many of which he had found among prehistoric rock paintings in the Edakal cave (Wynaad, India), still the focus of an annual religious pilgrimage (fig. 1.11a, b).<sup>45</sup> The signs ranged from the familiar quartered circles, crosses, swastikas, and stars to curving Y shapes, S shapes, and variously rayed circles, and they were packed so densely that Fawcett commented, “It takes a protracted and close study to make anything of them.”<sup>46</sup> For the historian of cartography, however, it is the second group of signs that holds the greatest potential interest, since they imply a spatial relationship between this world, the underworld, and the next world or heaven, as well as the journey between the worlds. The tree sign, for instance,

42. Martirosyan and Israelyan, *Naska'nye izobrazheniya Gegamskikh gor*, 58 (note 10).

43. A. A. Martirosyan, “Sémantique des dessins rupestres des Monts de Guégam (Arménie)” (Moscow, 1971), 8; limited circulation, unpublished papers omitted from the proceedings: *Actes du VIII<sup>e</sup> Congrès International des Sciences Préhistoriques et Protohistoriques*, 3 vols. (Belgrade, 1971); David Marshall Lang, *Armenia: Cradle of Civilization*, 3d corrected ed. (London: George Allen and Unwin, 1980), 263–64; and “Astronomical Notes from Prague,” *Sky and Telescope*, November 1967, 297, where E. S. Parsamian presents these findings.

44. Okladnikov, *Ancient Population*, 24 (note 27).

45. F. Fawcett, “Notes on the Rock Carvings in the Edakal Cave, Wynaad,” *Indian Antiquary* 30 (1901): 409–21, esp. 413.

46. Fawcett, “Edakal Cave,” 413 (note 45).

may stand for the Sacred Tree, an *axis mundi* equivalent to the Mount Meru of Hindu, Jain, or Buddhist cosmology. Or standing for the Tree of Life, it may represent the highest degree of unity, in which case it signifies the idea of upper world and netherworld combined.<sup>47</sup> Even more spatially explicit is the “death pattern” decoration found on some prehistoric mortuary pottery in China (fig. 1.11c). Here a red (or violet) band between two lines of zigzags is said to demarcate the zone reserved for the dead and forbidden to the living.<sup>48</sup> Likewise, the labyrinth design, representing the journey between the world of the living and that of the dead, encompasses the idea of a map between the two worlds.<sup>49</sup> Labyrinth signs are one of the most common motifs in prehistoric art in Asia as elsewhere. They feature prominently in, for example, the caves and rock shelters of Bhopal District, central India, the richest zone of prehistoric rock art in the subcontinent, where 90 percent of the region’s rock shelters are concentrated into the Vindhya, Mahadeo, and Kaimur sandstone hills.<sup>50</sup> Another cosmological motif, found especially in eastern Siberia and southeastern Asia, on the one hand, and in the Finnish-Baltic region, on the other, is the ship, the means of transporting the soul to the next world. Shown without oars, the ship is seen as propelled by divine force alone.<sup>51</sup> Depicted in red paint on river cliffs at Shishkino (upper Lena River, Siberia), “a whole row of boats [in which human figures are sitting, arms upraised] is seen floating in a line on the sacred river into the world of the dead.”<sup>52</sup> Modern Ngaju Dayaks in Borneo have explained their *tiwah* (feast of the dead) ceremonies, in which the spirit Tempon Telon acts as a Bornean Charon and corresponds to the prehistoric ship sign.<sup>53</sup> Other ship signs are found in the decoration of the bowl or the tympanum of Bronze Age kettle drums of Borneo and other parts of Indonesia. Occasionally the coffin itself takes the form of a boat.<sup>54</sup> All these signs signify essentially similar beliefs. All, like the maps on coffin bases from ancient Egypt,<sup>55</sup> testify to a universal preoccupation, the question of life after death and the means of access to the next world.

On their own, however, signs do not constitute maps. At most, they are a pointer to the cosmological structures of the people who made them. In a cosmological map, such signs would be used to indicate the location of the various parts of the cosmos. Inevitably, though, little can be understood of the graphic forms of a society’s cosmological beliefs without insights from ethnography. Thus, the curved lines decorating a panel of a Japanese prehistoric jar would not have been described as a possible illustration of the origin of the world without some knowledge of Ainu mythology (fig. 1.11d).<sup>56</sup> Similarly, “generally speaking, where we find a bird, it symbolizes heaven or the upper world, whereas a fish or a sea serpent

represents the water or the nether world.”<sup>57</sup> The Mongolian grave plans, with their eagles suggesting, if not actually confirming, the association of the petroglyphs with the traditional beliefs of the region, have already been discussed. From ethnography we also learn that local cosmic beliefs may embody class distinctions. Among the Dayaks of Borneo, formerly only the upper classes went to a sky world on death,<sup>58</sup> the lower classes being destined for the netherworld.

47. For example, Abraham Nicolaas Jan Thomassen à Thuessink van der Hoop, *Indonesische siermotieven* ([Batavia]: Koninklijk Bataviaasch Genootschap van Kunsten en Wetenschappen, 1949), 274–75 (pl. CXXIX), text in Dutch, Malay, and English.

48. Johan Gunnar Andersson, *Children of the Yellow Earth: Studies in Prehistoric China*, trans. from the Swedish by E. Classen (New York: Macmillan, 1934), 315 and fig. 137. See also Hanna Rydh, “On Symbolism in Mortuary Ceramics,” *Bulletin of the Museum of Far Eastern Antiquities* 1 (1929): 71–120 and plates. The use of red in these contexts is itself symbolic. Red is taboo for the living, devoted to the mortuary culture, symbolizing blood as the strongest carrier of life, offered to the deceased on their departure for the dreaded journey into the Land of the Dead (Andersson, *Children*, 69). Kšica, *Umění staré Eurasie*, 71 (note 41), also comments on the use of red in cave painting and on red ochre sprinkled over human skeletons in prehistoric burials in the Urals.

49. Delano Smith, “Cartography in the Prehistoric Period,” 87–88 and footnotes (note 1). R. K. Sharma and Rahman Ali, *Archaeology of Bhopal Region* (Delhi: Agam Kala Prakashan, 1980), pl. 15, shows a labyrinth pattern surrounded by triangular decorations. Vishnu S. Wakankar, “Painted Rock Shelters of India,” *IPEK: Jahrbuch für Prähistorische und Ethnographische Kunst* 21 (1964–65): 78–83, esp. pl. 59, fig. 4, illustrates a labyrinth with seven bulls’ heads outside.

