11 · Cartography in Japan

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INTRODUCTION: THE MAIN MAPPING TRADITIONS

Japanese cartography before the Meiji Restoration in 1867 was characterized by considerable diversity. This is a reflection not only of the practical use of maps—mainly as administrative documents and tools for wayfinding—but also of their adaptation for decoration, propaganda, and literary purposes. Practical uses were by far the more common, as we might expect in a pragmatically oriented society. Maps in this category included local maps of manors, maps of the properties of religious institutions, and maps of reclaimed land as well as maps of cities, provinces, and the country as a whole. Route maps and marine charts form another category, while in the metaphysical sphere we encounter maps from Buddhist cosmology.

Because of Japan's isolation for most of the Edo period (1603–1867), European maps of the world and of Japan adopted by the Japanese assume something of a rhetorical and ornamental character. We encounter them on folding screens used to decorate rooms, on hanging scrolls, and on smaller objects such as sword guards and plates (fig. 11.1). Although these point to the artistic applications of cartography, it is clear that map images were regarded as important in many other situations. Indeed, when Japanese culture as a whole was being crystallized in the Edo period, artists played a prominent role in mapmaking. At the same time, there is no clear-cut evidence of a European-type scientific revolution in Japanese cartography. Modern standards of accuracy were not widely disseminated until the early nineteenth century, when surveys began to be made with precise instruments and methods. But despite their technical limitations, Japanese maps were regarded as an important source of knowledge. The key to understanding them lies in the particular context of Japanese history and society.

The opening chapters of Japanese map history are placed in the Nara period (710–84), when Japan was consolidating elements of a new culture based on Chinese influences. Buddhism had made remarkable gains. Nara, the first "permanent" capital, had been constructed according to Chinese geomancy with Chang'an (modern Xi'an) as a model, while the Taihō Code of 701 affirmed commitment to the Taika Reform from 645, which were both based on Chinese legal and administrative models. It is to this period that the historian of cartography may turn for the creation of cartographic traditions in Japan. On the one hand, there are the practical paddy-field maps, a product of land reclamation associated with the endowment of Buddhist temples. On the other hand, there is the so-called Gyōki tradition, a series of maps of Japan first recorded in 805, just after the Nara period proper.

As early as 738, efforts were also made to prepare a series of provincial maps. The order for these surveys is preserved in the *Shoku Nihongi* (Chronicles of Japan, continued), an official history of Japan dating to 797, and in 796 another order, recorded in the *Nihon kōki* (Later chronicles of Japan) of 840, was given by the central government to compile maps of the provinces. The next important systematic attempt to compile such maps did not occur until after 1605, shortly after the establishment of the Tokugawa shogunate, when such maps were called *kokugunzu*; another scheme to compile provincial maps was undertaken from 1644 to about 1656. By this date Japanese cartography was adopting scientific methods, as is suggested by instructions that include a prescribed scale equivalent to 1:21,600 (six *sun* to one *ri*). This trend culminated in the surveys of Inō Tadataka and Mamiya Rinzō in the first two decades of the nineteenth century.

The Gyōki tradition of maps of Japan might have originated as early as the eighth century, but the earliest extant copies of this type date to the late thirteenth and early fourteenth century. There is no evidence that the Buddhist priest Gyōki himself compiled any such maps—indeed, the content of the known maps would date a prototype to approximately half a century at the earliest after his death—but they may have been derived from the maps following the orders of 738 and 796 for provincial surveys mentioned above. Whatever their origin, despite advances in cartographic knowledge and techniques, the Gyōki-type maps survived in modified form into the nineteenth century. They were regarded as satisfactory until the more accurate surveys of the Edo period, but even then Gyōki-type maps continued to be produced.

The compilation of provincial and national maps assumes organized surveying techniques as well as an understanding of at least the rudimentary instruments. Our knowledge in this area is incomplete. Even for the modern period there are many gaps, and the techniques and instruments of antiquity remain a matter for speculation. Apart from the few remaining artifacts in Japan, the only way forward is to draw analogies with Chinese practice, for which there is evidence in Chinese texts and their Japanese translations. From the seventeenth century onward the picture is clearer. European ideas, methods, and instruments became important, although much of the evidence is found in instruments and manuals from the eighteenth century. The Portuguese, who played a leading role in transmitting European surveying techniques and instruments to Japan, were also Japan's main European trading partners. In all likelihood they, and to some extent the Spanish and the Jesuits, initiated the process of transmission, which began when instruments such as the compass and astrolabe arrived in the early seventeenth century.

Two well-defined traditions of world maps also weave through the history of Japanese cartography. The longest lived was the Buddhist conception of the world; a later tradition originated in European knowledge from the sixteenth century onward. The first type of world map is dated after the introduction of Buddhism to Japan in the sixth century, but the exact date for the first Japanese map is not known. By the mid-seventh century, a Buddhist cosmography was accepted in high social circles. The earliest surviving world map is from 1364 (the *Gotenjiku zu* [Map of the Five Indias]), but the genre flourished throughout medieval and Tokugawa Japan until the mid-nineteenth century.

Some of the world maps based on European ideas were introduced before the period of national isolation. The so-called *Nanban* (southern barbarian) maps, introduced by the Jesuits, were derived from a variety of European originals, including the world map in Abraham Ortelius's *Theatrum orbis terrarum* (first published 1570). A map of 1602, derived ultimately from the work of Matteo Ricci, served as a model for Japanese world maps throughout the Edo period and offered an alternative to Buddhist cosmography. Like the Buddhist maps, the Ricci-type maps were published for a general audience in the later stages of the Edo period.

European influence was also felt in other areas of cartography from the early seventeenth century onward, notably in marine charts and the Jōtoku-type maps of Japan (named after the map of Japan found at Jōtoku Temple in Fukui; see below). The Jōtoku-type maps—of which four of five known examples are dated between 1592 and 1627 and a fifth to the mid-seventeenth century—were a modification of the Gyōki tradition mentioned above.

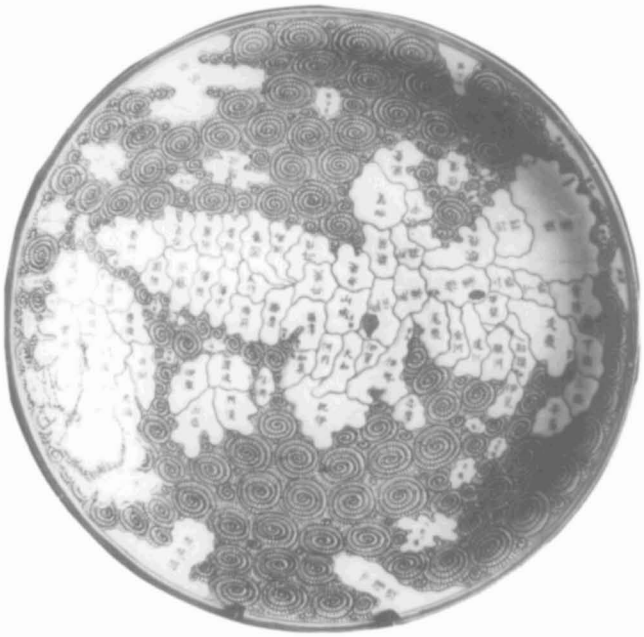

FIG. 11.1. MAP OF JAPAN ON AN IMARI PLATE, CA. 1840. In the nineteenth century, maps of Kyūshū and Japan started to be drawn on plates produced in Imari, Kyūshū, a well-known china center. Those of Japan were of the Gyōki tradition (see the discussion of Gyōki maps below).
Diameter of the original: 49 cm. Nanba Matsutarō, Nishinomiya, Hyōgo Prefecture. Photograph courtesy of Kazutaka Unno.

Improvements, such as to the outline of the coast, may have been made by the Portuguese traveler Ignacio Moreira, who lived in Japan in 1590–92. Insofar as the Jōtoku maps were used in navigation, they may be linked to the marine charts introduced by the Portuguese in the early seventeenth century. The surviving charts relate to East and Southeast Asia and to Japan. The surviving copies begin in the early seventeenth century and extend through the first two decades, but with a few late copies dating to the mid-nineteenth century. That they should have been drafted during the period of isolation is explained mainly by the fact that such charts continued to be used as evidence of a surveyor's license.

The main strength of Japanese cartography thus lies in its portrayal of the home country at different scales. This should not be surprising: Japan was geographically separate from continental Asia, it had a long history of undisturbed independence, and it was economically self-sufficient. There was little impetus to map the world beyond its own shores. It was Japan that mattered most to the Japanese, and this attitude was reinforced by the seclusion policy of the Tokugawas. The hierarchical structure of Japanese society must also be taken into account. Mapmaking had to fit into its proper place and to reflect the requirements of the governmental elite. Their concern was with Japan; the rest of the world came

FIG. 11.2. REFERENCE MAP FOR JAPANESE CARTOGRAPHY. This map shows most of the locations mentioned in the text, including the modern prefectures and old provinces.

a distant second. (See figure 11.2 for a reference map of Japan.)

VOCABULARY, SCALE, ORIENTATION, AND MATERIALS

There are several terms for "map" and the different types of maps compiled and used in Japan in historical times. The most important root in these terms is *zu*, which might be translated as "map" or "diagram" and seems to have been in use since the eighth or ninth century. Before then, at least in the seventh-century entries in the *Nihon shoki* (Chronicles of Japan) of 720, the word *kata* 圖 was used; this was an abbreviation of *katachi* (shape). The most widely used word, though, has been *ezu* 繪圖, which translates as "pictorial diagram" and was derived from the *jōri* system of land distribution. It was used in the titles of most of the maps discussed in this chapter and even formed part of the word for "official cartographer" (*ezukata*) at the time of the official surveys under the Tokugawas.

A prefix added to *zu* or *ezu* can specify the type of map; for example, a *chizu* is a land map and a *sekaizu* is a map of the world. It appears that the term *hakuzu* (white or simple diagram) was used to denote early diagrams with a grid based on the *jōri* framework, and a *bunzu* (graphic list) gave the location and area of a parcel of land based on this system. Eighth-century maps of landownership were called *denzu* (cadastral maps), and a similar genre of *shōenzu* (manorial maps) appeared between the twelfth and sixteenth centuries. The latter was derived from the words for "villa" (*shō*) and "cultivated land" (*en*). Provincial maps such as those compiled under the Tokugawas are called *kokugunzu* or *kuniezu*, and route maps are *dōchūzu*. Whereas all of these terms are Japanese in derivation, the marine charts derive their Japanese name, *karuta*, from the Portuguese word for map, *carta*. One early eighteenth-century writer used the term *shinro hanzu* (card chart of courses), but it was not used by anyone else.[1]

Some introductory comments can also be made about scale, orientation, the qualities of the materials, and the size of Japanese maps. In the West, after the revival of Ptolemaic geography, emphasis was placed on the scientific nature of mapmaking, and this included indicating mathematical scale. In Japan, however, scale was not indicated except for special purposes. Even travel maps, which should clarify the distance between two points, were rarely drawn at a fixed scale, and the distances were usually stated literally. Points and objects considered to be important landmarks were drawn in an exaggerated fashion.

In regard to orientation, there was no established custom, which may in part be due to the way many Japanese maps were consulted. They were often large when unrolled or unfolded, but they could easily be spread out on the tatami on the floors of houses, where there was very little furniture. Users would then sit or kneel around them and rotate the maps as necessary, and so multiple points of view were preferred over a single one. In the case of the maps on the folding screens and hanging scrolls, however, it was necessary to record the information in a consistent direction, since these would not have been consulted on the floor. Nonetheless, there was no standard rule for orienting the maps, as illustrated by some of the Gyōki-type maps: west for the mid-sixteenth-century version at Tōshōdai Temple; south for the Ninna Temple version dating from 1306; east for the *Shūgaishō* (Collection of oddments) versions of 1548 and 1589; and north for the version at the Tokyo National Museum from about 1625. In town plans of Edo (now Tokyo) and Ōsaka, to give another example, orientation was contingent on the location of the city castle, which was shown toward the top of the map. North tended to be used for the general maps of Japan in the Edo period, perhaps influenced by European cartography.

The large size of most Japanese maps also may be attributed to the availability of floor space. When the maps were not being consulted they could be rolled up or folded and stored in a small area. The qualities of the paper, drawing brush, and woodblocks also contributed to the large size. The paper was thin, strong, and flexible but also rough, and the brush that was traditionally used for writing and drawing was incapable of making fine lines, although it was good for coloring. These factors naturally made it practically impossible to write or draw anything small. The same may be said in general for the woodblock process of printing, despite the vast improvements in line cutting by the middle of the nineteenth century, when some woodblock prints might have been taken for copperplate engravings.

In that it could be used more easily for multicolor maps, woodblock or relief printing had an advantage over copperplate engraving, an intaglio process. Multicolor printing in cartography appears to have been adopted at approximately the same time as the beginning of the *ukiyoe* (pictures of the floating world) color prints about 1765, although it is not known exactly when such maps were first made. Before this, maps were colored by brush or by *kappa-zuri* (stenciling), in which cut-out patterns were placed on the paper and colors applied over them. The way to tell if the *kappa* method was used is to look for uncolored places or defects caused by using stencils. Because a pattern is cut out of tanned paper, for example, a complete ring cutting cannot be colored, and in coloring a long strip, the pattern is fixed in place with string to prevent the brush from turning it over. Consequently

1. Nishikawa Joken, *Ryōgi shūsetsu*, see p. 381 and note 142 below.

a mark of stagnant paint caused by the string is left on the paper. Because more than one pattern is used to color a complicated part, one color inevitably overlaps another or some space is left uncolored. Multicolored woodblock prints are relatively free from these problems, so it is possible to tell whether the *kappa* method was used by finding places that are not colored or where there are irregularities in the color. Determining this is not always easy, however, because light colors often were used to hide these defects.

Neither the paper nor the woodblocks came in large sizes; several sheets of highly glutinous paper were patched together, and in very large maps stronger paper was pasted to the back to reinforce the patchwork. The strength of the paper made it possible and preferable to make the maps in the form of scrolls and folding books; indeed atlases—the alternative format—were rare. Hemp and vellum also were used, the former for most of the extant works from the eighth century and the latter for a few of the charts. In these cases, too, a large surface had to be created to portray information clearly.

HISTORIOGRAPHY AND MAJOR COLLECTIONS

The history of Japanese cartography is in the process of being written, and research in progress will substantially expand the existing literature. A number of volumes published in the past two decades have laid an excellent foundation for future historians, who will have the task of filling in the major gaps that still exist for topics such as medieval estate plans, river maps, and the history of ancient and medieval surveying. The history of Japanese cartography has passed its first hurdle: the general, extensive knowledge that now exists is ready to make way for the specific, intensive knowledge of present and future scholarship.

One of the pioneers of the subject was Kawada Takeshi, the author of a three-part article on early Japanese cartography written in 1895. The emphasis was on official maps in the Edo period, and ten years later Kawada published another three-part article on cartography and geographical writings through the ages.[2] Another pioneer was Takagi Kikusaburō, whose brief history of cartography and surveying was published in 1931.[3] Although this was the first separate volume to include a discussion of Japanese cartography from antiquity to the early twentieth century, the book has two shortcomings. The author, who was an employee of the Department of Land Survey, concentrates on cartography and surveying after the Meiji Restoration in 1867; moreover, the description is too fragmentary to be considered a proper history.

The first substantial history of Japanese cartography was written by Ashida Koreto and published in 1934.[4] The work treats a variety of maps ranging in scope from maps of Japan to maps of the world. Ashida's training as a historian was used effectively to give a concise but valuable description of Japanese cartographic history. In 1932 Fujita Motoharu published his history of Japanese geography, devoting most of it to a description of cartography; a revised, enlarged edition was published in 1942.[5] The latest contribution in this field is Oda Takeo's enlargement of part 2 (dealing with Japanese cartography) of a general history of maps originally published in 1973.[6]

Two works focus specifically on the history of Japanese maps of Japan. An article by Ashida is a short account of this subject, and Akioka Takejirō's book on the history of maps of Japan offers a more detailed treatment.[7] There are also volume 1 of *Nihon kochizu taisei* (1972), which provides a history of maps relating to Japan as a whole as well as of maps, plans, and charts of smaller areas within the country,[8] and Akioka's history of the making of world maps.[9]

Some literature exists in Western languages on the history of Japanese cartography. Early contributions include those by Ramming in 1937 and Akioka and Muroga in

2. Kawada Takeshi, "Honpō chizukō" (Study of the maps of our country), *Shigaku Zasshi* 6 (1895): 268–77, 349–58, and 507–18, and his "Nihon chishi gen'i o ronzu" (On the transition of geographical descriptions in Japan), *Rekishi Chiri* 7 (1905): 821–27, 916–21, and 1038–45.

3. Takagi Kikusaburō, *Nihon chizu sokuryō shōshi* (A brief history of cartography and surveying) (Tokyo: Kokon Shoin, 1931).

4. Ashida Koreto, *Honpō chizu no hattatsu* (The evolution of cartography in Japan) (Tokyo: Iwanami Shoten, 1934).

5. Fujita Motoharu, *Nihon chirigaku shi* (History of Japanese geography) (Tokyo: Tōkō Shoin, 1932), and *Kaitei zōho Nihon chirigaku shi* (Revised and enlarged history of Japanese geography) (Tokyo: Tōkō Shoin, 1942; reprinted Tokyo: Hara Shobō, 1984).

6. Oda Takeo, *Chizu no rekishi* (History of maps), 2 vols. (Tokyo: Kōdansha, 1974), vol. 2 (Japan). The earlier work was his "Nihon no chizu to sono hattatsu" (Japanese maps and their development), in *Chizu no rekishi* (History of maps) (Tokyo: Kōdansha, 1973), 211–89.

7. Ashida Koreto, "Nihon sōzu no enkaku" (History of general maps of Japan), *Kokushi Kaikokai Kiyō* 2 (1930): 17–59, and Akioka Takejirō, *Nihon chizu shi* (History of maps of Japan) (Tokyo: Kawade Shobō, 1955).

8. Unno Kazutaka, Oda Takeo, and Muroga Nobuo, eds., *Nihon kochizu taisei* (Great collection of old Japanese maps), 2 vols. (Tokyo: Kōdansha, 1972–75). The first volume of this set, with the added title *Monumenta cartographica Japonica*, contains 133 plates, most in color, followed by plate descriptions and 75 additional black-and-white figures; the second volume, titled *Nihon kochizu taisei sekaizu hen* (also on the title page: "The world in Japanese maps until the mid-19th century"), contains 138 plates, most in color, and under separate cover has plate descriptions and 127 additional black-and-white figures.

9. Akioka Takejirō, *Sekai chizu sakusei shi* (A history of making world maps) (Tokyo: Kawade Shobō Shinsha, 1988). The entire four-part set (book, twelve single-sheet color reproductions, videotape, and forty-eight slides) is titled *Sekai kochizu shūsei* (Collection of old world maps), English title, *Akioka Collection/Old World Maps/16th–19th Centuries* (Tokyo: Kawade Shobō Shinsha, 1988). It is a history of world maps mainly from the time of the European Renaissance until the end of the Edo period in Japan.

1959.[10] Muroga also wrote "The Development of Cartography in Japan" for *Old Maps in Japan*.[11] Watanabe's *Cartography in Japan: Past and Present* (1980) was published on the occasion of the Tenth International Conference of the International Cartographic Association, held in Japan.[12] An English-language description of the history of official Japanese cartography is included in the catalog of an exhibition on the subject hosted by the National Diet Library.[13] The most recent works to appear in Western languages (the present chapter excepted) are by Cortazzi and Unno.[14] There is also a parallel tradition of publishing facsimiles of early Japanese maps, but the maps they include represent only a small part of the extant corpus of Japanese maps, plans, and charts.[15]

The relevant maps are scattered among private and public collections, posing problems of access.[16] Although the major libraries and museums in Japan include maps in their published catalogs of books, there are very few catalogs of the collections themselves. Institutions with large collections of old maps that have published catalogs include the Geographical Institute in the Faculty of Letters at Kyōto University, the Saga Prefectural Library in Saga, and the Kōbe City Museum.[17] The last named has the largest collection in Japan (approximately 5,500 items). Other important collections in Japan include those of the National Archives and the National Diet Library in Tokyo.[18]

Important private collections are now in three public institutions. The collection of the map historian Akioka Takejirō has passed to the National Museum of Japanese History in Sakura, Chiba Prefecture, and the Kōbe City Museum. The National Museum contains over a thousand items relating to Japan (including surveying instruments), and the Kōbe City Museum has mainly Akioka's world maps. Although it has not been cataloged completely, a part of the collection was reproduced in Akioka's *Nihon kochizu shūsei* (1971) and in his *Sekai kochizu shūsei* (1988).[19] Nanba Matsutarō's collection is also at the Kōbe City Museum. The collection of map historian Ayusawa Shintarō, consisting of maps of the world and their related materials, was presented to the Yokohama City University Library, which has published an annotated catalog.[20]

A depository of special note because of its eighth-century maps is the Shōsōin (Treasury) at Tōdai Temple in Nara. As one of the major land reclaimers in the eighth century, the temple had many maps of manors. The sur-

10. M. Ramming, "The Evolution of Cartography in Japan," *Imago Mundi* 2 (1937): 17–22, and Takejirō Akioka and Nobuo Muroga, "The Short History of Ancient Cartography in Japan," *Proceedings of the International Geographical Union Regional Conference in Japan, 1957* (Tokyo: Organizing Committee of the IGU Regional Conference in Japan and the Science Council of Japan, 1959), 57–60. See also Takejirō Akioka and Nobuo Muroga, "The History of Cartography in Japan," in *A Catalogue of Old Maps of Japan, Exhibited at the Tenri Central Library, September, 1957*, ed. Takeo Oda (Kyōto, 1957), 1–6.

11. Nobuo Muroga, "The Development of Cartography in Japan," in *Old Maps in Japan*, ed. and comp. Nanba Matsutarō, Muroga Nobuo, and Unno Kazutaka, trans. Patricia Murray (Ōsaka: Sōgensha, 1973), 158–76. This book was originally published in Japanese: *Nihon no kochizu* (Ōsaka: Sōgensha, 1969). The color plates are identical in the two volumes, but the black-and-white figures accompanying the text vary slightly.

12. Akira Watanabe, *Cartography in Japan: Past and Present* (Tokyo: International Cartographic Information Center, 1980).

13. *Nihon no chizu: Kansen chizu no hattatsu* (Cartography in Japan: Official maps, past and present), exhibition catalog, Twenty-fourth International Geographical Congress and Tenth Conference of the International Cartographic Association (Tokyo: Kokuritsu Kokkai Toshokan, 1980).

14. Hugh Cortazzi, *Isles of Gold: Antique Maps of Japan* (Tokyo: Weatherhill, 1983), and Kazutaka Unno, "Japan" and "Japanische Kartographie," in *Lexikon zur Geschichte der Kartographie*, 2 vols., ed. Ingrid Kretschmer, Johannes Dörflinger, and Franz Wawrik (Vienna: Franz Deuticke, 1986), 1:357–61 and 1:361–66.

15. An early collection was edited by Kurita Mototsugu, *Nihon kohan chizu shūsei* (Early maps and plans printed in Japan) (Tokyo: Hakata Seishōdō, 1932). Most works, however, are more recent. Rather limited in scope is *Nihon no kochizu* (note 11). Much more ambitious are the two volumes of Unno, Oda, and Muroga, *Nihon kochizu taisei* (note 8). There are also Akioka Takejirō's *Nihon kochizu shūsei* (Collection of old maps of Japan) (Tokyo: Kajima Kenkyūjo Shuppankai, 1971), and his *Sekai kochizu shūsei* (note 9).

16. For example, the maps possessed by the feudal clans during the Edo period were handed over to prefectural and municipal libraries, and presumably not all of these pieces have come to the attention of map historians. This of course might be said of maps in private collections as well.

17. There are over five hundred items at the Kyōto depository; the catalog appeared in three installments: volumes 3, 5 (both 1934), and 9 (1937) of *Chiri Ronsō*, an academic journal edited by the Institute. The catalog of the Saga collection is *Saga Kenritsu Toshokan zō kochizu ezu roku* (Catalog of early maps and plans in the Saga Prefectural Library collection) (Saga, 1973). That for the Kōbe collection is in the cartographic sections of the *Kōbe Shiritsu Hakubutsukan kanzōhin mokuroku* (Catalog of the collections at the Kōbe City Museum), 6 vols. (Kōbe, 1984–89), Nanba Collection; included, for example, are maps of the world, Japan, provinces, cities (Edo, Kyōto, Ōsaka), the northern frontier of Japan, and foreign countries, as well as itineraries. The museum acquired a part of the Akioka Takejirō Collection (approximately 1,500 items) in 1989.

18. At the National Archives, it is the Naikaku Library that keeps early maps; it was an independent bureau until 1971, when the National Archives were established. The National Diet Library has a map room devoted to modern maps; early maps, however, are classified with books in general.

19. Akioka, *Sekai chizu sakusei shi* (note 9). A catalog of part of the collection was compiled when it was given to the National Museum of Japanese History; it was published in parts in the journal *Gekkan Kochizu Kenkyū* 7, nos. 3–11 (1976–77). For some reproductions see also Akioka, *Nihon kochizu shūsei* (note 15).

20. See note 17 on the Kōbe City Museum catalog, which has been published according to types of maps and makes an indispensable reference work. On the Ayusawa collection, see Yokohama Shiritsu Daigaku Toshokan (Yokohama City University Library), *Ayusawa Shintarō Bunko mokuroku* (Catalog of the Shintaro Ayusawa Collection) (Yokohama: Yokohama Shiritsu Daigaku Toshokan, 1990).

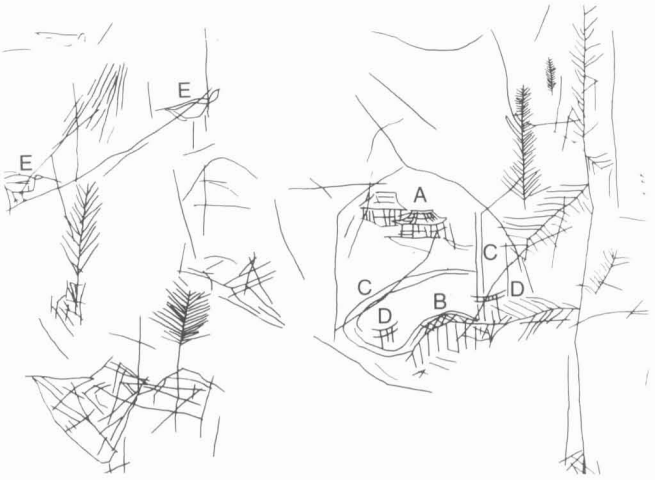

FIG. 11.3. LINE-ENGRAVED MURAL FROM TOMB 48 AT KAZUWA, KURAYOSHI, TOTTORI PREFECTURE, DISCOVERED IN 1974. The keyhole-shaped tomb is on a hill about sixty meters above sea level. The mural is on the huge stone that forms the back wall (260 cm high and 224 cm wide); it is painted red all over, and the lines were scratched into the surface with a sharp tool. The contents include houses (A), a bridge (B), roads (C), most likely Shinto archways (D), and birds (E).
Size of this part of the mural: 86 × 110 cm.

vival of twenty maps preserved at the Shōsōin may be attributed to the excellent storage conditions there, as well as to imperial restrictions on their use. The maps themselves were preserved because of their use in settling boundary disputes, but when those functions declined they were treated with less care and were damaged and even abandoned.[21]

A number of important collections are in European and North American libraries. In Vancouver, the George H. Beans Collection at the University of British Columbia Library is the largest collection outside Japan (three hundred items if books with maps are included).[22] There are also pre–Meiji Restoration maps that relate to a variety of subjects—to the world and foreign countries and to Japan and its regions, routes, and shrines—in five Munich depositories.[23] The strength of these collections is in nineteenth-century maps.

Ancient and Medieval Japanese Cartography before the Edo Period

Archaeological Evidence

What may be regarded as the oldest map in Japan is a topographical drawing on the stone wall inside tomb 48 at Kazuwa in Kurayoshi, Tottori Prefecture, estimated to have been built in the sixth century A.D.[24] It is scratched on the flat surface of a huge cinnabar-coated stone, clearly depicting a landscape with houses, roads, a bridge, trees, birds, and possibly torii (gateways to Shinto shrines) (fig. 11.3). The purpose may have been to console the spirit of the dead: at least it was not intended for any practical geographical use. Similar engravings of birds, ships, fish, and trees are found in nearly forty tombs throughout the prefecture. These, like the practice of putting swords and beads in stone huts, were probably meant to provide the deceased with recognizable objects and landscapes so that they might be as active in death as in life.

There are also some colored paintings on the walls of the Takamatsuzuka burial mound (*kofun*) in Nara Prefecture that date to the end of the seventh century or the beginning of the eighth.[25] These fall into the category of celestial cartography (see chap. 14 below). A star chart is painted on the ceiling using gold foil for the stars, which are connected by straight red lines. On the north wall, opposite the entrance, is a partly damaged painting of a

21. In 1833, in order to repair the Shōsōin, everything inside, including national treasures, was moved elsewhere and examined. In the process the twenty paddy-field maps were found in a Chinese-style chest that contained discarded materials. See Kazutaka Unno, "Extant Maps of the Paddy Fields Drawn in the Eighth Century Japan," paper delivered at the Fourteenth International Conference on the History of Cartography, Uppsala, 1991, and Tōkyō Daigaku Shiryō Hensanjo (Historiographical Institute, Tokyo University), ed., *Tōdaiji kaiden zu* (Maps of paddy fields reclaimed by Tōdai Temple), 2 vols. (facsimile and explanation), in *Dainihon komonjo, Iewake* (Old documents of Great Japan, Every family), vol. 18, *Tōdaiji monjo* (Records of Tōdai Temple), pt. 4 (Tokyo: Tōkyō Daigaku Shuppankai, 1965–66; reprinted 1980).

22. George H. Beans, *A List of Japanese Maps of the Tokugawa Era* (Jenkintown, Pa.: Tall Tree Library, 1951), and supplements A, B, and C (1955, 1958, 1963), describes the collection. Since it was acquired by the University of British Columbia Library, the collection has been added to, and a catalog is now in preparation. A study of the collection undertaken in 1985 is discussed in Unno Kazutaka, "Hokubei ni okeru Edo jidai chizu no shūshū jōkyō: Bīnzu Korekushon o chūshin to shite" (Some collections of Japanese maps of the Edo period in North America: Mainly on the Beans Collection), *Jinbun Chiri* 39, no. 2 (1987): 16–41.

23. Eva Kraft, *Japanische Handschriften und Traditionelle Drucke aus der Zeit vor 1868 in München* (Stuttgart: Franz Steiner, 1986). The depositories are the Bayerische Staatsbibliothek, Deutsches Museum, Münchner Stadtmuseum-Puppentheatermuseum, Staatliches Museum für Völkerkunde, and Universitätsbibliothek.

24. See Noda Hisao, "Tottori ken no sōshoku kofun" (Decorated tombs in Tottori Prefecture), *Kyōiku Jihō* 163 (1980): 2–11.

25. This mound was excavated in 1972. The identity of the entombed person is not known, but he or she must have held a high rank in society. The rectangular stone room inside the tomb measures 1.13 by 2.6 by 1 meters (height, length, width); the walls are stuccoed, and only the floor and the southern wall where the entrance is are not filled with colored paintings. See Inokuma Kanekatsu and Watanabe Akiyoshi, *Takamatsuzuka kofun* (The Takamatsuzuka burial mound), Nihon no Bijutsu (Japanese art), no. 217 (Tokyo: Shibundō, 1984), and Kashihara Kōkogaku Kenkyūjo (Kashihara Archeological Institute), ed., *Hekiga kofun Takamatsuzuka* (Takamatsuzuka: A burial mound with mural paintings) (Nara and Asuka: Nara Ken Kyōiku Iinkai and Asuka Mura, 1972).

genbu (a turtle and snake interlocked) to represent the tutelary god of the north. The eastern and western walls also have their tutelary gods. A full explanation of the Takamatsuzuka paintings cannot be given because of the damage.[26]

A recently discovered cartographic relic is a landscape on a wooden board that was unearthed in the ruins of the ancient capital of Heijō (in present-day Nara) (fig. 11.4).[27] It is a rough sketch drawn in ink on what was probably the bottom of a tray made of Japanese cypress, measuring 62 by 10.8 by 0.8 centimeters. The picture is drawn in an oblique perspective and includes a group of buildings, a palace, walls, gates, and the like. It is not clear whether it is a sketch of a real or an imaginary place, but judging from the structure and the arrangement of buildings and the annotation *oku no in* (detached building), it is probably one of the Buddhist temples in the mountains. Because the board was unearthed with wooden tablets mentioning the date Tenpyō 8–10 (736–38), the sketch may be considered to be from the same time. Below the sketch are some Chinese characters, probably written for practice. Some of them give the name of a civil servant, Ato no Sakanushi (fl. 739–57), which also appears a few times in the archives of the Shōsōin. This sketch therefore appears to have been drawn by him.

