

# 16 • Introduction to Southeast Asian Cartography

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For this history, Southeast Asia is defined as the portion of mainland Asia to the south of China and between India and Vietnam, together with that portion of insular Asia in which Malay peoples predominate (fig. 16.1). Hence it comprises the whole of Burma (Myanmar), Thailand, Laos, and Cambodia, an area within which Hinayana (Theravada) Buddhism is the dominant faith, and the Malay world—Malaysia, most of Indonesia, Brunei, and the Philippines—within which Islam and Christianity have come to be the leading religions. Vietnam is excluded because of its cultural affinity to China, an affinity that is strongly reflected in its rich cartographic heritage (see chap. 12).

Southeast Asia, as here defined, shows relatively little unity with regard to the surviving corpus of its premodern indigenous maps. To treat the entire region together in this history is, to a considerable extent, an editorial convenience that reflects the division of labor among the contributors to this work. There are, to be sure, certain commonalities in the widespread cosmographic artifacts (architectural and cartographic) that reflect the related Hindu and Buddhist worldviews. There are also similarities among the many terrestrial maps from Burma and the few from Thailand. There is, however, relatively little similarity between the maps of those two countries and the handful of surviving maps from the Malay world. Even more remarkably, within the latter area there is almost no similarity from one map to another. Finally, one must note that for certain countries, most notably the Philippines, but also Laos and Cambodia, not a single indigenous, premodern noncosmographic map is known to have survived to the present day.

Apart from certain cosmographic aspects of architecture and some maplike bas-reliefs on temple friezes, there is no surviving map from Southeast Asia dating from before the sixteenth century. Hence, despite a few references in the literature to earlier works, all of the existing corpus dates from the period after the advent of the Portuguese. Almost all the maps we know of date from the eighteenth century or later. Nevertheless, in most of what I shall discuss in this and subsequent chapters, there is little, apart from maritime maps, that points to the diffusion of cartographic ideas from the West. This con-

trasts markedly with the situation respecting influences from China, which appear to be present in many maps from Burma and Thailand. Regrettably, however, I am aware of nothing in the literature that makes it clear when and how Chinese cartographic concepts were transmitted.

In the rest of this chapter I shall discuss first the state of knowledge with respect to the indigenous cartography of Southeast Asia and then the nature of the surviving corpus. The next chapter relates to cosmography, and there I will treat both the dominant cosmographic ideas and their expression in two-dimensional maps and in other forms, including works of architecture and the layout of cities. Chapter 18 will be devoted mainly to terrestrial maps: topographic maps, route maps, town plans, and a few examples of other genres. The few surviving maritime maps and their largely Western antecedents are discussed in chapter 19. A brief concluding chapter will evaluate the surviving corpus and suggest lines for future research.

## THE STATE OF OUR KNOWLEDGE

Many of the observations made concerning the meagerness of the relevant literature on South Asian cartography (which was discussed in volume 2, book 1 of *The History of Cartography*) apply with equal, if not greater, force to maps of Southeast Asia. This region too is virtually ignored by most cartographic historians. Bagrow, for example, devotes only a single paragraph to Southeast Asia, which I quote in full:

Maps from Siam, Cambodia and the Malay Archipelago are also unknown in Europe. Such maps must have existed, however: Affonso d'Albuquerque, governor of India, wrote to the King of Portugal in 1512 that he was sending him a copy of a large map made by a Javanese pilot, showing the Indian Ocean from the Cape of Good Hope, with the Red Sea, the Persian Gulf, the Moluccas, and the sea-routes to China and Formosa, as well as land routes in the interior. The Javanese were experienced sailors: in 1513 the King of Djapara alone had a fleet of 80 warships. Unfortunately, nothing is known of their maps, and there

is little hope that anything will ever be discovered, because the palm-leaves from which they were made are not very durable.<sup>1</sup>

Why Bagrow (writing sometime before 1943) failed to note Burma, Laos, and what is now Vietnam under the heading “Southeast Asia” is not clear. Conceivably he still considered Burma a part of India, despite its having been made a separate crown colony in 1937. Vietnam he might have considered, as we do in this volume, a cultural extension of China. Similarly, Laos might have been regarded merely as a cultural appendage of Siam. But since no maps of those areas are mentioned in his discussions of either China or India, we may assume that he was totally ignorant of any surviving maps from Southeast Asia, as we have defined the region, even though a number of relevant publications had appeared in European journals by the time his history was compiled. Additionally, there already existed in European libraries maps from Southeast Asia that had not yet been the objects of scholarly study.

Bagrow erred also in stating that “there is little hope that anything will ever be discovered” because Southeast Asian maps were made from palm leaves and hence were fragile. (Where he obtained such faulty information is not indicated.) Although some maps were indeed made on palm leaves, we now know that most were not. What makes Bagrow’s concluding observation unfortunate is not merely its factual inaccuracy but, more important, the dampening effect it presumably exerted on the search for indigenous Southeast Asian maps by other scholars. This criticism may also be applicable, though in lesser degree, to the author of the article on cartography in the Dutch *Encyclopaedie van Nederlandsch-Indië*, who observed, probably erroneously, that “there are no [surviving] Javanese or indigenous maps from the pre-Dutch period.”<sup>2</sup>

Whether later historians of cartography, such as Brown, Crone, and Kish, took their cues from Bagrow is not clear; but it is noteworthy that none mentions Southeast Asian indigenous maps.<sup>3</sup> Unno, however, has brought to my attention maps from Burma, Thailand, Vietnam, and Indonesia.<sup>4</sup> The Indonesian examples include two no-longer-extant Javanese maps: the one noted by Bagrow, which is described in Albuquerque’s missive of about 1512 to the king of Portugal, and another presented by a Javanese prince to a Mongol military commander in 1293 to signify his submission to Mongol rule. There is also a surviving Javanese map, allegedly dating from the sixteenth century, that was brought to light by an Indonesian geologist, Rachmat Kusmiadi, and subsequently illustrated in Harvey’s *History of Topographical Maps*.<sup>5</sup> But it appears that neither Kusmiadi, Unno, nor Harvey was aware that the map was

discovered as early as 1858 and that a Dutch philologist, K. F. Holle, had translated its detailed Sundanese text and published a paper on it in 1877, a full century before Kusmiadi’s presentation.<sup>6</sup>

Long before Holle’s article, however, a series of descriptions and engraved copies of Burmese maps were presented by Francis Hamilton (formerly Buchanan; 1762–1829) in the *Edinburgh Philosophical Journal* (from 1821 to 1824) and then in the *Edinburgh Journal of Science* (1824).<sup>7</sup> Hamilton had collected several dozen such works during a sojourn in Burma in 1795 and was later to collect additional indigenous maps in India and Nepal and to gain distinction as the pioneer compiler of district gazetteers in India. He was, so far as I am aware, the first European to provide scholarly descriptions of indigenous maps from Southeast Asia.