50. Yashodhar Mathpal, *Prehistoric Rock Paintings of Bhimbetka, Central India* (New Delhi: Abhinav Publications, 1984), 14.

51. Horace Geoffrey Quaritch Wales, *Prehistory and Religion in South-east Asia* (London: Bernard Quaritch, 1957), 51; Engkos A. Kosasih, “Rock Art in Indonesia,” in *Rock Art and Prehistory: Papers Presented to Symposium G of the AURA Congress, Darwin, 1988*, ed. Paul Bahn and Andrée Rosenfeld (Oxford: Oxbow Books, 1991), 65–77, esp. the summary of distribution in the last sentence; and A. L. Siikala, “Finnish Rock Art, Animal Ceremonialism and Shamanic Worldview,” in *Shamanism in Eurasia*, 2 vols., ed. Mihály Hoppál (Göttingen: Edition Herodot, 1984), 1:67–84.

52. Okladnikov, *Ancient Population*, 43 (note 27).

53. Victor Goloubew, “L’Age du Bronze au Tonkin et dans le Nord-Annam,” *Bulletin de l’Ecole Française d’Extrême-Orient* 29 (1929): 1–46, esp. 36–37. Martirosyan and Israelyan, *Naska’nye izobrazheniya Gegamskikh gor*, 59 (note 10), mention boat representations in Armenian rock art.

54. Goloubew, “L’Age du Bronze au Tonkin,” 36–37, and pl. XXIX(C) (note 53).

55. A. F. Shore, “Egyptian Cartography,” in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), 1:117–29, esp. 120 and pl. 2.

56. Neil Gordon Munro, *Prehistoric Japan* (Yokohama, 1911), 285 and fig. 85 (on p. 180). The myth concerned is an Ainu belief with analogies in Japanese and Russian folklore. It describes how the world with its surrounding sea is supported on the back of a fish.

57. Thomassen à Thuessink van der Hoop, *Indonesische siermotieven*, 40 (note 47), for just one example.

58. Wales, *Prehistory and Religion*, 92 (note 51). See also chapter 17 below, esp. figs. 17.1 and 17.2.



FIG. 1.12. A POSSIBLE COSMOGRAPHICAL SYMBOL. This design is incised on a pottery vessel discovered at Lingyanghe, Shandong Province. The vessel dates from 2900–2400 B.C. The round element at the top of the design is generally taken to be the sun. The crescent-shaped element has been taken to be the moon or a cloud. The bottom element has been interpreted as representing a fire or a mountain. Depending on how one combines these separate interpretations, one can read the design in several ways, for example, as showing the union of the celestial and terrestrial, or as representing a sunrise, or as signifying heat. Size of the vessel: 62 cm high; 29.5 cm diameter. By permission of the Shandong Provincial Museum.

Only one example of a cosmological map of prehistoric date is included in the present list (appendix 1.1, no. 2). In other cases, even where ethnographic evidence has been used to interpret the decoration of a prehistoric artifact as a cosmological representation, too few details are given for us to identify the artifact or include the figure in question (fig. 1.12).<sup>59</sup> A single rock painting from India has been expounded by archaeologists as portraying the Mesolithic cosmos (fig. 1.13). The painting comes from a rock shelter at Jaora, on the Malwa Plateau (Madhya Pradesh). The three parts of the cosmos are represented. The top band of the design is easily recognized as portraying, in naturalistic style, a watery environment. A shoal of fish (associated with the netherworld) swims

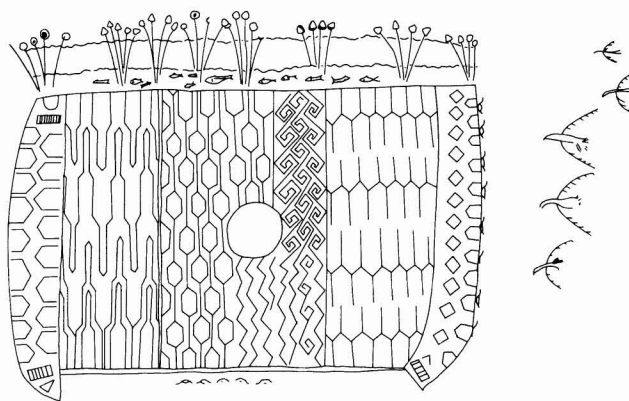


FIG. 1.13. MESOLITHIC COSMOLOGICAL MAP FROM INDIA.

Size of the original: 44 × 75 cm. After Erwin Neumayer, *Prehistoric Indian Rock Paintings* (Delhi: Oxford University Press, 1983), 68 (fig. 26e).

among clumps of reeds or water plants. Also in naturalistic style are the five birds in flight outside the main design, said to represent the air, or the upper world. In the rest of the picture, the signs are more stylized. In the right-hand and lower borders are water birds. An empty circle or disk, presumably the sun, marks the center of the composition. From it, rays—zigzag lines—run to the lower border. The four intricately patterned bands filling the rest of the panel have been suggested as representing the earth. As a whole, the picture “can be understood as a symbolic depiction of the Mesolithic cosmos.”<sup>60</sup>

### PROBLEMS OF INTERPRETATION

Appendix 1.1 contains twenty-two examples of prehistoric maps drawn from the rock art of Asia. It includes one picture map, twenty plan maps (mostly from Mugur-Sargol), and one cosmological map. Compared with the fifty prehistoric maps itemized for Europe alone,<sup>61</sup> the present list may seem short for so vast a continent as Asia. It is based on available literature, and the archaeological interpretations therein, and one of its most obvious limitations reflects the dearth or unavailability of that literature. For instance, although reports of rock

59. Wales, *Prehistory and Religion*, 69 (note 51), describes a type of design found on drum membranes that shows the drum represents a microcosm: “A transverse line separates the celestial region, with its sun and moon, from the earth below, and sometimes again the underworld beneath.” He states his intention of applying this interpretation to the Bronze Age art of the Dongson but does not specify particular prehistoric examples that I can list here.