LITERARY EVIDENCE FOR MAPS: THE OFFICIAL HISTORIES

As elsewhere in East Asia, the early cartographic record in Japan often takes the form of literary allusions rather than actual map artifacts. Japanese mythology attributes the creation of the archipelago to the male and female deities Izanagi and Izanami. The names of the islands and the order of their creation differ slightly in the A.D. 712 *Kojiki* (Records of ancient matters) and the A.D. 720 *Nihon shoki*, respectively the oldest extant history and the first official history of Japan.[28] Both works are indif-

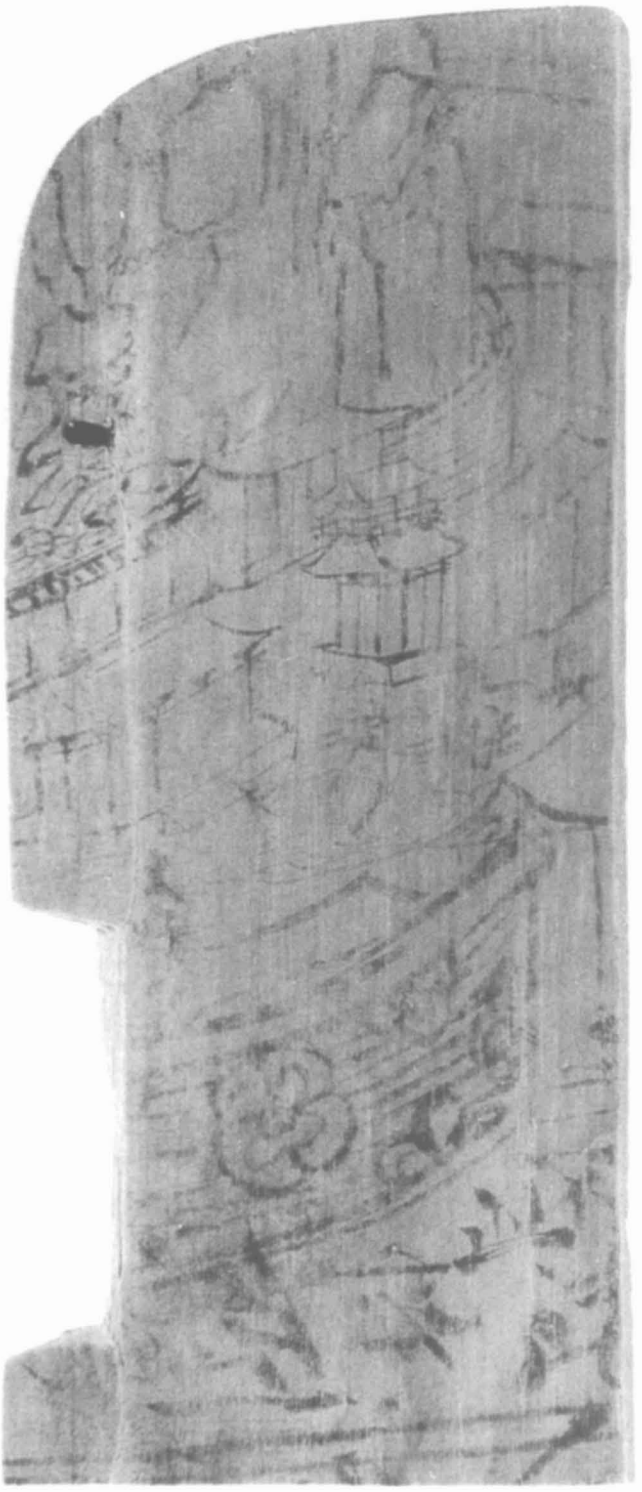

FIG. 11.4. MID-EIGHTH-CENTURY LANDSCAPE ON A WOODEN BOARD. In the foreground are some buildings that probably belonged to a Buddhist temple in the mountains; the rocky mountain in the background and the annotation *oku no in* (detached building) at center right support this idea.
Size of the original: ca. 20 × 10 cm. Nara National Cultural Properties Research Institute, Nara. Photograph courtesy of Kazutaka Unno.

26. For example, it was common in ancient Chinese murals that a three-legged crow and a toad or rabbit were painted in the sun and the moon, respectively; because of damage done by thieves, it cannot be ascertained whether these existed in the mound.

27. Discovered in 1989; see the *Yomiuri Shinbun* (Yomiuri newspaper), published by Yomiuri Shinbun Ōsaka Honsha, no. 13284, 20 October 1989, pp. 1 and 30. It was also recorded in other newspapers and is awaiting further study. Heijō translates literally as "castle of peace"; specifically it was the imperial palace, but also the city of Nara (full form Heijōkyō) during the Nara period (710–84).

28. For English translations, see Basil Hall Chamberlain, trans., *The Kojiki: Records of Ancient Matters* (1882; reprinted Tokyo: Charles E. Tuttle, 1986); and for the *Nihon shoki* see William George Aston, trans., *Nihongi: Chronicles of Japan from the Earliest Times to A.D. 697*, 2 vols. in 1 (1896; reprinted Tokyo: Charles E. Tuttle, 1985). Both contain introductions by the translators. Izanagi and Izanami are dis-

ferent to the size of the islands. This is especially so in the *Kojiki*, in which the names of small islands in the Inland Sea, the Sea of Japan, the Straits of Tsushima, and the East China Sea are recorded in order of their creation. This suggests that such islands were important to navigators, who were likely to have visited the Asian mainland even before the Japanese missions to the Chinese court in A.D. 57 and 107.[29] The geographical knowledge of the navigators is unknown, however: no extant materials provide any evidence.

The first reliable cartographic entry in the official history of Japan dates to A.D. 646, when the term *katachi* was used.[30] The *Nihon shoki*, which can be considered with some confidence when treating the seventh century, records an imperial edict of this date to the effect that the area of each province is to be reported to the central government, accompanied by a map:

> The boundaries of the provinces should be examined and a description or map [*katachi*] prepared, which should be brought here [Naniwa, the capital—in Ōsaka Prefecture today] and produced for Our inspection. The names of the provinces and districts will be settled when you come.[31]

This edict most likely was related to the Taika Reform of 645, a nationwide political reform based on Chinese models.[32]

The next cartographic entry, also in the *Nihon shoki*, concerns a map of Tanega Island that a Japanese envoy brought back with him in 681. It is reported that

> the Envoys sent to Tanegashima [Tane no shima] presented a map [*kata*] of that island [Tane no kuni]. This country is more than 5000 ri distant from the capital [that is, at the time of compilation in 720, Nara], and lies in . . . the sea south of Tsukushi [Kyūshū].[33]

Three years later, Mino no Ōkimi and others sent to Shinano (modern Nagano Prefecture) compiled a map of the province and presented it to the court. On this occasion we are told that

> on this day [in 684] Prince Mino, Tsukura [personal name], Uneme no Omi [family name], of Lower Shōkin rank, and others were sent to Shinano to inspect the conformation of the ground, perhaps with the object of having a capital there.
>
> 11th day [same year]. Prince Mino and his colleagues presented a map [*kata*] of the province of Shinano.[34]

An even more ambitious task was assigned later that year when "Prince Ise and his colleagues were sent to determine the boundaries of the provinces."[35] Subsequent official histories also show that the ancient authorities were aware of the value of maps for various administrative purposes.[36] According to the continuation of the *Nihon shoki*, the *Shoku Nihongi*, in 738 the central government ordered the provincial authorities to compile and submit a map of each province. The next official history, the *Nihon kōki*, also states that the central government ordered that maps of the provinces be composed in 796.[37] This latter entry is detailed and specifies that large and small villages, the distance between post stations, the shapes of famous mountains, and the width of large rivers should be included.

In this period, there was an infusion of Chinese meth-

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cussed in vol. 1, secs. 2–12 of the *Kojiki* (Chamberlain, *Kojiki*, 17–52, including notes), and in vol. 1, bk. 1 of the *Nihon shoki* (Aston, *Nihongi*, 6–34). The creation of the islands is in vol. 1, secs. 3–5 of the *Kojiki* (Chamberlain, *Kojiki*, 19–27, including notes), and vol. 1, bk. 1 of the *Nihon shoki* (Aston, *Nihongi*, 10–18). In the *Nihon shoki* the "books" may also be referred to as chapters.

29. Fan Ye, *Hou Han shu* (History of the Later Han, compiled fifth century A.D.), chap. 85; see the edition in 12 vols. (Beijing: Zhonghua Shuju, 1965), 10:2821.

30. There is an account relating an earlier event that involved maps. In Chūai 9 (A.D. 391?) the empress Jingū led an expedition against Silla on the Korean peninsula, and when its king surrendered he presented her with *zuseki* (*tu ji*) of his country. The Japanese reading for the Chinese characters *tu ji* (*tu* refers to all figures including maps and *ji* means family registration) is *shirushihefumita*. *Hefumita* means family registration, so one might surmise that *shirushi* (mark) was the term used for figures, including maps, in ancient Japan. This, however, has been doubted by Iyanaga on the grounds of the questionable dating, as well as the possibility that the term *tu ji*, which had been used in China since antiquity, was simply adopted: Iyanaga Teizō, "Handen tetsuzuki to kōhandenzu" (Procedure for apportioning paddies and the maps prepared before and after), in *Shōen ezu kenkyū* (Studies on manorial maps), ed. Takeuchi Rizō (Tokyo: Tokyōdō Shuppan, 1982), 33–34. For the account of the Silla expedition, see Aston, *Nihongi*, 1:230–32 (note 28); Aston indicates that the "books of maps and registers" submitted were cadastral maps.

31. The specific citation is from book 25 of the *Nihon shoki*; see Aston, *Nihongi*, 2:225 (note 28).

32. The coup d'état was in 645, the reform edict in 646, and the series of reforms and modifications from 646 to 701. For a discussion of the Taika Reform, see George B. Sansom, *A History of Japan*, 3 vols. (Stanford: Stanford University Press, 1958–63), 1:56–60.

33. See Aston, *Nihongi*, 2:352 (note 28). Tanega Island at the time was an important port en route to China via the Ryūkyūs: see Ouyang Xiu et al., *Xin Tang shu* (New history of the Tang, compiled 1032?–60), chap. 220; see the edition in 20 vols. (Beijing: Zhonghua Shuju, 1975), 20:6209.

34. See Aston, *Nihongi*, 2:362 and 364 (note 28).

35. See Aston, *Nihongi*, 2:365 (note 28).

36. Six official histories, collectively known as the *Rikkokushi* (Six national histories), cover Japanese history until late in the ninth century, the *Nihon shoki* being the first. Following it are the *Shoku Nihongi* (covering 697 to 791), the *Nihon kōki* (792–833), the *Shoku Nihon kōki* (Later chronicles of Japan, continued, 834–50), the *Nihon Montoku Tennō jitsuroku* (Veritable records of the emperor Montoku of Japan, 851–58), and the *Nihon sandai jitsuroku* (Veritable records of three reigns of Japan, 859–88).

37. See chapter 13 of the *Shoku Nihongi* and chapter 5 of the *Nihon kōki* in volumes 2 and 3 of the *Shintei zōho kokushi taikei* (Series of histories of our country revised and enlarged), 66 vols. (Tokyo: Yoshikawa Kōbunkan, 1929–64).

ods into Japan. The sixth and seventh centuries were a critical time in Japanese history, during which elements of Chinese culture helped to define the culture of Japan even until the present. Outstanding were the arrival of Mahayana Buddhism via Korea and the application of elements of Chinese political theory. This process of using Chinese models continued throughout the Nara (710–84) and early Heian (794–1185) periods.[38]

The extant *Tōdaiji sangai shishi no zu* (Map of the premises of Tōdai Temple [Nara]) of 756,[39] for instance, contains an indication of a Chinese grid, and the official records hint at a deeper knowledge. According to the *Nihon shoki*, in 602 a Buddhist priest from Paekche named Kwallŭk presented the Japanese court with some books on astronomy and geography. The entry gives us a glimpse of the process of scientific transmission. In the tenth year under the empress Suiko (r. 593–628), we are told:

> A Pèkché priest named Kwal-leuk [Kwallŭk] arrived and presented by way of tribute books of Calendar-making, of Astronomy, and of Geography [which included geomancy], and also books of the art of invisibility and of magic [or rather the three arts of fortune-telling, weather divination, and using charms against illness]. At this time three or four pupils were selected, and made to study under Kwal-leuk. Ōchin, the ancestor of the Yako no Fumibito [or Tamafuru, Yako no Fuhito no Oya], studied the art of Calendar-making. Kōsō, Otomo [Ōtomo] no Suguri, studied Astronomy and the art of invisibility [fortune-telling]. Hinamitatsu [or Hinitachi], Yamashiro no Omi, studied magic [the arts of weather divination and using charms against illness]. They all studied so far as to perfect themselves in these arts.[40]

An official commentary on Japanese law, the *Ryō no gige* (Commentary on the codes) of 833, enumerates the titles of mathematical textbooks used at the Daigaku Ryō (Imperial University) at the former capital of Nara.[41] These included the *Kyūshō*, the *Kaitō*, and the *Shūhi*, which were respectively the ancient Chinese textbooks *Jiuzhang suanshu* (Nine chapters on mathematical art), *Haidao suan jing* (Mathematical classic for seas and islands), and *Zhoubi suan jing* (Arithmetical classic of the Zhou gnomon).[42] The first two explain how to measure the length and height of distant objects by applying the principle of right-angled triangles; the third pertains to the structure of the heavens and earth. These subjects might have been taught at the Daigaku Ryō as early as the beginning of the eighth century: the *Ryō no gige* comments on the *Yōrō ritsuryō* (Yōrō code of laws) of 718, itself a revision of the *Taihō ritsuryō* (Taihō code of laws) of 701, which also pertained to laws and regulations.[43] Another ninth-century document that catalogs books existing in Japan, Fujiwara no Sukeyo's *Nihonkoku genzaisho mokuroku* (A list of books at present in Japan) of about 891,[44] contains an entry about the *Jin shu* (History of the Jin).[45] In it is a biography of the Chinese mapmaker Pei Xiu (223–71) that suggests Pei's six principles of cartography were then available to Japanese scholars.[46]

38. See, for example, John Whitney Hall, *Japan: From Prehistory to Modern Times* (New York: Delacorte Press, 1970), 35–74, and Sansom, *History of Japan*, 1:45–128 (note 32). For a discussion of Chinese science—including cosmology, astrology and the occult sciences, and calendrical science—and its influence on Japan, see Shigeru Nakayama, *A History of Japanese Astronomy: Chinese Background and Western Impact* (Cambridge: Harvard University Press, 1969), 7–76.

39. This map is discussed below. Stanley-Baker uses the map to illustrate how Japanese implemented their knowledge of Chinese landscape painting, but with amendments such as the "gently rolling hillocks" and the "irregular and natural manner" of displaying the trees: see Joan Stanley-Baker, *Japanese Art* (London: Thames and Hudson, 1984), 57–58.

40. See Aston, *Nihongi*, 2:126 (note 28).

41. On the Daigaku Ryō, see appendix 3, "A Note on Higher Education, 700–1000," in Sansom, *History of Japan*, 1:474–76 (note 32). The *Ryō no gige* is in vol. 22 of the *Shintei zōho kokushi taikei* (note 37).

42. The *Jiuzhang suanshu*, a Han dynasty text, is called by Nakayama, *History of Japanese Astronomy* (note 38), the "oldest mathematical classic in China," and the *Zhoubi suan jing* (ca. 200 B.C.), the "oldest canon of Chinese scientific cosmology" (p. 273). Both works were required for students of calendar making (p. 72), and the *Zhoubi suan jing* for those studying astronomy (p. 43). The *Zhoubi suan jing* and *Haidao suan jing* (ca. 265) are mentioned in 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), 19–23 and 571–72. All three of the ancient Chinese mathematical textbooks are found in the *Siku quanshu* (Complete library from the four treasuries, compiled 1773–82) (Taipei: Taiwan Shangwu Yinshuguan, 1970–82).

43. *Ritsu* refers to penal laws and *ryō* to administrative institutions. See Hall, *Japan*, 48–61 (note 38); E. Papinot, *Historical and Geographical Dictionary of Japan* (1910; reprinted Ann Arbor: Overbeck, 1948), 616; and Sansom, *History of Japan*, 1:67–74 (note 32). On the *Yōrō ritsuryō*, see vol. 22 of the *Shintei zōho kokushi taikei*. Although the entire text of the *Taihō ritsuryō* was never included, a part of it is in the *Ryō no shūge* (Supplement of the *Ryō no gige*) of ca. 875 in vols. 23–24 of the *Shintei zōho kokushi taikei* (note 37).

44. Sansom notes the date as about 890 and says that it "records 1,579 titles and 16,790 volumes"; the record was compiled after "a fire in the palace had destroyed a great number of books in 875, so that the total number of volumes imported from China during the ninth century must have reached an impressive figure," Sansom, *History of Japan*, 1:124 (note 32). The *Nihonkoku genzaisho mokuroku* is in the *Zoku gunsho ruijū* (Classified series of various books: Continuation, 1923–28 in 71 vols.), 3d rev. ed., 67 vols. (Tokyo: Zoku Gunsho Ruijū Kanseikai, 1957–59), vol. 30, bk. 2.

45. Fang Xuanling et al., *Jin shu* (compiled 646–48), contains a treatise on astronomy; see the modern edition in 10 vols. (Beijing: Zhonghua Shuju, 1974); see also Nakayama, *History of Japanese Astronomy*, 33–40 and 272 (note 38).

46. *Jin shu*, chap. 35 (vol. 4) (note 45). For a discussion of the six principles of cartography, see above, pp. 110–13.

FIG. 11.5. THE TOMB OF THE EMPEROR NINTOKU, SAKAI, ŌSAKA PERFECTURE. The critical measurements are length, 486 meters; diameter of the circular part at the head of the "keyhole," 249 meters; height of the circular knoll, 35 meters; width at the front, 305 meters; highest point of the trapezoid, 33 meters. It is surrounded by three moats. Photograph courtesy of Kazutaka Unno.

SURVEYING INSTRUMENTS AND PROJECTS

Despite incomplete records on early surveying and cartography in Japan, there are some indications about ancient projects and instruments, some of them used until more recent times. Koreans who settled in Japan are thought to have played an important role in ancient surveying, mainly through the diffusion of Chinese methods and instruments to Japan. The construction of burial mounds in the Tomb period (ca. 300–600) attests to an early Japanese need for surveying instruments and techniques. This was at the time of the first unified state in Japanese history, the Yamato state, which was centered on the area of present-day Ōsaka and Nara. The keyhole-shaped mounds that served as mausoleums for the emperors originated in this area (fig. 11.5), and—unlike most cultural phenomena in Japan—were diffused to the west, eventually reaching Kyūshū, rather than the other way around.[47] Inasmuch as the process of building the tombs points to some degree of political authority and social structure, it links the beginnings of surveying to wider developments in Japanese society. Not only was a large, organized labor force necessary to build them, but they also required some form of intellectual preparation. Plans—although none are known to exist—were probably involved in designing the tombs, the shape of the mounds, and the surrounding moats. The sites where the tombs were to be built also had to be selected and surveyed.

We have no precise knowledge about the instruments used for compiling the plans, surveying the sites, and building the mounds. Statements from the Chinese and Japanese literature do, however, point to instruments that were used for similar purposes in ancient China. For instance, the Chinese textbook *Zhoubi suan jing* men-

47. For brief discussions of the mounds, see Hall, *Japan*, 20–23 (note 38); R. H. P. Mason and J. G. Caiger, *A History of Japan* (Melbourne: Cassell Australia, 1976), 11–14; and H. Paul Varley, *Japanese Culture*, 3d ed. (Honolulu: University of Hawaii Press, 1984), 12–14. The largest is that of the fifth-century emperor Nintoku in Sakai, Ōsaka Prefecture; it is 486 meters in length.

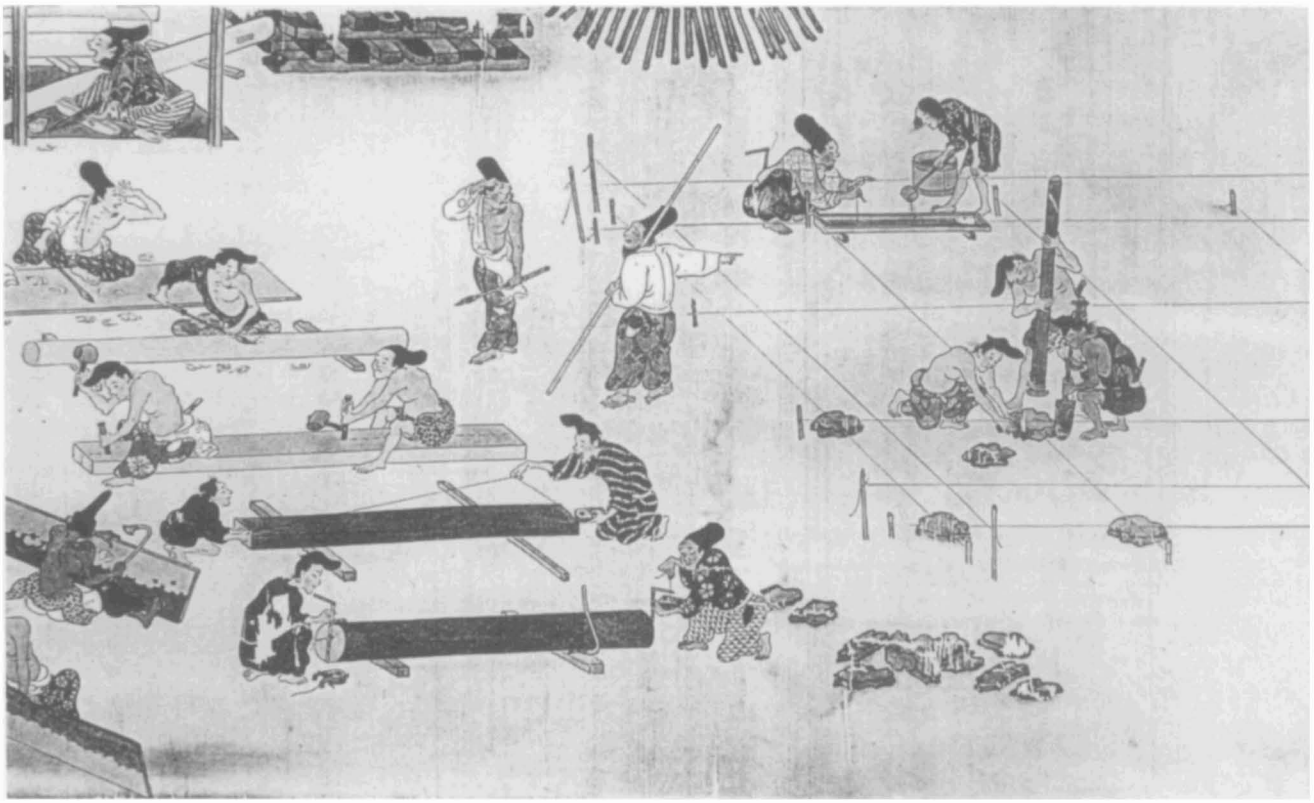

FIG. 11.6. ILLUSTRATION FROM THE *KASUGA GONGEN GENKI E* (PAINTINGS OF MIRACLES OF KASUGA SHRINE, 1309). Shown in use are the *mizubakari* (water level), *sumitsubo* (ink pad for carpentry), *suminawa* (ink cord for carpentry), *sumisashi* (ink stick), and *magarigane* (square). The painting, by Takashina Takakane, is an imaginary scene from the construction of the house of Fujiwara no Mitsuhiro. Size of the original: 41.5 cm in height. By permission of the Imperial Household Agency, Tokyo.

tions the *ju* (carpenter's square), an instrument that appears to have been useful for measuring height, depth, and distance.[48] Instruments of Chinese origin are also mentioned extensively in the *Wamyō ruijū shō* (Classified glossary of Japanese terms), a Japanese encyclopedia compiled about 935 by Minamoto no Shitagō (911–83).[49] Examples include those illustrated in figure 11.6 (from another work). The Shōsōin, an annex of Tōdai Temple, has two *sumitsubo* (ink pads for carpentry) that probably date from the eighth century. One with lacquered designs appears to have been for ceremonial use, but, like the other smaller instrument, it lacks an accompanying *suminawa* (ink cord for carpentry).[50] The oldest extant *sumitsubo* of practical value is believed to date to the thirteenth or fourteenth century and was found on a beam of the southern main gate to Tōdai Temple. At the top is an iron ring seventeen millimeters in diameter for fitting a cord when the *sumitsubo* was used as a plumb line. The instrument is in the possession of the Tokyo University of the Arts. A scene in the *Matsuzaki tenjin engi emaki* (Painted scroll of the origin of the Matsuzaki Shrine) of 1311, owned by Hōfu Tenmangū Shrine, suggests that the iron ring was used in this way.[51]

48. *Zhoubi suan jing*, chap. 1. Six uses of the *ju* are enumerated: correcting the *sheng*, or ink cord, checking heights, measuring depth, calculating distance, drawing circles, and forming a rectangle by putting two *ju* together. That it could be used for calculating height, depth, and distance suggests that the *ju* was graduated.

49. See the *Wamyō ruijū shō*, 4 vols., Nihon Koten Zenshū (Comprehensive collection of Japanese classical works), 4th ser. (Tokyo: Nihon Koten Zenshū Kankōkai, 1930–32), chap. 15. Plates showing the ancient compass, square, water level, ink pad, ink cord, and ink stick are in Nihon Gakushiin (Japanese Academy), ed., *Meiji zen Nihon kenchiku gijutsu shi* (History of Japanese architectural techniques) (Tokyo: Nihon Gakujutsu Shinkōkai, 1961; reprinted 1981), 189–218, and Nakamura Yūzō, *Zusetsu Nihon mokkōgu shi* (Illustrated history of Japanese woodworking tools) (Tokyo: Shinseisha, 1968); for a simple history of these instruments, see Muramatsu Teijirō, *Daiku dōgu no rekishi* (A history of carpenters' tools) (Tokyo: Iwanami Shoten, 1973), 149–52.

50. The first of the *sumitsubo* at the Shōsōin is 11.7 by 29.6 by 9.4 centimeters (height, length, width); the other is only 2 centimeters tall and 4 centimeters long and is made of rosewood with silver designs.

51. On the *sumitsubo* see Muramatsu, *Daiku dōgu no rekishi*, 149–52 (note 49). The *Matsuzaki tenjin engi emaki* is reproduced in Komatsu Shigemi, ed., *Zoku Nihon emaki taisei* (Series of Japanese picture scrolls: Continuation), 20 vols. (Tokyo: Chūōkōronsha, 1981–85), vol. 16.

Tōdai Temple owns the oldest extant *magarigane* (square), said to have been acquired by its head priest in Edo in 1685. It is made of iron with the longer side measuring 37 centimeters and the shorter 19.8 centimeters; both are 1.46 centimeters wide and 1.2 millimeters thick on the outside and 0.6 millimeters on the inside. Only the face of the longer side is graduated, indicating that the instrument dates to a period much earlier than 1685. Modern Japanese squares are graduated much like conventional rulers, but on the reverse of the longer side there is also a graduation based on the square root of two, known as *urame* (graduations on the reverse), which Muramatsu believes to have originated at least in the eleventh or twelfth century. There is also a graduation known as *marume* (circumference graduation) on some squares: the graduations are multiplied by π so that the circumference of a circle may be measured by placing the square along the diameter.[52]

Such instruments are known to have existed in China before the Tomb period in Japan. The *Mengzi* (on the sayings and deeds of Mencius [372–289 B.C.]) mentions the *zhun* (water level), *sheng* (ink cord for carpentry), and *ju* (square); it also mentions the *gui* or compass for drawing circles.[53] In the *Huainanzi* ([Book of the] Master of Huainan, ca. 120 B.C.), reference is made to the *gui*, *zhun*, *sheng*, and *ju*, as well as to the *quan* (weight) and *heng* (steel yard). Among these instruments, the *gui* and *ju* seem to have been either the first devised or the most basic.[54] Of these items, the *sheng* or *suminawa* is the first to appear in the official Japanese histories; the *Nihon shoki* records a song composed by a carpenter on the imminent execution of a comrade about 490:

> The much to be regretted
> Carpenter of Winabe —
> The ink-cord he applied, —
> When he is no more,
> Who will apply it?
> Alas! that ink-cord![55]

This song not only won the pardon of the condemned but also contained the word *suminawa*. Because later examples of *suminawa* came with *sumitsubo*, it is likely that this tool was also available by the fifth century. By inference, the same might be said to be true of the *ju*, *zhun*, and *gui*, which are of greater importance for construction.

Recorded projects involving the possible use of such instruments for surveying and drafting include drainage and irrigation canals, a road, temples, and capital cities. The *Nihon shoki* refers to a drainage canal in the north of Naniwa no Miyako (Ōsaka) in the fifth century. This was probably constructed to help drain the low-lying, marshy Kawachi Province (now part of Ōsaka Prefecture) to the west. Three years later a road was built running approximately ten kilometers in a straight line leading south from Naniwa.[56] The rise of Buddhism in Japan also led to an influx of craftsmen and instruments. Carpenters specializing in temple construction started to arrive from Korea late in the sixth century, accompanying priests, tile makers, and painters. For example, it is recorded about 577 that

> the King of the Land of Pèkché presented to the Emperor, through the returning Envoys Prince Ohowake and his companions, a number of volumes of religious books, with an ascetic, a meditative monk, a nun, a reciter of mantras, a maker of Buddhist images, and a temple architect, six persons in all.[57]

Examples of their work included Hōkō Temple in Asuka, Yamato Province, started about 588, and Shitennō Temple (Temple of the Four Heavenly Kings) in Ōsaka, begun about 587 and completed in 593.[58]

Surveying skills were especially important for aligning the capital city, which until the early eighth century was relocated with each new emperor. The oldest capital to have been excavated is Naniwa, dating to the reign of the emperor Tenmu (672–86). Only the palace and government area have been unearthed, but from these an inclination of 34′35″ east of the north-south axis has been found to exist in the layout of the city.[59] The capital at Fujiwara, Yamato Province, was in 694–710 the first large-scale capital to be built on the Chinese checker-

52. About the supposition of an earlier date of the *magarigane* at Tōdai Temple and the date of origin of the *urame* system, see Muramatsu, *Daiku dōgu no rekishi*, 131–32 and 140–41 (note 49).

53. Chapter 7 of the *Mengzi*; see *Mengzi yinde* (Concordance to Mencius), Harvard-Yenching Sinological Index Series, suppl. 17 (1941; reprinted Taipei: Chengwen Chubanshe, 1966). Or, in Japanese, see *Mōshi*, 2 vols. (Tokyo: Iwanami Shoten, 1968–72).

54. See the *Huainanzi* attributed to Liu An (d. 122 B.C.), in *Huainanzi zhu* (Commentary to *Huainanzi*, third century), ed. Gao You, chap. 20; modern edition (Taipei: Shijie Shuju, 1962). Or, in Japanese, *Enanji*, trans. Togawa Yoshio et al., in *Chūgoku kotenbungaku taikei* (Series of Chinese classics), 60 vols. (Tokyo: Heibonsha, 1967–74), vol. 6.

55. See Aston, *Nihongi*, 1:361–62 (note 28) (the song is on 362). The incident took place during the reign of the emperor Yūryaku in the fifth century; Aston's chronology puts the date at 469, but it could have been about twenty years later.

56. Naniwa no miyako translates literally as "the capital of Naniwa," that of the emperor Nintoku. The drainage canal and road are mentioned in Aston, *Nihongi*, 1:280–83 (note 28).

57. Aston, *Nihongi*, 2:96 (note 28).

58. See, for instance, Aston, *Nihongi*, 2:115 (other examples are mentioned in books 20–22 [2:90–156]) (note 28). The relevant eras are those of the emperors Bitatsu (r. ca. 572–85), Yōmei (r. ca. 586–87), and Sushun (r. ca. 588–92) and the empress Suiko (r. 593–628). The *Nihon shoki* does not mention any maps as having been composed or involved with the projects in this and the previous two notes.

59. See vol. 7 of the journal *Naniwakyū Shi no Kenkyū*, issued by the Ōsaka Shi Bunkazai Kyōkai (Ōsaka City Cultural Properties Association) (1981), pt. 1, legend of pls. 1–25.

board model. Its inclination is 26′30″ to the west of true north.[60] Heijō (Nara) was also constructed on a grid network early in the eighth century. This was at a time of strong Chinese influence on Japanese culture, and the site appears to have been selected on the grounds of its important Buddhist establishments and because it satisfied the requirements of Chinese geomancy (see above, pp. 216–22). These included that it be surrounded on the western, northern, and eastern sides by mountains and that rivers and a pond be situated to the south. The city, although smaller, was modeled on the Tang Chinese capital of Chang'an, which incorporated a rectangular grid. Although excavations have uncovered only a part of the city, it has been found that the inclination of the main street is 12′40″ to the west of true north.[61]

With all these cities, the small deviations from true north indicate that an orientation of the streets and buildings took place before the actual construction. For alignment, it is highly unlikely that the magnetic compass was used, and since there was also no bright star near the celestial North Pole at that time, the gnomon may have been employed.[62] Using a gnomon for such a purpose was explained in the *Zhoubi suan jing*. The method of aligning appears to have involved marking the end of the morning and afternoon shadows of the gnomon, connecting them with a line (east to west), and drawing a perpendicular line (south to north) from the gnomon through the center of this line. No ancient gnomons have been found in Japan, but it is likely that they were imported or made domestically before the second half of the seventh century.

Only in the eighteenth century were books on surveying techniques published, reflecting in part more ancient practices.[63] None of them, however, reveals the intricacies of the techniques practiced in Japan. Apprentices learned the skills directly from their masters and submitted a pledge in their own blood that they would not disclose their knowledge to anyone. This was to protect the members of the trade at a time when patents were unknown. The custom of secrecy must have originated with the development of the techniques and the organization of its craftsmen and helps to account for the dearth of records on surveying in ancient and medieval Japan.

MAPS OF PADDY FIELDS

The earliest extant Japanese maps relate to landownership and date to the eighth century (see appendix 11.1). These maps provide tangible evidence of the state of contemporary surveying and cartography, especially on the Japanese maps of paddy fields, which exhibit a grid structure. The network employed east-to-west and north-to-south lines based on the *chō* (109.09 m), a unit of measurement used in the *jōri* system that served as a frame of reference for the administrators of land control (fig. 11.7). When a *jōri* network was used, words such as "mountain" and "sea" were entered in the squares to designate topographical features; presumably early maps of rice fields used the same method.[64] That some of the early maps have grids extending beyond the arable land into the sea or mountains suggests that such a network served more an arbitrary, theoretical function than a realistic one. Despite the use of grids, there was no fixed convention as to orientation.