After Hamilton, several other British collectors, most notably Henry Burney (1792–1845) and James George Scott (1851–1935), also acquired substantial numbers of indigenous maps in Burma.<sup>8</sup> Burney, an excellent scholar of Eastern languages and cultures, was the first permanent British resident at the Burmese court (1830–38) and also served earlier in Thailand and the Malay States. Scott, who first went to Burma as a war correspondent in 1884, became the British resident in the Northern and Southern Shan States and served continuously in Burma and Thai-

1. Leo Bagrow, *History of Cartography*, rev. and enl. R. A. Skelton, trans. D. L. Paisey (Cambridge: Harvard University Press; London: C. A. Watts, 1964; reprinted and enlarged Chicago: Precedent Publishing, 1985), 208.

2. Frederik Caspar Wieder, “Oude Kaartbeschrijving” section in “Kaartbeschrijving,” in *Encyclopaedie van Nederlandsch-Indië*, 8 vols. (The Hague: Martinus Nijhoff, 1917–40), 2:227–36; quotation on 229.

3. Lloyd A. Brown, *The Story of Maps* (Boston: Little, Brown, 1949; reprinted New York: Dover, 1979); Gerald Crone, *Maps and Their Makers: An Introduction to the History of Cartography* (London: Hutchinson University Library, 1953, and four subsequent editions up to 1978); and George Kish, *La carte: Image des civilisations* (Paris: Seuil, 1980).

4. I would like to thank Kazutaka Unno for communicating this information.

5. Rachmat Kusmiadi, “A Brief History of Cartography in Indonesia” (paper presented at the Seventh International Conference on the History of Cartography, Washington, D.C., 7–11 August 1977), 1–3; P. D. A. Harvey, *The History of Topographical Maps: Symbols, Pictures and Surveys* (London: Thames and Hudson, 1980), 114.

6. K. F. Holle, “De Kaart van Tjiëla of Timbangantën,” *Tijdschrift voor Indische Taal-, Land- en Volkenkunde* 24 (1877): 168–76, and endcover folding map.

7. The maps appeared in thirteen separate articles; full citations are provided in chapter 18 and in the Bibliographical Index.

8. For biographical details, see Thaug Blackmore, *Catalogue of the Burney Parabaiks in the India Office Library* (London: British Library, 1985); and Andrew Dalby and Sao Saimōng Mangrai, “Shan and Burmese Manuscript Maps in the Scott Collection, Cambridge University Library” (unpublished manuscript, n.d. [ca. 1984]), 15 pages and catalog (47 pp.) with 39 figs. and 8 pls.



land from 1891 until his retirement in 1910. Many of the maps he collected were Shan maps, made at his behest. Though these maps were from an area of Burma, they relate to a culture that is more Thai than Burmese. Neither Burney nor Scott is known to have written about the maps he collected (though both wrote extensively about other matters), and it was not until about 1979–85 that any sort of public record of their coverage was made. This was thanks to the efforts of Patricia Herbert, who cataloged the Burney papers at the Library of the Royal Commonwealth Society, and to Andrew Dalby and Shan historian Sao Saimöng Mangrai, who performed a similar service for the Scott Collection at Cambridge University.<sup>9</sup>

Following Burmese independence, historians within that country also demonstrated an interest in its cartographic heritage. Many maps that might otherwise have been consigned to oblivion were collected and preserved by members of the Burmese Historical Commission, most notably U Maung Maung Tin and Than Tun. But little of what they found, as far as I know, has been discussed in published accounts. A noteworthy exception is the lucid exposition of King Mindon Min's plan of about 1850 for the development of a new Burmese capital at Mandalay.<sup>10</sup> Whether other such discussions exist in Burmese is not known.

Premodern indigenous Thai maps are much fewer than for either Burma or Vietnam. Nevertheless, several valuable works on that limited corpus have appeared: a brief study by Wenk on the illustrated geographic portion of the *Traibhūmikathā* (Story of three worlds), a Thai cosmological text (Thai *Trai phum*); an exceptionally thorough study by Kennedy of an early nineteenth-century military map of northeastern Thailand; and an outline history by Freitag of Thai cartography of both the premodern and modern periods.<sup>11</sup> This last work is the only study of any country of Southeast Asia by a historian of cartography that has any claim to comprehensiveness, apart from Quirino's study of Philippine cartography, which, in the absence of old indigenous maps, relates entirely to foreign (either Chinese or European) and modern works.<sup>12</sup>

Surviving maps of the Malay world are very few, and the literature relating to them is meager. Not counting discussions of cosmographic works, to be considered below, only a few maps have been the subject of scholarly articles. Of these, I have already noted the commentaries of Holle and Kusmiadi on a supposed sixteenth-century Javanese map. One other undated Javanese, or possibly Balinese, map that has been the object of some study appears on a batik shawl that is described in a 1933 catalog.<sup>13</sup> From the aboriginal Sakai tribe of peninsular Malaysia come a number of bamboo artifacts inscribed with diverse and enigmatic drawings that have been inter-

preted as locality maps and explained in considerable detail by the ethnographer Hrolf Vaughan Stevens.<sup>14</sup> Apart from these works, there are published commentaries on maps that are either copied from or strongly influenced by European prototypes. The former include several early nineteenth-century Buginese sea charts of the greater part of Southeast Asia that are discussed at considerable length in an exemplary study by Le Roux. The latter, a supposed early eighteenth-century map of the Malay Peninsula, was described by Phillimore in *Imago Mundi*.<sup>15</sup>

This list of sources, although not exhaustive, does cover the principal known published references to surviving indigenous Southeast Asian maps that are not essentially cosmographic in nature. Asian cosmography, however, is a subject to which historians of cartography have as yet given scant attention. For commentaries on

9. Parts of Herbert's catalog appear as an appendix to the work by Blackmore, *Burney Parabaiks* (note 8); but this appendix mentions no maps, in contrast to an unpublished portion of the catalog available at the Royal Commonwealth Society in London. The paper by Dalby and Saimöng, "Shan and Burmese Manuscript Maps" (note 8), provides descriptions of the maps in the Scott Collection. I extend my gratitude to both Herbert and Dalby for their exceptional kindness in helping me locate and understand Burmese and Shan maps. The personal introductions Herbert arranged were of invaluable assistance.