60. Neumayer, *Indian Rock Paintings*, 14 and fig. 26e and caption (note 8).

61. Delano Smith, “Cartography in the Prehistoric Period,” 93–96 (app. 4.1) (note 1).

art have existed from the seventeenth century onward for parts of Central Asia, Siberia, and India—and from the fourth century for at least one region of China—the serious study of rock art in most Asian countries has gathered momentum only in the past two decades. This is generally true even for India, where the initial discovery in the nineteenth century of painted rock shelters and the realization that the art was the product of indigenous people in prehistoric times predated by a dozen years the better-known discovery in Spain of the Altamira cave paintings.<sup>62</sup> Prevailing Eurocentric and colonial views, however, may also be held to account for the neglect until recently of Indian prehistoric art.<sup>63</sup> Other factors affecting the availability of literature for the present survey are the difficulty of identifying and obtaining relevant secondary sources and language problems. Yet another hazard is dating Asian rock art and matching Asian prehistoric chronology to European dates. Specific problems of discovering maps in prehistoric art have already been reviewed elsewhere.<sup>64</sup>

Notwithstanding such difficulties, two salient general facts readily emerge. In the first place, Asia contains an amazing wealth of prehistoric rock art. Little of this has as yet received full study, and undoubtedly even more remains to be discovered to complete the distribution map (fig. 1.14). Second, Asian rock art is similar in form, subject matter, stylistic range, occurrence, and archaeological context to that already encountered in Europe and other parts of the Western Old World. This adds weight to the prevailing opinion among archaeologists that we are dealing here with a record of some of the most fundamental thoughts, anxieties, and perceptions of humankind. Cosmological ideas, the recording of parts of the earthly world and of the skies, were as universal in prehistoric times as throughout history. Something of them is to be glimpsed in the petroglyphic and pictographic record. One way to approach the problem of recovering those prehistoric messages is through a better understanding of the archaeological and ethnographic context of the medium, Asian prehistoric rock art in general.

The prehistoric period in Asia tends to be described in terms of the chronology of European scholars, the main divisions defined by way of life and economy. For most of Asia, absolute dates are in short supply or disputed, especially for the early part of the period. Another complicating factor is that prehistoric ways of life survived well into historical times, and Epipaleolithic lifestyles were still to be found in parts of the continent at the start of this century. Usually, however, the end of the prehistoric era and the dawn of historical times was marked by the arrival of linear scripts. In one or two regions, such as Elam, an intervening “protohistoric”

period was characterized by pictograph or cuneiform writing (see fig. 1.15). Thus, nonliterate and literate cultures coexisted in Asia throughout most of the historical period. It was primarily through religious and, later, commercial expansion that literacy was conveyed to other parts of the continent. For instance, Hinduism and Buddhism took Indian scripts east and south into peninsular Southeast Asia and the Malay Archipelago, while Confucianism took Chinese characters to Vietnam, Korea, and ultimately (but not before the sixth century A.D.) to Japan, and Islamic traders took the Arabic script to South Asia and the coastal zones of Southeast Asia.

In this way, Asian rock art reflects a fascinating but sometimes bewildering mixture of prehistoric and historical economies and life-styles and nonliterate and literate cultures. Prehistoric economies and nonliterate cultures have lingered longest in the deepest interiors, most distant plains, and peripheral regions. For the historian of cartography these contrasts have two main consequences. One disadvantage is the difficulty of distinguishing the prehistoric rock art from that of similarly nonliterate but historical cultures.<sup>65</sup> The other is advantageous; it leads to the availability of a rich ethnographic record, illuminating the role of rock art in prehistoric life and shedding light on the possible meanings of the various motifs and symbols it contains.

The map in figure 1.14 shows the main areas of rock art in Asia. Such a continental overview is useful to help redress the tendency to report archaeological discoveries in terms of national units, resulting in an inappropriately fragmentary picture. Many of the apparently empty portions of the map are best regarded as areas of ignorance, awaiting fieldwork or the dissemination of its reporting, rather than as areas entirely devoid of rock art. As might be expected, it is the center of the continent that is least known—the Himalayas and the Tibetan Plateau. To the north of this, rock art is found virtually everywhere in Central Asia and Siberia. Some of it has been known to Westerners since the seventeenth century, though new discoveries are regularly being made. As is so often the case, especially with prehistoric rock art, the petroglyphs and pictographs are found in local concentrations in high, seemingly inaccessible, scenically dramatic localities. Over 100,000 petroglyphs, for instance, first discovered in 1982–83 at Saimaly-Tash (in the Fergana mountains), all lie above 3,200 meters and within a pass that has been

62. Mathpal, *Rock Paintings of Bhimbetka*, 12 (note 50).

63. Neumayer, *Indian Rock Paintings*, 1 (note 8).

64. Delano Smith, “Cartography in the Prehistoric Period,” esp. 55–63 (note 1).

65. For a recent comment on the technical aspects of rock art dating, see Ronald I. Dorn, Margaret Nobbs, and Tom A. Cahill, “Cation-Ratio Dating of Rock-Engravings from the Olary Province of Arid South Australia,” *Antiquity* 62 (1988): 681–89.