The reason these maps of paddy fields were produced and have survived is to be found in the development of landownership in eighth- and ninth-century Japan. They were practical documents to record ownership, and they were useful to settle disputes in a period when aristocrats, Shinto shrines, and Buddhist temples were consolidating their private holdings. This trend had originated in the mid-eighth century, when the demand for maps of agricultural holdings would have been increased by the implementation of agrarian reforms. One attempt on the part of the authorities to alleviate the problems caused by a contemporary drift toward a decentralized feudal regime was to increase the amount of arable land through reclamation.[65] This attempt was made in 723, and to

60. See Nara Kokuritsu Bunkazai Kenkyūjo (Nara National Cultural Properties Research Institute), *Asuka Fujiwarakyū hakkutsu chōsa hōkoku* (Reports of the excavation of the site of the Fujiwara imperial palace, Asuka), vol. 6 (Nara, 1976), 21.

61. See Yamato-Kōriyama Shi Kyōiku Iinkai (Board of Education, Yamato-Kōriyama City), *Heijōkyō Rajōmon ato hakkutsu chōsa hōkoku* (Report of the excavation of the sites of the Rajō Gate, Heijōkyō) (Yamato-Kōriyama, 1972), 30. Nara was the first of the capitals not to disappear with the departure of the imperial court. See also Herbert E. Plutschow, *Historical Nara* (Tokyo: Japan Times, 1983), esp. 76–83; and refer also to Sansom, *History of Japan*, 1:82–98 (note 32), Hall, *Japan* (note 38), 48–61, and Varley, *Japanese Culture*, 30–31 (note 47).

62. See Yabuuchi Kiyoshi, "Naniwakyū sōken jidai no hōi kettei" (The determination of position at the time of constructing Naniwakyū), *Naniwakyū Shi no Kenkyū* 2 (1958): 77–82.

63. These included Hosoi Kōtaku, *Hiden chiiki zuhō daizensho* (Complete book of the secret art of surveying and mapping), a manuscript of 1717 at the National Diet Library in Tokyo; Matsumiya Toshitsugu, *Bundo yojutsu* (Techniques of protraction), a manuscript of 1728 at the National Archives in Tokyo; Murai Masahiro, *Ryōchi shinan* (Surveying guidebook, 1733); and Shimada Dōkan, *Kiku genpō chōken bengi* (Explanation of surveying, 1734). The last two are reproduced in volumes 9 and 10 of the *Edo kagaku koten sōsho* (Series of scientific classics during the Edo period), 46 vols. (Tokyo: Kōwa Shuppan, 1976–83).

64. An example of a map bearing a *jōri* grid in areas of sea is the *Settsu no kuni Yatabe gōri jōri zu* (*Jōri* map of Yatabe County, Settsu Province [in the area of modern Hyōgo Prefecture]) of 1162. It is partly extant and kept at the Kōbe City Central Library.

65. This drift toward decentralized feudalism may be traced to the Taika Reform Edict of 646, consisting of four articles that included the abolition of private landownership and a new system of taxation.

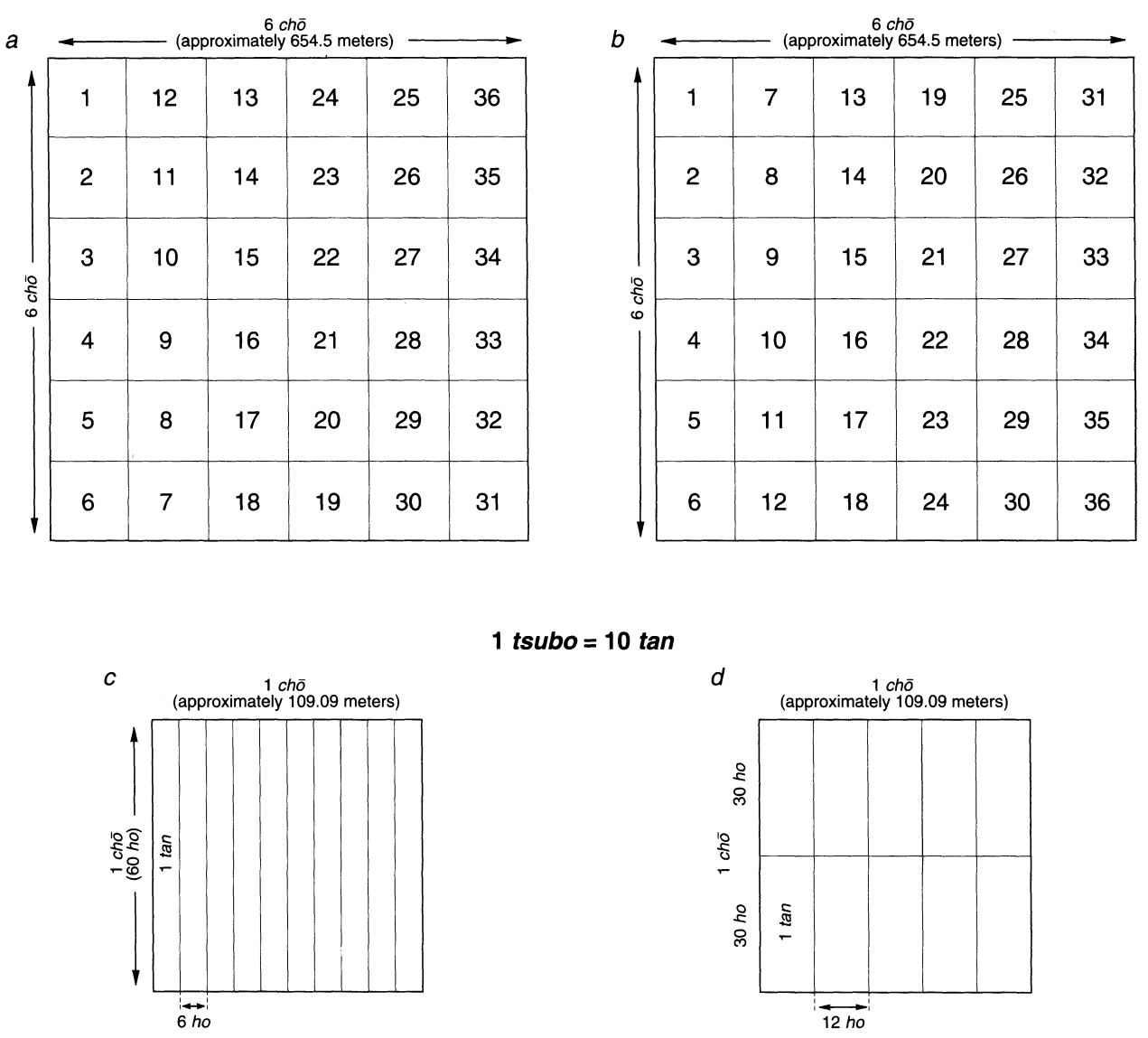

FIG. 11.7. DIAGRAM OF THE *JŌRI* SYSTEM. The main unit of length was the *chō* (109.09 m), and the main unit of area was the *tsubo* (one square *chō*). Thirty-six *tsubo* comprised one *ri*. The name *jōri* derived from the labeling of the two axes (*jō* the rows, *ri* the columns; thus "*ri*" had two usages, one to refer to the columns in the system and one to refer to the square with thirty-six *tsubo*). The numbering of the *tsubo* varied: "zigzag" or "shuttle" numbering (*chidori shiki*) started from the top left, went down the first column and returned up the second column in boustrophedonic fashion as in *a*; "parallel" numbering (*heiko shiki*) always started at the top and went down the columns as in *b*. For area measurement, the *tsubo* was divided into ten strips known as *tan*, either 6 *ho* wide and 1 *chō* long or 12 *ho* wide and 30 *ho* long (60 *ho* [or *po*] made one *chō*). The "long-area" system (*nagachi gata*) is illustrated in *c*; the "halving" system (*haori gata*) is shown in *d*.

encourage reclamation they decreed that reclaimed land with new ponds and ditches could be owned privately down to the generation of the great-grandchild and that land with existing ponds and ditches could be handed down for one generation only. From 743, ownership of reclaimed land was extended to perpetuity, and from the middle of the eighth century, immunity to taxation on reclaimed land was awarded first to Buddhist establishments and then eventually to other religious institutions and secular landholders. When such reclamation projects were undertaken, it was common practice for the reclaimer to notify the provincial authorities and to com-

The right to allocate land and to tax was vested in the emperor, from 645 considered an absolute monarch. One of the functions of the reforms was to create a system of loyalty to the emperor, and the wide distribution of land was a significant attempt to weaken the powerful clans.

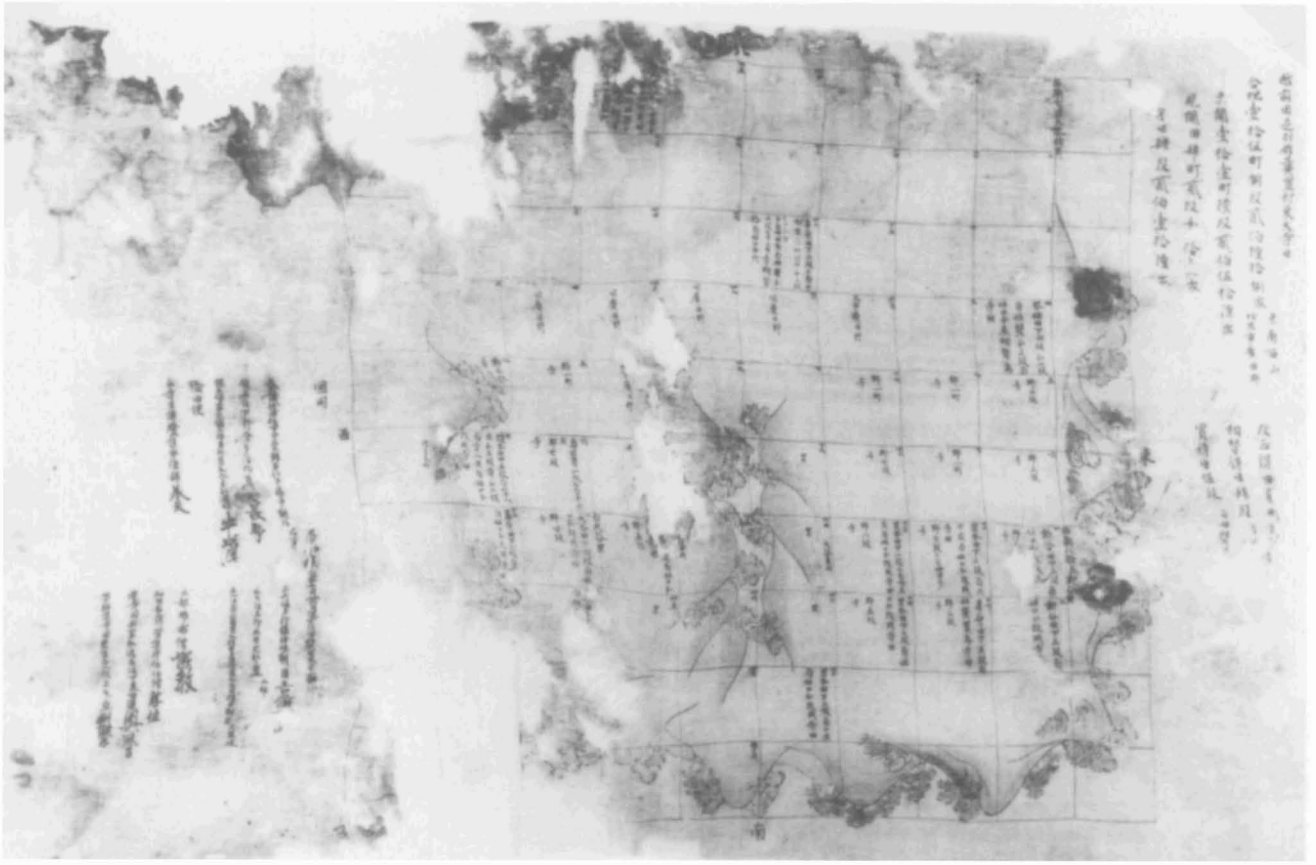

FIG. 11.8. EXAMPLE OF AN EIGHTH-CENTURY PADDY-FIELD MAP. This manuscript on hemp dating from 766 shows land belonging to Tōdai Temple (Nara) in the village of Kusooki, Asuha County, Echizen Province (today in Fukui Prefecture). Clearly depicted is the *jōri* system, each box being one square *chō* in area. The paddy field is not divided by lines, but there are written entries to show its size. Of the twelve signatures at the left of the map, one bearing the title *sanshi* (government mathematician) is found at the left of the bottom row. Size of the original: 69 × 113 cm. Shōsōin, Tōdai Temple, Nara. Photograph courtesy of Kazutaka Unno.

pile a map as evidence in the event of future disputes. The authorities then used these documents for taxation purposes.[66]

Most of the maps of rice paddies were survey maps of land that was reclaimed in the mid-eighth century. Tōdai Temple was one such institution to absorb land in the eighth century, and the Shōsōin preserves at least twenty eighth-century maps of paddy fields that were reclaimed by the temple (fig. 11.8). The earliest of these was compiled in 751, the latest in 767. With the exception of those drawn on paper, they were on hemp (another map at the Shōsōin on hemp, but which is not a paddy-field map, is the *Tōdaiji sangai shishi no zu* of 756.)[67] Signatures of the parties involved in reclamation and, in most cases, the official provincial stamps appear on these maps to prevent alteration. Also included on approximately half of these maps are the signatures of mathematicians called *sanshi* (government mathematician), implying that students of mathematics at the Daigaku Ryō were involved in surveying and mapmaking. This seems to be borne out by the fact that the maps in the possession of the temple "appear to have been based on reasonably accurate measurements" and that "some of these estate maps included topographical particulars and points of the compass."[68] In addition to the maps at the Shōsōin, other examples of eighth-century maps exist, including one relating to agricultural land of Yamada County in Sanuki Province (now in Kagawa Prefecture) that has a grid network and dates to 736 (see no. 1, appendix 11.1).

66. Under these conditions the inequitable distribution of privately owned land led to a feudal system that lacked the strong central administration envisioned by the Taika Reform and the Taihō Code. The failure of the system of allotments was acknowledged by an edict of 902, which noted that it had fallen into disuse. After this date, it appears that no more allocations were made. For a more detailed analysis of these events, see Sansom, *History of Japan*, 1:56–59, 83–89, and 103–11 (note 32).

67. Most of these are reproduced in Tōkyō Daigaku Shiryō Hensanjo, *Tōdaiji kaiden zu* (note 21).

68. Cortazzi, *Isles of Gold*, 4 (note 14).

FIG. 11.9. MAP SHOWING THE MANORS OF KŌNO AND MAKUNI IN NAGA COUNTY, KII PROVINCE. On the reverse of the manuscript an inscription dates the map to 1143, when the boundaries of the manors were confirmed. Places where signs were put to demarcate the boundaries are shown by circles. There is no particular orientation, since the information is recorded in different directions.
Size of the original: 112.5 × 92 cm. Jingo Temple, Kyōto. Photograph courtesy of Kazutaka Unno.

MAPS OF MANORS, SHRINES, AND TEMPLES

The form of private landownership by religious institutions and the aristocracy was known as *shōen* (*shō* = villa; *en* = cultivated land). After the eighth century such ownership increased, and the tendency was to enlarge existing possessions through purchase, illegal absorption of public land, and commendation (cession of private lands to the protection of feudal lords). Half of the country was under the *shōen* system in the eleventh century, and by the thirteenth there appear to have been approximately five thousand *shōen* jurisdictions.[69] Maps of manors pertained to lands that fell under the *shōen* system, and the term *shōenzu* refers to such maps.[70]

Most of the maps that pertain to landownership, however, date to the Japanese medieval period, approximately from the beginning of the Kamakura period (1185–1333) to Oda Nobunaga's (1534–82) entrance into Kyōto in 1568.[71] Maps of manors, Shinto shrines, and Buddhist temples were part and parcel of feudalism and helped to reinforce its system of controls. An important type of map in this period was the *shiji bōji no zu* (map of boundary marks on all sides), a term that was applied to maps of both secular and religious landholdings. Rivers and roads were shown planimetrically, whereas mountainous areas were drawn pictorially and in oblique profile. The maps, which tend to contain details of roads and tracts of land, were drawn in simple fashion and did not follow any established conventions. A predecessor of this type is the previously mentioned *Tōdaiji sangai shishi no zu*, which was intended to delineate the property of Tōdai Temple.

The oldest extant manorial map is of Kōno and Makuni no Shō in Kii Province (today Wakayama Prefecture), compiled in 1143 (fig. 11.9). When the annual tax exemption was determined for this manor, its acreage and borders were to be established; the survey, however, determined only the basic directional boundaries of the property. Two other manorial maps owned by the same temple also stress the delineation of important boundary limits rather than being concerned with the details of what was within them. These were of Ashimori no Shō in Bitchū Province (now part of Okayama Prefecture) in 1169 and of Kaseda no Shō in Kii Province in 1183.[72]

69. For more on the *shōen* system, see *The Cambridge History of Japan*, vol. 3, *Medieval Japan*, ed. Kozo Yamamura (Cambridge: Cambridge University Press, 1990), 89–127, Hall, *Japan*, 68–72 (note 38), and Papinot, *Dictionary of Japan*, 585 (note 43).

70. See Ramming, "Evolution of Cartography," 17 (note 10). Reproductions of nearly all the extant maps of manors from antiquity and the medieval period are in Nishioka Toranosuke, ed., *Nihon shōen ezu shūsei* (Collected maps of Japanese manors), 2 vols. (Tokyo: Tokyōdō Shuppan, 1976–77). Clearer and larger reproductions exist in volume 3 of Tōkyō Daigaku Shiryō Hensanjo (Historiographical Institute, Tokyo University), ed., *Nihon shōen ezu shūei* (Collected facsimiles of maps of Japanese manors) (Tokyo: Tōkyō Daigaku Shuppankai, 1988); this will be a five-volume series when the other four are published. For reproductions of maps, plans, and views of shrines, temples, and manors that are typical of the medieval period, see Kyōto Kokuritsu Hakubutsukan (Kyōto National Museum), ed., *Koezu: Tokubetsu tenrankai zuroku* (Old picture maps: A special exhibition catalog) (Kyōto: Kyōto Kokuritsu Hakubutsukan, 1969), and Naniwada Tōru, ed., *Koezu* (Old picture maps), Nihon no Bijutsu (Japanese art), no. 72 (Tokyo: Shibundō, 1972). The old views, maps, and plans of shrines are reproduced in Miyaji Naoichi, supervisor, *Jinja kozu shū* (Collected old drawings of shrines) (Tokyo: Nippon Denpō Tsūshinsha, 1942; reprinted Rinsen Shoten, 1989), and in Fukuyama Toshio, supervisor, *Jinja kozu shū zokuhen* (Collected old drawings of shrines, continuation) (Kyōto: Rinsen Shoten, 1990).

71. The Kamakura period was followed by an interlude known as the Kenmu Restoration, which took place under the emperor Go-Daigo (r. 1318–39) in 1333–35. Its failure led to the creation of the Ashikaga shogunate, which may be said to coincide with the Muromachi period of 1336–1573.

72. The Ashimori map (157.2 × 85.4 cm) is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 4 (note 8). The map of Kaseda (96 × 115.6 cm) is reproduced in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pl. 64 (note 70).

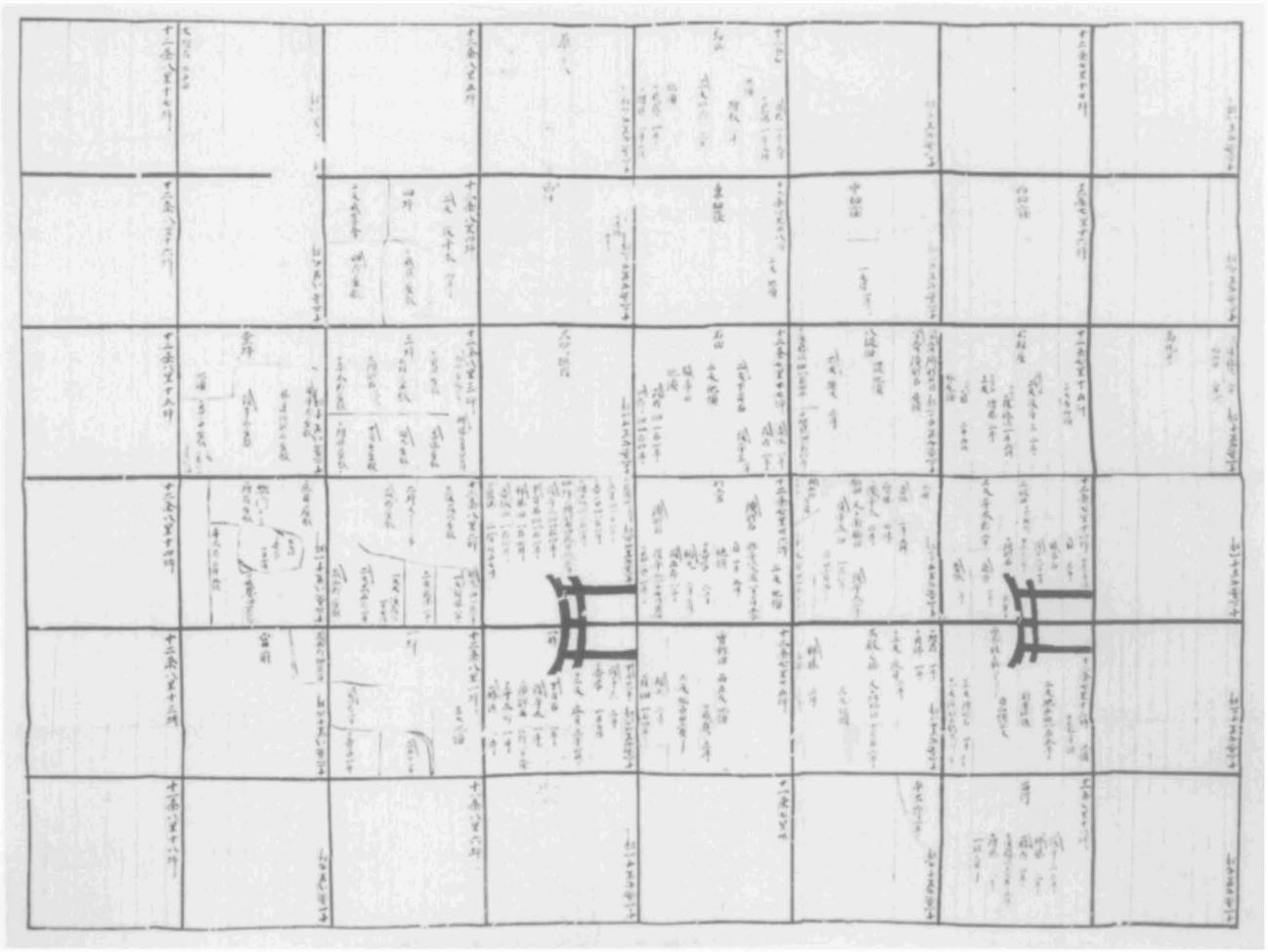

FIG. 11.10. EXAMPLE OF A *DOCHŌ:* A "LAND LEDGER" OR MAP OF THE OTOGI MANOR. The manuscript was made by Daijōin, a small branch temple of Kōfuku Temple in Nara, in 1265, so that the actual state of the manor could be shown. The *jōri*-system framework provides a clear locational reference.
Size of the original: 96.1 × 127.8 cm. National Archives, Tokyo. Photograph courtesy of Kazutaka Unno.

When the Kamakura shogunate was established in 1185, disputes concerning profits between the owners and the administrators (*jitō*) of land were common. In an attempt to resolve such disputes, the government devised a policy of dividing the manors into two equal parcels for the lord and the administrator. At this time, *shitaji chūbun no zu* (maps indicating that the land was divided into two equal parts) were compiled. Two extant maps that are representative of this process are the map of Tōgō no Shō (1258) in Hōki Province (now Tottori Prefecture), which belonged to Matsuo Shrine in Kyōto, and the map of Izaku no Shō (1324) in Satsuma Province (today Kagoshima Prefecture), which belonged to Ichijōin Temple in Nara.[73] The rivers and roads are drawn planimetrically and are relatively accurate in these works, and the division between the lord's and the administrator's lands is indicated by red lines.

The landlords needed to know the actual status of their manors, so in the thirteenth century simple maps of manors called *dochō* (literally, land ledgers) and *jikken ezu* (inspection maps) began to be compiled. In form they resembled the ancient *denzu* (cadastral maps) first compiled from surveys after the reform edict of 646. Dated examples are the *dochō* of Otogi no Shō (fig. 11.10) and the Wakatsuki no Shō of 1307, both of which were in Yamato Province (now Nara Prefecture) and belonged to Daijōin Temple in Nara.[74] The emphasis in these examples, as in others drawn for similar purposes, is on

73. The former (122.5 × 102.5 cm) is preserved in the Yanagisawa Collection in Ōsaka, and the latter (96 × 62 cm) is owned by the Historiographical Institute, Tokyo University; both are reproduced in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pls. 72 and 73 (note 70).

74. The *dochō* of Wakatsuki (122.6 × 131.6 cm) is at the Ibaraki Prefectural History Hall and is reproduced in Tōkyō Daigaku Shiryō Hensanjo, *Nihon shōen ezu shūei*, vol. 3, pl. 21 (note 70). About the *denzu*, see Ramming, "Evolution of Cartography," 17 (note 10).

FIG. 11.11. A MAP SHOWING THE PROPERTY OF JINGO TEMPLE, KYŌTO, DATING FROM 1230. Signs delimiting the property were put up in eight places. The manuscript shows multiple perspectives because the inscriptions are written in different directions.
Size of the original: 199.2 × 160.8 cm. Jingo Temple, Kyōto. Photograph courtesy of Kazutaka Unno.

describing the content rather than the shape of the parcels of land. Entered into a *jōri*-system framework are placenames, rice paddies and vegetable fields, and the acreage for the lord and the administrator. Some of them contain ponds, rivers, roads, and the like, but in general they have few pictorial elements. That they were drawn in black and white also attests that they were designed to serve immediate practical purposes.

Maps were also compiled to designate the properties of shrines and temples. Two examples dating to 1230 depict the regions surrounding Jingo Temple and its branch, Kōzan Temple; these are the *Jingoji jiryō bōji ezu* (Map of the property of Jingo Temple) (fig. 11.11) and the *Kōzanji jiryō bōji ezu* (Map of the property of Kōzan Temple).[75] They were commissioned to prevent neighboring peasants from entering the grounds of the temple to cut the trees and fish in its river. The temple applied to the imperial court, which sent officials to help the head of the temple inspect the grounds, plant markers to indicate important points, and register them on the maps. These maps are typical examples of the *shīji bōji no zu* of temples. Two more examples are the *Rinsenji ryō Ōi Gō kaihan ezu* (Plan of the boundaries of Ōi Gō owned by Rinsen Temple) of 1347 and the *Ōei kinmei ezu* (Map compiled under shogunal orders in the Ōei era [1394–1428]) of 1426.[76] These differed from the *shīji bōji no zu* genre in that the roads and tracts of land were drawn with straight lines, an indication that straightedges were used. The former shows the area surrounding Rinsen Temple in Saga (now a part of metropolitan Kyōto) and notes the temple as the owner of each parcel of land. The latter contains the same area, but its scope is greater and the content more detailed: it notes over one hundred temples facing the road, but because it does not designate landownership, it was obviously made for a different purpose.

In addition to maps indicating ownership, some maps were drafted to assist in the rebuilding, repair, and restoration of shrines and temples. Detailed plans were commissioned especially at the time of rebuilding, as suggested by the *Fukōin kyūki hōkyō ezu* (Plan of the old structure of Fukōin Temple) (fig. 11.12). This was compiled when Fukōin Temple, a branch of Shōkoku Temple in Kyōto, was rebuilt and clearly marks the locations of individual pillars. Another example is the *Tsurugaoka Hachimangū shūei mokuromi ezu* (Plan for building and repairs of Tsurugaoka Hachiman Shrine) of 1591.[77] Architectural drawings of a less detailed nature were composed for repairs and restoration as well as for more general purposes. Oblique drawings were used to emphasize the features of buildings, but these were often based on original planar drawings. Examples include the *Gion oyashiro ezu* (Map of Gion Shrine) of 1331 (plate 22) and the *Usa Hachimangū ezu* (Map of Usa Hachiman Shrine) and *Shimogamo jinja ezu* (Map of Shimogamo Shrine) from about the fifteenth century.[78]

A group of landscape drawings that was characteristically medieval is the so-called mandala (Japanese

75. The latter (163.7 × 164.6 cm) is reproduced in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pl. 55 (note 70), and (colored) in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 5 (note 8).

76. For the 1347 map (140 × 207 cm) see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 7 (note 8); for the 1426 map (291.2 × 241.5 cm) see Kyōto Kokuritsu Hakubutsukan, *Koezu*, pl. 61 (note 70).

77. Owned by Tsurugaoka Hachiman Shrine in Kamakura. It measures 139.2 by 105 centimeters and is reproduced in Miyaji, *Jinja kozu shū*, pl. 69, and in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pl. 76 (both in note 70).

78. The first two maps (167 × 107.5 cm and 135 × 139 cm) are preserved at their respective shrines, Gion Shrine today being generally referred to as Yasaka Shrine (Kyōto) and Usa being in Ōita. The map of Shimogamo Shrine (in Kyōto), 214 by 193.5 centimeters, is owned by the Kyōto National Museum. All three are reproduced in Miyaji, *Jinja kozu shū*, the first in color in the frontispiece with a detail in pl. 27, and the others in pls. 128 and 19, and in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pls. 1, 6, and 2 (both in note 70).

mandara; religious picture) type. The original use of a mandala, as a cosmic diagram, was to assist meditation in the Shingon sect of Buddhism, founded in 806 by the priest Kūkai (774–835) (see pp. 373–74). They could be drawn for individual rites by sketching on the ground, or they could be produced in a more permanent fashion as paintings and carvings. In either case, in the Heian period and subsequently, mandalas were primarily for religious purposes rather than objects of art. The term came to be applied to paintings that were not related to esoteric Buddhism but showed famous Shinto shrines and Buddhist deities.

Such are the picture maps of landscapes containing shrines and temples, used as religious objects, that are discussed next. Extant examples show that they were oblique drawings with multiple viewpoints and must have been based on plans showing the arrangement of the buildings. They substituted for personal visits and were known by the name of the depicted shrine or temple plus the Sanskrit mandala at the end.[79] They were worshiped as early as the late twelfth century. In his diary, the *Gyokuyō* (literally, Leaves of gem), the regent Kujō Kanezane (1149–1207) notes that he performed religious services in front of such a drawing that had been sent in 1184 by a Buddhist priest in Nara:

> I received a picture of Kasuga Shrine from a monk in Nara. Early in the morning after washing, I got dressed in formal wear, worshiped as if I were in front of the actual shrine, and read one thousand volumes of Buddhist scripture. It is quite a penance. I will continue to do this with my family for the next seven days.[80]

The map was a surrogate for reality, and the services were conducted in the same manner as services in person at the shrine.

The *Hanazono tennō shinki* (Autographic record of the emperor Hanazono [1297–1348]) records that in 1326 such drawings were known as mandalas. The emperor writes in February 1326, "For the last three or four years, people make offerings and perform various ceremonies before a Kasuga-mandala [picture of the shrine of that name] as they would if they were at the shrine."[81] This confirms that the term was used at least from the first quarter of the fourteenth century onward. Approximately fifteen mandala-type drawings are extant, the oldest dated example being the *Kasugamiya mandara* (Mandala of Kasuga Shrine) by the artist Kanshun (fig. 11.13).[82]

Among the mandala genre as a whole is a colorful and attractive group known as the *sankei mandara* (mandalas for visitations), dating from between the fifteenth and seventeenth centuries.[83] Their distinguishing feature is the ordinary people who appear in the scenes. Rather than being used for religious services, they were carried by shamans to believers and clients and presumably used as

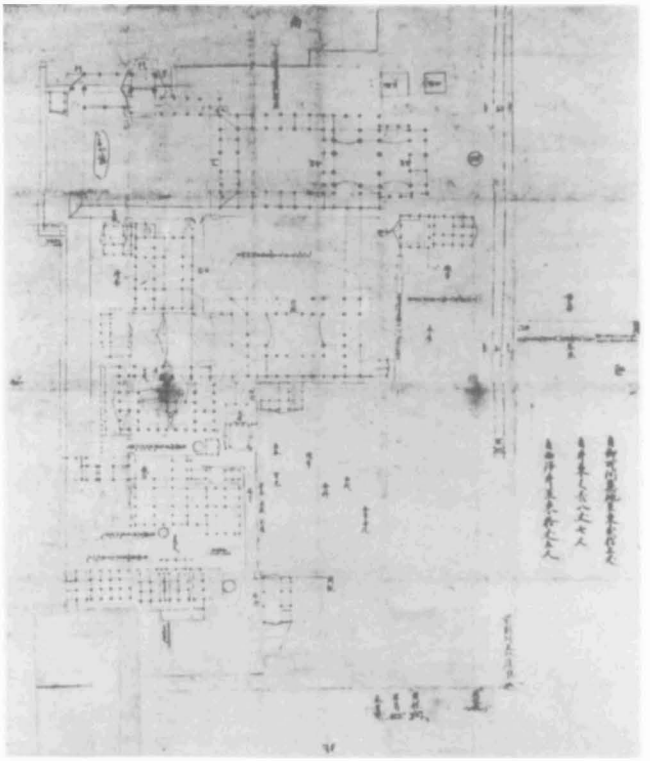

FIG. 11.12. THE *FUKŌIN KYŪKI HŌKYŌ EZU* OF 1510. This is an example of a plan used for rebuilding. Note that the locations of the pillars are clearly marked on the manuscript. (The title was given to the plan at a later date.)
Size of the original: 157.4 × 130 cm. Shōkoku Temple, Kyōto. Photograph courtesy of Kazutaka Unno.

79. See, for example, Varley, *Japanese Culture*, 49–50 (note 47), and Hugo Munsterberg, *The Arts of Japan: An Illustrated History* (Tokyo: Charles E. Tuttle, 1985), 79 and 96.