10. U Maung Maung Tin and Thomas Owen Morris, "Mindon Min's Development Plan for the Mandalay Area," *Journal of the Burma Research Society* 49, no. 1 (1966): 29–34.

11. Klaus Wenk, "Zu einer 'Landkarte' Sued- und Ostasiens," in *Felicitacion Volumes of Southeast-Asian Studies Presented to His Highness Prince Dhaninivat Kromamun Bidyalabh Bhidhyakorn . . . on the Occasion of His Eightieth Birthday*, 2 vols. (Bangkok: Siam Society, 1965), 1:119–22 with 1 pl.; Victor Kennedy, "An Indigenous Early Nineteenth Century Map of Central and Northeast Thailand," in *In Memoriam Phya Anuman Rajadon: Contributions in Memory of the Late President of the Siam Society*, ed. Tej Bunnag and Michael Smithies (Bangkok: Siam Society, 1970), 315–48 and 11 appended maps; and Ulrich Freitag, "Geschichte der Kartographie von Thailand," in *Forschungsbeiträge zur Landeskunde Süd- und Südostasiens*, Festschrift für Harald Uhlig zu seinem 60. Geburtstag, vol. 1, ed. E. Meynen and E. Plewe (Wiesbaden: Franz Steiner, 1982), 213–32; see also Klaus Wenk, *Thailändische Miniaturmalereien nach einer Handschrift der indischen Kunstabteilung der Staatlichen Museen Berlin* (Wiesbaden: Franz Steiner, 1965), 64 and pl. XI.

12. Carlos Quirino, *Philippine Cartography (1320–1899)*, 2d rev. ed. (Amsterdam: Nico Israel, 1963).

13. Koninklijk Instituut voor de Tropen, *Aanwinsten op ethnografisch en anthropologisch gebied van de Afdeling Volkenkunde van het Koloniaal Instituut over 1933*, Afdeling Volkenkunde 6 (Amsterdam, 1934), 24–26.

14. Hrolf Vaughan Stevens, "Die Zaubermuster der Örang hütan," pt. 2, "Die 'Toon-tong'-Ceremonie," *Zeitschrift für Ethnologie* 26 (1894): 141–88 and pls. IX and X.

15. C. C. F. M. Le Roux, "Boegineesche zeekaarten van den Indischen Archipel," *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, 2d ser., 52 (1935): 687–714 and folding map, and Reginald Henry Phillimore, "An Early Map of the Malay Peninsula," *Imago Mundi* 13 (1956): 175–79.

representations of the cosmos, beyond the realm of mortals, we must rely mainly on ethnographers, students of religion, and art historians. In the case of Southeast Asia, where all the major religions are exogenous, much of the basic cosmological research has been done mainly in and on other areas, especially India, the hearth of Hinduism and Buddhism, which jointly held sway in the region for most of its recorded history.<sup>16</sup>

So far as I am aware, the earliest published images of the Buddhist cosmos are the facsimiles of Burmese and Laotian representations of the universe that appear in Bastian's *Ideale Welten* (1892).<sup>17</sup> A set of more generalized drawings by Bastian attempts to elucidate the major components of the Hinayana Buddhist cosmos.<sup>18</sup> At about the same time, Gerini provided a detailed drawing of the Cakravāla, the central portion of the cosmos, as conceived by the Thais and reconstructed (three-dimensionally and on a grand scale) for the performance, over the period of one week (25 December 1892 to 1 January 1893), of the sacred tonsure ceremony.<sup>19</sup> Yet another seminal work of this period was Temple's *Thirty-seven Nats*, which shows the interplay of Burmese spirit worship and popular Buddhism and includes one cosmographic world map.<sup>20</sup> Additional illustrated discussions of Southeast Asian Buddhist cosmographies do not appear, as far as I know, until after World War II. Some of these will be introduced in their appropriate contexts in the following chapter.

Attempts to understand the cosmological systems of the numerous tribal peoples of Southeast Asia are relatively recent. Although many anthropological studies of the postcolonial period address the subject, and some even make it a dominant concern, reproductions of visual representations of major portions of the cosmos, as conceived by animistic tribal people, are not abundant. Particularly noteworthy in this regard, however, is the pioneering work of the Swiss missionary-ethnographer Hans Schärer, who first brought to light maps associated with the mortuary cult of the Ngaju Dayaks of interior Borneo.<sup>21</sup> Other scholars have since shed additional light on similar practices among other Dayak groups; but for no other part of the Malay Archipelago have cosmographic artifacts emerged that one would clearly identify as maps. Anthropologists have, however, imputed cosmographic significance to the spatial arrangements of houses, villages, and even petty states in various localities of Indonesia.<sup>22</sup>

### THE NATURE OF THE SOUTHEAST ASIAN CARTOGRAPHIC CORPUS

We do not know when maps were first made in Southeast Asia. No early cave paintings or other prehistoric archaeological remains that include maplike elements have

come to light in the region. Nor do we know of any ancient historical texts that make explicit references to what one might consider a map, even though many Hindu and Buddhist texts rich in cosmographic and geographic detail—the Indian epics, the Puranas, the Jataka tales, and so forth—have become a part of the literary heritage of the Indianized portions of Southeast Asia. Similarly, I am unaware of any wholly indigenous literature of the period before the advent of Europeans that makes reference to maps. Although it might not seem unreasonable to assume that early Indian migrants to Southeast Asia, dating as far back as the late first millennium B.C., brought with them some of the limited cartographic competence that then existed in their home countries, there is neither tangible nor textual evidence to support such a supposition. Nor do we have firm evidence of the transfer of cartographic skills from China to the lands to its south, not even during the Mongol expansion into those two areas in the thirteenth century. It may also seem reasonable to suppose that Indonesians, who settled Madagascar about the beginning of the Christian Era and remained in maritime contact with that island until the fifteenth century, must have developed some sort of nautical charts as navigational aids; but again no supporting evidence survives.

One must turn then to architecture for the first unequivocal visual representations of cosmographic ideas in Southeast Asia. Royal Hindu temples, essential symbols of political power in the many Indianized states of the region, were centered on shrines representing Mount Meru, the cosmic *axis mundi*. The earliest such temples

16. For research on South Asian cosmology, see Joseph E. Schwartzberg, "Cosmographical Mapping," in *The History of Cartography*, ed. J. B. Harley and David Woodward (Chicago: University of Chicago Press, 1987–), vol. 2.1 (1992), 332–87.