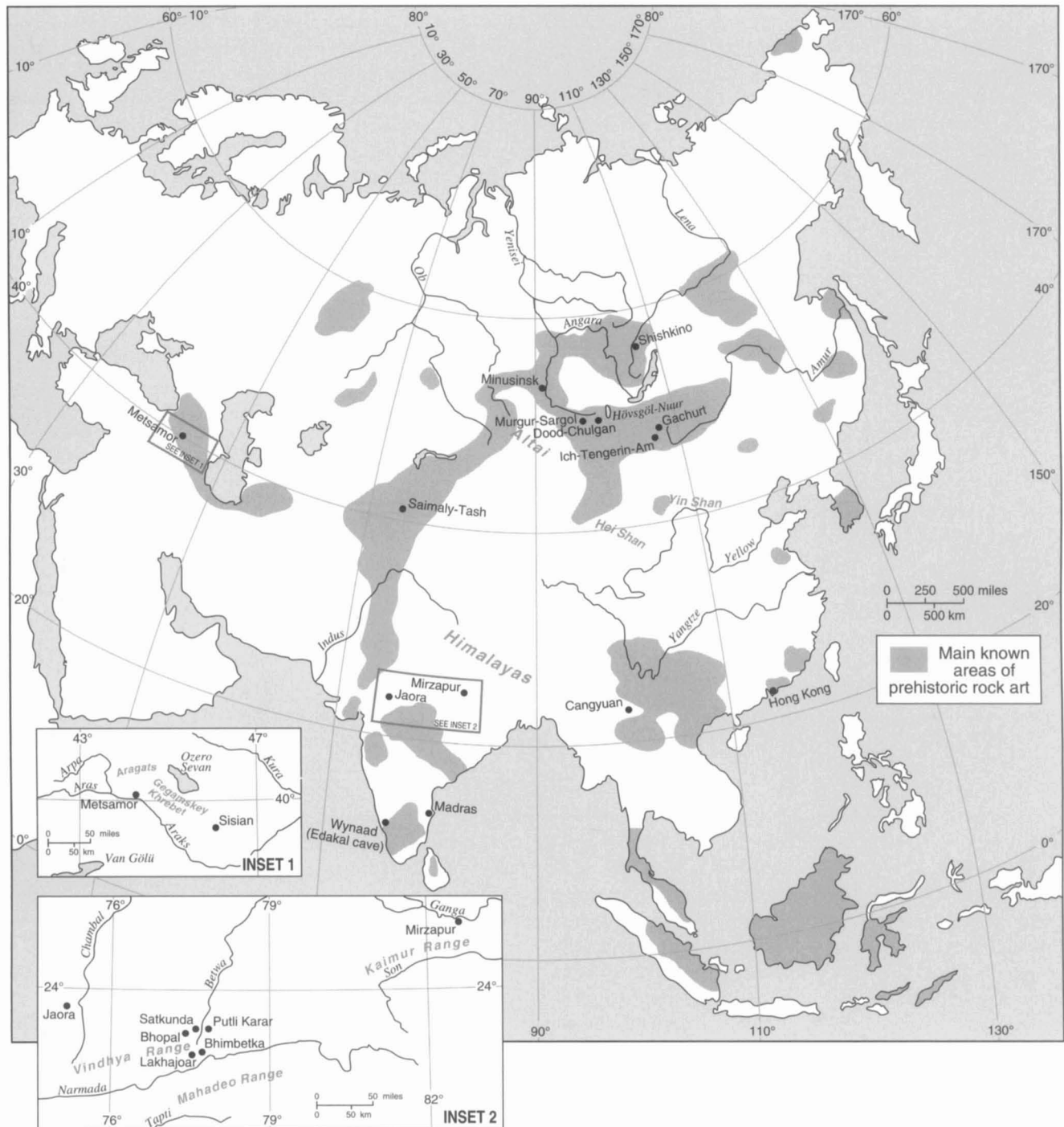


FIG. 1.14. REFERENCE MAP FOR THE STUDY OF ROCK ART IN ASIA. This map shows many locations of examples listed in appendix 1.1 and places mentioned in the text.

described as a “stupendous” place, a typical cult site, surrounded by impassable mountains on all sides but the north.<sup>66</sup>

South of the Himalayas, prehistoric rock art has a similarly widespread distribution over the Indian subcontinent. Here the study of paintings in caves and rock shel-

66. Grégoire Frumkin, *Archaeology in Soviet Central Asia* (Leiden: E. J. Brill, 1970), 45–46; see also the connection made by Kšica between such high-altitude concentrations (“‘closest’ to the sun,” as at Saimaly-Tash) and the preponderance of astral signs in some of these areas (e.g., Armenia) (*Umění staré Eurasie*, 72 and 71 respectively [note 41]). Most are petroglyphs carved into hard rock such as granite, slate, sandstone, limestone, even basalt.



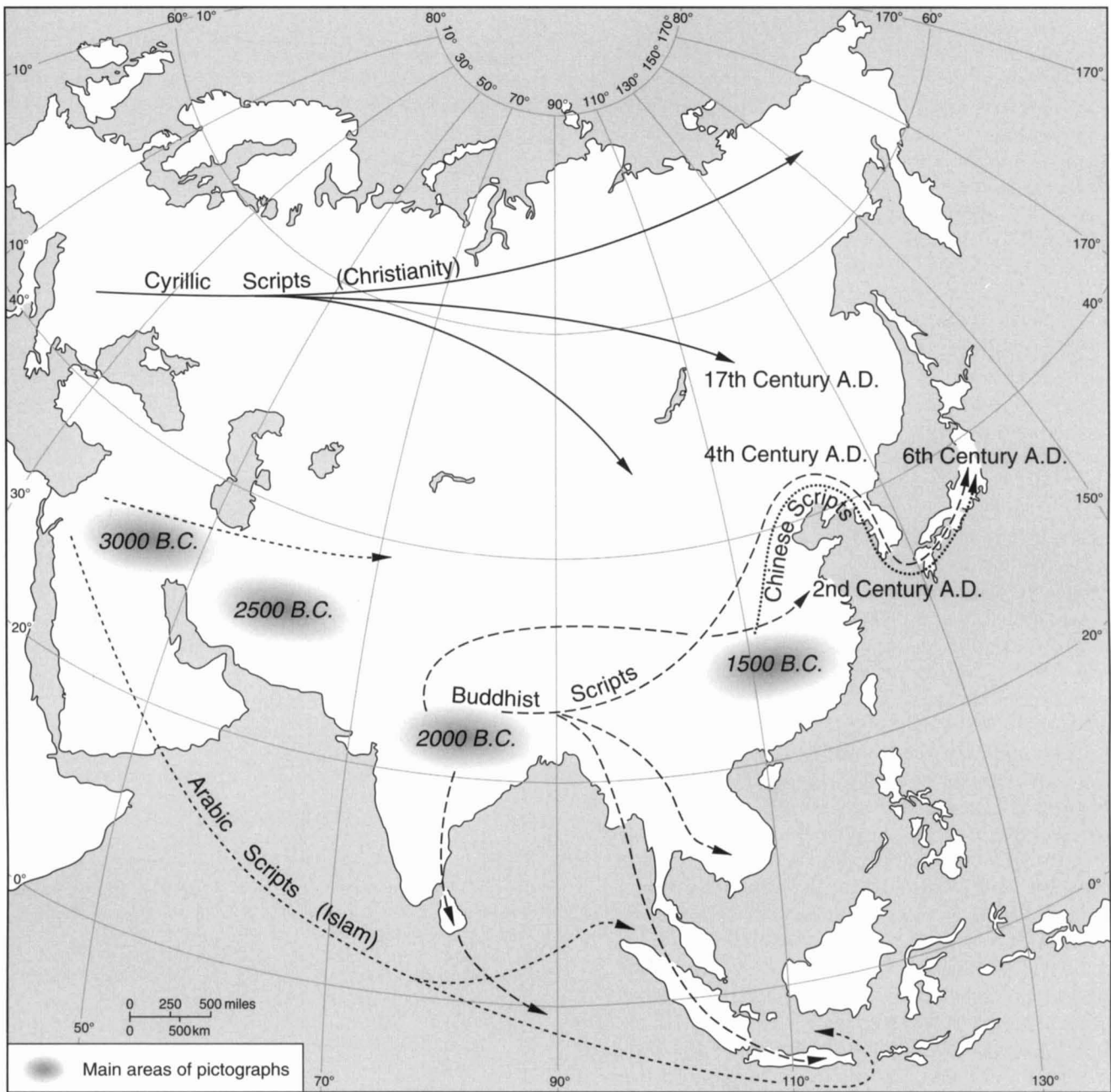


FIG. 1.15. REFERENCE MAP OF THE SPREAD OF LITERACY AT THE END OF THE PREHISTORIC PERIOD. Based on David Diringer, *Writing* (New York: Frederick A. Praeger, 1962), 162.