80. *Gyokuyō*, 3 vols., 66 chaps. (Tokyo: Kokusho Kankōkai, 1906–7), vol. 3, chap. 40, p. 22. Although Kasuga Shrine is Shinto and the monk and scripture are Buddhist, there is no inconsistency in Kujō's entry. Until the Meiji Restoration in 1868, when a clear division was made between shrines (Shinto) and temples (Buddhist), and also between priests of the two religions, it was not unusual for a Buddhist priest to serve as a Shinto priest as well.

81. The diary is in the *Shiryō taisei* (Series of historical materials), vols. 33–34 (Tokyo: Naigai Shoseki, 1938), quotation on 34:158.

82. Other examples include: *Ikomamiya mandara* (Mandala of Ikoma Shrine), early fourteenth century (104.9 × 41.7 cm) at the Nara National Museum; *Iwashimizu hachimangū mandara* (Mandala of Iwashimizu Hachiman Shrine), early fourteenth century (88.7 × 27.9 cm) at Rikkyokuan, Tōfuku Temple in Kyōto; and *Kakinomotomiya mandara* (Mandala of Kakinomoto Shrine), mid-fourteenth century (132.9 × 57.8 cm) at the Yamato Culture Hall. These and other extant examples are reproduced in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pls. 45 (Kasuga), 43 (Ikoma), 50 (Iwashimizu), 42 (Kakinomoto), and others between 37 and 51 (note 70). Reproductions of the Ikoma and Iwashimizu mandalas are also in Miyaji, *Jinja kozu shū*, pls. 47–48 and 11, and that of Kasuga in Fukuyama, *Jinja kozu shū zokuhen*, pl. 1 (both in note 70).

83. For example, *Atsuta sangū mandara* (Mandala for pilgrimages

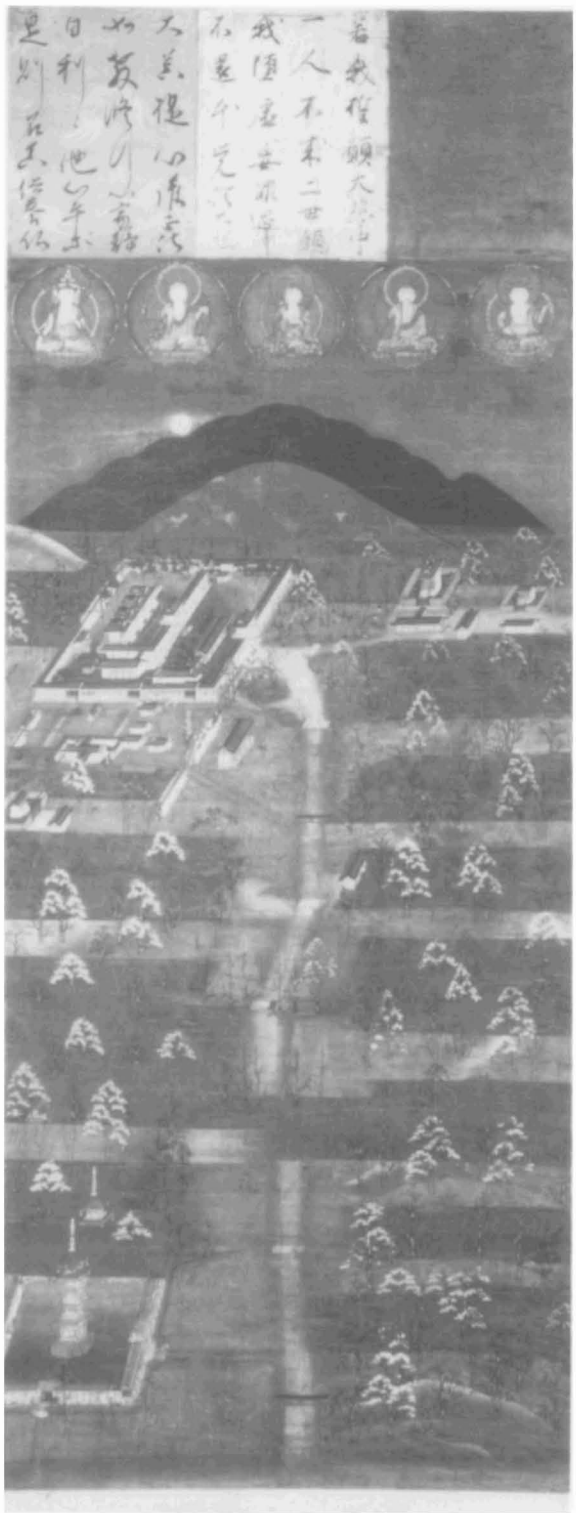

FIG. 11.13. THE *KASUGAMIYA MANDARA* OF 1300. In this manuscript, the oldest dated extant sample of the "mandala" landscape genre, solemnity is more important than accuracy: such maps, which served as surrogates for the actual shrines and temples, were used for religious worship. The oblique perspective with more than one viewpoint was typical of the genre. Size of the original: 108.5 × 41.5 cm. By permission of the Yuki Museum of Art, Ōsaka.

promotional material to show the splendor and prosperity of their shrines and temples.

THE GYŌKI-TYPE MAPS OF JAPAN

The official histories indicate that orders were issued for provincial maps in 646, 738, and 796.[84] Although there is no existing evidence that a map of Japan was compiled from them, there is at least indirect evidence of what a mental image of the country might have been at the time. A Chinese official history, the *Sui shu* (History of the Sui), notes that it took five months to cross the territory of Wa (Japan) from west to east and three months from north to south, according to the indigenous people.[85] Although these figures were most likely an exaggeration to impress the Chinese, they do at least suggest that the longer axis lay west to east. The *Engi shiki* (Rules pertaining to the execution of laws, edited in 927) similarly suggests that the general shape of the country had been visualized. The text refers to the boundaries of the territory as being Michinoku in the east, Tōchika in the west, Tosa in the south, and Sado in the north; respectively they are northeastern Honshū, the Gotō Islands off western Kyūshū, a province in southern Shikoku, and an island in the Sea of Japan where the northward curve of Honshū begins to be pronounced.[86] This suggests that the archipelago was thought to be elongated from east to west, and the idea that Sado forms the northern boundary, rather than some point in northern Honshū, suggests that the curve of Honshū was not yet understood. That half of Kyūshū lies farther south than southern Shikoku also appears not to have been known.

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to Atsuta Shrine [Nagoya]), 1529 (169.7 × 144.8 cm), Tokugawa Reimeikai, Tokyo; *Fuji sangū mandara* (Mandala for pilgrimages to Mount Fuji), drawn by Kanō Motonobu (1476–1559), mid-sixteenth century (180.6 × 118.2 cm), Sengen Shrine, Fuji; and *Nachi sangū mandara* (Mandala for pilgrimages to Nachi Shrine), late sixteenth century (150 × 160 cm), Nachi Taisha Shrine, Kumano. These and other *sankei mandara* are reproduced in Kyōto Kokuritsu Hakubutsukan, *Koezu*, pls. 31 (Atsuta), 35 (Fuji), 28 (Nachi), and others between 23 and 36 (note 70). The Atsuta mandala is reproduced in Miyaji, *Jinja kozu shū*, pls. 62 and 63, and those of Nachi and Fuji in Fukuyama, *Jinja kozu shū zokuhen*, pls. 42 and 49 (both in note 70).

84. See the section on the literary evidence for maps above.

85. Wei Zheng et al., *Sui shu* (compiled 629–56), chap. 81; see the edition in 6 vols. (Beijing: Zhonghua Shuju, 1973), 6:1825. "Wa" is the term used for Japan in ancient Chinese documents. Japan, of course, was smaller then than today and extended only as far eastward as central Honshū.

86. See chapter 16 of the *Engi shiki*, in vol. 26 of the *Shintei zōho kokushi taikei* (note 37). Papinot refers to the *Engi shiki* as "a collection in 50 volumes of the regulations concerning the ceremonies of the palace, the audiences of the officials, the customs of the provinces, etc.": Papinot, *Dictionary of Japan*, 81 (note 43). These boundaries pertain to an annual ritual (Tsuina) held at the imperial court, in which prayers were offered to the Shinto gods so that they might drive evil spirits out of the country.

FIG. 11.14. MAP OF JAPAN OWNED BY NINNA TEMPLE, KYŌTO. This manuscript dates from 1306. It is oriented to the south, and the main routes leading from the capital province of Yamashiro (today Kyōto Prefecture) are shown in red. The part showing western Japan is damaged, so it is impossible to determine the complete image of the country at the time. Size of the original: 34.5 × 121.5 cm. Ninna Temple, Kyōto. Photograph courtesy of Kazutaka Unno.

The first general maps of Japan tended to be diagrams depicting the provinces of the country and the main routes from Yamashiro, the province where the capital of Kyōto was situated.[87] These are termed "Gyōki-type" maps after the Buddhist priest Gyōki (668–749). Gyōki played an important role in diffusing Buddhism, and he appears to have been not only a traveling monk but also a civil engineer, inasmuch as he was involved in constructing public works such as dams, canals, bridges, and roads. There is a possibility that he had something to do with the 738 order to compile provincial maps: he evidently had a great influence on the emperor Shōmu (r. 724–49) and played an important role at his court.[88]

No maps of the kind attributed to Gyōki are extant from the eighth century.[89] Such maps were known to have been compiled as early as the beginning of the ninth century, however, and particularly from the early fourteenth until the mid-nineteenth century (see appendix 11.2). The genre is typical of the conservative element in Japanese culture and established a conventional image of the country at least until the arrival of the Europeans in the sixteenth and seventeenth centuries. Cortazzi puts it thus:

> Although the Gyōgi-type maps gradually improved, they never contained much in the way of geographical information, and the shape of the Japanese islands became stereotyped, so that even when mapmakers knew better they tended to follow the old patterns. This kind of stereotyping was a common feature of many other aspects of Japanese culture from the eleventh to the nineteenth century, including poetry . . . theatre arts . . . and even the martial arts.[90]

Whether Gyōki himself actually composed any maps is not known, but the most reliable biography, the *Gyōki nenpu* (Chronological history of Gyōki) of 1175, by Izumi no Takachichi, does not mention mapmaking among his varied activities.[91] There is similarly no tangible evidence of a Gyōki-type map from the Nara period, one that would have shown the province of Yamato, where the capital of Nara was situated, as the focal point and the origin of the main routes.

How these maps came to be attributed to Gyōki is nonetheless of interest. Inscriptions on one of the oldest extant originals of a Gyōki-type map, composed in 1306 and in the possession of Ninna Temple in Kyōto, provide a clue (fig. 11.14). There is one that notes that "the author copied the map sheltered from cold winds; the map should not be shown to outsiders," and another gives the date "third year of Kagen, Tairyo (the twelfth month)" (January/February 1306). These indicate that there might have been a connection between the map and the annual ritual of Tsuina, held on the last day of the year at the imperial court to drive evil spirits beyond the boundaries of the country.[92] Gyōki is associated with

87. An exception is a manuscript map owned by Shōmyō Temple in Yokohama and kept at the Kanazawa Bunko. The extant portion covers only the western half of Japan and also refers to Mongolia (Mōkokoku). It is oriented to the south, and the shapes of the provinces are similar to those on the "Yochi zu" (see notes 98 and 99 below). See Akioka, *Nihon chizu shi*, pl. 4, pp. 19–22 (note 7). Cortazzi reproduces the map but repeats Akioka's unfounded inference of 1305 as its approximate date: see Cortazzi, *Isles of Gold*, pl. 4 and pp. 5–6 (note 14).

88. See, for instance, Papinot, *Dictionary of Japan*, 134 (note 43), and Cortazzi, *Isles of Gold*, 4 (note 14).

89. At least one source, nevertheless, gives the eighth century as the origin of the Gyōki-type maps: Akioka, *Nihon chizu shi*, 3 (note 7).

90. Cortazzi, *Isles of Gold*, 10 (note 14).

91. The *Gyōki nenpu* is in the *Zokuzoku gunsho ruijū* (Classified series of various books: Second continuation), 16 vols. (Tokyo: Kokusho Kankōkai, 1906–9; reprinted 1969–78), 3:428–37.

92. Until 1873, when Japan adopted the Gregorian calendar, a lunisolar calendar was used; new years began between the equivalents of 20 January and 19 February of the Christian calendar: see Papinot, *Dictionary of Japan*, 836 (note 43), and Nakayama, *History of Japanese Astronomy*, 65–73 (note 38).

FIG. 11.15. THE "DAINIHONKOKU ZU" IN THE 1548 CODEX OF THE *SHŪGAISHŌ*. Important geographical features are the provinces and the main routes (in red), which focus on Yamashiro Province where the capital of Kyōto was situated. The explanation in the upper left corner and the information on the map are to be read from different directions, the first with the left side on top and the second with the right. Size of the original: 26.3 × 41.3 cm. By permission of the Tenri Central Library, Tenri, Nara Prefecture.

this ritual: according to the records of Hōshaku Temple in Yamazaki, Yamashiro Province, Gyōki advised the emperor Monmu (r. 697–707) of its necessity in 706.[93] A map depicting the boundaries of the country might have been of interest to those involved in the ceremony. Originally this would have taken place at the imperial court, but later a large number of shrines and temples held their own ceremonies. The map at Ninna Temple might have been copied for this purpose. Inscriptions relating to Buddhism, such as "Buddhism prospers more and more vigorously" on the *Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa)[94] of about 1550 at Tōshōdai Temple in Nara, a map of Japan in the *Shūgaishō* (Collection of oddments), an encyclopedia compiled by Tōin Kinkata (1291–1360), and other maps of the Gyōki genre, strongly suggest that such maps had religious associations and praised the country. It is as such that they should be understood, rather than as practical maps designed to show geographical information in the modern sense.

Typically the Gyōki-type maps show the archipelago

93. Gyōki was the founder of this temple. See Terajima Ryōan, ed., *Wakan sansai zue* (Illustrated encyclopedia of Japanese and Chinese things related to the three powers [heaven, earth, and man], 1715), chap. 4; modern edition in 2 vols. (Tokyo: Tōkyō Bijutsu, 1982), 1:56.

94. Jambūdvīpa is the continent containing India and the surrounding territories in Buddhist cosmology (see the next section). It was common for Japanese to refer to their country as "Great Japan in Jambūdvīpa" during the long medieval period in which Buddhism heavily influenced Japanese culture (roughly the eleventh through the seventeenth centuries). The term appears to have been used to indicate that Japan was a part of the same world as India and China. Around the map are entries showing the names of administrative divisions in Japan and various statistical information. It is a manuscript map (for details see appendix 11.2); reproductions are in Akioka, *Nihon chizu shi*, pl. 12, pp. 47–53 (note 7); Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 8 (note 8), and Cortazzi, *Isles of Gold*, pl. 5, with a commentary on p. 6 (note 14).

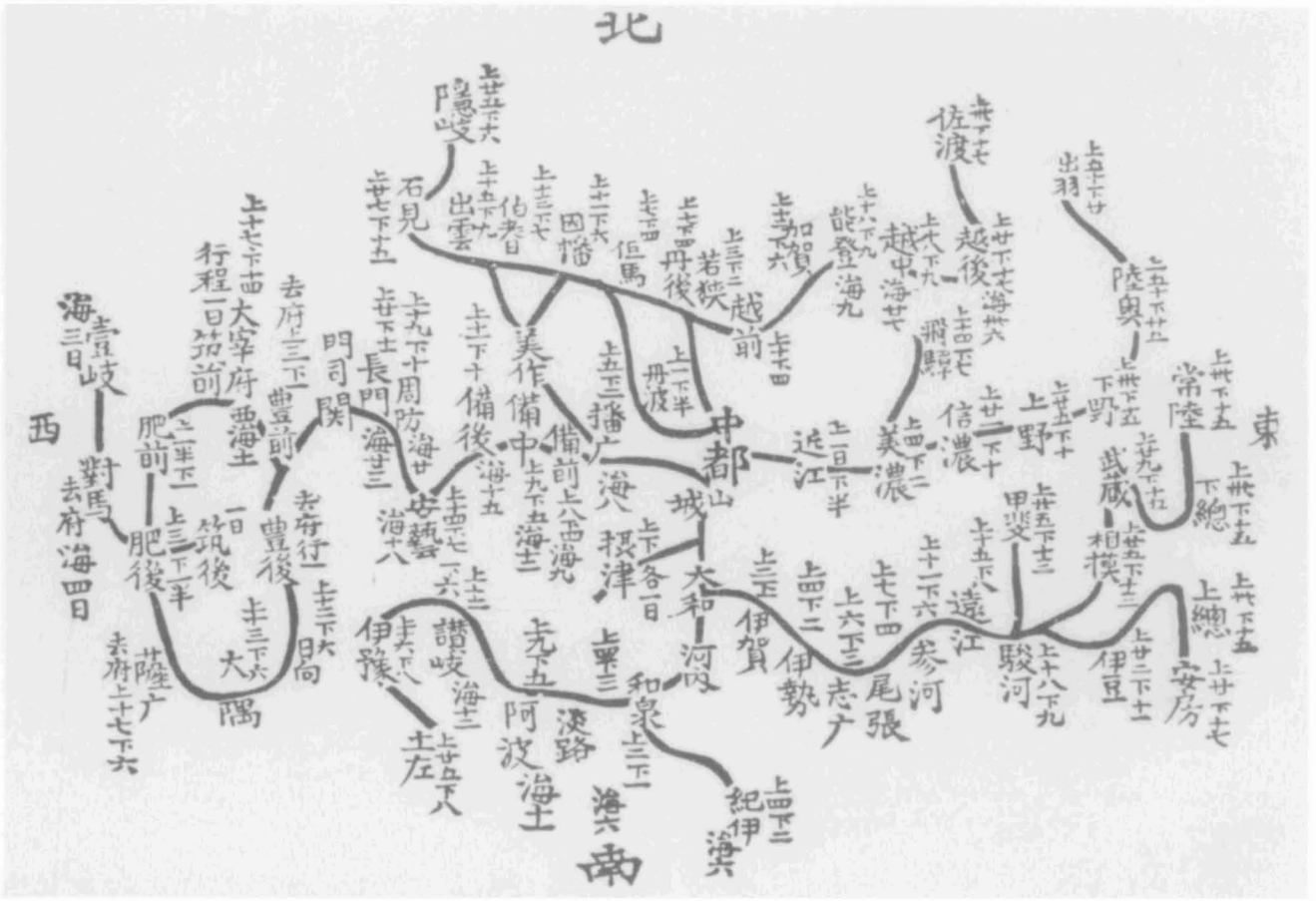


FIG. 11.16. A MAP OF JAPAN IN THE *NICHŪREKI*. This map is a schematic representation of main routes and places, and probably served as an aid for tax collection: its contents include Dazaifu (a local agency of the central government) in northern Kyūshū and Moji ga Seki on the tip of Kyūshū facing Honshū over the Strait of Shimonoseki. Tribute from the provinces west of Moji ga Seki was taken to Dazaifu, and that from the rest went to Kyōto.
Size of the original: 22.7 × 30.6 cm. From the reproduction in Kondō Heijō and Kondō Keizō, eds., *Kaitei shiseki shūran* (Revised collection of historical books), vol. 23 (Tokyo: Kondō Shuppanbu, 1901), maps p. 190.

as elongated from east to west, with a slight northward curve in the thicker eastern end of Honshū. The lack of a prominent curve may be seen on examples from as late as the latter half of the sixteenth century: the map at Tōshōdai Temple of about 1550 and copies of the "Dainihonkoku zu" (Map of Great Japan) in a 1548 and 1589 version of the *Shūgaishō* (see fig. 11.15).[95] Other characteristic features include the provinces drawn in roundish shapes, using curved lines wherever possible, thereby giving the coastline the irregular appearance of a collection of arcs. Geographical accuracy was not a particular consideration; what was important was the relative position of the provinces and a general scheme of the main roads leading from the capital province of Yamashiro. Information was recorded in marginal notes, some of which suggest a practical use for the maps. The maps in the 1548 and 1589 *Shūgaishō*, for example, contain entries about the number of days needed to carry tribute from each province to the central authorities and the names of places that were important to travelers; these entries, however, were omitted in printed editions published later in the Edo period (1603–1867).[96] The form

95. The 1548 and 1589 codices are at the Tenri Central Library, Tenri, and the Sonkeikaku Library, Tokyo. The latter was published in facsimile in 1976 (Tokyo: Kojisho Sōkan Kankōkai) and its map is reproduced in color in *Kokushi daijiten* (Large dictionary of the history of our country [Japan]) (Tokyo: Yoshikawa Kōbunkan, 1979–), vol. 11 (1990), color pages "Nihon zu" (maps of Japan), pl. 2.

96. There is one edition from the Keichō era (1596–1614) with no colophon (ca. 1607); three others with dates and publishers are 1642 by Nankyōshodō, 1642 by Nishimura Kichibee, and 1656 by Murakami Kanbee; all were published in Kyōto. There are also a few more editions without a date. The map in the Keichō edition is reproduced in Kurita, *Nihon kohan chizu shūsei*, "Kaisetsu" (explanation), folding plate (note 15); Akioka, *Nihon chizu shi*, pl. 5 (note 7), and idem, *Nihon kochizu shūsei*, pl. 7 (note 15). Cortazzi reproduces a map of Japan (17.5 × 27.5 cm) from a later edition of the *Shūgaishō* at the Tenri Central Library

and content of the entries for the number of days in the *Shūgaishō* map are similar to those found on a map in the encyclopedia *Nichūreki* (Two guides, twelfth century) (fig. 11.16).[97] Other examples of Gyōki maps include the *Yochi zu* (Land map) of 805, not extant but known from later copies,[98] and though it does not show any routes, a map showing western Japan owned by Shōmyō Temple in Yokohama. Only part of the second map has survived, and it dates to the latter part of the thirteenth century. It shows the body of either a dragon or a snake, most likely the former, since the dragon was a guardian deity of Buddhism, considered to control water, rain, and clouds, and here would be protecting Japan.[99]

The Gyōki-style image also found its way into printed Chinese and Korean maps showing Japan in the fifteenth and sixteenth centuries. Examples include a woodblock print in the Korean *Haedong cheguk ki* (Chronicle of the countries in the Eastern Sea [Japan, Ryūkyū]) of 1471 by Sin Sukchu (1417–75), and another woodblock edition printed in China in 1523, the *Ribenguo kaolüe* (Summary of Japan).[100] They were also a source for European cartographers late in the sixteenth century.[101] Two examples are known to exist in European archives: one in the Medici papers relating to the East Indian trade may date to the diplomatic mission to Europe of four young Christian Japanese nobles in 1582–90.[102] The other, in the Archivo

in Nara Prefecture; see Cortazzi, *Isles of Gold*, 8 and 71 (pl. 6) (note 14).

97. The *Nichūreki* was formed from the previous portable encyclopedias *Shōchūreki* (Hand-size guide) and *Kaichūreki* (Pocket guide), both compiled early in the twelfth century. The two maps in the *Nichūreki* are manuscript diagrams showing the main routes from Kyōto but without any geographical outline of the islands. One of them lists the number of days required to carry tribute, the other does not. The latter, according to an inscription, was copied by the student Miyoshi Yukiyasu from the first volume of the *Kaichūreki* in 1128. The first has no such inscriptions. The earliest codex of the *Nichūreki*, dating from approximately 1324–28, is owned by the Sonkeikaku Library (22.7 × 15.3 cm); a facsimile was published by the library in 1937. The *Nichūreki* is reproduced in Kondō Heijō and Kondō Keizō, eds., *Kaitei shiseki shūran* (Revised collection of historical books), vol. 23 (Tokyo: Kondō Shuppanbu, 1901), maps: p. 190. Akioka and Cortazzi reproduce the map without the information for tribute: see Akioka, *Nihon chizu shi*, pl. 2 (note 7), and Cortazzi, *Isles of Gold*, pl. 3 (note 14).

98. According to Fujii Sadamiki (1732–97), the original belonged to Shimogamo Shrine in Kyōto. Unfortunately it has not been found there or anywhere else at present. The copy is in chapter 2 of Fujii's *Shūko zu* (Illustrations of collected antiques) at the National Museum of Japanese History, Sakura, and elsewhere and contains the main routes (in red lines) from Yamashiro to the other provinces (see appendix 11.2). A copy of the map alone is at the National Archives in Tokyo. See also Akioka, *Nihon chizu shi*, pl. 1, pp. 9–13 (note 7).

99. For the map at Shōmyō Temple, see note 87 above. In the strictest sense, the Shōmyō map, like those in the *Nichūreki*, is not a Gyōki-type example; it has enough in common with others, however, to warrant consideration as such here. Whether there was a precise reason for the presumed dragon is not known, but a possible symbolic reason might be surmised from the events by and in the last third of the thirteenth century. Throughout the Kamakura period (1192–1333) a Chinese influence was felt in Japanese art, to some extent created by the influx of refugees at the time of the Mongolian conquest (1234–79). The Mongolians attempted to invade Japan in 1274 and again in 1281, both times being stymied by stormy weather, referred to as the original *kamikaze* (divine wind). It is possible to imagine the dragon as a symbol of the *kamikaze*, and the dragon around the archipelago in the Shōmyō Temple map as a type of divine savior or protector. See, for example, James Jackson Jarves, *A Glimpse at the Art of Japan* (1876; reprinted Tokyo: Charles E. Tuttle, 1984), 81–82; Basil Hall Chamberlain, *Japanese Things: Being Notes on Various Subjects Connected with Japan* (Tokyo: Charles E. Tuttle, 1985; reprinted from an edition of 1905), 443–44; Munsterberg, *Arts of Japan*, 39 and 90 (89–105 for the art of the Kamakura period) (note 79); and Noritake Tsuda, *Handbook of Japanese Art* (1941; reprinted Tokyo: Charles E. Tuttle, 1985), 221 (108–41 for the Kamakura period).

100. Akioka notes that the *Haedong cheguk ki* has the first printed individual map of Japan in the world. Both maps are mentioned: Akioka, *Nihon chizu shi*, 33–37, pl. 8–9 (note 7). The map in the *Haedong cheguk ki* was not, however, the first Gyōki-type image to appear outside Japan: one appears on a Korean world map dated 1402 (oldest surviving copy is from around 1470); this is mentioned, for example, in Unno, "Japan," 358 (note 14). On the Korean world map dated 1402 and the *Haedong cheguk ki*, see chapter 10 above. The *Haedong cheguk ki* has been reproduced in Japanese by the Iwanami Bunko, *Kaitō shokoku ki* (Chronicle of the countries in the Eastern Sea), blue series 458–1 (Tokyo: Iwanami Shoten, 1991).

101. The Gyōki-type maps were just one source of information for Western cartographers, and examples of European maps based on this style are discussed and reproduced in the works of several historians. See, for instance, Armando Cortesão, "Study of the Evolution of the Early Cartographic Representation of Some Regions of the World: Japan," in *Portugaliae monumenta cartographica*, 6 vols., by Armando Cortesão and Avelino Teixeira da Mota (Lisbon, 1960; facsimile edition, Lisbon: Imprensa Nacional–Casa da Moeda, 1987), 5:170–78 and 6:40–41 (addenda); Cortazzi, *Isles of Gold*, 17–25 and pls. 12–29, which show some European maps from 1528 to 1646–57 (note 14); Erik W. Dahlgren, *Les débuts de la cartographie du Japon* (Uppsala: K. W. Appelberg, 1911; reprinted Amsterdam: Meridian, 1977); George Kish, "The Cartography of Japan during the Middle Tokugawa Era: A Study in Cross-Cultural Influences," *Annals of the Association of American Geographers* 37 (1947): 101–19; and idem, "Some Aspects of the Missionary Cartography of Japan during the Sixteenth Century," *Imago Mundi* 6 (1949): 39–47.

102. The four young nobles represented the Christian daimyates of Bungo, Ōmura, and Arima in Kyūshū. The envoy was arranged by the Jesuit missionary Alessandro Valignani after the first of his three residencies in Japan (1579–82, 1590–92, and 1598–1603). For an account of the mission, see Otis Cary, *A History of Christianity in Japan*, 2 vols. (New York: Fleming H. Revell, 1909; reprinted 1987), vol. 1, *Roman Catholic and Greek Orthodox Missions*, 92–97. The map found in the Medici papers, titled *Iapam*, is an unattributed, undated manuscript (see appendix 11.2); for discussions on this map and reproductions see Akioka, *Nihon chizu shi*, 186–90, pl. 14 (note 7); Hiroshi Nakamura, "Les cartes du Japon qui servaient de modèle aux cartographes européens au début des relations de l'Occident avec le Japon," *Monumenta Nipponica* 2, no. 1 (1939): 100–123; Cortazzi, *Isles of Gold*, 23–24 and pl. 23 (note 14); and Kish, "Missionary Cartography," 42–46 (note 101). Kish refers to an article written by the discoverer of the map: Sebastiano Crinò, "La prima carta corografica inedita del Giappone portata in Italia nel 1585 e rinvenuta in una filza di documenti riguardanti il commercio dei Medici nelle Indie Orientali e Occidentali," *Rivista Marittima* 64 (1931): 257–84.

Histórico Nacional in Madrid, is dated 1587 and was included in the report of the 1587 mission to the Spanish viceroy of the Philippines by the feudal lord of Hirado, Hizen Province, Matsura Shigenobu (1549–1614).[103]

BUDDHIST WORLD MAPS

The indigenous Shinto mythology places the world into a vertical structure incorporating the heavenly world, the earth, and the underworld.[104] There is no horizontal structure, however, which perhaps accounts for the lack of Shinto maps. Buddhism, on the other hand, contains concrete spatial views about the universe,[105] and with its arrival in the sixth century A.D. via Korea, the foundation was laid for a whole genre of religious world maps.

At the center of the Buddhist universe, in doctrines transmitted to Japan, is a tall mountain called Sumeru, Sumi or Shumi in Japanese. It is in the middle of a flat circular earth, and around it revolve the sun and the moon. At the foot of the mountain are seven basins of water and seven mountain ranges alternating in concentric circles. Beyond them is a broad stretch of brackish ocean surrounded by yet another range of mountains. In the ocean there are four continents with different shapes, to the north, east, south, and west. The actual geographical region to contain India and the surrounding territories is represented by the southern continent, which appears as an inverted triangle and suggests the shape of the Deccan peninsula. In Sanskrit this continent is called Jambūdvīpa after a huge imaginary *jambū* tree believed to grow in the far north of India, the word *dvīpa* meaning land; its Japanese equivalents are *Enbudai* and *Senbushū*, based on the pronunciation of the Chinese translation. The other three continents originally may have been suggested by the areas surrounding India, but in Buddhism they have become purely imaginary continents.[106]

The *Nihon shoki* provides the evidence that this worldview had been accepted by the Japanese by the middle of the seventh century. It notes that a model of Mount Sumeru was constructed in the metropolitan area of Asuka, Nara Prefecture, in 657 in order to hold a welcoming party for overseas visitors. We are told: "A model of Mount Sumi was constructed to the west of the Temple of Asuka-dera. Moreover the festival of All Souls was held. In the evening the people from Tukhāra [Dvāravatī, on the lower Mae Nam River] were entertained."[107] Two other references to models of Sumeru

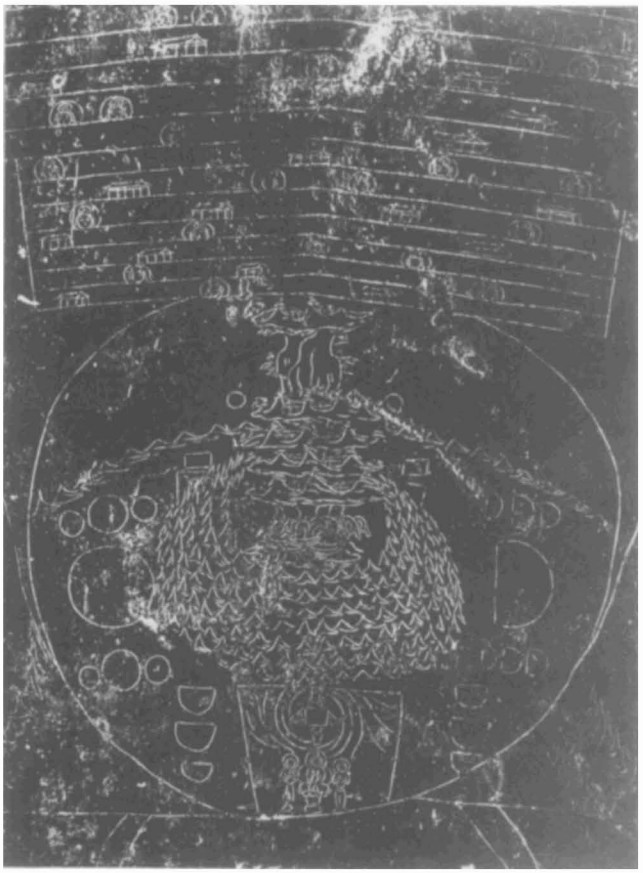


FIG. 11.17. AN OBLIQUE VIEW OF MOUNT SUMERU AND THE UNIVERSE ENGRAVED ON THE PEDESTAL OF THE GREAT STATUE OF THE BUDDHA AT TŌDAI TEMPLE. At the top are shown the twenty-five strata of the heavens, while Jambūdvīpa and its four great rivers flowing out of Lake Anotatta are shown in the lower portion. The rivers flow out of the lake through the mouths of an ox, a horse, an elephant, and a lion and make a circle around the lake. The bronze pedestal was cast in 749.
Width of the original: ca. 40 cm. Photograph courtesy of Kazutaka Unno.

103. This map, a manuscript sketch, is also mentioned by Cortazzi, *Isles of Gold*, 24 (note 14). A lengthier discussion, comparing it with the Florence map, and a copy of Nakamura's tracing of the map are found in Kish, "Missionary Cartography," 44–46 (including fig. 4) (note 101); cited is Nakamura, "Les cartes du Japon." Matsura (spelled Matsuura in this case) is mentioned in regard to trade with Spaniards based in Manila in Sansom, *History of Japan*, 2:373 (note 32).