17. Adolf Bastian, *Ideale Welten nach uranographischen Provinzen in Wort und Bild: Ethnologische Zeit- und Streitfragen, nach Gesichtspunkten der indischen Völkerkunde*, 3 vols. (Berlin: Emil Felber, 1892), vols. 1 and 3.

18. Adolf Bastian, "Graphische Darstellung des buddhistischen Welt-systems," *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*, 1894, 203–15 and pls. 3–7, in *Zeitschrift für Ethnologie*, vol. 26.

19. Gerolamo E. Gerini, *Chūlakantamaṅgala; or, The Tonsure Ceremony as Performed in Siam* (Bangkok: Siam Society, 1976; first published in 1895), diagram 1 (facing p. 136).

20. Richard C. Temple, *The Thirty-seven Nats: A Phase of Spirit-Worship Prevailing in Burma* (London: W. Griggs, 1906); world map facing 8. There is also a new edition with an essay and bibliography by Patricia M. Herbert (London: P. Strachan, 1991).

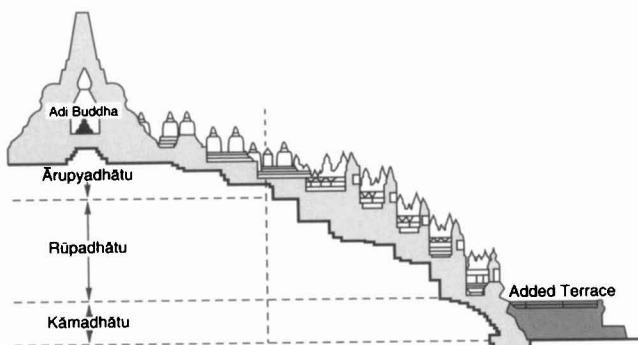
21. Hans Schärer, *Die Gottesidee der Ngaju Dajak in Süd-Borneo* (Leiden: E. J. Brill, 1946), English translation, *Ngaju Religion: The Conception of God among a South Borneo People*, trans. Rodney Needham (The Hague: Martinus Nijhoff, 1963); and idem, "Die Vorstellungen der Ober- und Unterwelt bei den Ngaju Dajak von Süd-Borneo," *Cultureel Indië* 4 (1942): 73–81.

22. See the discussion below, pp. 739–40.



FIG. 16.2. BOROBUDUR. This great Mahayana Buddhist “temple mountain” was constructed in central Java. It comprises five more or less square terraces of gradually diminishing size over a large square plinth, surmounted in turn by three diminishing circular terraces surrounding a large circular stupa. The entire edifice symbolizes the unity of the cosmos, with the Buddhist transition from the low states of reality toward the base, through various increasingly exalted psychological states, to the blissful condition of enlightenment at the summit. Carvings in stone on the walls of each terrace depict the acts that contribute to or detract from merit at various stages of existence. At the lower levels the scenes represent mundane subjects, and at higher levels the subject matter is increasingly metaphysical. Of a design inspired by Indian stupas, Borobudur was the likely source of inspiration for the numerous temple mountains built at Angkor.

Photograph courtesy of Robert Harding Picture Library Limited, London. Drawing after Philip Rawson, *The Art of South-east Asia* (London: Thames and Hudson, 1967), 224–25.