ters started in the second half of the nineteenth century, after 1867, the year Carlleyle made the link between paintings on the cave walls and stratified stone chippings that could be dated to the Mesolithic.<sup>67</sup> Further work on rock paintings (including that by Cockburn in Mirzapur) was followed by the first literature dealing with the petroglyphs of Kerala (southwestern India).<sup>68</sup> By the 1930s, Gordon was attempting to establish a rock art chronology for India. One of his conclusions, however, was that the paintings were of no “considerable antiq-

67. See Neumayer, *Indian Rock Paintings*, 1–4 (note 8), for a summary. Archibald Carlleyle’s account remained unpublished until Vincent A. Smith wrote “Pygmy Flints,” *Indian Antiquary*, July 1906, 185–95; Neumayer quotes some of Carlleyle’s words (1–2).

68. John Cockburn, “On the Recent Existence of *Rhinoceros indicus* in the North Western Provinces, and a Description of a Tracing of an Archaic Rock Painting from Mirzapore Representing the Hunting of This Animal,” *Journal of the Asiatic Society of Bengal* 52, pt. 2 (1883): 56–64, and idem, “Cave Drawings in the Kaimūr Range, North-West Provinces,” *Journal of the Royal Asiatic Society of Great Britain and Ireland*, 1899, 89–97; Fawcett, “Edakal Cave,” 409–21 (note 45).

uity” (compared with those of Spain, which date from the Upper Paleolithic), thus reinforcing traditional archaeological opinion, which held that indigenous art could not have made any contribution to Indian culture.<sup>69</sup> Only with the start of Wakankar’s work on Indian rock art in 1957 have the indigenous prehistoric antecedents of Indian culture been taken seriously.<sup>70</sup>

Southeast Asia is a geographically fragmented and comparatively little known area. Not more than thirty rock art sites have been reported, scattered among the islands and peninsular parts of Southeast Asia. Moreover, despite efforts to establish dates, the various local styles “have proved so diverse that the problems of age, origin and meaning of the paintings have in most cases remained unsolved.”<sup>71</sup> Despite the proximity of India, and closeness of cultural contact with it from time to time during the prehistoric period, the rock art of neighboring Burma and Indochina contains none of the dynamic painted scenes characteristic of the subcontinent. Cave paintings in the Shan highlands of Burma show only wild cattle, stags, and human hands in outline, apart from the equally ubiquitous “sun symbol.”<sup>72</sup> Some rock art is reported from Hong Kong, but none of the curvilinear patterns on the rocks there, said to date mostly from the Bronze Age, can be regarded as a map, least of all—from the sound of it—the meandering single line of the so-called pirate map, evidently a popular interpretation.<sup>73</sup>

China and Mongolia, however, are a different matter. Cliff paintings of horselike figures at Yin Shan (Inner Mongolia) were being written about as early as the fourth century A.D., although the reference attracted attention only recently.<sup>74</sup> Since then, over a thousand rock paintings have been discovered in that area alone. Under the Chinese Republic, this type of art has been seen as the product of “minority ethnic nationalities” and of folk practices, as opposed to that of the literate peoples of the early urbanized and culturally advanced heartlands.<sup>75</sup> In some areas, such as Yin Shan, the pictographs are the accumulation of activity in both prehistoric and historical millennia; in others, such as Hei Shan (Gansu Province), they are thought to be wholly prehistoric in origin. Already the recently intensified study of rock art in China has resulted in the discovery of over thirty-six major zones or sites of prehistoric paintings and petroglyphs.<sup>76</sup>

In western Asia, the distribution of prehistoric rock art merges with those areas previously described under the headings Middle East and European Russia.<sup>77</sup> For instance, the Caucasus is now known to be rich in rock art sites, though few were known before 1967. In the Armenian Caucasus, one twelve-month visit by a group of archaeologists resulted in the discovery of over 100,000 rock carved or painted figures, all said to be “remarkably alike, if not identical” in style, within a

straight-line distance of two hundred kilometers from the Aragats to the mountains around Sisian.<sup>78</sup> As far as the cartographic material is concerned, the main theme in this region seems to be celestial or cosmological. There are said to be numerous representations of the sun, individual constellations, and astronomical calendars.<sup>79</sup>

It is important to keep the cartographic content of all this prehistoric art in perspective. Figures usually described in the literature as “abstract” or “geometric” that may on closer inspection be interpretable as maps of one sort or another constitute a very small part of the entire rock art corpus.<sup>80</sup> Far and away the most common subjects are mammals (wild and domesticated), birds, and fish, followed by human or anthropomorphic figures and parts of the human figure (hands, faces, or masks). Weapons and tools are the third most important subject group.

The function or purpose of the art as reflected in the subjects portrayed may also reflect environmental or cultural restrictions. For instance, if plows and plowing scenes are found less frequently in some areas than in others (or in Asia in general compared with Europe), this may be because in much of Asia there was little or no plowing until comparatively recently. Even in the previous century, in Siberia for example, cultivation was restricted to parts of the Yenisei and Angara valleys. Elsewhere, nomadic hunters and gatherers peopled the

69. Gordon, *Pre-historic Background*, 98 (note 2). See also M. E. Gordon and Douglas Hamilton Gordon, “The Artistic Sequence of the Rock Paintings of the Mahadeo Hills,” *Science and Culture* 5 (1939-40): 322-27 and 387-92; and Neumayer, *Indian Rock Paintings*, 3 (note 8).

70. For a list of Vishnu S. Wakankar’s papers see the bibliography in Neumayer, *Indian Rock Paintings*, 46 (note 8). See also Robert R. Brooks and Vishnu S. Wakankar, *Stone Age Painting in India* (New Haven: Yale University Press, 1976).

71. Heinrich Kusch, “Rock Art Discoveries in Southeast Asia: A Historical Summary,” *Bollettino del Centro Camuno di Studi Preistorici* 23 (1986): 99-108, quotation on 99.