104. These are Takamagahara (or Takama no hara, the Plain of High Heaven); Ashihara no Nakatsukuni (the Central Land of Reed Plains); and Ne no Kuni (the Land of the Roots), Yomi no Kuni (the Dark Land), or Yomotsukuni (the Land of Hades). See Chamberlain, *Kojiki*, 15, 38–43 (note 28).

105. For discussion of this in a South Asian context, 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.

106. Cortazzi notes that Jambūdvīpa "represented the whole of the inhabited world" in Indian cosmology: Cortazzi, *Isles of Gold*, 9 (note 14).

107. See Aston, *Nihongi*, 2:251 (note 28). There are still some huge stones with carvings that might have been used for this reception at the site of Asuka. See Kazutaka Unno, "Japan before the Introduction of the Global Theory of the Earth: In Search of a Japanese Image of the Earth," *Memoirs of the Research Department of the Toyo Bunko* 38 (1980): 39–69, esp. 62–66.

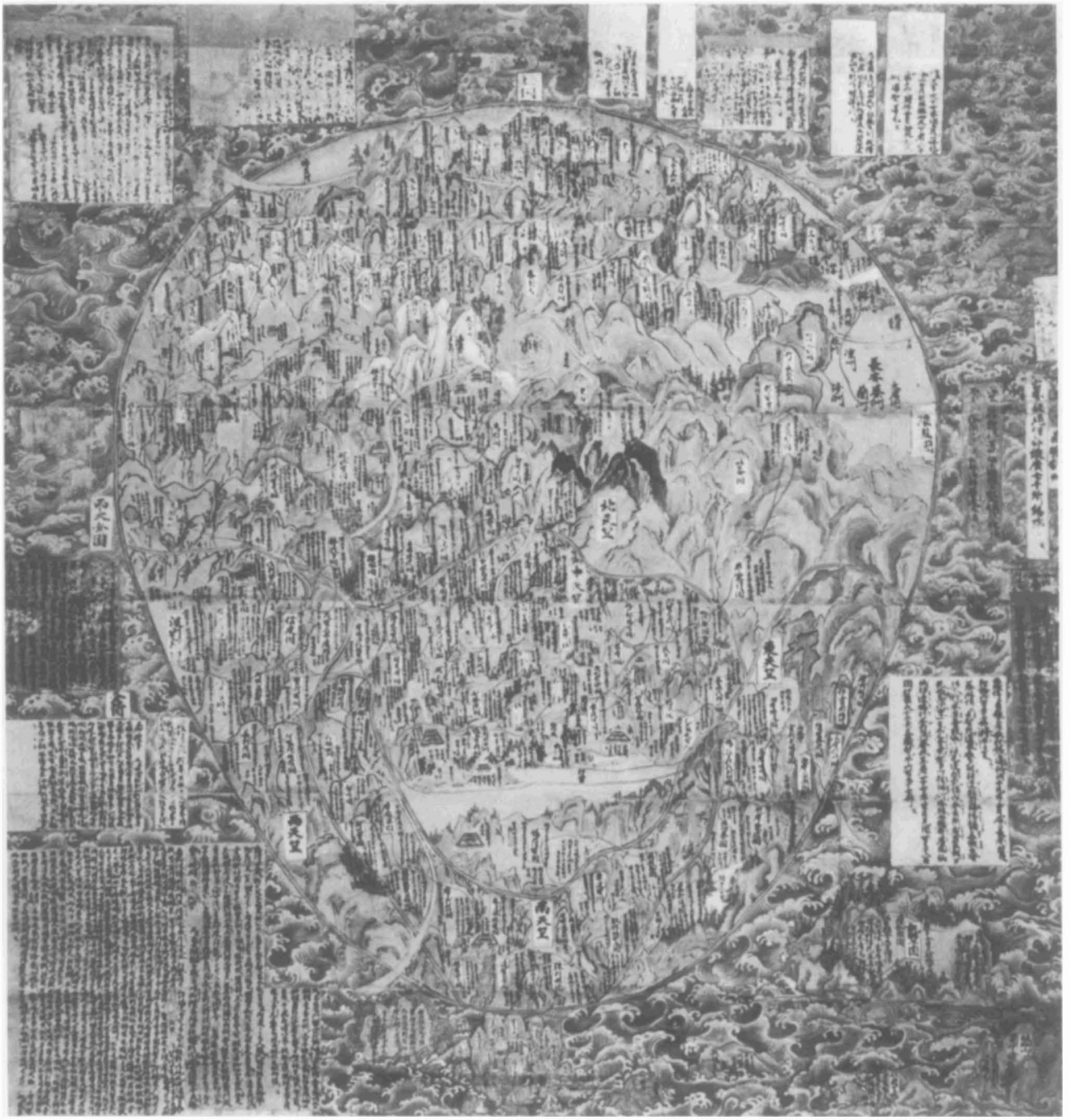


FIG. 11.18. THE *GOTENJIKU ZU* BY JŪKAI, 1364. Lake Anotatta and the four great rivers are shown toward the top of the center. The entries in the boxes in the sea part of the manuscript are extracts from the *Da Tang xiyu ji*. Size of the original: 177 × 166.5 cm. Hōryū Temple, Nara. Photograph courtesy of Kazutaka Unno.

date to 659 and 660.[108] The earliest extant drawing of Mount Sumeru is, however, an engraving on a lotus petal forming the pedestal of the great statue of the Buddha, enshrined at Tōdai Temple (fig. 11.17).[109] Its Jambūdvīpa clearly shows the traditional four rivers flowing out of the sacred Lake Anotatta (Manasarowar) in the north.

108. See Aston, *Nihongi*, 2:259 and 265 (note 28).

109. The great statue of the Buddha (Daibutsu) is one of the best known and most visited historical monuments in Japan. It was constructed in an attempt to unite the people of Japan after a rebellion begun in 740 by Fujiwara no Hirotsugu (d. 740). The first attempts to build a giant Buddha were made at Shigaraki (presumably Shiga in Ōmi Province, now Ōtsu in Shiga Prefecture) and Naniwa (now part of

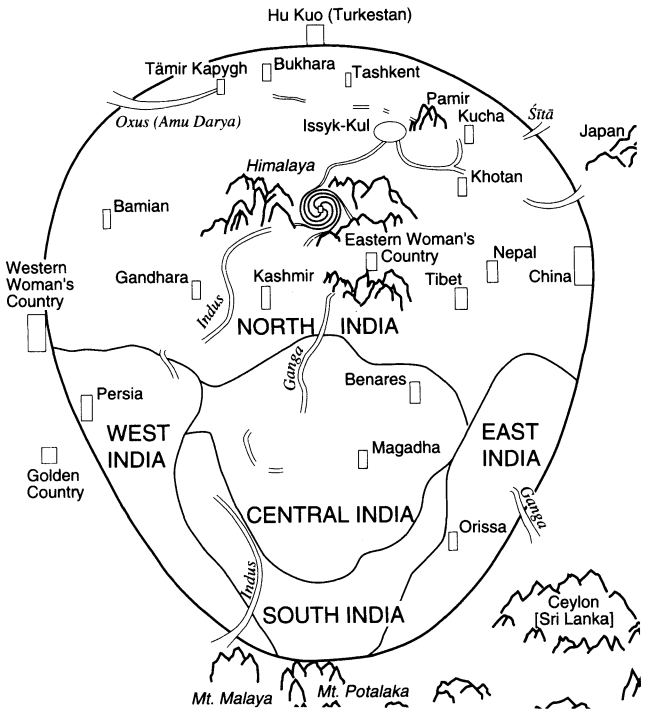


FIG. 11.19. SCHEMATIC EXPLANATION OF FIGURE 11.18.

The oldest Japanese map that may be considered a map of the world is the *Gotenjiku zu* (Map of the Five Indias), drawn by the priest Jūkai (b. 1297) (figs. 11.18 and 11.19). *Tenjiku* means India, which is divided into five geographical regions (north, east, south, west, and central), and the map's Jambūdvīpa is in the shape of an egg with the small end down. On the map there are many place-names and travel routes based on the *Da Tang xiyu ji* (Record of a journey to the western regions of Great Tang), the travel record of the Chinese priest Xuanzhuang (602–64), who visited India in 629–45. The purpose of the map, in the form of a colorful manuscript mounted as a scroll, may have been to represent the pilgrimage to India, but it also portrays the world as it was known to the peoples of East Asia. Because it depicts Xuanzhuang's pilgrimage realistically, the *Gotenjiku zu* was also an object of worship; for this reason copies are preserved by the older temples even today (see appendix 11.3).[110]

The *Gotenjiku zu* is not an original Japanese creation, but a slightly revised copy of a map made in China, where there are extant maps with exactly the same composition. Later copies are known, such as the "Nanzhanbuzhou tu" (Map of Jambūdvīpa), in the *Fajie anli tu* (Maps of the configuration of Dharmadhātu) of 1607 by Renchao, and the "Sihai Hua yi zongtu" (General map of Chinese and foreign territory within the four seas), found in the *Tushu bian* (Compilation of illustrations and writings), an illustrated encyclopedia compiled by Zhang Huang (1527–1608).[111] Although these dates of compilation are much later than the *Gotenjiku zu*, they could not have been influenced by a Japanese source because of the circumstances of cultural transmission between China and Japan, in which Japan was the recipient. This suggests an original Chinese prototype, as acknowledged by Zhang.[112]

The Japanese prototype for the surviving *Gotenjiku* maps and those that have been lost (but are known to have been associated with Shōrin Temple in Kyōto) was one owned by Tō (or Kyōōgokoku) Temple in Kyōto (table 11.1). It is no longer extant, but according to the traditional account in the *Saiiki zu sofuku nikō roku* (Two revisions on a map of the western regions) of 1737, it was brought to Japan by the priest Kūkai after a trip to China, where he had been studying.[113] A version kept at Kushuon'in Temple in Hirakata, Ōsaka Prefecture, is considered the most faithful to the original. It was probably copied by the chief priest Sōkaku (1639–1720), who was also a skillful painter involved in restoring the Ryōkai

Ōsaka) before eight attempts in Nara from 747 to 749. The original, sixteen meters in height, was completed in 752, and Plutschow notes that its casting "was the last symbolic act in the centralization of the Japanese state," (104); for a discussion on the Great Buddha and Tōdai Temple, see Plutschow, *Historical Nara*, 100–116 (note 61).

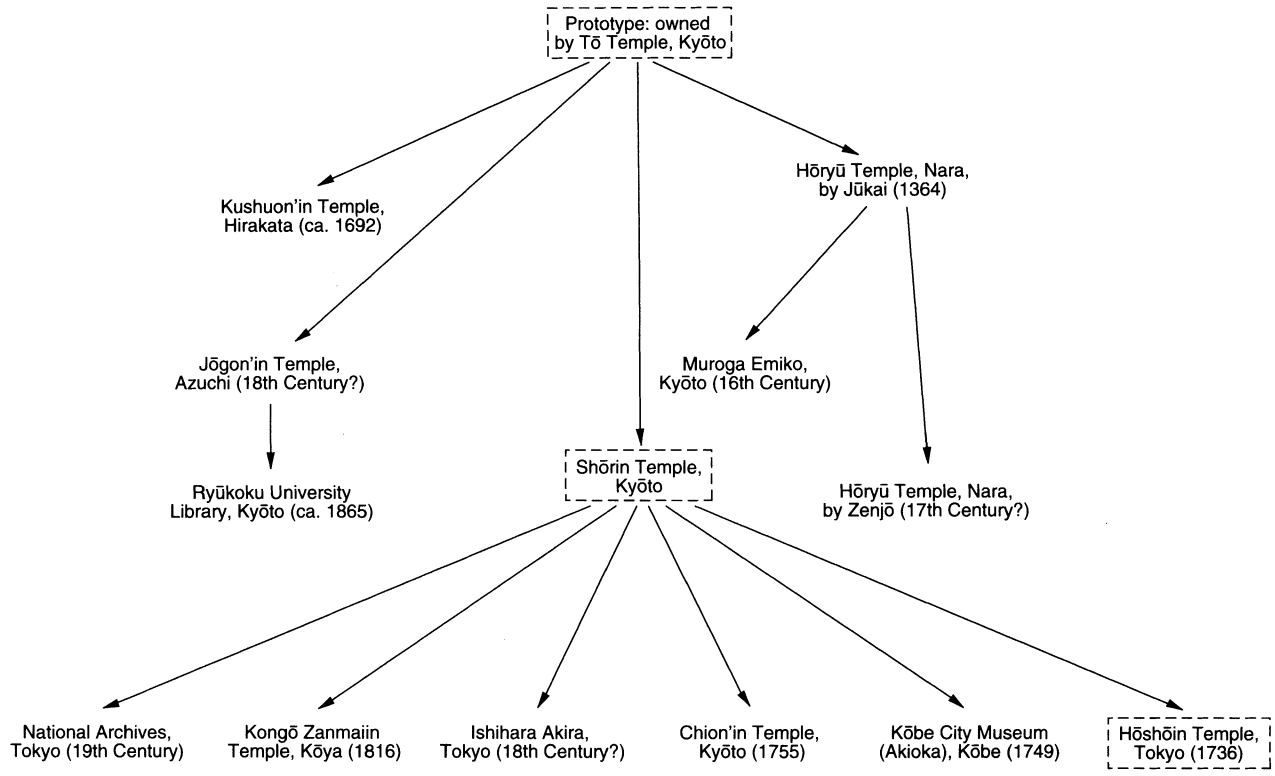
110. See Nobuo Muroga and Kazutaka Unno, "The Buddhist World Map in Japan and Its Contact with European Maps," *Imago Mundi* 16 (1962): 49–69, esp. 49 and 51. For color reproductions of the map see Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 1 (note 11); Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 1 (note 8); Cortazzi, *Isles of Gold*, pl. 11 (note 14); and José Aguilar, ed., *Historia de la Cartografia: La tierra de papel* (Buenos Aires: Editorial Codex S.A., 1967), 181. For French and English editions of the *Da Tang xiyu ji*, see Stanislas Julien, trans. *Mémoires sur les contrées occidentales*, 2 vols. (Paris, 1857–58), and Thomas Watters, *On Yuan Chwang's Travels in India*, 2 vols. (1904–5; reprinted New York: AMS, 1970).

111. The maps in the Chinese texts are simple in form, but their model must have been a larger and more detailed map. On Renchao's map, for instance, there are some blank circles and squares where place-names seem to have been written in the model. For a discussion and reproduction of both maps, see Muroga and Unno, "Buddhist World Map," 52–57 (note 110), which includes figs. 4 and 5. The *Fajie anli tu* was reprinted in 1654 (Kyōto: Akitaya Heizaemon); an edition from 1919 was reproduced in 1977 (Taipei: Xinwenfeng). The *Tushu bian* (compiled 1562–77 and printed in 1613) was reprinted in 1971 (Taipei: Chengwen Chubanshe).

112. Zhang's map is discussed in Unno Kazutaka, "Min Shin ni okeru Mateo Ritchi kei sekaizu: Shutoshite shinshiryō no kentō" (Chinese world maps of the Ming and Qing dynasties derived from the work of Matteo Ricci: An examination of new and neglected materials), in *Shinhatsugen Chūgoku kagakushi shiryō no kenkyū: Ronkō hen* (Studies on recently discovered source materials for the history of Chinese science: Collected articles), ed. Yamada Keiji (Kyōto: Research Institute for Humanistic Studies, Kyōto University, 1985), 507–80. See also above, pp. 173, 175 (fig. 7.4), and 255–56.

113. See Muroga and Unno, "Buddhist World Map," 50 (note 110). That the original map was kept at Tō Temple is also recorded on the Kōbe City Museum (formerly Akioka) map (listed in appendix 11.3).

TABLE 11.1 Genealogy of Manuscript *Gotenjiku* Maps (those in dashed lines are not extant)



mandalas of the worlds Vajra and Garbha at Tō Temple in 1691–93 that are still in the possession of that temple. The mandalas had also been brought from China by Kūkai, and Sōkaku's work on them suggests that the copy of the map of the Five Indias dates approximately to the same time. Another copy of the Tō map, made by the monk Ekū of Shōrin Temple, came into the possession of Tsūyo, the high priest of Zōjō Temple in Edo, in 1736. This was noted in the record of the revision of it that had been kept at Hōshōin.[114] The Hōshōin, Chion'in, and Kōbe City Museum (formerly Akioka) maps record that they were derived from the Shōrin version (see appendix 11.3 and table 11.1). Extant manuscript maps of the Five Indias (including these) are notable for containing Japan but not Korea. Presumably, then, the original at Tō Temple was similar, and the evidence suggests that it was a Japanese revision rather than a Chinese original. It is doubtful that Chinese cartographers would have omitted Korea and included a large Japan. The legend of the maps' having been brought from China, therefore, may have been concocted as part of the biography of Kūkai, the founder of the temple. An alternative possibility is that it was based on a Korean map of Jambūdvīpa dating to the mid-twelfth century. An *Och'ŏnch'ukkuk to* (Map of the lands of the Five Indias) evidently based on Xuanzhuang's *Da Tang xiyu ji* was made by the scholar Yun P'o (d. 1154) and presented to the king at the time. This was probably simply a copy of a Chinese map of Jambūdvīpa with Korea added to it.[115]

Table 11.1 shows the genealogy of the *Gotenjiku* maps. The Hōryū Temple and Muroga copies share a common source in that material from the *Da Tang xiyu ji* is listed in the area of sea. This was probably the idea of Jūkai, and the sixteenth-century Muroga map was simply a copy, as was that at the temple, which is thought to date to the seventeenth century. The six maps based on the

114. This record, the *Saiiki zu sofuku nikō roku* (mentioned above), is included in the *Dainihon Bukkyō zensho* (Collected records on the Buddhism of Great Japan), 151 vols. (Tokyo, 1912–22), vol. 2 of the 4 vol. *Yūhōden sōsho* (Series of travels) (1915; reprinted Tokyo: Daiichi Shobō, 1979), 1–29. The Hōshōin map, reproduced in the frontispiece of the volume, was lost in a fire during the Second World War.

115. At the time in Korea it was common to improve the visual appeal of maps by adding Korea and Japan to old Chinese maps. Rather than having composed the map from materials in the *Da Tang xiyu ji*, as recorded in his biography, it is more likely that Yun simply attached Korea to a Chinese map of Jambūdvīpa and then colored it. See Chōsen Sōtokufu (Government-General in Korea), ed., *Chōsen kinseki sōran* (A comprehensive survey of ancient Korean inscriptions), 2 vols. (Seoul: Chōsen Sōtokufu, 1919), 1:371. Neither the original nor the copy of the *Och'ŏnch'ukkuk to* is extant.

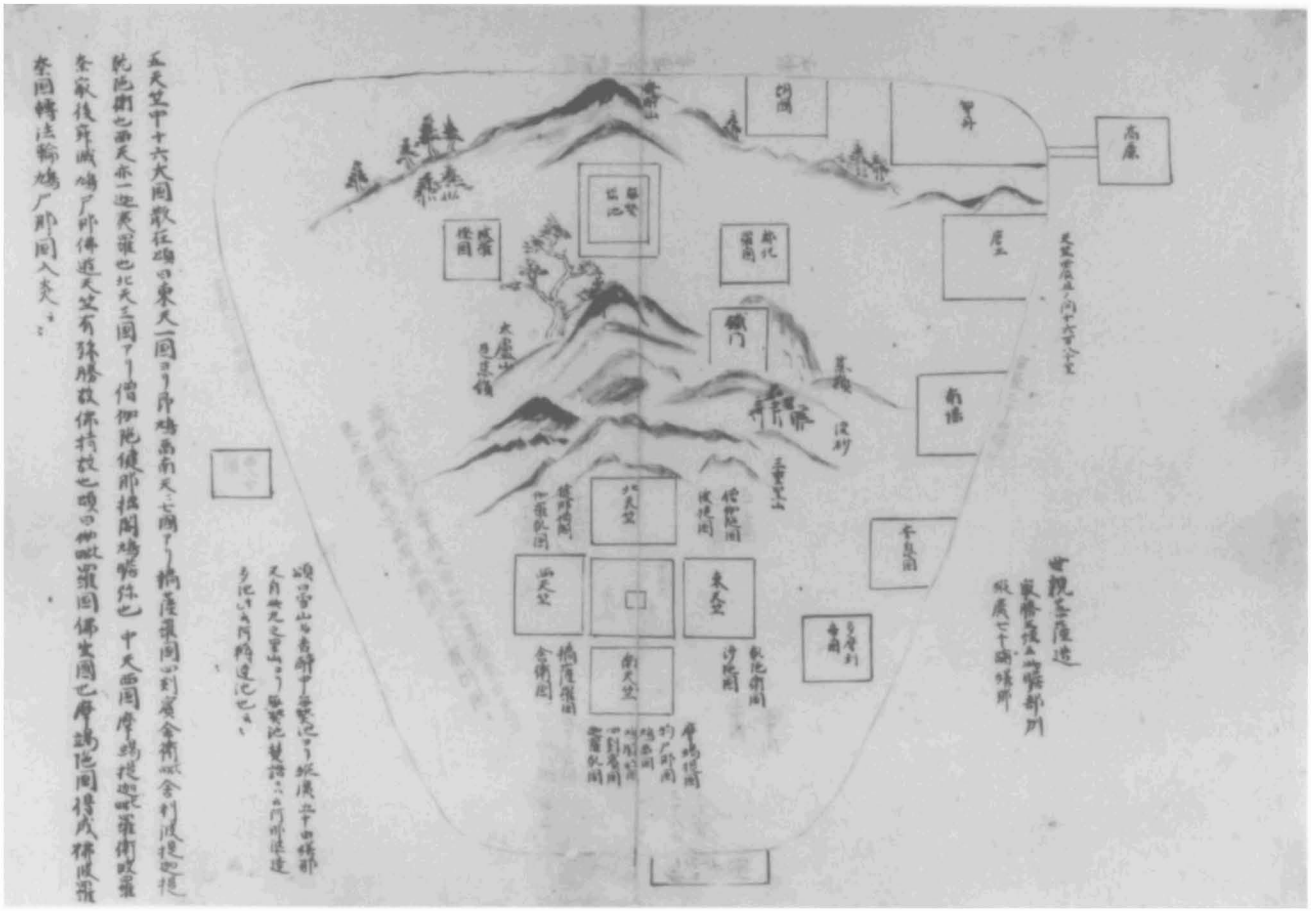


FIG. 11.20. THE "TENJIKU ZU" (MAP OF INDIA) IN THE 1548 CODEX OF THE *SHŪGAISHŌ*. Its design is simpler than that of the *Gotenjiku zu*, but it also depicts Jambūdvīpa. The Five Indias are schematized in rectangular boxes in the lower center of the manuscript. Size of the original: 26.3 × 41.3. By permission of the Tenri Central Library, Tenri, Nara Prefecture.

Shōrin version differ from the others in that they do not contain the terms Kokoku (for Hukuo: Turkestan), Saidaijokoku (Western Women's Country in the Western Sea), and Konjikoku (Suvarna-bhūmi: Golden Country). The reason for this is that the Tō Temple original seems to have been damaged by 1736, and it was impossible to read these inscriptions when copying.[116]

Smaller and simpler maps than those listed in appendix 11.3 and table 11.1 were also made. An example is the "Tenjiku zu" (Map of India) in the *Shūgaishō*, the oldest codex with it dating to 1548 and others to 1554 and 1589 (fig. 11.20).[117] Although it is named as only a map of India, it is nonetheless similar to those of the Five Indias and may therefore be considered a Buddhist map of the world: the continent narrows toward the south, is much broader in the north, and has place-names for sites outside India proper.[118] The five Indian countries (North, East, South, West, and Central) as well as the others are disproportionately schematized using mainly rectangular frames.[119] In the case of Korea, the name is enclosed in

116. Concerning Kokoku in the other types, only the Hōryū example has both square frames and letters; that at Kushuon'in has only square frames, and neither frames nor letters exist on those at Jōgon'in and Ryūkoku University.

117. The 1554 codex is at the National Diet Library in Tokyo; it has a map of India, but its map of Japan has been lost. Two codices of the *Shūgaishō* (1548 and 1589), which are mentioned above, contain maps of both Japan and India. Other copies of the *Shūgaishō* exist, and most of them have a map of India. The first printed *Shūgaishō* dates to the Keichō period (1596–1614) but did not have a map of India. The first printed copy with a map of India was Nishimura's publication of 1642. See Muroga and Unno, "Buddhist World Map," 51–52 and fig. 2 (a reproduction of the 1554 copy) (note 110).

118. For instance, there are names for the "Western Women's Country" in a square frame in the area of sea to the west of Jambūdvīpa: on the 1554 version it is labeled Sai An Koku (Western Country Called An) and on the 1548 and 1589 codices it is Sai Hachijo Koku (Western Country of Eight Women); both erred by replacing the character 大 (*dai* = great) with 八 (*hachi* = eight). Saidaijokoku, originally referred to in chapter 11 of the *Da Tang xiyu ji*, also appears in the older maps of the Five Indias.

119. Taking into account redundancies and some mistakes, the names of the countries in India noted outside the frames are the same as those

a square frame that is connected to the continent with parallel straight lines; this was probably done to indicate that it was a peninsula. Fewer geographical mistakes were made in the 1548, 1554, and 1589 manuscripts and later printed versions than in the *Gotenjiku* maps, but nonetheless they had their share, which might be related to frequent copying of the codex. Ansoku Koku (Parthia), for example, is placed in southeastern Jambūdvīpa rather than to the west, and Harana Koku (Varanasi), which is supposed to be in the southeast, is placed in the northwest where Turkestan should be. The "Tenjiku zu" lacks rivers and, notably, the route of Xuanzhuang. This may be attributed to the geometrical schematization. The source of the four great rivers, Munetsunō Chi (Lake Anotatta), however, is shown in the north-central part of the continent. Mountainous regions in northern India and elsewhere are indicated by side views of trees to give the map a pictorial look.

Early Assimilation of European Cartography

For roughly a century, about 1543–1639, Japanese cartography was influenced by an infusion of European knowledge. Prominent in this process were European navigators—especially from Spain and Portugal—who first arrived in 1542 or 1543 and Jesuit missionaries who were active between 1549 and 1639. Their influence was felt in four important areas—marine charts, maps of Japan, maps of the world, and surveying—and their legacy can been seen in many Japanese works throughout the Edo period (1603–1867). One of the problems facing the historian, however, is the dating of works ascribed to this period of European influence: dates are lacking, so approximations must be inferred from the content of the maps.

This period of contact and cartographic assimilation was a turbulent one. Japanese cartography benefited, but we should not overestimate the contribution of Europeans, and especially of the missionaries, to Japanese society and culture as a whole. Christians played only a part in the overall events, and Japan certainly did not become Christian or Europeanized.[120] Because of the role the Jesuits played in diffusion, it is nevertheless important to understand the general picture surrounding their activity, which began in 1549 with the arrival of the Jesuit priest Francis Xavier (1506–52).[121]

At first authorities reacted to missionary work with tolerance, seeing no threat in the new religion and considering it initially as another version of Buddhism. However, one of the historical weaknesses of Christianity—its intolerance—soon made it difficult for it to coexist with Shintoism and Buddhism. Christianity became a political issue: when entire daimyates (fiefdoms) were converted, its ideology was resisted. The first expulsion of the missionaries took place in 1587, and the first martyrdoms in 1597. When the issue flared up again early in the seventeenth century, Tokugawa Ieyasu (1542–1616) promulgated his edict of 1614 to suppress Christianity.[122] A series of three edicts was also issued to diminish non-Japanese influences; they effectively banned Christianity and isolated Japan from the rest of the world. These were the Exclusion Decrees of 1633, 1635, and 1639. The first allowed only licensed Japanese ships to trade overseas; the second forbade Japanese nationals to leave or return to Japan; and the third expelled the Portuguese from Japan, essentially limiting entry to Chinese and Dutch merchants. From 1641 the Dutch were given trading quarters on the small urban island of Deshima in Nagasaki Bay. Christianity and European trade were regarded as inextricable, but since the Dutch were less involved in promoting religion, they survived.

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of the sixteen countries of the Five Indias in the priest Gyōyo's 1446 encyclopedia *Ainōshō* (Bag of rubbish), chapter 7, paragraph 27. In it the Pamirs ("Sōrei") are marked both east (1548 and 1589 maps) and west of the central mountainous region; the eastern section and the adjacent desert ("Ryūsa") to the south were probably entered on the grounds of an entry in the *Ainōshō*: "Ryūsa and Sōrei separate India from China; to the northwest of Sōrei is Daisessen" (the Himalayas). These place-names also seem to have been entered in the process of copying this map.

120. For an in-depth survey of Christianity in Japan see Cary, *History of Christianity in Japan*, 1:13–257 (note 102). The period of Christian involvement in pre-Tokugawa Japan is discussed in most general histories. Sansom's treatise on the Western world and its interaction with Japan provides a good perspective on the subject: George B. Sansom, *The Western World and Japan: A Study in the Interaction of European and Asiatic Cultures* (New York: Alfred A. Knopf, 1962), 54–86, 105–10, 115–51, and 167–80.

121. Several studies of tangential interest have been made on the role of the missionaries in cartography pertaining to Japan: for example, Kish, "Missionary Cartography," 39–47 (note 101); Joseph F. Schütte, "Map of Japan by Father Girolamo de Angelis," *Imago Mundi* 9 (1952): 73–78; Kay Kitagawa, "The Map of Hokkaido of G. de Angelis, ca 1621," *Imago Mundi* 7 (1950): 110–14; and Chohei Kudo, "A Summary of My Studies of Girolamo de Angelis' Yezo Map," *Imago Mundi* 10 (1953): 81–86. Also relevant are studies of the Portuguese traveler Ignacio Moreira, who worked with the Jesuits without being a member of the order: Joseph F. Schütte, "Ignacio Moreira of Lisbon, Cartographer in Japan 1590–1592," *Imago Mundi* 16 (1962): 116–28, and Ryōichi Aihara, "Ignacio Moreira's Cartographical Activities in Japan (1590–2), with Special Reference to Hessel Gerritsz's Hemispheric World Map," *Memoirs of the Research Department of the Toyo Bunko* 34 (1976): 209–42.

122. This was a political decision, as the following extract from the decree indicates: "Christians have come to Japan, not only sending their merchant vessels to exchange commodities, but also longing to disseminate an evil law and to overthrow right doctrine so that they may change the government of the country and obtain possession of the land. This is the germ of great disaster and must be crushed." Cited in Cary, *History of Christianity in Japan*, 1:176–77 (note 102). The decree dates to 27 January 1614.

A number of cartographic events are usually given prominence in historical accounts describing the encounter between Japan and Europe. One such event was the introduction of the theory of a spherical earth, credited to Xavier, who resided in Japan from 1549 to 1551. In letters sent to European Jesuits from Cochin and to Father Ignatio de Loyola in Rome from Goa in 1552, Xavier noted that European astronomy and meteorology were known in Japan. It is clear from these letters that Xavier had explained the theory of a spherical earth, but it is not specified if he carried with him a globe or even a map of the world.[123] Other records suggest that the first European globes and maps of the world had appeared in Japan by 1580. In that year, according to European sources, Oda Nobunaga brought a terrestrial globe to a meeting with the Jesuits Genecchi Soldo (Soldi) Organtino (1533–1609) and Lourenço (1526–92), a Japanese convert and catechist. Oda questioned them about it as well as about Organtino's route from Europe to Japan.[124] In 1581 Oda also used a map of the world to question another Jesuit, Alessandro Valignani (1539–1606), about a route from Europe.[125] The next year Valignani directed an envoy of four young nobles representing the three Christian Kyūshū feudal lords to various places in Europe, including Rome. In Padua in 1585 they received from the German botanist Melchior Guilandini (1520–89) a copy of Ortelius's *Theatrum orbis terrarum* and the first three volumes of Georg Braun and Frans Hogenberg's *Civitates orbis terrarum* (1572, 1575, 1581). These were included in the objects they brought to Nagasaki on their return in 1590; others were maps, sea charts, an astrolabe, and a terrestrial globe.[126] We shall now see how these initial contacts led to several distinct traditions in Japanese cartography.

NANBAN WORLD MAPS

The Europeans who sailed to Japan in the sixteenth century were called *nanbanjin* (southern barbarians).[127] The term was applied mainly to the Portuguese and Spaniards who had arrived in Japan from a southerly direction. After 1639 they were prohibited from entering the country, and only the Dutch were allowed to stay, having been transferred in 1641 to Deshima, an artificial islet linked by a bridge to Nagasaki proper.[128] The term nonetheless remained in use, and among the world maps made in Japan after European models, those that appear to have been made from the late sixteenth century to approximately 1639 collectively are termed the "*Nanban* group." The maps not only are defined by their date of production, but also share similar elements in design and style, and therefore some maps produced after 1639 also fall into this classification. Examples include the three world maps listed in appendix 11.4 (equirectangular projection, type C), which presumably were made in the second half of the seventeenth century.[129]

Over thirty world maps of the *Nanban* tradition are known to exist; some of these are later copies. Appendix 11.4 classifies twenty-eight of them according to whether they are marine charts or made on an oval, equirectangular, or Mercator projection. An interesting feature of those listed as charts and those designated as equirectangular type B maps is their attempt to place Japan near the center of the world, putting the Eastern Hemisphere

123. For the letters, see Georg Schurhammer and J. Wicki, eds., *Epistolae S. Francisci Xaverii aliaque eius scripta*, 2 vols. (Rome, 1944–45), EP. 96, 110. Also see Unno Kazutaka, "Seiyō chikyūsetsu no denrai" (Introduction of the global theory to Japan), *Shizen* 34 (1979): no. 3, pp. 60–67, and no. 6, pp. 62–69.