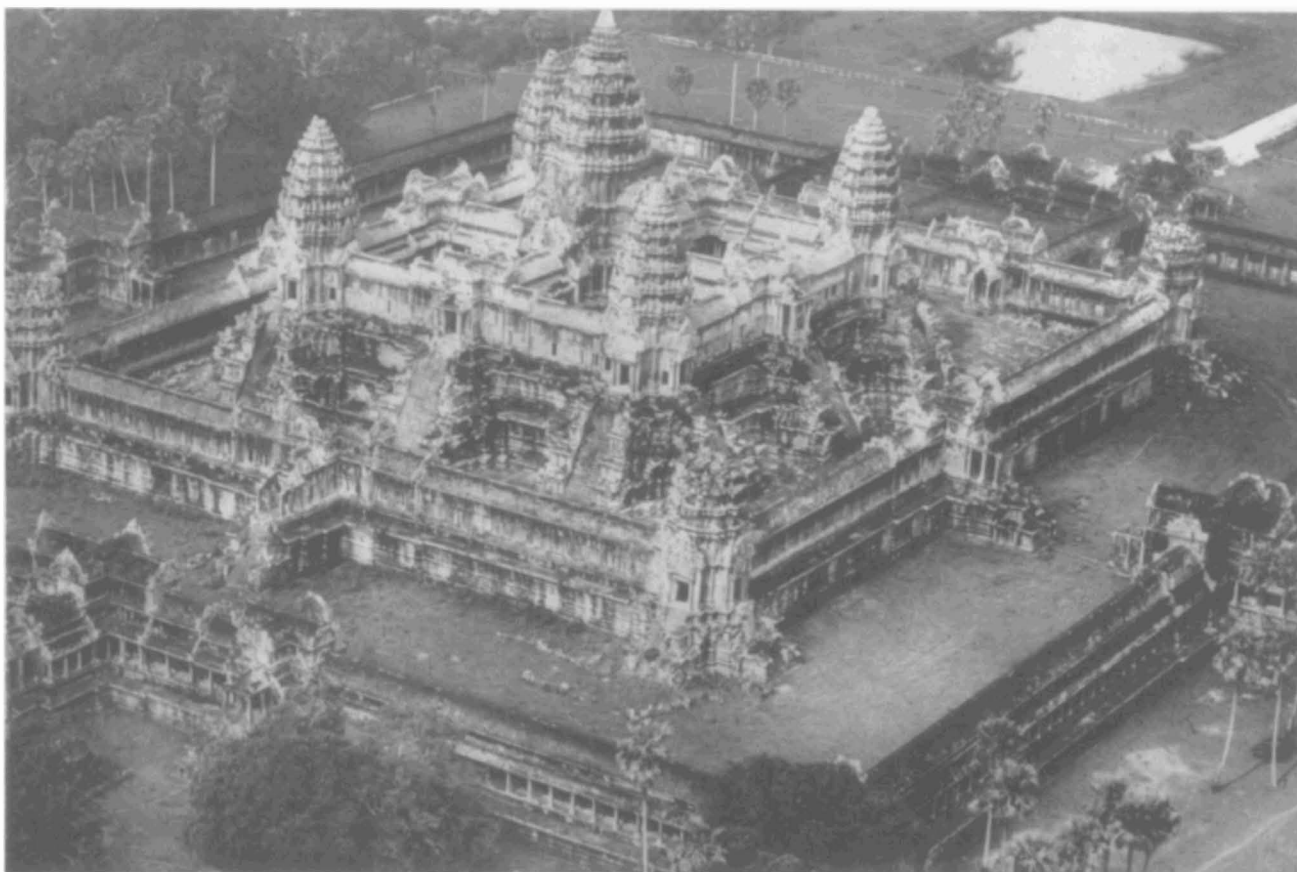


FIG. 16.3. ANGKOR WAT. An enormous structure (1,550 m long  $\times$  1,400 m wide), this essentially Vaishnavite Hindu “temple mountain,” built in the first half of the twelfth century, was one among many constructed by Khmer monarchs to symbolize their divinity and universal dominion. Its central tower represents Mount Meru and its surrounding moat the encompassing ocean. More than a mile of sculpted bas-relief adorns the friezes at various levels of the temple and illustrates a wide range of

surviving are in Java and date from the seventh century. Buddhist temples, incorporating similar cosmological principles, go back at least as far as the late eighth century. Borobudur, the greatest of all Javanese Buddhist temples (fig. 16.2), was constructed about 800, and the Lara Janggrang Temple, the most renowned of Javanese Hindu edifices, was built at Prambanan about 900–930. On the mainland, shortly thereafter, the foundations were laid for the magnificent temple complex at Angkor. There each successive Khmer monarch built one or more of his own temple mountains, culminating in the construction of the Vaishnavite Angkor Wat (fig. 16.3) in the first half of the twelfth century and the even more extensive Mahayana Buddhist Angkor Thom and Bayon assemblages (ca. 1200). Thai conquest of the Khmers in the late thirteenth century, the area’s conversion to Hinayana Buddhism, already dominant in lands farther to the west, and other factors brought an end to such grandiose proj-

mundane and mythological themes, prominent among which is that of the god-king as the giver of water and source of fertility. The Hindu cosmogonic myth of serpents wrapped around Mount Meru and used as ropes to churn the world ocean is also rendered in massive sculpture.

From George Groslier, *Angkor*, 2d ed. (Paris: Librairie Renouard, 1931), fig. 80.

ects. But whether Hindu, Mahayana Buddhist, or Hinayana Buddhist (the traditions were often blended), Southeast Asian religious architecture retained a strong cosmographic symbolism. Among Hinayana Buddhists, the dominant form became the *chetiya*, a variant of the South Asian stupa, also symbolizing Mount Meru. Since literature on the subject is voluminous and readily accessible, there is little point in trying to summarize here the development of Southeast Asian architecture, even in regard to its strictly cosmographic aspects.

Some architectural assemblages were intended as reconstructions of the sacred geography of the group of sites in and around Bodh Gaya in northeastern India, where the Buddha attained enlightenment.<sup>23</sup> At least four attempts were made to recreate, more or less faithfully,

23. See, for example, Donald M. Stadtner, “King Dhammaceti’s Pegu,” *Orientalia* 37, no. 2 (1990): 53–60.

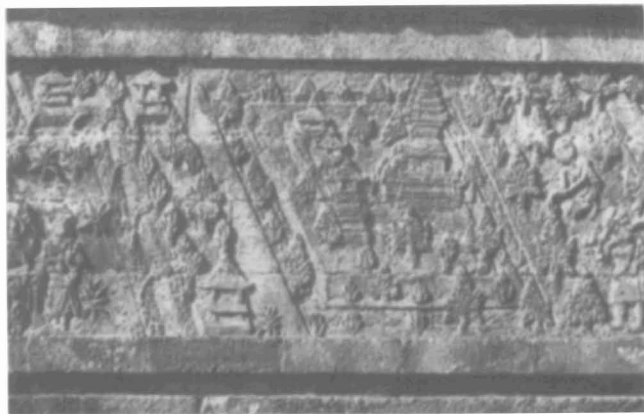


FIG. 16.4. BAS-RELIEF PLAN OF A JAVANESE TEMPLE COMPOUND. This plan, sculpted in stone, appears on the north wall of Jawi Temple, constructed in central Java in the late thirteenth century.

Size of the bas-relief: ca. 30 × 70 cm. From Jacques Dumarçay, "Notes d'architecture Javanaise et Khmère," *Bulletin de l'École Française d'Extrême-Orient* 71 (1982): 87–147, esp. pl. 11.

the great temple at Bodh Gaya that the Mauryan emperor Aśoka is believed to have had built in the third century B.C. These include temples built at Pagan and Pegu, in Burma, in the thirteenth and fifteenth centuries, respectively, and two in the northern Thai towns of Chiang Mai and Chiang Rai, also built in the fifteenth century.

While the chronicles in Thailand are silent about where Tiloka [the king responsible for building the two Thai reconstructions] obtained his temple plans, those in Burma that mention King Dhammacetiya's copy—built in Pegu at almost the same time as Tiloka's—specifically state that he sent a large group of artisans to Bodhgaya to make plans and models.<sup>24</sup>

Apart from their architectonic aspect, temples were interesting for their sculptural details and their mural painting. Much of this painting in relatively recent temples, as I shall note in the next chapter, is itself cosmographic; and it seems virtually certain that a tradition of such painting goes back many centuries. But because painting seldom lasts more than a few hundred years, I can point to no good examples of very old mural cosmographies.<sup>25</sup> Sculptural detail on Southeast Asian temples ranged over a wide variety of themes, both secular and religious. Some bas-reliefs appear to present bird's-eye views of scenes including temples, courtyards, villages, cultivated fields, and occasionally streams and other natural features. In the absence of a systematic inventory of Southeast Asian temple sculpture, I cannot venture an opinion on the frequency of such maplike images, though they do not appear to have been common. Figures 16.4 and 16.5 present examples from late thirteenth- and fourteenth-century Java.