72. Kusch, “Rock Art Discoveries,” 106 (note 71).

73. William Meacham, *Rock Carvings in Hong Kong* (Hong Kong: Christian Study Centre on Chinese Religion and Culture, 1976), 33. Some of the petroglyphs have been “known for centuries” although, unusually, no legends or ancestral links seem to be associated with them.

74. Li Daoyuan (d. 527), *Shui Jing zhu* (River classic commentary), a book written about the sixth century A.D. The reference is cited by Chen, “Ancient Rock Art,” 91 (note 18), and idem, *Cina*, 35 (note 17).

75. Chen, “Ancient Rock Art,” 92-93 (note 18).

76. Chen, “Ancient Rock Art,” map on 94 (note 18).

77. Delano Smith, “Cartography in the Prehistoric Period,” 70-73 (note 1).

78. Martirosyan and Israelyan, *Naska’nye izobrazheniya Gegamskikh gor*, 58 (note 10).

79. Kšica, *Umění staré Eurasie*, 71 (note 41).

80. There is always the problem of bias through the reporting of the most aesthetically pleasing pictures (notably animals and scenes of human activity).

steppes, deserts, and mountains of regions from Mongolia and the Transbaikal to Kazakhstan, Turkmenistan, and Afghanistan much as they would have done throughout the prehistoric period. In India and China, where farming arrived very early (fifth millennium B.C., and possibly earlier), it was confined, until the first millennium B.C., mainly to the valleys associated with the great Asian civilizations. Away from the Indus or the Huanghe (Yellow River), in the mountains of Kashmir and Nepal as in the hills of central and southern India, hunting provided the economic basis of life and the social framework until the introduction of herding of domesticated stock.

Given such long persistence of prehistoric ways of life in many parts of Asia, there is much for the historian of cartography to learn from ethnographers as well as from archaeologists. The possible significance of those dot-filled outlines painted on rocks in the grassy steppes of Mongolia as “grave plans”<sup>81</sup> could not have been guessed without reference to the surviving tombs and traditional burial practices and their links with prehistory. The use of constellations by certain rice-growing tribes of Southeast Asia to mark the agricultural seasons was investigated at the beginning of this century.<sup>82</sup> In India—in Bengal, Bihar, among the Gonds of Mandla, the Gallas of the south, the Pardhas, the Rathvas, and the Saoras, for instance—surviving practices of ritualistic wall painting have likewise been witnessed by anthropologists and ethnographers.<sup>83</sup> These researchers report that pictures relating to agricultural fertility sometimes include scenes of agricultural activity similar, we find, to those depicted on the rocks.<sup>84</sup> We learn too that the paintings are made in response to a particular crisis; that the painting is seen as integral to the remedy; that, although a shaman may in due course be involved, the drawing may be produced by any member of the tribe having sufficient skill and knowledge.<sup>85</sup> We are told, too, how the Rathvan painting of creation myths “is a multidimensional activity” in which music, dance, and trance are all essential parts of the productive ritual; how a consecrated area is set aside for the painting (a conclusion archaeologists usually reach only by deduction in the case of prehistoric rock art); and of the careful and deliberate way the figures are created, the tribal artists observing practices that may go back not just centuries but millennia.<sup>86</sup> Elsewhere in Asia, such as those regions of damp tropical climate where rock paintings are poorly preserved (Southeast Asia in general and Indonesia in particular), the focus shifts to the symbolism of motifs used in weaving and carving, where, as in Indonesian designs, cosmological symbolism is a recurrent theme.<sup>87</sup>

Rarely if ever does the word “map” appear in the archaeological or ethnographic literature on Asian art. Instead, a rock painting will be described as “portraying”

or “showing” a village with its boundary line or fence.<sup>88</sup> The tympanum of an ancient drum or a textile will likewise be described in terms of “symbolizing” the upper world and netherworld of the cosmos.<sup>89</sup> Arguably, all that such semantic reticence highlights are the cartographic preconceptions of the observer. These limit the definition of a “map” to wayfinding devices or to depictions of an area according to mathematical coordinates. The observer’s mind tends to remain closed to an entire range of well-documented experience, wholly relevant to the history of cartography though scarcely touched on in the traditional literature. The stress in recent history of cartography literature is to see the social use of maps and to be ready to abandon the “notion of mapping as plotting of resemblance” for certain periods.<sup>90</sup> Like medieval societies, prehistoric societies were sacred, not profane. For each individual in such archaic societies, the world was “fraught with messages.”<sup>91</sup> Some of these messages, painted or carved by prehistoric people in Asia as elsewhere, have to do with place: the skies, the homesteads and fields, the graves of this world, and the unknown configurations of the next. We need a liberal as well as an informed approach to the surviving evidence of these prehistoric messages and to the archaeological and ethnographic contexts that illuminate them. Only

81. Hedin, *Expedition in Asia*, 1:109 (note 26). The graves are described as “walled squares of stones within which had been placed smaller stones,” the largest measuring eight by four meters. On the significance of the symbols, see above, pp. 6–7 and note 27.

82. Charles Hose, “Various Methods of Computing the Time for Planting among the Races of Borneo,” *Journal of the Straits Branch of the Royal Asiatic Society*, no. 42 (1905): 1–5.

83. Verrier Elwin, *The Tribal Art of Middle India: A Personal Record* (Bombay: Geoffrey Cumberlege, Oxford University Press, 1951), 183–214; D. H. Koppar, *Tribal Art of Dangs* (Baroda: Department of Museums, 1971); and Jyotindra Jain, *Painted Myths of Creation: Art and Ritual of an Indian Tribe* (New Delhi: Lalit Kala Akademi, 1984).

84. Elwin, *Tribal Art of Middle India*, 191–92 (note 83).

85. Koppar, *Tribal Art of Dangs*, 117 (note 83), also makes it clear that Dang paintings are in effect votive offerings, dedicated only to the god or gods to be propitiated. He points out that “in all these drawings there is not one single theme but a combination of several themes.”

86. Jain, *Painted Myths*, ix–xii (note 83).

87. Thomassen à Thuessink van der Hoop, *Indonesische siermotieven*, 13 (note 47).

88. Wang’s words are, “something people can now clearly recognize as a picture of a village” (*Yunnan Cangyuan bishua*, 33 [note 17]). I am grateful to Cordell Yee for this translation of Wang.

89. Wales, *Prehistory and Religion*, 69 (note 51); Thomassen à Thuessink van der Hoop, *Indonesische siermotieven*, 274–75 (pl. CXXIX) (note 47).