124. Luís Fróis (d. 1597), *Historia de Japam*, pt. 2, chap. 26 (Lisbon, Arquivo Historico Ultramarino, cod. 1659); see Matsuda Kiichi and Kawasaki Momota, trans., *Furoisu Nihonshi* (History of Japan by Fróis), 15 vols. (Tokyo: Chūō Kōronsha, 1977–80), 5:29–30. Sansom considers Fróis' work (under the title *Historia do Japão*) "the best single source for an account of the Jesuit propaganda in Japan in the second half of the sixteenth century"; the period covered is 1549–78. See Sansom, *Western World and Japan*, 115 (note 120). Lourenço was a nearly blind Japanese who received this name upon baptism by Xavier in 1551; he became a lay brother of the Society in 1563 and was active in converting Japanese to Christianity. See, for example, Sansom, *Western World and Japan*, 120, and Cary, *History of Christianity in Japan*, 1:47 (note 102).

125. Alessandro Valignani, *Sumario de las cosas de Japón*, ed. José Luis Alvarez-Taladriz (Tokyo: Sophia University, 1954), 150–51. See also Matsuda Kiichi, "Nihon junsatsushi Varinyāno no shōgai" (Life of Valignani, visitor to Japan), in *Nihon junsatsu ki Varinyāno* (Valignani's summary of things Japanese), trans. Matsuda Kiichi and Sakuma Tadashi (Tokyo: Tōgensha, 1965), 100.

126. Luís Fróis, *Historia de Japam*, pt. 3, chap. 13 (Lisbon, Biblioteca da Ajuda. cod. 49-IV-57), see Matsuda and Kawasaki, *Furoisu Nihonshi*, 2:66 [note 124]), and Eduardo de Sande, *De missione legatorum Iaponensium* . . . (Macao, 1590; reprinted 1935). There is a Japanese translation of the latter: Izui Hisanosuke et al., trans., *De Sande Tenshō Ken'ō shisetsu ki* (Record of the mission to Europe in the Tenshō era [1573–91] by de Sande) (Tokyo: Yūshōdo Shoten, 1969), 548 (for the reference to Ortelius's atlas and three volumes with printed illustrations of famous cities in the world).

127. *Nan* means "south"; *ban*, "rude"; *jin*, "people."

128. There was a special term to distinguish the Dutch—*kōmōjin*, or "redheaded people." The Chinese characters for *kōmō* might also be read *Oranda* (Holland). For a discussion of the Dutch at Nagasaki, see Herbert E. Plutschow, *Historical Nagasaki* (Tokyo: Japan Times, 1983), 45–71.

129. The map in Nagahama (ca. 1652) is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 38 (note 8); the map in Odawara (ca. 1652) is reproduced in Nakamura Hiroshi, "Nanban byōbu sekaizu no kenkyū" (Research on the world map on *Nanban* folding screens), *Kirishitan Kenkyū* 9 (1964): 1–273, esp. pl. 6; and the map in Nikkō (probably late seventeenth century) is reproduced in color in *Bessatsu Taiyō* (The sun, special issue), no. 8 (Tokyo: Heibonsha, 1974), folded between pp. 56 and 57. The maps of Japan paired with the three world maps are modified from the square Keichō map to fit into the rectangular space on the screens. For the Keichō map of Japan, see below.

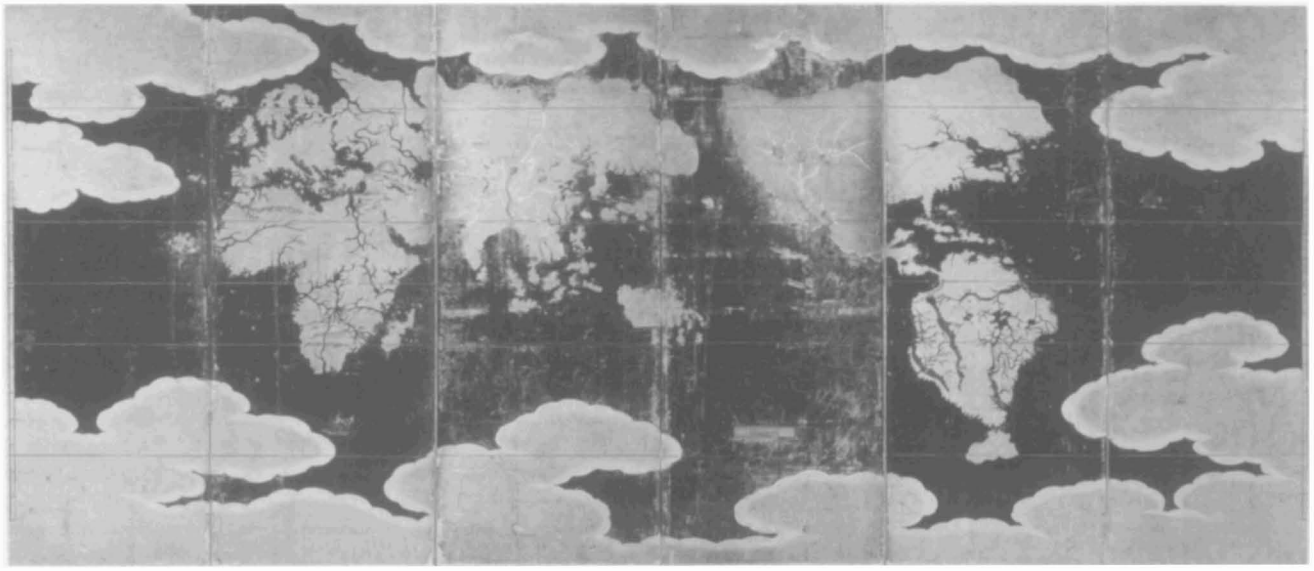


FIG. 11.21. ANONYMOUS *NANBAN*-STYLE WORLD MAP. Important features include graduations of latitude on both sides of the map, a bar scale in the lower center, and no place-names. Areas of sea and rivers are colored navy blue, and some islands are red and green; generally, though, the map lacks color. Gold leaf is pasted all over the manuscript.
Size of the original: 154 × 352 cm, on a six-fold screen. By permission of Hosshin Temple, Obama, Fukui Prefecture.

FIG. 11.22. *TYPUS ORBIS TERRARUM*: A *NANBAN*-STYLE MAP OF THE WORLD, CA. 1625. Petrus Plancius's world map of 1592 was the source for this equirectangular projection on a six-fold screen, but the manuscript's title and illustrations come from elsewhere. As on four other known *Nanban* world maps on this type of projection, the Pacific Ocean is in the center: this gives a better geographical perspective from the point of view of Japan, the Americas being shown to the right and not as distant as on maps with the Atlantic in the center.
Size of the original: 156 × 316 cm. By permission of the Tokyo National Museum, Tokyo.

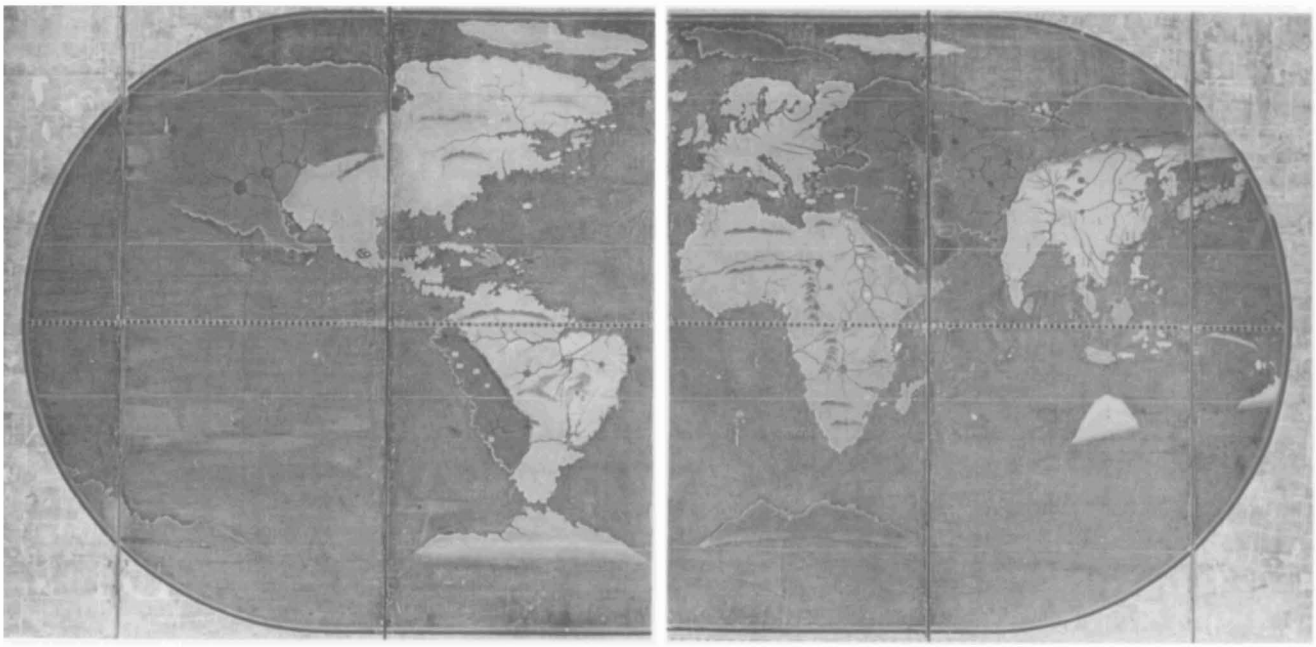


FIG. 11.23. A *NANBAN*-STYLE MAP OF THE WORLD ON AN OVAL PROJECTION, CA. 1595. *Nanban* maps were based on European sources, but the exact source for this one is not yet known. An improvement on European knowledge at the time, however, can be seen here in the image of East Asia. Other content—for example, the rivers and the islands in the Arctic Ocean—appears not to be different from that of contemporary or earlier European maps. Characteristic of this particular type of *Nanban* world map are the Atlantic Ocean in the center and the sea routes from the Iberian Peninsula to East Asia. The manuscript is on a six-fold screen and is paired with the map of Japan shown in figure 11.26.
Size of the original: 148.5 × 364 cm. By permission of Jōtoku Temple, Fukui.

to the left and the Western Hemisphere to the right (figs. 11.21 and 11.22). Most of the *Nanban* maps were executed on large folding screens that served as room dividers or decoration; the colorful embellishment on the maps and the fact that some of them do not have placenames suggest they were largely ornamental in function. Seventeen of the world maps on folding screens listed in appendix 11.4 and the Kawamori map of the Eastern Hemisphere are paired (originally made as a set) with companion illustrations on folding screens; fourteen of the companion illustrations are maps of Japan, suggesting that the Japanese at this date were keenly aware of their country as a part of a larger world.[130] Drawing maps on folding screens is in itself an unusual application of cartography, but it points to the value of maps as visual images rather than as vehicles for disseminating information.

Knowledge about the *Nanban* world maps is incomplete, however, especially in regard to important details such as dates, authorship, stylistic classifications, and their relation to European models. Some clues are nonetheless available. One in the possession of Yamamoto Hisashi and probably the earliest of the *Nanban* maps, for example, contains the tribal name Orankai. This name was first known in Japan in 1592, when Japanese forces under Katō Kiyomasa (1562–1611) sent back information on their invasion of the northeastern region beyond Korea, and therefore dates the map to 1592 at the earliest.[131] Tracing the source materials for the *Nanban* world maps is not easy, but some generalizations can be inferred. In the case of the Yamamoto, Kobayashi, Jōtoku, and Kawamura maps,[132] for instance, it appears that a Por-

130. Japanese interest in Europe continued after the edict to suppress Christianity and the Exclusion Decrees. European-style paintings and maps continued to be produced, with the support of the shogunate, on the grounds of their importance. World maps, for instance, were exempt from a 1668 law prohibiting the import of luxuries; they were considered useful. Other kinds of maps, however, were included in a list of about eighty prohibited items. See the *Nagasaki ki* (Records on Nagasaki) and *Nagasaki oboegaki* (Memorandum of Nagasaki), quoted in Kimiya Yasuhiko, *Nikka bunka Kōryūshi* (History of cultural intercourse between Japan and China) (Tokyo: Fuzanbō, 1955), 690–91. There are no records of the maps on folding screens from the early Edo period.

131. The map is reproduced in color in Okamoto Yoshitomo, *Jūroku seiki ni okeru Nihon chizu no hattatsu* (Development of the map of Japan in the sixteenth century) (Tokyo: Yagi Shoten, 1973), frontispiece 5, and in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 32 (note 8). For the invasion of Korea, refer to Sansom, *History of Japan*, 2:352–62 (note 32).

132. The maps are listed in appendix 11.4 (oval projection). The Kobayashi map is reproduced in color in Okamoto, *Jūroku seiki ni okeru Nihon chizu no hattatsu*, frontispiece 2 (note 131), and in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 33 (note 8). For the Jōtoku map, see figure 11.23. The Kawamura map is reproduced

tuguese-owned original was involved: each of these shows courses from Portugal and Spain to East Asia (fig. 11.23). Judging from the solitary protrusion along the western coast of South America just south of the equator and the fact that from that point southward the coastline was straight in a southeasterly direction, the prototype was probably Ortelius's map of the world of 1587 or a later revision.[133]

Of the maps in appendix 11.4 on an equirectangular projection, those of types A, B1, and B2 can be traced in general to the world map of 1592 of Petrus Plancius (1552–1622).[134] Those of type C were probably derived from the revision of Plancius's map made about 1598 by Hendrik Floris van Langren (ca. 1573–1648);[135] those of type D1 showing only the Eastern Hemisphere appear to have used van Langren's map as a model;[136] and those of type D2 are revisions of the D1 maps.[137] The maps on the Mercator projection were probably derived from the world map of 1609 of Pieter van den Keere (1571–ca. 1646) and other European sources (plate 23).[138] Judging from the characteristics of the other *Nanban* maps listed in appendix 11.4, it is likely that the two charts were derived from a European chart of the world.[139] In addition to those mentioned, other types of European world maps are thought to have been brought to Japan by the Jesuits, and these would have also been used in compilation.[140] Finally, although European sources were certainly important, Japanese information was also worked into the *Nanban* maps, with the result that East Asia was shown more accurately.

in color in Okamoto, frontispiece 4, and in Unno, Oda, and Muroga, vol. 1, pl. 15.

133. For editions of Ortelius's world maps, see Robert W. Karrow, Jr., *Mapmakers of the Sixteenth Century and Their Maps: Bio-bibliographies of the Cartographers of Abraham Ortelius, 1570* (Chicago: Speculum Orbis Press, 1993), 1–31. Ortelius's world maps of 1570, 1586, and 1587 are reproduced in Rodney W. Shirley, *The Mapping of the World: Early Printed World Maps, 1472–1700* (London: Holland Press, 1983), pls. 104, 8, and 130.

134. See Akioka Takejirō, "Momoyama jidai Edo jidai shoki no sekaizu byōbu tō no gaihō" (Outline of the world maps on folding screens of the Momoyama [ca. 1583–ca. 1602] and early Edo periods), *Hōsei Daigaku Bungakubu Kiyō* 4 (1958): 263–311; Tokita Tadamasa, "Nanban sekaizu byōbu genzu kō" (On the originals of the world maps on folding screens, 2), *Nagasaki Dansō* 57 (1975): 32–61. The Mody map and the Jingū Library map are discussed and reproduced in Unno Kazutaka, "Jingū Bunko shozō no Nanban kei sekaizu to nan'yō karuta" (A *Nanban* map of the world and a Japanese marine chart of Southeast and East Asia in the Jingū Library collection), *Nihon Yōgakushi no Kenkyū* 9 (1989): 9–36. Maps at the Tokyo National Museum, Nanban Culture Hall, and the University of California–Berkeley are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 10, vol. 2, pl. 40, and vol. 2, fig. 37 (note 8), and Cortazzi reproduces the Nanban Culture Hall map in *Isles of Gold*, pl. 33 (note 14). The Fukushima map is reproduced in *Kokushi daijiten*, vol. 8, color pages, "Sekaizu" (maps of the world), pl. 3 (note 95), and the Nanba map is reproduced in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 5 (note 11), and in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 39. For a reproduction of Plancius's map, see Frederik Caspar Wieder, *Monumenta cartographica*, 5 vols. (The Hague: Nijhoff, 1925–33), vol. 2, pls. 26–38. Other sources were also used since these maps include illustrations and, in the case of those in Tokyo and Ōsaka, the title *Typus orbis terrarum*, which were not taken from Plancius's map.

135. See Tokita, "Nanban sekaizu byōbu genzu kō," 2 (note 134). Some parts of Plancius's map revised by van Langren are reproduced in Wieder, *Monumenta cartographica*, vol. 2, pls. 39 and 40 (note 134). For each map included in type C, see note 129 above.

136. The Kawamori map is owned by Kawamori Kōji and kept at the Sakai City Museum. This map and the Myōkaku Temple map are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 33 and pl. 35, respectively (note 8). The Usuki City Library map is in Joseph F. Schütte, ed., *Monumenta historica Japoniae* (Rome, 1975–), vol. 1, pl. 2 (facing p. 16), the Saga Prefectural Library map is in Unno Kazutaka, *Chizu no shiwa* (Map creases; or, Essays on the history of cartography) (Tokyo: Yūshōdō Press, 1985), fig. 27, and the Sōji Temple map is in Nakamura, "Nanban byōbu sekaizu no kenkyū," pl. 9 (*Nansenbu Sekaizu* [Map of the Jambūdvīpa world]) (note 129).

137. The Koga City Museum of History map copied in 1836, probably by Takami Senseki (1785–1858), from a copy of 1691 is reproduced in Nakamura, "Nanban byōbu sekaizu no kenkyū," pl. 10 (note 129), and in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 34 (note 8). The Yamakuni Shrine map is a copy dating from 1685; the map at Yokohama City University Library is titled *Yochizu* (Map of the earth), and the one at Yamaguchi University Library is titled *Bankoku sōzu* (Map of all the countries).

138. For the Imperial Household Agency map, see plate 23; the Kōbe City Museum map is reproduced in color in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps of Japan*, pl. 3 (note 11), and the Kōsetsu Museum of Art map is reproduced in color in Akiyama Terukazu, ed., *Genshoku Nihon no bijutsu* (The fine arts of Japan in color), 30 vols. (Tokyo: Shōgakkan, 1966–72), vol. 25, *Nanban bijutsu to Yōfūga* (Nanban art and Western-style painting), pl. 5, and in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 42 (note 8). There are also color plates of the *Nanban* maps in the Yamamoto Hisashi Collection, Jōtoku Temple, Nanban Culture Hall, Shimonogō Kyōsai Library, Imperial Household Agency, and Kōsetsu Museum of Art in the frontispieces of *Tanbō daikōkai jidai no Nippon* (Japan in the age of great navigation: The inquiries), 8 vols. (Tokyo: Shōgakkan, 1978–79), vol. 5, *Nippon kara mita ikoku* (Foreign countries interpreted by the Japanese).

On van den Keere's map and its connection to Willem Janszoon Blaeu's map see Günter Schilder, "Willem Jansz. Blaeu's Wall Map of the World, on Mercator's Projection, 1606–07, and Its Influence," *Imago Mundi* 31 (1979): 36–54; idem, *Three World Maps by François van den Hoeye of 1661, Willem Janszoon (Blaeu) of 1607, Claes Janszoon Visscher of 1650* (Amsterdam: Nico Israel, 1981); and Takahashi Tadashi, "Nanban toshizu byōbu kara Kaeriusu sekaizu e" (From maps of cities on the Nanban folding screens to Kaerius's map of the world), in *Ezu no kosumorojii* (Cosmology of picture maps), ed. Katsuragawa Ezu Kenkyūkai (Katsuragawa Picture Map Research Society), vol. 1 (Kyōto: Chijin Shobō, 1988), 248–64.

139. The Hosshin Temple map and the map in the Ikenaga Hajime Collection are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 34 and fig. 31, respectively (note 8).

140. The Jesuit Matteo Ricci, who made world maps in China at that time, also used some European maps as sources. For more on Ricci, see above, pp. 170–77, and below, pp. 404–10.

MARINE CHARTS

Marine charts were introduced by European pilots who sailed to Japan. Although the Japanese understood the differences between them and other maps, they borrowed the Portuguese word *carta* (map) to derive their own word *karuta* to designate this group of charts. This term was used in two charts of Southeast and East Asia (charts 8 and 10 of appendix 11.5) and in one chart of Japan (chart 4 of appendix 11.6). In the anonymous *Anjin no hō* (Western techniques of navigation), a collection of talks by the Nagasaki pilot Shimaya Ichizaemon Sadashige dating to 1670 and the first work to explain charts in Japan, they are referred to as *bankoku no zu* (maps of all the countries), perhaps because Shimaya might have been discussing charts showing various countries of the world.[141] Nishikawa Joken, whose *Ryōgi shūsetsu* (Collected theories of heaven and earth, 1714) contains the first systematic explanation of marine charts, translated the word *karuta* into *shinro hanzu* (card chart of courses), a term that seems to have been used only by him.[142]

Japanese charts can be divided into two groups, those of Southeast and East Asia and those of Japan alone. Compiling them was associated originally with European techniques of navigation, but exactly when they were introduced is not known. This question is likely to remain unsolved because of their low rate of survival and because they were used only by a small group of navigators, notably those who sailed the officially licensed ships for trade in the Far East between 1592 and 1636.[143] Nakamura, for instance, notes the paucity of materials, and of the "homemade" charts of Japan in particular he observes that it is astonishing that they have survived the vicissitudes of time.[144] Despite the imperfect record, we can presume that some Japanese were likely to have been exposed to charts as early as 1542 or 1543 when the Portuguese landed at Tanega Island. Our firmest evidence for the transmission, however, is found in a work on the principles of European navigation dated 1618, by Ikeda Kōun (fl. ca. 1618–36). In it he states that he learned navigation in 1616 from a European named Manoeru Gonsaru—that is, the Portuguese captain Manuel Gonzalez, who traded between Luzon and Japan at the beginning of the seventeenth century.[145] It is most probable that marine charts were included in his studies.

Charts of Southeast and East Asia

Portuguese maritime cartography was the dominant influence on Japanese marine charts. There are no surviving charts compiled in Dutch, or any that suggest a dominant Dutch influence. Possibly there was no transmission involving Dutch charts because of their policies of secrecy, but there is the possibility that any Dutch information that had been acquired might have been worked into revisions of an earlier Portuguese original. Although we can point to Dutch influence in other aspects of the sciences—especially in the eighteenth and nineteenth centuries (including a naval school at Nagasaki where the Dutch taught navigation toward the end of the Edo period)—it is important to note that during the period of

141. The *Anjin no hō* is now owned by the National Archives in Tokyo. Because of its nature, the explanations in it tend to be fragmentary. The charts are counted among the six instruments to be used at sea, the other five being the astrolabe (*isutarahi*), quadrant (*watarante*), nocturlabe (*hokkyokuzuban*), compass (*konhatsu*), and large compass (*ōkishaku* or *ōgishaku*).

142. *Ryōgi shūsetsu*, chap. 7, leaves 46–48 (following the original manuscript owned by the National Archives in Tokyo); this may be found in Nishikawa Tadasuke, ed., *Nishikawa Joken isho* (Preserved works of Nishikawa Joken), 18 vols. (Tokyo: Kyūrindō, 1898–1907), vol. 18. Earlier, in his *Kai tsūshō kō* (Trade with China and other countries, 1695) and its enlargement, *Zōho kai tsūshō kō* (Enlarged edition of *Kai tsūshō kō*, 1708), however, Nishikawa used the term *karuta*. The *Zōho kai tsūshō kō* was reprinted by Iwanami Bunko, 3384–85 (Tokyo: Iwanami Shoten, 1944), and in Ono Tadashige, ed., *Bankoku tokai nendaiki* (Chronicle of Japanese intercourse with all the countries) (Tokyo: Shōrinsha, 1942).

143. Ships licensed by the shogunate were known as *goshuinsen* (trading ships authorized by the government), and the license was called a *goshuinjō* (license bearing the "august vermilion seal"). There were evidently two reasons for this licensing, one being the protection of foreign trade and the other an effort by Toyotomi Hideyoshi (1536–98) to suppress Japanese piracy. For Japanese trade and the vermilion-seal ships, see Iwao Seiichi, *Shinpan shuinsen bōeki shi no kenkyū* (Studies on the history of trade under the vermilion-seal licenses of the Tokugawa shogunate, revised and enlarged edition) (Tokyo: Yoshikawa Kōbunkan, 1985). See also Hiroshi Nakamura, "The Japanese Portolanos of Portuguese Origin in the XVIth and XVIIth Centuries," *Imago Mundi* 18 (1964): 24–44, esp. 24–26. Tangentially, Japanese had learned from Chinese pilots since antiquity, but our knowledge in this area is not yet clear. Shipbuilding certainly was learned from the Chinese, and the *goshuinsen* for the most part were of Chinese design.

144. See Nakamura, "Japanese Portolanos," 26–27 and 35 (note 143).

145. The manuscript of Ikeda's book is at the Kyōto University Library. Although it is untitled, it is called *Genna kōkai ki* or *Genna kōkai sho* (Book of the art of navigation in the Genna era [1615–23]); reproductions are in the *Kaihyō sōsho* (Series of literature on lands overseas), 6 vols., comp. Shinmura Izuru (Kyōto: Kōseikaku, 1927–28), vol. 3; *Kaiji shiryō sōsho* (Series of materials on maritime history), 20 vols. (Tokyo: Ganshōdō Shōten, 1929–31), vol. 5; and Saigusa Hiroto, ed., *Nihon kagaku koten zensho* (Series of Japanese scientific classics) (Tokyo: Asahi Shinbun Sha, 1942–49; reprinted 1978), vol. 12. Ikeda is identified at the end of his preface as "Ikeda Yoemon nyūdō Kōun": Yoemon was his common name, Kōun was his Buddhist name, and *nyūdō* means lay priest. In the preface he says that in 1616 he was taught navigation by a European named Manoeru Gonsaru and that he sailed to Luzon with him for two years. Manuel Gonzalez is mentioned in Léon Pagès, *Histoire de la religion chrétienne au Japon, depuis 1598 jusqu'à 1651*, 2 vols. (Paris: C. Douniol, 1869–70), 1:389. It is possible that Gonzalez was a Spanish citizen, since Luzon was then a Spanish possession; the principal foreign language used in Ikeda's writings, however, is Portuguese.

Dutch monopoly on European trade with Japan (1639–1853) there was no particular Japanese need for practical charts. The Portuguese had simply arrived earlier, and what knowledge Japanese pilots had managed to acquire from them was evidently sufficient. The circumstances of contact were also different, notably in that there was no opportunity for Dutch and Japanese pilots to work together during the Age of Isolation. Interpreters at Nagasaki, furthermore, had seen some charts in the Dutch Office on Deshima and in Dutch ships, but there was no interest in copying them or bringing them into Nagasaki proper. During this time, as I will note below, marine charts were presented as graduation certificates for land surveyors; for this purpose it was not necessary to improve the content.

By comparing the contents and features—overall form, place-names, the shape of the compass roses, and the placement and embellishment of the bar scales—of the charts in appendix 11.5, it can be established that all but one (no. 16) were derived from the same Portuguese prototype, and the outstanding example seems to have been modeled on another Portuguese chart. Examples include the Portuguese place-names in charts 2, 3, 5, and 16 in appendix 11.5 and inscriptions such as "Sebastião, Afez" in chart 3;[146] there are also flags with five dots and with a cross to show, respectively, Portuguese territory and places with Christians. A common feature of the charts is that the scales—in the fashion of the Portuguese prototypes—are sometimes given in values equivalent to Spanish miles, although the units are specified as Portuguese nautical leagues (*léguas*). This suggests that copying was a mechanical process for the Japanese chartmaker, who added the scales without fully appreciating the value of the units. Some charts without scales also survive, and this suggests similar copying from secondary sources (see nos. 9, 10, 12, and 14 in appendix 11.5).

We should not be misled by such technical characteristics to think in terms of a standard Japanese chart. In geographical area, for instance, there is variation. The charts depicting the largest geographical areas (nos. 1 and 16) cover the whole of the area from Africa to Hokkaidō, with the center of the charts lying off Sri Lanka and India. Other charts are centered on the west coast of the Malay Peninsula (nos. 2, 3, and 4), and others on the west coast of Luzon (nos. 7, 8, 10, 11, 12, and 13), suggesting that they may have been abstracted from a more extensive map. Yet other charts are truncated westward at Sri Lanka (no. 5) or in the western part of the Malay Peninsula (no. 6). Areas to the west, of course, were not so important because Japanese traders did not go that far. The image of Japan itself and the adjacent coastlines also shows variation. Some charts, for instance, show a strip of the coast of mainland Asia along the northern part of the Sea of Japan (nos. 1, 4, 8, 9, 10, 11, 12, 13, 14, and 15), and in another Hokkaidō is depicted as part of the mainland (no. 7). Even the configuration of the Japanese archipelago varies; of note are charts 9 and 12, which show Japan much as it appears on the Shōhō map of Japan of about 1670, a remarkably accurate representation (see below, pp. 399 and 400 [fig. 11.34]).

The physical characteristics of the charts also vary. One, for instance, is attached to a thick wooden spindle and rolled like a scroll (no. 2), another (no. 7) is drawn on Japanese paper and stuck on the inner sides of two folding pine boards (rather like some European charts prepared for shipboard use). On at least one chart, too, we know that a waterproof lacquer had been used (no. 7). The lacquer is still transparent, so the original colors are visible. That the use of lacquer was associated with such charts is suggested in an order by the Mito clan that was commissioned in Nagasaki in 1671: forty-three *monme* (a *monme* being a unit of silver equal to 3.75 grams [.12 troy ounce]) for a chart of Southeast Asia, five *monme* for folding boards to stick the chart to, and three *monme* for lacquering it. The supplier was a certain Shimaya Ichizaemon, who had learned the arts of European navigation in Nagasaki.[147] Affixing a chart drawn on paper to a heavy pine board and then waterproofing it with lacquer was designed for convenience at sea. The hinges of the board were made of thick leather, which would last through several voyages. In the case of this chart, time has left these straps tattered.

Finally, there was a diverse group of original owners or patrons for the charts that have survived. Thus, one chart was in the possession of the Ikeda family, the leaders of the Okayama clan (no. 2);[148] an 1833 chart (no. 3)

146. The inscription means "Sebastião made this," and it is not known to whom it refers. Such an inscription is on Domingos Sanches's chart of ca. 1618: "Dominguos Sanches a fes em Lisboa anno 1618"; see Michel Mollat du Jourdin and Monique de La Roncière, *Les portulans: Cartes marines du XIII^e au XVII^e siècle* (Fribourg: Office du Livre, 1984); English edition, *Sea Charts of the Early Explorers: 13th to 17th Century*, trans. L. le R. Dethan (New York: Thames and Hudson, 1984), pl. 73 and pp. 250–51.

147. The Mito clan was a branch of the Tokugawa family based in Mito, Hitachi Province (now Ibaraki Prefecture) from 1609 until the Meiji Restoration. The head of the clan at the time in question was Tokugawa Mitsukuni (1628–1700), a patron of letters and history. From 1657 he sponsored the compilation of the *Dainihon shi* (History of Great Japan [243 vols.]), which was completed posthumously in 1906. Papinot notes that it raised "the prestige of the imperial dynasty," caused "the Tokugawa[s] to be regarded as usurpers" (p. 68), and was regarded as "the best authority on historical matters" (p. 681) at the time of Papinot's work toward the end of the Meiji era (1868–1912). Mitsukuni appears to have also taken an interest in science. See Papinot, *Dictionary of Japan*, 68 and 680–81 (note 43). For the order and the bond payable by the clan, dating to the twenty-seventh day of the sixth month of Kanbun 11 (1671), see Adachi Hiroyuki, "Kaifū sen shōkai kiji" (Navigational record of the ship *Kaifū*), *Kaiji Shi Kenkyū* 14 (1970): 120–28.

148. The Okayama in Bizen Province (now Okayama Prefecture), which was under the control of the Ikedas from 1603 to 1868. Noted

was a copy of a seventeenth-century one that belonged to Itoya Zuiemon (d. 1650) and was used for trading voyages in Southeast Asia;[149] and another chart is preserved by the descendants of the Ōsaka merchant Sueyoshi Magozaemon (1570–1617), whose representative is believed to have used it on annual voyages to Luzon or Annam (Vietnam) in the first half of the seventeenth century (no. 4). Yet another chart (no. 6) had been preserved by the house of Kadoya of Matsusaka, Mie Prefecture (fig. 11.24), and is believed to have first been the property of Kadoya Shichirobee (1610–72),[150] a merchant who lived in Kōchi (modern Hoi An). Since he had had many letters and other items sent to his brothers in Matsusaka after correspondence was allowed between Japanese inside and outside Japan from about 1660, there is a good chance that this chart was among them.[151] An interesting feature of the chart is the existence of pinholes to trace a sea route from Nagasaki to Kōchi via the Strait of Formosa. This route is divided into two lines, indicating a round-trip voyage.

Not all charts were prepared for use at sea. One is included in a report by the Nagasaki magistrate after a ship from the Bataan Islands had drifted to Japan in 1680 (no. 14). In this case, perhaps because of its nonmaritime function, there is no indication of latitude, and the distortion caused by the square shape of the chart makes the Malay Peninsula and the Sunda Islands appear very small. Another example (no. 11), probably used in legal proceedings, was a chart copied by the interpreter Ro Kōrō (1847–1923?) about 1865 in Nagasaki. The original may be one kept at the Nagasaki magistracy.[152] Another reason for compiling charts was to demonstrate mastery of drafting skills, probably the origin of the chart at the Jingū Library (no. 13). Its content is similar to that of two others (nos. 7 and 8), and it was meticulously drafted.

Charts of the Japanese Archipelago

Besides these sixteen charts of Southeast and East Asia, another group of charts relate only to the Japanese archipelago and were produced in Japan. Eight known examples are listed in appendix 11.6. For all of them the authors, dates, and circumstances of origin are uncertain. The only clue is the order for a chart, folding boards, and lacquering commissioned by the Mito clan in 1671, as noted above, in which is also written "thirty *monme* [for a] *Nihon karuta* [chart of Japan]."[153] From this entry it is possible to say that Shimaya was compiling charts of Japan by 1671. Since they had to be ordered from Nagasaki, as did those of Southeast and East Asia, it appears that chart-making skills were limited to relatively few individuals.