The pervasive Buddhist concern with cosmology found

expression in the illustrations that accompanied literary texts. One such text, the *Traibhūmikathā* or *Trai phum*, allegedly adapted from the Sri Lankan Pali canon by the Thai king Phra Ruang in 1345, describes in great detail the structure of the three worlds and thirty-one realms composing the universe. Some of the surviving recensions (no complete copy predates the eighteenth century) are profusely illustrated. In fact the illustrations may take up far more space than the accompanying text. Whether the original and other early recensions were similarly adorned is not known, but it is reasonable to suppose that some were.<sup>26</sup>

Cosmographies were also prepared in other forms: in paintings, on palm-leaf manuscripts, as three-dimensional sculptures, as decorations on furniture, and presumably, if contemporary practice in South Asia may be taken as a guide, in various types of folk art. Gates and other temple structures, together with temple compounds in Bali, are characteristically carved to represent Mount Meru and its several flanking ranges. In Powun-daung (Powin Taung), on the lower Chindwin River of Upper Burma, there is a group of cave temples dating from the ninth to the twentieth century; on the exterior of one of them (date unspecified), a cross-sectional representation of Mount Meru and its flanking ranges is sculpted in an ensemble eight meters high.<sup>27</sup>

Finally, we must note that cosmography is not an exclusive concern of the great religious traditions but is also relevant for animistic religions. Much more detailed field research is needed, however, to uncover the visual manifestations of the cosmological conceptions of Southeast Asia's numerous tribal peoples. Yet one can safely assert that they too assume a variety of forms and that

24. Robert L. Brown, "Bodhgaya and South-east Asia," in *Bodhgaya: The Site of Enlightenment*, ed. Janice Leoshko (Bombay: Marg Publications, 1988), 101–24; quotation on 110. For a note on even earlier Tibetan models of Bodh Gaya, see chapter 15.

25. A representation of Mount Meru surrounded by seven concentric mountain chains was painted on the wall of Ānanda monastery in Pagan, in central Burma, about 1776. This work is illustrated in Jane Terry Bailey, "Some Burmese Paintings of the Seventeenth Century and Later, Part II: The Return to Pagan," *Artibus Asiae* 40 (1978): 41–61; illustration facing 59.

26. The first full translation of the text, with extensive critical commentary, is that of George Coedès and C. Archambault, *Les trois mondes (Traibhūmi Braḥ R'vañ)* (Paris: Ecole Française d'Extrême-Orient, 1973). A handsomely illustrated English translation, also with extensive commentary, is Frank E. Reynolds and Mani B. Reynolds, *Three Worlds according to King Ruang: A Thai Buddhist Cosmology* (Berkeley, Calif.: Asian Humanities Press, 1982). For an account of the background of the work, the dating of its various recensions, and the uses it was put to, see Craig J. Reynolds, "Buddhist Cosmography in Thai History, with Special Reference to Nineteenth-Century Culture Change," *Journal of Asian Studies* 35 (1976): 203–20.

27. Robert Heine-Geldern, "Weltbild und Bauform in Südostasien," *Wiener Beiträge zur Kunst- und Kulturgeschichte Asiens* 4 (1928–29): 28–78, esp. picture facing 70 and text on 71–72.



they have been influenced, in varying degrees, by exposure to the belief systems and material culture of neighboring nontribal communities, Buddhist, Muslim, and Christian. A few examples will be considered in the following chapter.

The first written notice we have of a Southeast Asian map (in a relatively narrow sense of the term) is from the *Yuan shi* (History of the Yuan), an official Chinese history compiled in 1369–70 by Song Lian and others. This work refers to a Yuan military invasion of Java in 1292–93 during which Raden Vijaya, one of the leaders of the then state of Kediri, presented the invaders with a map and census record of the country as an act of surrender. This appears to indicate the existence of an official administrative map of the country. Since the map was a symbol of territorial possession, its submission to the enemy was, in Unno's view, tantamount to relinquishing the territory.<sup>28</sup> This interpretation is consistent with the stated purpose of a textually rich surviving Javanese map (from the western Sundanese region), probably dating from the late sixteenth century, that I shall discuss in a later chapter. It suggests the possibility of an official Javanese mapping tradition that has long since faded from memory.

Apart from the two items just noted, the Malay world provides us with very few additional maps. I have already mentioned the so-called Rodrigues map (the one noted by Bagrow). This chart was copied from a Javanese nautical chart about 1513 but was lost in a shipwreck en route to Portugal.<sup>29</sup> And the Venetian traveler Ludovic Varthema mentions that a chart was consulted by a native pilot on a voyage he took from Borneo to Java in 1505.<sup>30</sup> Much later there were nautical charts copied, in varying degrees, from European prototypes. One was an early eighteenth-century work depicting the Malay Peninsula and the Gulf of Thailand.<sup>31</sup> The others, presumably all adapted from one or more European originals of the early nineteenth century, depicted virtually the whole of Southeast Asia. Of the four such maps known to have been drawn, I could find only two.<sup>32</sup> These are large, exceedingly detailed charts with abundant text in the Bugis script. Bugis, whose home region is on the island of Sulawesi (Celebes), have been in recent centuries the leading indigenous seamen of Indonesia, and there is evidence that they revised their original map source(s) based on their own nautical experience and attached considerable value to their work.

Only three other Indonesian maps have come to my attention, none of them in any way resembling the others discussed: the undated batik map, from eastern Java or Bali;<sup>33</sup> a presumably nineteenth-century map from central Java, probably used for some administrative purpose; and a map of the domains of the sultan of Pontianak in Kalimantan (Borneo), tentatively dated 1826 and, though written in Malay, at least partly European in inspiration.



FIG. 16.5. JAVANESE LANDSCAPE IN BAS-RELIEF. This sculpted landscape includes a temple, some nearby streams, two bridges, boulders along the water's edge, paddy fields, and a village (upper left). The sculpture, which originally came from a fourteenth-century temple in the central Javanese village of Trowulan (Trowulan), was badly damaged by fire while on loan for the Paris Exhibition of 1931.

Height of the original: 67 cm; total width unknown. From August Johan Bernet Kempers, *Ancient Indonesian Art* (Amsterdam: C. P. J. van der Peet, 1959), pl. 288.

Finally, there are the earlier mentioned works by Sakai aborigines from the interior of West Malaysia, which, though recent, might well represent a tradition that is centuries old.

Burma also appears to have had officially sanctioned maps serving a variety of purposes—military, engineering, cadastral, and so forth—in the late eighteenth and nineteenth centuries. The record is unclear, however, on whether any such cartography preceded the period just specified. Several well-educated Europeans lived in Burma for protracted times during the late eighteenth and early nineteenth centuries, had extensive friendly interaction with the Burmese, and might well have influenced the subsequent development of Burmese cartography. Among these was an Italian Barnabite missionary, Gaetano Mantegazza, whose sojourn in Burma lasted from

28. I thank Kazutaka Unno for this information on the notice in the *Yuan shi*, 49:13.

29. Discussed in Heinrich Winter, "Francisco Rodrigues' Atlas of ca. 1513," *Imago Mundi* 6 (1949): 20–26.

30. Ludovic Varthema, *The Travels of Ludovico di Varthema in Egypt, Syria, Arabia Deserta, and Arabia Felix, in Persia, India, and Ethiopia, A.D. 1503 to 1508*, trans. John Winter Jones, ed. George Percy Badger (London: Printed for the Hakluyt Society, 1863), 249.