90. Jonathan J. G. Alexander, review of volume 1 of *The History of Cartography*, “Mapping the Medieval World,” *Journal of Historical Geography* 16 (1990): 230–33, esp. 232.

91. Mircea Eliade, *The Sacred and the Profane: The Nature of Religion*, trans. Willard R. Trask (New York: Harcourt, Brace and World, 1959), 146.

then will the relevance of prehistoric art to the history of cartography be properly understood.

### CONCLUSION

In searching for examples of prehistoric maps, the historian of cartography is looking beyond the mere analysis of pictorial forms, seeking the origins of concepts used in sometimes very different ways and circumstances throughout history. Also sought is an understanding of what these images express. The conclusion among students of rock art is that rock art expressed fundamental human anxieties and preoccupations. Okladnikov, one of the most eminent and experienced archaeologists in Siberian prehistory, drew attention to the high regard in which traditional Yakuts and Tungus held the cliff drawings of their region, believing they constituted “a form of writing, filled with profound and significant content.”<sup>92</sup> He records how during the previous century Vitashevskiy was told that

on the Olekma, upstream from a point where the river Nyukzha empties into it, was depicted the whole *sirkaartata*; that is, a map of the whole earth, the whole universe. It included the phases of the moon, from two days old to full, the sun, and the Great Bear (*Arangas Sulus*). These drawings, in their opinion, were made by the *khaya-ichchite* himself—the presiding spirit of the place—and the images depicted appear and disappear from time to time.<sup>93</sup>

We accept that, notwithstanding their specialized form, maps are no less social documents than other forms of art and text. The diversity, even unfamiliarity, of early forms of maps is no surprise. No more than the rock art in which they are preserved, itself “far from a drab collection of drawings dealing with the same, identically treated subjects,” are the earliest maps from widely distributed territories likely to reflect identical practices or cultural predilections.<sup>94</sup> Allowing for cultural diversity, however, the study of maps in prehistoric art in Asia, as in Europe, does underline that the expression of spatial relationships is one of the great traditions of human existence. It also demonstrates that tribal societies have had a role as carriers of fundamental cartographic concepts. Established histories of maps and mapmaking have tended to ignore prehistoric cartography and to belittle the map products of nonliterate historical times.<sup>95</sup> One

reason for this neglect has been an excessive focus on the spatial aspects of the cartographic image at the expense of its equally important temporal, personal, contextual, and evaluative components.<sup>96</sup> Yet images, like their constituent signs, should be studied, as Geertz reminds us, not only as a means of communication but above all as a means of thought.<sup>97</sup> Faced with an unfamiliar context and still less immediately recognizable images such as those of prehistoric rock and mobiliary art, it is admittedly not always easy to see these drawings as significant symbols and as vehicles of thought about terrestrial, celestial, or cosmological space.

This chapter, as a summary of accessible knowledge, is designed to point out further research directions and to structure future dialogue. The starting points are encouraging. For in Asia there is the rich bonus of the ethnographic literature and the illumination this offers of the cartographic images found in the prehistoric rock art record. There is also the promise of discoveries yet to come. But even with the present state of knowledge, it is clear that in Asia, as in Europe and other parts of the world, the history of the human mapping impulse starts extremely early.

92. A. P. Okladnikov, *Yakutia before Its Incorporation into the Russian State*, ed. Henry N. Michael (Montreal: McGill-Queen's University Press, 1970), 212, referring to V. Vitashevskiy, ed., “Izobrazheniya na skalkh po r. Olekme” (Drawings on the cliffs along the Olekma River), *Izvestiya Vostochno-Sibirskago Otdela Imperatorskago Russkago Geograficheskago Obschestva* (East Siberian department of the Imperial Russian Geographical Society's News) 28, no. 4 (1897).

93. Okladnikov, *Yakutia*, 212 (note 92), referring to N. B. Kyakshto, “Pisanitsa Shaman-Kamnya” (The cliff drawings of Shaman-Kamnya), *Soobshcheniya Gosudarstvennoy Akademii Istorii Materialnoy Kul'tury* (GAIMK: Report of the State Academy for the History of Material Culture), July 1931, 29–30. Okladnikov identified the cliff drawings as those of the “Shaman-Kamnya” (stone) on which are depicted “animals, hunting scenes, the sun, moon, and stars, the sun being given features of the human face” (450 n. 22).

94. A. P. Okladnikov and A. I. Martynov, *Sokrovishcha tomskikh pisanits* (Treasures of the Tomsk petroglyphs) (Moscow, 1972), 252.

95. As summarized by Delano Smith, “Prehistoric Maps,” 45–49 (note 1).

96. Joseph Michael Powell, *Mirrors of the New World: Images and Image-Makers in the Settlement Process* (Folkestone, Eng.: Dawson; Hamden, Conn.: Archon Books, 1977), 18, makes this point, developing the ideas of Kenneth Ewart Boulding, *The Image* (Ann Arbor: University of Michigan Press, 1956).

97. Clifford Geertz, *Local Knowledge: Further Essays in Interpretive Anthropology* (New York: Basic Books, 1983), 120.

## APPENDIX 1.1 LIST OF PREHISTORIC MAPS

This appendix enumerates, with locations and citations to the relevant literature, the sites and artifacts in which cartographic representations have been identified. References included in this list are only those where a cartographic interpretation has been suggested or commented on; the general literature is cited in the text. The identification of maps included here has been derived from a variety of disciplines, and in some cases their interpretation may be still regarded as controversial. This seems an appropriate juncture, however, to set out this corpus as a basis for future discussion and elaboration.