In contrast to the charts of Southeast and East Asia,

FIG. 11.24. A MARINE CHART OF SOUTHEAST AND EAST ASIA, CA. 1630. This chart, which formerly belonged to the Kadoya family, is an example of Japanese marine charts that do not show areas west of the Malay Peninsula that would have been on the prototype. This is suggested by the center of the rhumb line network, which is at the left rather than in the center of the chart as usual. Two lines of pinholes between Nagasaki and "Kōchi" (Hoi An in today's Vietnam) are evidence that the chart was used for sailing.
Size of the original: 44 × 38.8 cm, on vellum. By permission of the Jingū Historical Museum, Ise.

in Papinot, *Dictionary of Japan*, 199–200 and 479 (note 43).

149. Not much is known about Itoya except that he came originally from Kyōto, settled in Nagasaki because of the foreign trade, made twenty-four journeys overseas between 1601 and 1632, and died in 1650. There appear to have been relatives with the same surname involved with overseas trade. The copy of the chart was made by Takami Tadatsune (or Senseki, 1785–1858), a collector of old maps. See Nakamura, "Japanese Portolanos," 27–29 and table 1 (n. 8) (note 143). On Itoya's death, see Tokita Tadamasa, "Goshuinsen bōekika Itoya Zuiemon boseki ron" (On the tombstone of Itoya Zuiemon, authorized trading-ship trader), *Nagasaki Shiritsu Hakubutsukan Kanpō* 19 (1979): 1–7.

150. This chart is noted as *Gaikoku tokai no ezu* (Chart of overseas navigation) in a list of articles brought from Annam (Vietnam) in Matsumoto Dadō, *Annan ki* (Records of Annam, 1807). See Nakamura Hiroshi, *Goshuinsen kōkai zu* (Sea charts used by the authorized trading ships) (Tokyo: Nihon Gakujutsu Shinkōkai, 1965), 72–76.

151. See Kawashima Motojirō, *Shuinsen bōeki shi* (History of trade by the authorized trading ships) (Ōsaka: Kōjinsha, 1921), 449–81. Expatriates were forbidden by law to return to Japan after 1639. Nakamura suggests that the chart was used from 1631 to 1636: Nakamura, "Japanese Portolanos," 29 (note 143).

152. Ro Kōrō, *Ro Kōrō jijoden* (Ro Kōrō's autobiography), published by the author in 1922 when he was in his seventy-sixth year.

153. Adachi, "Kaifū sen shōkai kiji," 127–28 (note 147).

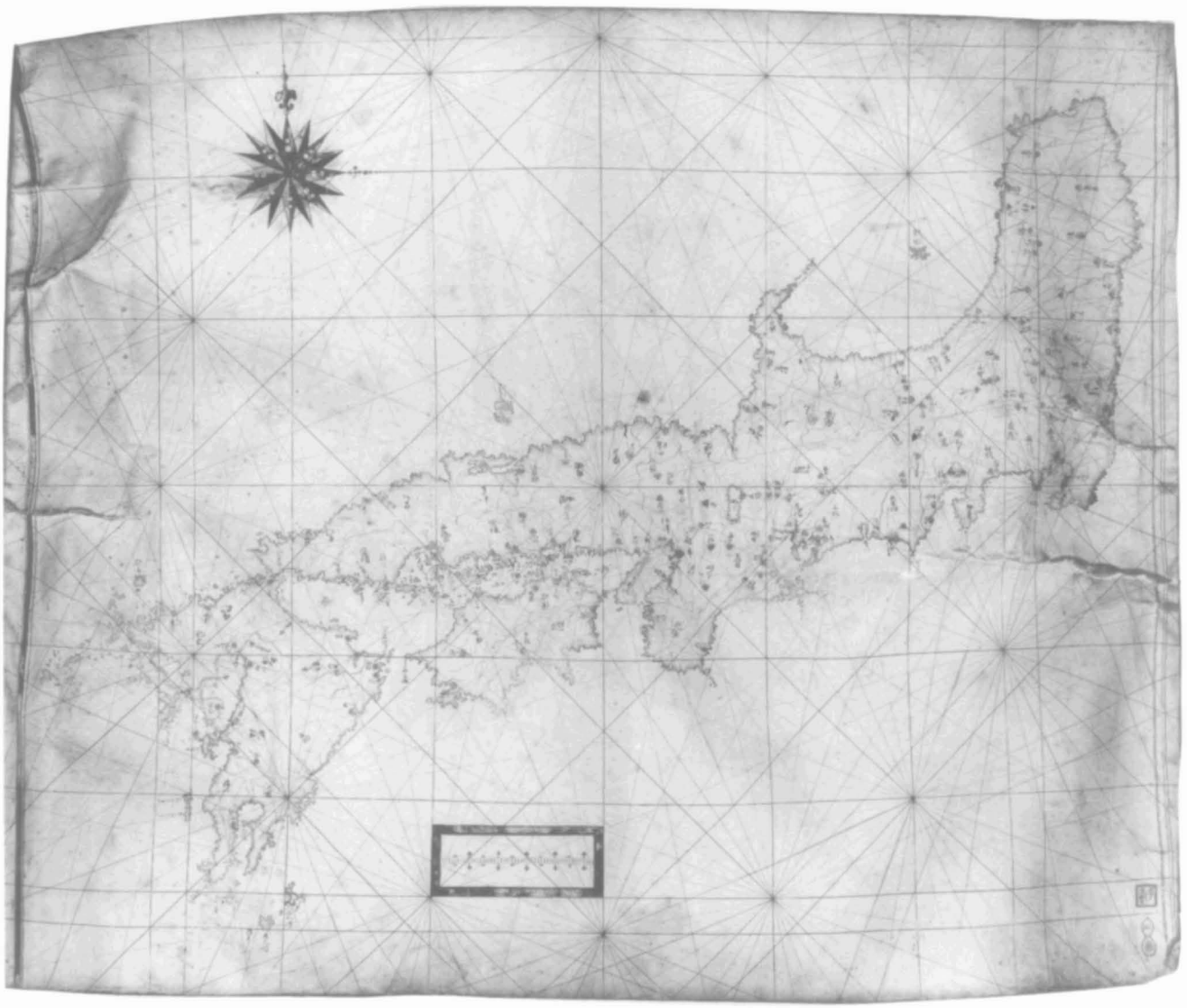


FIG. 11.25. MARINE CHART OF JAPAN, CA. 1671. Characteristic of charts of Japan is the fact that the image of Japan was not based on any of the charts of Southeast and East Asia. Rather, more recent Japanese sources were probably used: evidence here is the outline of northeastern Honshū, which is similar to that of the Keichō map. Note also that the boundaries of the provinces and main cities are included, suggesting that the origin of such a chart differed from that of charts of Southeast and East Asia. The bar scale is in Japanese *ri*.
Size of the original: 62 × 76 cm, on vellum. By permission of the Mitsui Library, Tokyo.

those of Japan were made from the outset by Japanese craftsmen, and their geographic and hydrographic details were not based on European models (fig. 11.25). They depict the Japanese archipelago more fully and correctly than do the charts of Southeast and East Asia, and they even include the names of cities and provincial boundaries that were probably taken from a terrestrial map of Japan. Three of them also have bar scales in *ri*, two of which use the western Japanese system of forty-eight *chō* to the *ri* (nos. 1 and 2 of appendix 11.6) and the other the eastern system of thirty-six *chō* to the *ri* (no. 4).[154] These suggest that there were different centers of production that used regionally recognizable units of measurement.

Once again this group of Japanese marine charts is far from a standard set. Although the eight charts may have a common prototype, they are diverse in content and form (appendix 11.6). The two earliest charts probably represent the initial stage of development (nos. 1 and 2).

154. The length of a degree of latitude in charts 1 and 2 of appendix 11.6 is between 32 and 33 *ri*; for chart 4 it is 43.75 *ri*. The value of 36 *chō* to the *ri* was used in provinces east of Kyōto, and that of 48 *chō* to the *ri* to the west; there was also another *ri* of 6 *chō* used in the Kantō area. For discussion, see Nakamura, "Japanese Portolanos," 28 and 38–42 (note 143). Also refer to Nakamura, *Goshuinsen kōkai zu*, 93–120 (note 150).

Both are drawn on vellum and contain European characteristics, notably in their system of rhumb lines indicating thirty-two directions and the decoration of the compass rose. Yet even these two charts are far from identical. In the first, the northernmost extent of Honshū is approximately 39°30′ north, whereas in the second it is approximately 41° north; to show this latter, more accurate position, itself based on a survey reading, Tōhoku (or Ōu) was elongated toward the north. The outline of northeastern Japan, the names of cities, and the provincial boundaries on the first (Mitsui) chart resemble those on the Keichō map of Japan, which appears to have been completed about 1639 (see below, p. 397 and plate 26), and suggest that it served as a model for the other charts.

The other six charts differ in various respects, and some are late copies of earlier versions (nos. 4, 7, and 8). All are drawn on rice paper, hardly a waterproof medium designed for use on board ship. The geographical content has also been tailored to individual use. Some of the charts include Korea, Hokkaidō, and the Izu Islands of Hachijō and Aoga, and northern Honshū is placed between 41°30′ and 42° north (nos. 4–7); but in other cases Korea and Hokkaidō are excluded (nos. 1–3). It is through such features and the positioning of geographical names that the lineage of the charts has been reconstructed. One of these diagnostic criteria is the number of rhumb lines used. Only one of the charts composed on rice paper has rhumb lines that indicate thirty-two directions (no. 3). Other charts (nos. 4–7) employ a system of twenty-four directions based on one of the surviving charts of Southeast and East Asia (appendix 11.5, no. 14), and another (no. 8), contains no indications of direction, although in the area of Japan it has a graduated rectangular frame and two compass roses.

Such variety makes it more difficult to establish when and for whom the first of this group of charts was made. According to tradition, one of the charts (no. 3) was compiled by the head of the Kawagoe clan in the province of Musashi (today divided into Tokyo, Saitama, and Kanagawa prefectures), Matsudaira Terutsuna (1620–71). The evidence for this link is a sheet of paper attached to the back of the chart, reading, "Tradition says that this comes from the pen of Chikōin," Chikōin being the posthumous name of Matsudaira. Although Nakamura argues for the historicity of the tradition, suggesting that Matsudaira copied the chart in 1638, the evidence as he rehearses it is tenuous.[155] Perhaps we should not entirely rule out the claims of this attribution to record the founding event of this group of charts, but it must be further noted that their documented production in Japan did not begin until 1670. This suggests that the tradition is not correct.

A more convincing theory is that these charts have an official origin. A hint lies in the way the charts differ from contemporary land maps, in particular in their directional lines and indications of latitude on both the left and right sides. This suggests that latitudinal measurements were taken at strategic points along the coast, and these measurements are so correct that they hardly differ from today's figures. That they were made for private groups is unlikely. It is more probable that such an interest in the geographical nature of the coastline originated with the central government, an idea reinforced by some documents in the collection known as Shimaya's records.[156]

According to these records, in 1669 the shogunate had a Chinese-style ship built in Nagasaki and appointed one Shimaya to be captain. He was ordered to investigate every small island between the northeast of Honshū and Nagasaki in 1670–71, starting with Edo as a point of reference. Although there is no specific mention of the chart he would have made, we know from other sources that Shimaya made charts for the Mito clan (see above) at about the same time. Moreover, when we turn to the surviving charts, their neat workmanship and detailed content suggest that the idea of compiling them originated in an order from the shogunate rather than from an individual such as Shimaya. Charts for personal use would have been less polished than any of these.

To assist his work, the shogunate probably gave Shimaya a copy of the Keichō map of Japan, a theory that is supported by the similarity of the coastline of the Sea of Japan on this map and some of the charts (nos. 1 and 2). On the other hand, the outline of the Pacific coast of Japan is based on Shimaya's observations. A minor difference between these two charts is the latitude for northern Honshū, the second being more accurate at 41° north and most likely based on better information. Judging from the latitude and shape of northeastern Honshū on the other six charts, it is likely that Shimaya produced a revision of the second chart as their model. It is possible that someone else may have been responsible, but there were few navigators skilled enough to conduct the measurements or, indeed, with the opportunity and the necessary equipment to make them. We must also remember that Shimaya was commissioned by the shogunate to undertake a voyage to the Bonin Islands, and one result was a chart depicting their location relative to Honshū.

Given the dates of Shimaya's voyage to map the islands between northeastern Honshū and Nagasaki, the charts

155. See Nakamura, "Japanese Portolanos," 35–36 (note 143).

156. Specific references are found in Hayashi Fukusai et al., *Tsūkō ichiran* (Collected documents for the history of Japanese diplomacy, ca. 1853), 8 vols. (Tokyo: Kokusho Kankōkai, 1912–13), appendix, chap. 18 (8: 508–12), and in Akioka Takejirō, "Ogasawara shotō hakken shi no kihonshiryō chizu ni tsuite" (On the fundamental documents concerning the discovery of the Bonin Islands), *Kaiji Shi Kenkyū* 9 (1967): 96–118, esp. 104–5.

FIG. 11.26. THE MAP OF JAPAN AT JŌTOKU TEMPLE, FUKUI, DATING FROM ABOUT 1595. The coastline is a revision of that on the Gyōki-type maps, which may in part reflect the activity of the Portuguese. Particularly outstanding is the delineation of Kyūshū and the Inland Sea. This manuscript, on a six-fold screen, is paired with the world map shown in figure 11.23.
Size of the original: 148.5 × 364 cm. By permission of Jōtoku Temple, Fukui.

of Japan must also date to 1670 or 1671. This conclusion is supported by the evidence of the Mito clan order. The charts, however, were not produced because of their value to Japanese navigation. Onshore landmarks were sufficient guides for ships skirting the coasts, and there was no need for charts on the open seas because of the edict prohibiting Japanese nationals from traveling abroad. They seem to have been prepared solely to reward successful students of surveying.[157] Given that there was no incentive to improve the information on them, Japanese marine charts then entered a period of stagnation.

THE JŌTOKU-TYPE MAPS OF JAPAN

The Jōtoku-type maps of Japan, also referred to as the Jōtokuji (Jōtoku Temple) type, derive their name from the map of Japan found at Jōtoku Temple in Fukui (fig. 11.26). That map is one of a pair with a map of the world (fig. 11.23 above), both of them on six-fold screens. The authorship and date of composition have not been ascertained for either map, but they certainly date to 1592 at the earliest. Some of the information on the map of Japan pertains to the invasion of Korea that began in that year, and the tribal name Orankai in a region beyond Korea on the world map was not known in Japan until then. From the evidence of the seal of the painter Kanō Eitoku (1543–90) that appears on both maps, they were undoubtedly executed by one of his apprentices.[158] Three other examples of the Jōtoku-type maps of Japan are listed as companion maps in appendix 11.4 (oval projection and equirectangular, type D1; a fifth example, at the Kōbe City Museum, will be mentioned below), and while they are partly derived from the earlier Gyōki-type maps of Japan, they are distinguished by the coastline that is shown in minute detail. Such maps were an important development during the period under discussion. They point to the influence of European ideas and knowledge from late in the sixteenth century, but at the same time they represent a synthesis of indigenous tradition and improvements in knowledge from both Japanese and European sources.

The content of the Jōtoku-type maps has an affinity with the Gyōki-type maps, but with improvements. The original Jōtoku model is thought to be a map of Japan with Kyūshū appearing as a long rectangle running north to south, rather than following the shape found in the surviving Gyōki-type maps. The map of Japan in Sin Sukchu's *Haedong cheguk ki* printed in Korea in 1471 (see p. 370) substantiates this theory. Kyūshū, patterned after a Japanese map of Japan that differed from the round mass of the Gyōki type, shows a uniform width from east to west at both the north and the south and has a slight protrusion in the southern coastline on both the

157. See below, p. 394.

158. For the invasion of Korea, see Sansom, *History of Japan*, 2:352–62 (note 32). Seals, which serve the same purpose as signatures, are usable as long as they are kept in good condition. The person who used Kanō's seal did not do anything unusual: other apprentices or followers of famous artists are known to have signed their works as if they were made by the masters.

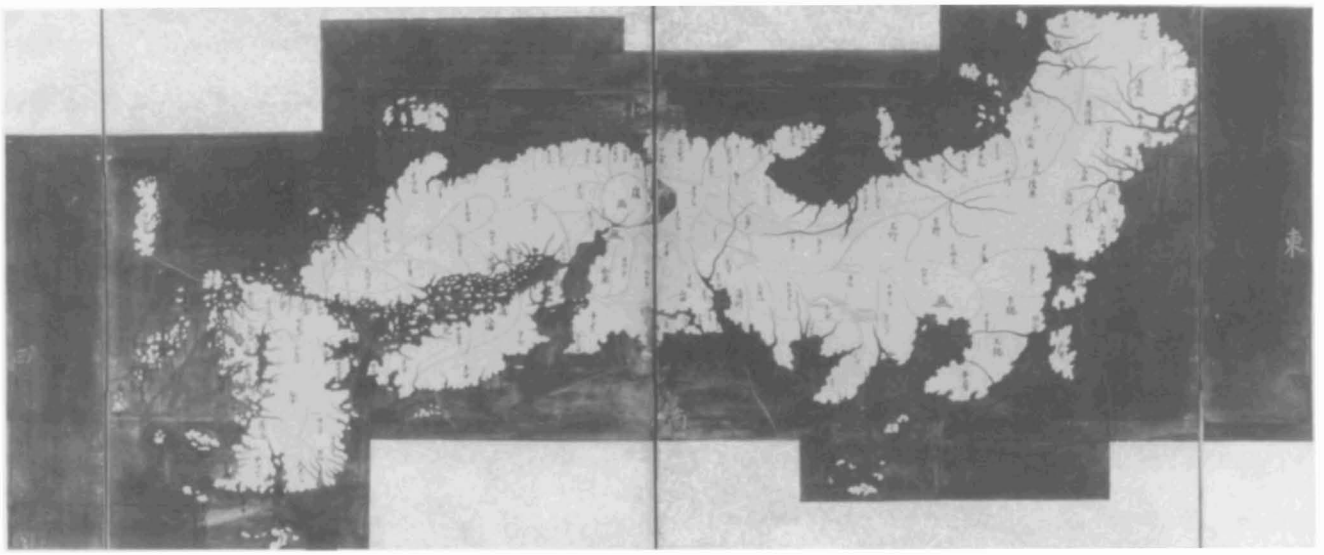


FIG. 11.27. THE *NANSENBUSHŪ DAINIHONKOKU SHŌTŌ ZU* (ORTHODOX MAP OF GREAT JAPAN IN JAMBŪDVĪPA), AN EXAMPLE OF THE JŌTOKU-TYPE MAP OF JAPAN DATING TO CA. 1627. Among the Jōtoku-type maps, this manuscript has the most place-names. Size of the original: 48.5–56.3 × 161 cm (map), on a four-fold screen (113 × 267 cm). Kawamori Kōji, Takaishi, Ōsaka Prefecture. Photograph courtesy of Sakai City Museum and Kazutaka Unno.

east and the west. On the Jōtoku type, however, southern Kyūshū has unrealistic protrusions on the east and the west, and the tips of the Satsuma and Ōsumi peninsulas are flattened. This suggests that the model for the Jōtoku-type map included a rectangular Kyūshū like that in the *Haedong cheguk ki.*

The framework of provincial boundaries and routes to and from the national capital of Kyōto also provides evidence of continuity, but the form of the coastline exhibits a clear break with the Gyōki tradition. Although the Jōtoku maps have their imperfections, many of the irregularities of the coastline are included in a map of Japan for the first time. The shape of Kyūshū, in particular, is exceedingly accurate compared with the rest of the map: the curve of Kagoshima Bay is clearly depicted, and the peninsulas and inlets of Hizen Province (today Nagasaki and Saga prefectures) are expressed in remarkable detail. Lake Biwa in central Honshū and part of the Yodo River system that flows from it to Ōsaka Bay are depicted with relatively minor differences from their actual shapes. There are some characteristic inaccuracies: ignored, for instance, are the irregularities in the Pacific coast of Tōhoku (or Ōu) (and the rivers that flow into the Pacific), as well as in the representation of Tosa Bay and the peninsulas of Ashizuri and Muroto, rendering the Pacific coast of Shikoku completely different from reality. The simplistic rendition of this coast probably follows the Gyōki style, but it also suggests a dearth of additional information at the time. Similarly, the peninsulas of Tsugaru and Shimokita in the north of Honshū and the large Mutsu Bay between them have been excluded in favor of a slightly indented, more rounded coastline. It appears that no new materials were used to portray the archipelago on the Jōtoku-type maps. With the exception of Kyūshū and the Inland Sea, revisions were made to the coastline of the Gyōki style to produce observable changes but without regard to reality.

Besides the map at Jōtoku Temple, folding-screen examples of Jōtoku maps are in the possession of Kobayashi Ataru, Kawamura Heiemon, and Kawamori Kōji. As at Jōtoku Temple, these national maps are paired with world maps of the *Nanban* group.[159] On the Kobayashi and Jōtoku Temple examples, the two oldest, the only place-names included are the Kyūshū port cities of Hakata (Fukuoka), Nagoya (Hizen Province), and Nagasaki. Nagoya was developed in 1591 in conjunction with Hideyoshi's invasion of Korea[160] but declined rapidly with the return of the troops in 1598, suggesting that these maps were produced about or shortly after 1598. The Kawamura example also includes Nagoya and thus may be considered contemporaneous, a deduction that is supported by the style of painting on the screens. The accompanying world maps also suggest production in the last decade of the sixteenth century. Since they contain the

159. On the Kobayashi and Kawamura maps, see note 132 above; on the Kawamori map, see note 136 above.

160. Sansom notes that the construction of Hideyoshi's base at Nagoya began in 1591, and it was from there that he launched the campaign against Korea in the following year; see Sansom, *History of Japan*, 2:352 (note 32).

tribal name Orankai in the northeast beyond Korea and were compiled about the time of the invasion of Korea, they may be dated to 1592–98.

The Kawamori example (fig. 11.27) is paired with a map of the Eastern Hemisphere on a folding screen, on which there are also tables providing the distances between Japan and its trading partners, notes on the prevailing situation in those places, and a catalog of goods exported to Japan. From the information about Taiwan, we may surmise that it was composed about 1627.[161] Since these tables help date the map of the Eastern Hemisphere, the map of Japan may be similarly dated. Some of the geographical features in the map of Japan, however, are older than the supposed date of composition. Among the place-names is Nagoya in Kyūshū, as well as others that were current around the end of the sixteenth century, mainly as early feudal centers, but that had declined by 1627. Of the Jōtoku examples, only the Kawamori map includes a great number of place-names and exhibits minute detail in its execution.

One more example of the Jōtoku type, in the Nanba Collection at the Kōbe City Museum, appears at first glance to be from the sixteenth century. Judging from the values given for land productivity in each province, however, it was probably commissioned by the shogunate from the mid-seventeenth century onward.[162] All but four of the names on this map belong to the provinces, the outstanding ones being a town and islands off the western coast of Kyūshū: Arima in the Shimabara peninsula, the Gotōs, the Amakusas, and the Koshikis. Arima was included on some maps after 1580, and until 1614 the Jesuits had a seminary there. It appears that the original of the map in the Nanba Collection was composed sometime between these dates.

On the Kawamori map there are about 160 place-names other than those of the provinces. Some of these point to contact with Europeans; in particular, there are the names of two islands off the western coast of Kyūshū—Hanerasu and Santakarara—that are derived from the European place-names Pannellas and Santa Clara. The Dutch cartographer Jan Huygen van Linschoten (1563–1611) indicated that there was an island called Pannellas immediately northeast of another island, Meaxuma (that is Meshima [Island of Woman]); Pannellas, then, was the Japanese Oshima (Island of Man). Santakarara, also found in Linschoten's work as Santa Clara, is included on one of the Japanese charts of Southeast and East Asia (appendix 11.5, no. 6), and it was probably another name for the Uji Islands.[163] This is supported by the Kawamori map, on which four islands are shown almost midway between Meshima and Iō Island (Kikai Island), suggesting that they also must be the Uji Islands. The Japanese compiler of the Kawamori map evidently either was unaware that these were the same islands with different European and Japanese names or lacked the proper information to distinguish them. The two names could have been written side by side had he wanted to use the Japanese term Ujishima. A similar case exists with Hanerasu: on the Kawamori map it is indicated without the Japanese name Oshima but is placed exactly in the location of Oshima between Meshima and Ōchika Island (today Fukue Island).

The use of European place-names on the Kawamori map thus indicates that its source material included European maps. Additional evidence of this is provided by an undated and anonymous Italian manuscript map of Japan at the Tenri Central Library (fig. 11.28).[164] This resembles the Kawamori map and includes the names of Pannellas and Santa Clara, spelled as Panelas and S. Clara. Moreover, three European works included maps of Japan in the same form: the *Saverio orientale* of 1641 by Berardin Ginnaro (1577–1644), the *Fasciculus e Iapponicis floribus* of 1646 by Antonio Francisco Cardim (1596–1659), and the first volume of the *Arcano del mare* (1646–47) by Robert Dudley (1574–1649).[165] On them Santa Clara

161. See Iwao Seiichi, "Ishibashi hakushi shozō sekaizu nendai kō" (On the date of the world map in the collection of Dr. Ishibashi), *Rekishi Chiri* 61 (1933): 511–22. One of the notes on the map states that the Dutch were living in the south of Taiwan (Formosa) and the Europeans of Luzon in Tansui (Tanshui); respectively these were occupied by the Dutch in 1624 and the Spanish in 1626.

162. The Nanba map (on a two-fold screen, 56.8 × 124 cm) is reproduced in color in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 21 (note 11). See also Nakamura Hiroshi, "Sengoku jidai no Nihonzu" (Maps of Japan at the time of the civil wars [1467–1568]), *Yokohama Shiritsu Daigaku Kiyō* 58 (1957): 1–98, esp. 24–27.

163. For information on these names and islands, see Jan Huygen van Linschoten, *Itinerario, voyage ofte schipvaert*, 5 vols. (The Hague: Nijhoff, 1910–39), pt. 2, *Reys-Gheschrift vande navigatien der Portugaloysers* (1595), chap. 39 (Werken uitgegeven door de Linschoten-Vereeniging 43 [1939]: 235 and 251–52). The map of the East Indies by Arnold Floris van Langren (ca. 1571–ca. 1644) attached to the book shows these islands as "Meaxuma" and "Santa Clara": see Pál Teleki, *Atlas zur Geschichte der Kartographie der japanischen Inseln* (Budapest, 1909; reprinted 1966), 24; and Cortazzi, *Isles of Gold*, 21–22 and pl. 22 (note 14).

164. This map was purchased in Rome before the Second World War by the Japanese diplomat Yoshiura Morisumi. It has been kept at Tenri Central Library since the end of the war. The paper and the frame both are distorted rectangles; see Nakamura, "Sengoku jidai no Nihonzu," 33–40 (note 162).

165. Berardin Ginnaro, *Saverio orientale; ò, Vero istorie de' Cristiani illustri dell'Oriente* . . . (Naples: Francesco Savio, 1641) (there are three parts, the map of Japan being in part 1); Antonio Francisco Cardim, *Fasciculus e Iapponicis floribus, suo adhuc madentibus sanguine* (Rome: Typis Heredum Corbelletti, 1646); Robert Dudley, *Dell'arcano del mare*, 3 vols. (Florence, 1646–47; 2d ed. 1661). See also Joseph F. Schütte, "Japanese Cartography at the Court of Florence: Robert Dudley's Maps of Japan, 1606–1636," *Imago Mundi* 23 (1969): 29–58, esp. 31 and 46, for these citations; two reproductions of Dudley's printed maps from the 1661 edition are on pp. 33–34. The maps by Ginnaro, Cardim, and Dudley are mentioned by Cortazzi, *Isles of Gold*, 44–45; he reproduces a copy of Cardim's map, *Iapponiae nova & accurata*

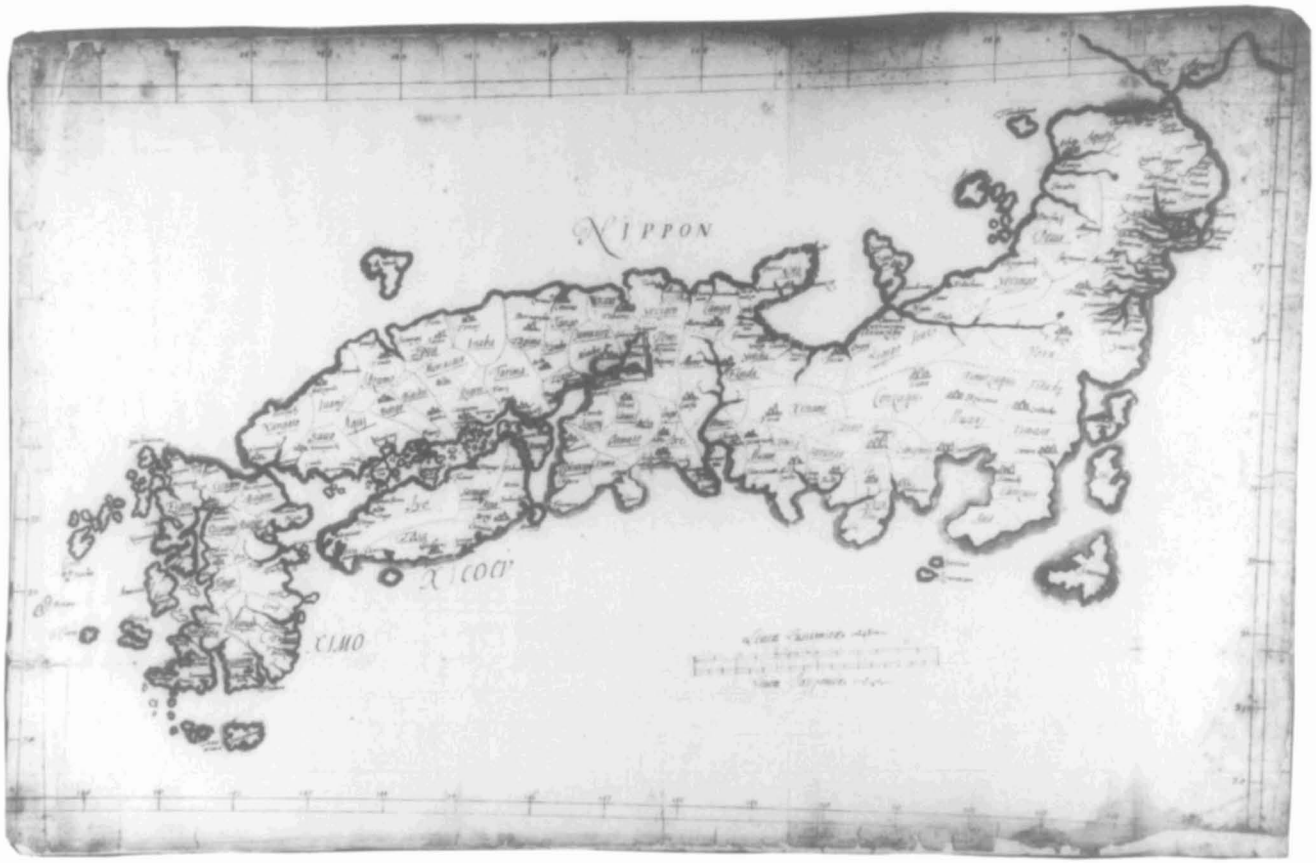


FIG. 11.28. AN ITALIAN MANUSCRIPT MAP OF JAPAN DATING TO THE LATE SIXTEENTH CENTURY. This is possibly an example of source material used by the compiler of the Kawamori map. The spelling of place-names is Portuguese on an otherwise Italian-language copy: the original might have been composed by Ignacio Moreira, who was in Japan from 1590 to 1592. The bar scales are in Lusitanian and Japanese leagues (*leucae Lusitanicae* and *leucae Japponicae*). Size of the original: 46.5 × 72.4 cm; 40 × 67.3 cm (inside frame). By permission of the Tenri Central Library, Tenri, Nara Prefecture.

is written with minor spelling alterations. This is not the case with Pannellas: the islands are referred to on Ginnaro's map as "Osima I." and on Dudley's as "I. Oscuma." These names are versions of Oshima, suggesting that this name was already in use on Japanese maps being sent abroad. Of the three maps published in Europe, that of Cardim is the most widely known, and he has lent his name to this group of four maps, which on the grounds of their similarity probably share a common source. Schütte's research on the three Cardim-type maps in Europe points to their association with the Portuguese Ignacio Moreira (b. 1538 or 1539), who resided in Japan between 1590 and 1592.[166] According to Valignani, one of his contemporaries, Moreira compiled maps, and the content of his *Declaração da descripção de Japão* was essentially the same as that of the three European Cardim-type maps. A Latin translation entitled *Iaponicae tabulae explicatio* is also extant.[167]

Schütte, however, was not aware of the Tenri map,

descriptio (Rome, 1646; in the British Library, London), and two of Dudley's, *Asia carta diciaset[t]e piu moderna* (1661, in the British Library) and *Carta particolare della grande isola del' Giapone è di iezo con il regno di Corai et altre isole in torno* (1661, in Cortazzi's personal collection) (Cortazzi, *Isles of Gold*, pls. 64–66 [note 14]). As mentioned subsequently, a map compiled by Ignacio Moreira from information acquired in 1590–92 appears to have been the prototype of these maps.