31. Phillimore, "Map of the Malay Peninsula" (note 15).

32. For the known present and alleged former locations of all five copies and a detailed discussion of several of them, see Le Roux, "Boe-gineesche zeekaarten" (note 15).

33. See note 13 above.

1772 to 1784. Mantegazza prepared what, for that time, was a rather good map of the country, a feat he could hardly have achieved without significant assistance from indigenous informants.<sup>34</sup> Another Barnabite missionary, Vincenzo Sangermano, who lived in Burma from 1783 until 1807 or 1808, established a college in Rangoon. There “fifty students . . . were instructed in several branches of learning and science; so that besides some ecclesiastics, it . . . produced skilful engineers, physicians and even pilots.” Sangermano must have had considerable competence as a cartographer. He accepted an English commission “to make a chart of the port of Rangoon, which he executed with so much ability, as to receive [from the British government] a pension for life.” Among Sangermano’s principal concerns were the cosmography of Burmese Buddhism and the geography of the Buddhist empire, both of which he described at length in a posthumously published manuscript.<sup>35</sup>

Francis Hamilton, to whom I have already drawn attention, collected a number of maps of Burma during an eight-month visit in 1795. Most, if not all, of these were drawn at his behest and with some obvious coaching on his part. Since he does not mention seeing any indigenous maps, one might suppose that few if any then existed. On the other hand, the sophistication of the maps he collected and the non-European style of many of their cartographic signs suggests that those who drew them were not cartographic neophytes. In any event, a very large, detailed Burmese map illustrating the country traversed during the Burmese invasion of Manipur in the late 1750s (plate 37 below) and another military map relating to the Burmese campaign against the Thai capital at Ayutthaya in 1767 (fig. 18.38 below) indicate that map-making could not have been a wholly new endeavor for the Burmese.

Burmese appreciation for maps in regard to the needs of the state is further illustrated in that the Burmese king engaged Eurasian shipowner and captain William Gibson, who had long resided in Burma, to make “a map of the Burman dominions, together with the adjacent countries of Hindustan, Siam and Cochin-China.” How long he was employed in this task, on which he was reportedly working in 1819, is not known. Nor do we know whether it was ever completed. But it is noteworthy that Gibson was asked in 1822 to accompany a Burmese diplomatic mission to Vietnam with the object of forging an anti-Siamese alliance. We may reasonably assume that additional mapping was among his responsibilities on that journey.<sup>36</sup>

Siam, though never submitting to colonial rule, also saw its share of European sojourners—missionaries, merchants, diplomats, and soldiers of fortune—beginning early in the sixteenth century. But an abortive French bid for dominance in 1688 led to the expulsion of most for-

eigners, and it was not until the nineteenth century that relations with the West were resumed.<sup>37</sup> Before that period we have no direct evidence of Western influence on Siamese cartography, though European ships and crews and geographic knowledge are illustrated in the geographic portion of an eighteenth-century recension of the cosmographic text the *Traibhūmikathā*. Given that Siam was the most powerful state in Southeast Asia during most of the eighteenth and nineteenth centuries, as well as one of the most culturally advanced, it may seem odd that so few premodern maps have survived from that country. One probable cause is the destruction of the royal library during the Burmese sack of Ayutthaya in 1767. An additional explanation may lie in a Siamese bureaucratic institution known as *chamra*, which, according to Wilson, is a periodic purging of official documents so that they represent only the currently recognized and acceptable truth.<sup>38</sup> Thus, with the advent of

34. Gaetano Maria Mantegazza, *La Birmania: Relazione Inedita del 1784 del Missionario Barnabita G. M. Mantegazza* (Rome: Ed. A. S., 1950); text is in the original French, preface and editorial notes are in Italian.

35. Vincenzo Sangermano, *A Description of the Burmese Empire Compiled Chiefly from Native Documents*, trans. and ed. William Tandy (Rome: Oriental Translation Fund of Great Britain and Ireland, 1833), preface by N. Wiseman, iii–iv.

36. B. R. Pearn, “The Burmese Embassy to Vietnam, 1823–24,” *Journal of the Burma Research Society* 47, no. 1 (1964): 149–57, esp. 150, citing an account by an American missionary who knew Gibson well. Gibson’s journal recounting the mission (which proved unsuccessful) was turned over shortly before his death in 1824 to John Crawfurd, who published it in London in 1828. I have not had an opportunity to study that document.

37. The nature and extent of these contacts are discussed by Reynolds, “Buddhist Cosmography,” 211–13 (note 26). Reynolds notes the particularly important roles played by Crown Prince Mongkut during his years as a monk (1824–51), when he assiduously cultivated contacts with well-educated foreigners. Among his tutors were the American missionary Jesse Casswell, who perhaps provided Mongkut’s principal intellectual window to the West, and the French bishop Jean Baptiste Pallegoix, from whom Mongkut learned astronomy.

38. Constance Wilson, “Cultural Values and Record Keeping in Thailand,” *CORMOSEA* [Committee on Research Materials on Southeast Asia] *Bulletin* 10, no. 2 (1982): 2–17, esp. 4–6: “A . . . concept important in understanding archival management in Thailand is that of *chamra* (cleansing, purification). *Chamra* is an integral and fully acceptable process in Thai culture, one which has a long history behind it. *Chamra* may refer only to minor cleansing or editing of a document: correcting grammatical errors, modernizing the spelling, or updating the titles of individuals. *Chamra* can also refer to a more drastic cleansing process: the filling in of blank areas in manuscripts, the rewriting of materials, or the removal of documents from circulation. *Chamra* is a continuous process. As ideas change so does the need for cleansing. Records which were cleansed for one set of reasons in the early twentieth century can be reclassified for a different set of reasons today. As a consequence of *chamra* we cannot look upon the physical collections of manuscripts which exist in Thailand as a stable fixed entity but instead must look at them as being in a constant state of flux as manuscripts are added, removed, recataloged, and shifted around. The process of *chamra* is

modern survey methods and the demonstrable “inferiority” of early maps, *chamra* would very likely have required their destruction.