| Number of Map,<br>Province, State, or<br>County | Commune and/or Locality ( <i>italics</i><br>indicate the usual name in the<br>literature); Description; Nature of Site;<br>Type of Markings; Map Type; Date | Measurements          | Reference; Observations; Figure<br>Number in Text (if illustrated)   |
|---|---|-----------------------|--|
| 1 Yunnan Province,<br>China                     | <i>Cangyuan</i> ; cliff face; picture map; first<br>millennium B.C.   | 1.8 × 3.2 m           | Wang, <i>Yunnan Cangyuan</i> , 35; Chen,<br><i>Cina</i> , 102–3; figure 1.4                                    |
| 2 Madhya Pradesh,<br>Bhopal District,<br>India  | <i>Jaora</i> ; rock shelter; painting;<br>cosmological map; Mesolithic (8000–<br>2500 B.C.)   |                       | Neumayer, <i>Rock Paintings</i> , 14 and fig.<br>26e; figure 1.13  |
| 3 Hövsgöl Province,<br>Mongolia                 | <i>Dood-Chulgan</i> ; rock; painting; plan map<br>("grave plan"); prehistoric   |                       | Novgorodova, <i>Alte Kunst der<br/>Mongolei</i> , pl. 72; figure 1.7b  |
| 4 Hövsgöl Province,<br>Mongolia                 | <i>Dood-Chulgan</i> ; rock; painting; plan map<br>("grave plan"); prehistoric   |                       | Novgorodova, <i>Alte Kunst der<br/>Mongolei</i> , pl. 71   |
| 5 Hövsgöl Province,<br>Mongolia                 | <i>Dood-Chulgan</i> ; rock; painting; plan map<br>("grave plan"); prehistoric   |                       | Novgorodova, <i>Alte Kunst der<br/>Mongolei</i> , 104  |
| 6 Hövsgöl Province,<br>Mongolia                 | <i>Hövsgöl-Nuur</i> ; rock; painting; plan map<br>("grave plan"); prehistoric   | approx. 70 ×<br>35 cm | Okladnikov, <i>Petroglify Mongolii</i> , 88<br>(fig. 2); figure 1.7a   |
| 7 Töv Province,<br>Mongolia                     | <i>Gachurt</i> ; rock; painting; plan map<br>("grave plan"); Bronze Age   |                       | Novgorodova, <i>Mir petroglifov<br/>Mongolii</i> , 92 (fig. 33); figure 1.7e                                   |
| 8 Töv Province,<br>Mongolia                     | <i>Gachurt</i> ; rock; painting; plan map<br>("grave plan"); prehistoric  |                       | Novgorodova, <i>Mir petroglifov<br/>Mongolii</i> , 93 (fig. 34); figure 1.7d                                   |
| 9 Töv Province,<br>Mongolia                     | <i>Ich-Tengerin-Am</i> ; rock; painting; plan<br>map ("grave plan"); prehistoric  | approx. 50 ×<br>55 cm | Okladnikov and Zaporozhskaya ,<br><i>Petroglify Zabaykal'ya</i> , 2:238 (fig.<br>67.2); figure 1.7c            |
| 10 Töv Province,<br>Mongolia                    | <i>Ich-Tengerin-Am</i> ; rock; painting; plan<br>map ("grave plan"); prehistoric  |                       | Okladnikov, <i>Der Hirsch</i> , 148 (fig. 41);<br>figure 1.8   |
| 11 Unknown                                      | Rock; painting; plan map ("grave plan");<br>prehistoric   |                       | Okladnikov and Zaporozhskaya,<br><i>Petroglify Zabaykal'ya</i> , cover<br>illustration of vol. 1; figure 1.7f  |
| 12 Tuva Republic                                | <i>Mugur-Sargol</i> ; stone 198; rock;<br>petroglyph; plan map ("hut and yards");<br>prehistoric  | approx. 10 ×<br>25 cm | Devlet, <i>Petroglify Ulug-Khema</i> , 52;<br>Devlet, <i>Petroglify Mugur-Sargola</i> , 143;<br>figure 1.5a(1) |
| 13 Tuva Republic                                | <i>Mugur-Sargol</i> ; stone 283; rock;<br>petroglyph; plan map ("hut and yards");<br>prehistoric  | approx. 10 ×<br>25 cm | Devlet, <i>Petroglify Ulug-Khema</i> , 74;<br>Devlet, <i>Petroglify Mugur-Sargola</i> , 205;<br>figure 1.5a(4) |
| 14 Tuva Republic                                | <i>Mugur-Sargol</i> ; stone 198; petroglyph;<br>plan map ("hut and yards"); prehistoric   |                       | Devlet, <i>Petroglify Ulug-Khema</i> , 52;<br>Devlet, <i>Petroglify Mugur-Sargola</i> , 143;<br>figure 1.5b(3) |

APPENDIX 1.1 (*continued*)

| Number of Map, Province, State, or County | Commune and/or Locality ( <i>italics</i> indicate the usual name in the literature); Description; Nature of Site; Type of Markings; Map Type; Date | Measurements       | Reference; Observations; Figure Number in Text (if illustrated)  |
|---|--|--------------------|--|
| 15 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 257; petroglyph; plan map (“hut and yards”); prehistoric   | 40 × 55 cm         | Devlet, <i>Petroglify Ulug-Khema</i> , 65; Devlet, <i>Petroglify Mugur-Sargola</i> , 195; it is illustrated with an attached line that could represent a path aligned with trees, posts, or other features |
| 16 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 257; petroglyph; plan map (“hut and yards”); prehistoric   | 38 × 30 cm         | Devlet, <i>Petroglify Ulug-Khema</i> , 65; Devlet, <i>Petroglify Mugur-Sargola</i> , 195   |
| 17 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 283; petroglyph; plan map (“hut and yards”); prehistoric   | 20 × 36 cm         | Devlet, <i>Petroglify Ulug-Khema</i> , 75; Devlet, <i>Petroglify Mugur-Sargola</i> , 205; figure 1.5a(2)   |
| 18 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 283; petroglyph; plan map (“hut and yards”); prehistoric   | 15 × 30 cm         | Devlet, <i>Petroglify Ulug-Khema</i> , 75; Devlet, <i>Petroglify Mugur-Sargola</i> , 205   |
| 19 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 283; rock; petroglyph; plan map (“hut and yards”); prehistoric   |                    | Devlet, <i>Petroglify Ulug-Khema</i> , 73; Devlet, <i>Petroglify Mugur-Sargola</i> , 205   |
| 20 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 283; petroglyph; plan map (“hut and yards”); prehistoric; a comparatively large group                                  |                    | Devlet, <i>Petroglify Ulug-Khema</i> , 74; Devlet, <i>Petroglify Mugur-Sargola</i> , 205; figure 1.5b(1)   |
| 21 Tuva Republic                          | <i>Mugur-Sargol</i> ; stone 283; petroglyph; plan map (“hut and yards”); prehistoric   | 65 × 90 cm         | Devlet, <i>Petroglify Ulug-Khema</i> , 74; Devlet, <i>Petroglify Mugur-Sargola</i> , 205; figure 1.5b(2)   |
| 22 Tuva Republic                          | <i>Mugur-Sargol</i> ; rock; petroglyph; plan map (“hut and yards”); prehistoric  | approx. 20 × 30 cm | Devlet, <i>Petroglify Ulug-Khema</i> , in fig. 16; Devlet, <i>Petroglify Mugur-Sargola</i> , 234 (fig. 17.2); figure 1.5a(3)   |

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