Apart from cosmographies and a few unimpressive maps held by libraries in the West, the only currently noteworthy premodern indigenous maps to have surfaced in Thailand are a very long, multifolio folding map (probably dating from the late seventeenth or early eighteenth century), largely relating to the religious establishments on the Sathing Phra peninsula, a spit of land on the east coast of the Malay Peninsula, and a large and rather detailed military map, supposedly made in the early nineteenth century for the pacification of the ethnically Lao region of the Korat Plateau in what is now the north-eastern part of the country.<sup>39</sup> But evidence of Thai map-making capability was provided in a letter dated 3 April 1824 by Lieutenant James Low, who then transmitted to the secretary to the government of Prince of Wales Island (Penang) a large “Map of Siam, Camboja, and Laos” that, in his words, he “first completed . . . in the year 1822 from a large mass of original, and I firmly believe, authentic Native Plans, & Itineraries, and oral information . . . which I have since that period amended and enlarged.” Low’s letter also referred to a forthcoming “Geographical Memoir to which the Map will afterwards be an accompaniment.”<sup>40</sup> Whether Low’s sources included maps drawn by ethnic groups other than Thais is uncertain, though his letter of transmittal refers to the “constant resort to this Island [Penang] of Siamese . . . and of Natives of other Indo Chinese Countries” from whom his informants were drawn.<sup>41</sup> Finally, it is not clear whether the indigenous maps referred to were prepared at Low’s request—like the Burmese maps collected by Hamilton—or whether some existed before his inquiries. In 1830 Low published a second map during a sojourn in Calcutta. Despite its expansive title, “A Map of Siam, North Laos, Martaban, Tenasserim and Part of the Malayan Peninsula,” this work was essentially an updated version of his initial effort of 1822. Among its sources Low notes, but does not itemize, “Numerous Burman and Siamese original Charts & Itineraries collected during the last ten years.”<sup>42</sup>

Among peoples ethnically related to the Thais are the Shans, mainly living in eastern Burma, and the Laos. Numerous Shan maps are to be found in various British libraries, especially in the remarkable and now well-documented Scott Collection at Cambridge.<sup>43</sup> These maps are strikingly rich in detail and, despite certain commonalities, display considerable personal idiosyncrasy in style. Although most were made, as noted, at the behest of Scott, a British political agent in the Shan States, one senses, as with the maps collected by Hamilton and Burney, that many of the productions are not those of neophyte cartographers.

Although I am aware of no surviving Lao maps, we do have a brief description by a French explorer in Laos of how they were customarily made.<sup>44</sup> For the neighboring, but culturally distinctive, region of Cambodia, I know of neither surviving maps (two cosmographies excepted) nor, apart from the possible inclusion of Cambodian sources in Low’s maps, textual references to maps. Cambodia was in a state of marked decline during the seventeenth to the nineteenth century and was periodically tributary to and ravaged by its more powerful Thai and Vietnamese neighbors. That mapmaking might not have been a serious Khmer concern in these circumstances is understandable.

It should be obvious from this account that the maps on which we can shed some light in this volume can in no way be regarded as a representative sample of Southeast Asia’s total cartographic corpus over the indeterminate period when maps were made. I can say very little about the relative distribution of traditional Southeast Asian maps by provenance, period, or genre. Many factors contribute to this conclusion. Most important, perhaps, is that the rate of loss of maps will vary greatly by genre and because of differing environmental and historical circumstances. As was the case in South Asia, a great many maps can be presumed to have been destroyed by the ravages of climate, rot, vermin, fire, other accidents, and war. Intentional destruction of maps that had gone out of date or had lost ecclesiastical or political favor must also have played a role. The Thai institution of *chamra* is relevant in this context. Many maps were presumably of only ephemeral interest to begin with and

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never finished. Many of the separate classifications of documents have been recataloged [by the National Library] several times since the manuscripts were first brought together.”

39. On the former, see pp. 784–85; on the latter, see Kennedy, “Nineteenth Century Map” (note 11).

40. Low’s letter is in the Oriental and India Office Collections, British Library, London (Straits Settlement Factory Records, Prince of Wales Island Public Consultations, vol. G/34/94, 442–45); the map is kept separately (Maps VII, 51). The letter is reprinted in Larry Sternstein, “‘Low’ Maps of Siam,” *Journal of the Siam Society* 73 (1985): 132–57, quotations on 132 and 133.

41. Quoted in Sternstein, “‘Low’ Maps of Siam,” 132 (note 40).

42. Quoted in Sternstein, “‘Low’ Maps of Siam,” 153 (note 40). The map is in the Oriental and India Office Collections (Maps VII, 52). Regrettably, for our purposes, Sternstein’s aim in the article is to offer a critical review of Low’s own cartographic efforts rather than of Low’s sources, which were both indigenous and European. Hence he does not discuss or even speculate about the quality of whatever indigenous maps Low might have consulted. Nor does he indicate whether any such maps are known to have survived.

43. Dalby and Saimöng, “Shan and Burmese Manuscript Maps” (note 8).

44. “Im Innern von Hinterindien (nach dem Französischen des Dr. Harmand),” *Globus* 38, no. 14 (1880): 209–15.

were made with no thought to their preservation beyond the period for which they had some utility. Obviously, too, some maps are more prone to decay than others, given the fragile nature of their materials and the exposure of the surfaces on which they were drawn (especially in the case of cosmographies painted on temple walls).

In comparison with the known South Asian corpus, that of Southeast Asia is considerably better in respect to topographic maps but substantially less rich in plans of cities, forts, and temples. The relative lack of city maps, less marked for Burma than for other areas, may of course be partially attributed to the fact that until recently Southeast Asia was much less urbanized than the Indian subcontinent; but the disparity between the two regions in respect to the role of temples and other religious edifices, for which we have few Southeast Asian plans, was less pronounced. Also scarce in the Southeast Asian corpus are maps relating to pilgrimage, which in

South Asia were relatively more important. This is not too surprising given that pilgrimage plays a substantially less important role in Southeast Asia than in South Asia. Moreover, for the Muslim population of Southeast Asia, roughly half the total, the principal places of pilgrimage are situated in the remote Middle East. Route maps, engineering maps, cadastral maps, and military maps each constitute a relatively small portion of the Southeast Asian corpus, in the case of military maps considerably less than for India. As in South Asia, celestial and nautical charts also form only a small part of the surviving works. Cosmographic maps, on the other hand, are abundant for both regions, though probably proportionally underrepresented among the works brought to light in this history. Finally, we have almost totally excluded from our purview astrological charts and other diagrams related to various forms of divination, which await the interpretation of scholars specializing in these subjects.