166. See Schütte, "Ignacio Moreira," 126–27 n. 108 (note 121). Schütte here also refers to a map by Philippe Briet (1601–68) that appeared in Nicolas Sanson d'Abbeville, *L'Asie en plusieurs cartes nouvelles et exactes* (Paris, 1652); the title was *Description des isles de Iapon en sept principales parties*. An earlier map by Briet, *Royaume du Iapon* (Paris: Mariette, 1650), is reproduced in Teleki, *Atlas zur Geschichte der Kartographie*, pl. IX-1 (note 163), and Cortazzi, *Isles of Gold*, pl. 67 and (about Briet), 45–46 (note 14). See also Schütte, "Japanese Cartography at the Court of Florence," which includes two of Dudley's manuscript maps showing the coastal areas of northern Honshū and southern Hokkaidō (figs. 3–4, pp. 33–36). The discussion on "models and sources" is on 45–58 (note 165).

167. Archivum Romanum S.J., Jap. Sin. 22, fol. 300r–v; the text is included as an "annex" to Schütte, "Ignacio Moreira," 127–28 (note 121).

which was researched by Okamoto and Takahashi. Of the four maps, they concluded that the Tenri manuscript is the closest in form to Moreira's; the place-names on the manuscript map were limited to those in use while Moreira was in Japan, and Portuguese spelling was retained on an Italian-language copy.[168] The exact date is still unknown.

It is probable that the Kawamori map was modeled on one of Moreira's or one copied by a missionary in Japan. Since the Kawamori map was completed about 1627, the Moreira group of maps might have served as source material. It could therefore be said that the Cardim type of map had already been developed before 1592–98 when the early *Nanban* group of world maps was completed.

From the evidence provided by the place-names, we may therefore conclude that the Jōtoku maps were influenced by Europeans who had been in Japan. The standard copies used for subsequent revisions, however, were produced by Japanese. This conclusion has been reached by observing that the outline of Japan, with the exception of Kyūshū, differed little from that on the Gyōki-type maps. It is the many place-names along the coast that were updated. European pilots who received the Gyōki-type maps amended and revised them. It was European navigators, for example, who provided evidence of several uninhabited islands off the coast of western Kyūshū shown on the Jōtoku-type maps. The coast of Kyūshū itself was depicted in the greatest detail, reflecting the island's importance in sixteenth-century trade that from 1545 was conducted mainly with the Portuguese. The chartlike characteristics of these maps might be attributed to the requirements and efforts of the pilots. On the Japanese marine charts of Southeast and East Asia, for example, Japan appeared as it did on the Jōtoku (Cardim) type.

The Jōtoku maps therefore combined Japanese mapping with the ideas and knowledge of European pilots and missionaries. On the one hand, European navigators sought available maps of areas into which they sailed, and the revision of such charts was essential for the success of subsequent voyages. On the other hand, Japanese navigators also recorded the names of important islands that lay along their sailing routes. Some of the islands shown on the map in the *Haedong cheguk ki* might seem too small to be of importance, but they were probably included because of their positions on trading routes between Japan and the Ryūkyūs and Korea. This suggests that the outline of the Japanese coast, especially western Kyūshū and the adjacent islands, was mapped by Japanese before the arrival of Europeans. The map of Japan in Tōshōdai Temple also shows a large number of small islands off western Kyūshū, reflecting the pattern of sea travel between Japan and the continent. Modifying the Gyōki-type maps into a chartlike format is thus an important development of the mid-sixteenth century. The arrival of Europeans speeded up the process, and the Jōtoku maps were eventually the outcome of both Japanese and European efforts.

THE INTRODUCTION AND MANUFACTURE OF TERRESTRIAL GLOBES

I have already mentioned a European terrestrial globe that had been introduced to Japan by 1580. In that year, for example, in a meeting with the Jesuit Organtino, Oda Nobunaga discussed using a European globe.[169] Similarly, in 1591 the mission of three Kyūshū lords, on returning from Europe and when staying at Murotsu, Harima Province (now part of Hyōgo Prefecture), showed European globes, maps, and charts to a number of daimyos who were passing through the port town.[170] The globes were not always of European origin. In 1592 the Dominican Fray Juan Cobo, envoy of the governor-general of Spanish Manila, met Toyotomi Hideyoshi at Nagoya, Hizen Province, and presented him with a terrestrial globe with all its place-names written in Chinese characters.[171] Thereafter, European celestial and terrestrial globes continued to be imported into Japan by Christian missionaries and employees of the Dutch East India Company, presumably either as a way to proselytize or as diplomatic gifts to the shogunate. References to such globes and their use are found in both Japanese and European sources. In 1596 the Japanese Christian João Sotão accompanied his wife to a church in Kyōto, where he showed her a map of the world and a terrestrial globe.[172] In 1606 there is also a literary reference to the use of globes when the Confucianist Hayashi Razan visited the Japanese monk (*irmão*) Fabian Fukansai at a Christian church in Kyōto, where he examined a terrestrial globe and criticized its theory of the round earth.[173] From the

168. Okamoto, *Jūroku seiki ni okeru Nihon chizu no hattatsu*, 103–9 and 163–207 (note 131); Takahashi Tadashi, "Seizen seru shoki Nihon chizu ni tsuite: I. Moreira kei chizu o chūshin to shite" (On the early maps of Japan by Europeans, emphasizing the I. Moreira-type maps), *Nihongakuhō* 4 (1985): 1–33; idem, "Jūshichi seiki Nihon chizu ni okeru Teisheira gata to Moreira gata: N. Sanson to R. Daddoree no Baai" (About the Moreira- and Teixeira-type maps of seventeenth-century Japan: The atlases of N. Sanson and R. Dudley), *Nihongakuhō* 6 (1987): 111–35.

169. See note 124 above.

170. See note 126 above.

171. Emma H. Blair and James A. Robertson, eds., *The Philippine Islands, 1493–1898*, 55 vols. (Cleveland: Arthur H. Clark, 1903–9), 9:45.

172. Luís Fróis, Annual Report, 3 December 1596 (Archivum Romanum S.J., 352), 179–230v; see "1596 nendo Iezusu Kai nenpō" (Annual report of the Society of Jesus, 1596), trans. Sakuma Tadashi, *Kirishitan Kenkyū* 20 (1980): 261–410.

173. Hayashi Razan, "Hai Yaso" (Denouncing Christianity), in *Razan bunshū* (An anthology of Razan's prose, 1662), 2 pts., ed. Hayashi Gahō.

middle of the next century, on five occasions it is recorded that officials of the Dutch Office in Japan made gifts of globes to the shogunate. Thus in 1642 the head of the office, Jan van Elzerack, presented a terrestrial globe to Inoue Chikugo no Kami (Masashige, 1585–1661), a high-ranking official in the shogunate.[174] Then, in 1647, a large terrestrial globe was given by Willem Verstegen to Inoue;[175] in 1652 Adriaen van der Burgh presented a terrestrial globe and a map to Inoue;[176] and in 1657 Zacharias Wagenaar's presentation of a terrestrial and a celestial globe to the shogunate is recorded, although they were destroyed by fire shortly afterward.[177] Finally, in 1659 Wagenaar presented a second pair of globes to the shogunate.[178] Globes were also acquired by the Japanese aristocracy, as in 1661 when Hendrick Indijck, the head of the Dutch Office, hand delivered to a secretary of the late Inoue Masashige at Edo a terrestrial and a celestial globe that his lord had ordered.[179]

The earliest recorded Japanese venture in the manufacture of terrestrial globes was in 1605, when the emperor asked his "ordinary" craftsman to make a globe.[180] Later the shogunate paid attention to the maintenance and repair of globes, as suggested by the repair of the *Tenchi no zu* (Figures of heaven and earth; possibly celestial and terrestrial globes) by shogunal officials with the assistance of others such as the former Christian Okamoto San'emon (Giuseppe Chiara [1602–85]) from 1677,[181] but the dates of the globes are not known. On the other hand, a terrestrial and a celestial globe repaired by Uma Michiyoshi from 1791 to 1794 by order of the shogunate were Willem Jansz. Blaeu's globes of about 1640.[182]

The oldest extant Japanese-made terrestrial globe might be that which accompanies a padre doll on a toy dating most likely from early in the Edo period. The globe measures about 3.8 centimeters in diameter, and its geography, including a worldwide sea route beginning from Portugal, is derived from a *Nanban* map on an oval projection.[183] It was not until 1690 that the astronomer Shibukawa Harumi (see chapter 14 below) made the first Japanese terrestrial globe for practical use (plate 24), based on Ricci's world map of 1602. Seven years later Shibukawa made another globe, and his works continued to influence globe making in the eighteenth century (see appendix 11.7). Besides Ricci's world map, other European sources for Japanese globes in the eighteenth century included a globe dating to 1700 by Gerard Valck (1652–1726) and Leonard Valck (1675–1746) (see below). Throughout the nineteenth century almost all Japanese terrestrial globes were based on the world maps compiled by the Japanese *Rangaku* (Dutch studies) scholars, from various Dutch maps (fig. 11.29).

Besides the globes derived from European models, there were also some based on Buddhist ideas. The earliest extant example was made by the priest Sōkaku (1639–1720) about 1702. On this globe, at the top of the earth's axis, fixed roughly perpendicular to the base, is a columnar object made from rock crystal and shaped like Mount Sumeru; the geography on the sphere itself is also drawn according to the Buddhist image of the world.[184] Accompanying the globe is a flat model titled *Shumisengi*

Modern editions of "Hai Yaso" appear in *Razan sensei zenshū* (Collected work of the teacher Razan) (Kyōto: Heian Kōkogakkai, 1918), and in *Kirishitan sho Haiyasho* (Books on Christianity and writings denouncing Christianity), ed. Ebisawa Arimichi et al., Nihon Shisō Taikei (Series of Japanese thought), vol. 25 (Tokyo: Iwanami Shoten, 1970), 413–17.

174. In 1643 Inoue took this globe to use in the investigation of a Dutch ship that had washed up on the northeastern shore of Japan (its captain was H. C. Shaep): *Journael ofte dachregister gehouden bij den schipper Hendricq Cornelisz. Schaep* . . . , Algemeen Rijksarchief, The Hague, Overgekomen Brieven, jaar 1645, Book 2, GGG2. Kolonial Archief no. 1055 (see the translation of the journal: *Nanbu hyōchakuki* [An account of a shipwreck cast ashore at (the daimyate of) Nanbu (now in Iwate Prefecture)], trans. Nagazumi Yōko [Tokyo: Kirishitan Bunka Kenkyūkai, 1974], 61).

175. *Nagasaki Oranda shōkan no nikki* (Diary of the head of the Dutch Office in Japan, 1641–54), 3 vols., trans. Murakami Naojirō (Tokyo: Iwanami Shoten, 1956–58), 2:178.

176. Reported by Willman; see Nils Matson Kjöping, *Een Kort Beskriffning Vppå Trenne Reesor och Peregrinationer sampt Konungarijket Japan . . . III. Beskrifwes een Reesa till Ost Indien, China och Japan . . . aff Oloff Erickson Willman* (Wisingsborgh, 1667); in Japanese, *Nihon taizaiki* (An account of a sojourn in Japan), trans. Ozaki Tadashi, Shin Ikoku Sōsho (New series on foreign countries) (Tokyo: Yūshōdō Shoten, 1970), 38.

177. *Tsūkō ichiran*, chap. 242 (6:212) (note 156); Arnoldus Montanus, *Gedenkwaerdige gesantschappen der Oost-Indische maatschappy in 't vereenigde Nederland, aan de kaisaren van Japan* (Amsterdam: J. Meurs, 1669), 370–71, 386.

178. *Tsūkō ichiran*, chap. 242 (6:212) (note 156); Montanus, *Gesantschappen aan de kaisaren van Japan*, 399 (note 177).

179. Montanus, *Gesantschappen aan de Kaisaren van Japan*, 414 (note 177).

180. Pagès, *Histoire de la religion chrétienne au Japon*, 1:125 (note 145).

181. *Saken yoroku* (Diary of the Office of Christians, 1672–91) in *Zokuzoku gunsho ruijū*, 12:607 (note 91).

182. Uma Michiyoshi (Kitayama Shin'yō), *Oranda tenchi ryōkyū shūho seizō ki* (Records of the repair of the Dutch celestial and terrestrial globes, 1795); owned by the National Diet Library, Tokyo. See also Peter van der Krogt, *Old Globes in the Netherlands: A Catalogue of Terrestrial and Celestial Globes Made prior to 1850 and Preserved in Dutch Collections*, trans. Willie ten Haken (Utrecht: HES, 1984), 70.

183. The owner of the device, Kayahara Hiroshi, dates it to the Kyōhō era (1716–35), but evidence such as Toyotomi Hideyoshi's seal and the mechanical simplicity of the rotating doll suggests that it was made much earlier. The doll is twenty-two centimeters tall and resembles a Jesuit missionary carrying a whip; a handle, before it was broken, turned both the doll and the globe. See Unno, "Chikyūgi tsuki no bateren ningyō" (A terrestrial globe with a padre doll), in *Chizu no shiwa*, 248–50 (note 136).

184. Sōkaku's globe is discussed in detail in Unno Kazutaka, "Sōkaku no chikyūgi to sono sekaizō" (Sōkaku's globe and his image of the world), *Kagakushi Kenkyū* 117 (1976): 8–16.

FIG. 11.29. NUMAJIRI BOKUSEN'S TERRESTRIAL GLOBE *DAI YOCHI KYŪGI* (LARGE GLOBE OF THE EARTH) OF 1855. The cartographic image, figures, and place-names are the same as those on Shibata Shūzō's *Shintei kon'yo ryakuzenzu* (Newly revised map of the earth, 1852), its source. The globe was printed from a woodblock onto paper gores and colored by hand, and it has twelve bamboo ribs that fold like traditional Japanese umbrellas. Numajiri Bokusen (1774–1856) was a geographer who had a private school at Tsuchiura, Hitachi Province (now Ibaraki Prefecture).
Size of the original: 23 cm. Honma Takeo, Tsuchiura. Photograph courtesy of Kazutaka Unno.

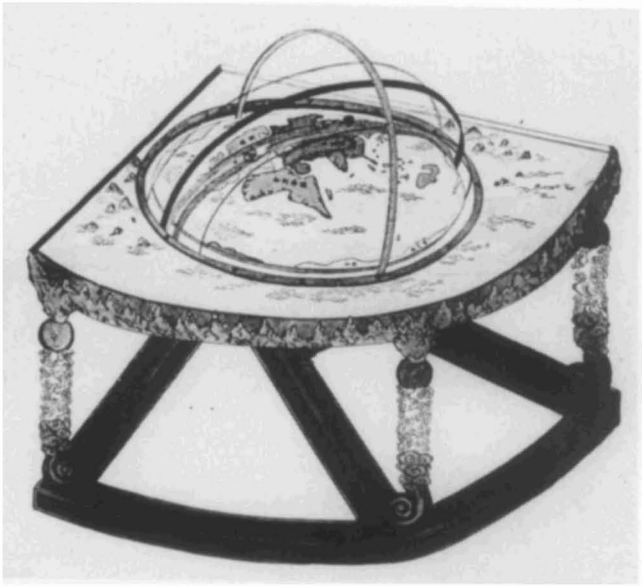


FIG. 11.30. ENZŪ'S *SHUKUSHŌGI ZU* (SKETCH OF AN INSTRUMENT OF THE BUDDHIST IMAGE OF THE FLAT EARTH) OF 1814. Enzū devised astronomical models to demonstrate the Buddhist view of a flat earth, one such model being the *Shukushōgi*, which was sketched in order to be printed from a woodblock. Although the *Shukushōgi* itself has been lost, its general structure has been determined from the prints that were made, and it includes arcs showing the orbits of the sun and the moon at the solstices and equinoxes. The image of the flat earth was adopted directly from the portrait of the Eastern Hemisphere on European maps. Not included here is Enzū's preface, which was attached to the *Shukushōgi zu*.
Size of the original: 60 cm in width; total size with the preface: 130 × 60 cm. Ryūkoku University Library, Kyōto. Photograph courtesy of Kazutaka Unno.

(Instrument of Mount Sumeru), to explain the justification of a Buddhist flat-earth theory. Later, about 1751, a simple instrument using geographical data derived from European sources was made by order of another Buddhist priest, Kakushū (d. 1756).[185]

The trend of incorporating European knowledge into the Buddhist image of the heavens and earth became stronger in the nineteenth century, an example being the *Shukushōgi* (Instrument of the Buddhist image of the flat earth, or the Buddhist orrery) of the Buddhist priest Enzū (1754–1834), who was active in propagating Buddhist astronomy (fig. 11.30). Enzū's instrument was a model to explain the passage of the seasons based on ideas from the design of the European orrery together with the *Shumisengi*, which contained a clockwork mechanism to help explain the Buddhist view of the universe. About 1848 Enzū's disciple Kanchūzenki (fl. 1834–48) and a later disciple Kōgon (d. 1871) made plans for more exquisite and refined astronomical clockwork models and had them made by the watchmaker Tanaka Hisashige (1799–1881). These instruments improved the clockwork mechanism in Enzū's *Shukushōgi* and the *Shumisengi*. About 1855 another disciple of Kanchūzenki, Sada Kaiseki (1818–82), developed another clockwork model called *Shijitsu tōshōgi* (Model showing the equality of visual and substantial objects). This demonstrated the Ptolemaic system and the theory of a flat earth; copies of this instrument were also made by Tanaka.[186]

185. Tōkai Sanjin, *Fugyō shinmon zōhyō* (Research on heaven and earth, with comments, 1751); owned by Ōtani University Library.

186. On Buddhist cosmology in Japan, see Unno Kazutaka, "Nihonjin to Shumisen" (The Japanese and Mount Sumeru), in *Ajia no uchūkan* (Cosmology in Asia), ed. Iwata Keiji and Sugiura Kōhei (Tokyo: Kōdansha, 1989), 349–71. Enzū's *Shumisengi zu* (Sketch of an instrument of Mount Sumeru) and *Shukushōgi zu* (Sketch of an instrument of the Buddhist image of the flat earth), Kanchūzenki's works of the same name, and Sada's *Shijitsu tōshōgi zu* (Sketch of a model showing the equality of visual and substantial objects) are reproduced in *Shumisen zufu* (Collection of pictures of Mount Sumeru), ed. Tokushi Yūshō (Kyōto: Ryūkoku Daigaku Shuppanbu, 1925).

SURVEYING INSTRUMENTS AND TECHNIQUES

The transfer and reception of surveying methods and instruments was also an important aspect of the transmission of European cartographic ideas into Japan in the encounter period. Although traditional models and ways of mapping survived, the availability of European instruments and techniques permitted revision of Japanese maps, noted above, to occur more effectively. At first European concepts and instruments were applied to navigational astronomy, but they were also incorporated into topographical surveying after the closure of the country. The main center for European-style surveying was Nagasaki, a thriving international port.

The legendary account of the transmission of European surveying methods to Japan places it early in the Edo period. The story alleges that a Dutchman named "Kasuparu" came to Japan in 1641 and taught the art of surveying to Higuchi Kentei (1601–84).[187] About this date, the only known Dutchman with such a name was the surgeon Caspar Schamburger, who arrived in Japan in 1647 or 1648.[188] Even if this is the same person, we cannot be sure that it was he who taught surveying. There was subsequently no strong Dutch influence on Japanese surveying, and we must conclude that the Dutch were not involved in disseminating such knowledge.

A much stronger case can be made for Portuguese involvement. According to Ro Senri, Higuchi studied astronomy and geography under a teacher named Hayashi Sensei (or Kichiemon), a Christian resident of Nagasaki who was put to death for his beliefs in 1646. Higuchi was later implicated with his teacher, and he was subsequently imprisoned for twenty-one years.[189] One of his works, the *Nigi ryakusetsu* (Brief explanation of the heavens and earth), was based on the first section of the *Compendium Catholicae veritatis* (ca. 1593), a work composed by the Jesuit Pedro Gomez (1535–1600) for his Japanese students.[190] Further evidence of Portuguese influence is that both Hayashi and Higuchi were educated not by the Dutch, but by the Jesuits and Portuguese pilots.

Evidence of assimilation is provided by the foreign terminology used in Hosoi Kōtaku's (1658–1735) *Hiden chiiki zuhō daizensho* (Complete book of the secret art of surveying and mapping), a manuscript dating to 1717. Hosoi states that surveying is the art of *pirōto* (*piloto*, pilot) as taught to Japanese by the Dutch and explains that *pirōto* is "a foreign term meaning computation or calculation." From this it is obvious that the origin and the meaning of the word had been forgotten. The Dutch

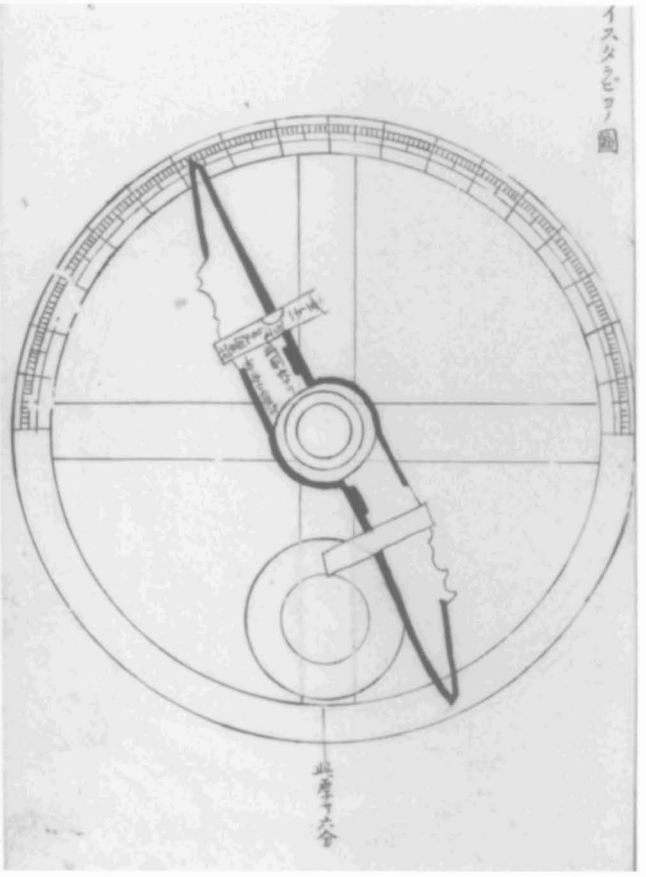


FIG. 11.31. ILLUSTRATION OF AN ASTROLABE (*ISUTARABIYO*) IN HOSOI KŌTAKU'S *HIDEN CHIIKI ZUHŌ DAIZENSHO*.
Diameter of the original: 17.2 cm. National Diet Library, Tokyo. Photograph courtesy of Kazutaka Unno.

187. Also known as Kobayashi Yoshinobu, an astronomer at Nagasaki. The date of his death is given as 9 February 1684; see Ro Senri, [*Nagasaki*] *senminden* (Biographies of the pioneers in Nagasaki, 1731) (Edo: Keigendō, 1819), chap. 1, s.v. "Kobayashi Yoshinobu."

188. Or Schambergen; he was one of the first medical doctors from Holland to arrive in Japan and founded a school of medicine known as Kasuparu ryū. Refer to Plutschow, *Historical Nagasaki*, 97 (note 128).

189. See Ro, *Senminden*, chap. 1, s.v. "Kobayashi Yoshinobu" (note 187).

190. See Ohara Satoru, "Kirishitan jidai no kagaku shisō" (Scientific thought in the Christian period), and "Pedoro Gomesu cho 'Tenkyūron' no kenkyū" (A study of "De sphaera" by Pedro Gomez), *Kirishitan Kenkyū* 10 (1965): 101–78 and 179–273; and Hirose Hideo, "Kyū Nagasaki tengakuha no gakutō seiritsu ni tsuite: 'Nigi ryakusetsu' ni kanshite" (On the formation of the old Nagasaki school of astronomy: Concerning *Nigi ryakusetsu*), *Rangaku Shiryō Kenkyūkai Kenkyū Hōkoku* 184 (1966): 3–14. For a discussion of the *Nigi ryakusetsu*, see Nakayama, *History of Japanese Astronomy*, 98–100 (note 38). The only extant copy is in the Naikaku Library of the National Archives in Tokyo; it has been published in *Kinsei kagakushisō* (Scientific thought in the modern ages), 2 vols., ed. Furushima Toshio et al., Nihon Shisō Taikei (Series of Japanese thought), vols. 62–63 (Tokyo: Iwanami Shoten, 1971–72), vol. 2. The *Compendium Catholicae veritatis* is in Rome, Biblioteca Apostolica Vaticana, Regina Lat. 426; see Joseph F. Schütte, "Drei Unterrichtsbücher für japanische Jesuitenprediger aus dem XVI. Jahrhundert," *Archivum Historicum Societatis Iesu* 8 (1939): 223–56.

word for pilot, *loods*, has no linguistic resemblance to *pirōto*. Hosoi's book contains illustrations of various surveying instruments, among them the *watarante* (quadrant), *kuhadarantei* (quadrant), *konpansu* (compass), *isutarabiyo* (astrolabe), and *asutarabiyo* (astrolabe) (fig. 11.31), all of which show a direct link to the Portuguese and Spanish languages. The terms *watarante*, *konpasu*, and *isutarahi*[191] are also included in Matsumiya Toshitsugu's (1686–1780) treatise on surveying, *Bundo yojutsu* (Techniques of protraction) of 1728.[192] Since Matsumiya was not a student of Hosoi's, there were probably different surveying schools and factions using European instruments and referring to them by their European names. Some of these instruments from the Edo period have survived.[193]

Not only are the instruments referred to by their European names in these works, but so are the months of the year because of their importance for declination tables. Examples from Hosoi's manuscript include *shanero*, *hebereiro*, *setenboro*, *nobenboro*, and *desenboro*; although Matsumiya is not as strict as Hosoi with voiced sounds, his phonetic representations of the months are the same. Both works also list the months in Dutch, as *yanwari*, *befuriwari*, and *maruto* testify. Because of their importance in European navigation, the names of the months appear to have been taught to Japanese sailors by Europeans. The *Genna kōkai sho* (Book of the art of navigation in the Genna era [1615–23]) of 1618, written by Ikeda, records the Portuguese names of the months,[194] and the surveying methods that Hosoi and Matsumiya describe were related to the techniques of navigation that Ikeda had learned from the European Manuel Gonzalez (see note 145 above). Hosoi, as mentioned previously, considered the art of *pirōto* to be the basis for surveying. Matsumiya also acknowledged that the surveying techniques he had mastered had their roots in European navigation.

The mistaken idea that it was the Dutch rather than the Portuguese who had introduced such knowledge to the Japanese was also perpetuated by Matsumiya. It was prevalent in works on surveying during the Edo period, probably as a result of the existence of Dutch trading privileges and, notably, the tendency to avoid things associated with the Portuguese after the ban on Christianity. The Portuguese were known for their evangelistic zealotry, and thus anything associated with them was avoided in a way that did not apply to the more mercantilistic Dutch.

Two important early surveyors, according to Matsumiya's work, were Higuchi and Shimaya. The latter was an accomplished pilot skilled in European navigation, but it appears that Higuchi, who had studied astronomy with European navigators as well as learning from Hayashi,[195] was his superior because of his knowledge and expertise in sailing. Before Shimaya made his exploratory voyage to the Bonin Islands in 1675, the shogunate had asked Higuchi to make the trip, but he had declined on the grounds of age, and command of the expedition was then given to Shimaya.[196]

That European navigational science was influential for Japanese surveying practices is also attested by the maps that, according to Hosoi, were presented to all successful surveying apprentices upon graduation. Two of these—the *Jagatara kaijō bundo zu* (Chart of Southeast Asia) and the *Nihon seizu* (Chart of Japan)—were marine charts; the third, the *Bankoku sōzu* (Map of all the countries), was also based on European knowledge. Any surveyor who did not possess them, Hosoi remarks, could not be considered genuine.[197] There was also a table of declinations, the *Nanban goyomi* (Western almanac), which served as a similar mark of proficiency during the Edo period.[198]

The State and Cartography

The state has exerted an important influence on the development of Japanese cartography. We have already seen, for example, how an entry in the *Nihon kōki* notes that provincial maps were ordered to be made in 796, and

191. *Watarante* or *kuhadarantei* (also *kuhatarantei*) is a corruption of the Portuguese *quadrante* or Spanish *cuadrante*; *konpansu* and *konpasu* of the Portuguese *compasso* or Spanish *compás*; *isutarabiyo*, *asutarabiyo*, or *isutarahi* of the Portuguese *astrolábio* or Spanish *astrolabio*. The reason for the different Japanese renditions is that the same non-Japanese word might be heard, and thus written down, differently. There is also the possibility that such words, although originally Portuguese, were transmitted to the Japanese by the Dutch, since Portuguese was the lingua franca for Dutch-Japanese trade as late as the 1660s. Since, however, Portuguese were involved in educating Hayashi and Higuchi, it is more likely that there was a direct Portuguese influence rather than an indirect one.

192. National Archives in Tokyo; Matsumiya notes that the *konpasu* was called *passuru* (*passer*) by the Dutch.

193. Japanese astrolabes and quadrants are in the Akioka Collection of the National Museum of Japanese History, Sakura, Chiba Prefecture. Compasses are in the Kunōzan Tōshōgū Museum, Shizuoka (allegedly, Tokugawa Ieyasu's belongings), and in the Matsuura Historical Museum, Hirado, Nagasaki Prefecture.

194. See note 145 above.

195. This is mentioned in Ro Sōsetsu's letter in the *Sokuryō higen* (Secrets of surveying), edited by Hosoi Kōtaku, 1728, a collection of statements by people involved in the study of European navigational astronomy in Nagasaki after the closure of the country. The manuscript is preserved at Tōhoku University Library, Sendai.

196. Ro, *Senminden*, chap. 2, s.v. "Shimaya Kenryū" (note 187).

197. Hosoi called the maps *karuta*; see the *Hiden chiiki zuhō daizensho* (note 63). The *Bankoku sōzu* is discussed below.

198. See Hidaka Jikichi, "Hyūga sadowara hanshi Hidaka Shigemasa no Nanban ryū chōkenjutsu sonota" (Hidaka Shigemasa's studies on the surveying of the Occidental school, etc.), *Kagakushi Kenkyū* 44 (1957): 17–24.

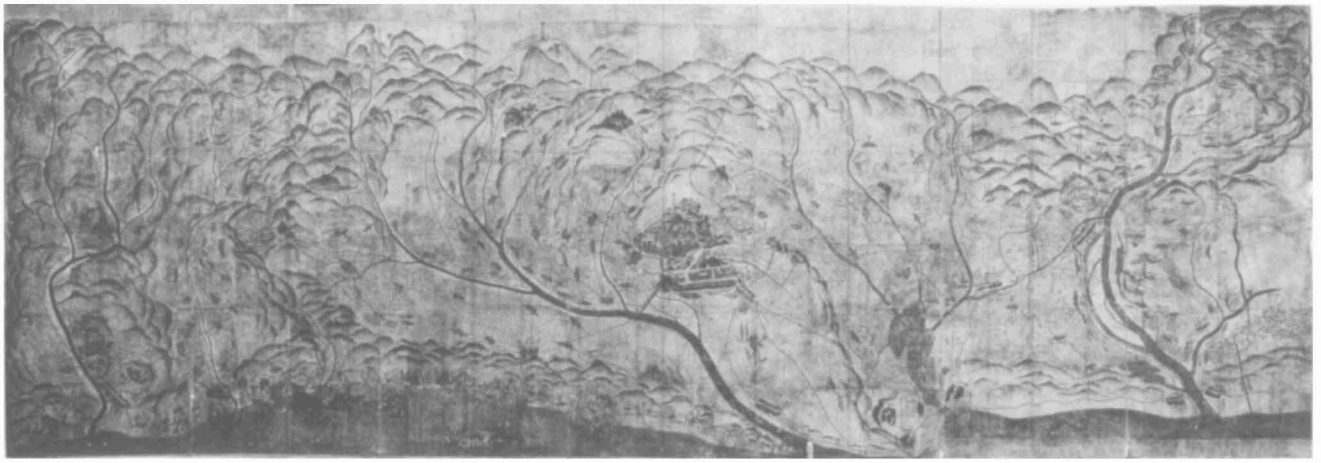


FIG. 11.32. MAP OF SEBA COUNTY, ECHIGO PROVINCE (TODAY NIIGATA PREFECTURE), CA. 1597. Rivers, roads, towns, villages, temples, shrines, a castle, and a fortress are shown, as are paddy fields, other cultivated land, and waste land. The standard land productivity of each village is also indicated on the manuscript. This map was probably a product of the cadastral survey undertaken by the Toyotomi regime between 1582 and 1603.
Size of the original: 243 × 693 cm. Uesugi family, Yonezawa, Yamagata Prefecture. Photograph courtesy of Kazutaka Unno.

thereafter there are fragmentary records pertaining to the compilation of regional maps. An example is in the *Azuma kagami* (Mirror of the eastern lands), a chronicle of the Kamakura shogunate from 1180 to 1266, in which it is recorded that in 1188 Minamoto no Yoritomo (1147–99) ordered that a navigational chart be compiled of Kikai Island, possibly as part of his attempt to annihilate the remnants of the Heishi army and bring the sea south of Kyūshū under his control.[199] According to the same chronicle, when he had gained control of northeastern Honshū in the following year, Yoritomo received from the inhabitants maps of the provinces of Mutsu and Dewa. The originals were probably prepared by the Fujiwara family, the former rulers of the region, since they contained detailed information on the location of mountains, rivers, seas, plains, villages, and fields.[200] Despite such references, there are no known records about the compilation of national maps until 1591, when the government of Toyotomi Hideyoshi embarked on such a project. We can only presume the reason was that compiling national maps was commonplace and that each administration kept, used, and possibly ordered maps of the country for official purposes.

The main purpose of the survey was to assess the amount of land owned privately so that taxes could be levied. Standard land productivity was to be entered into registers called *kenchi chō* (land assessment books) or *gozen chō* (books presented to the emperor) by the authorities of the feudal lord of each province and was to be accompanied by maps. The *Tamon'in nikki* (Diary of Tamon'in), for example, refers to such maps in an entry under 1591: "I hear that orders have been issued that maps of all the counties across the nation should be submitted with all paddy fields entered together with the sea, mountains, rivers, hamlets, temples, shrines, and areas of paddy fields, and that they are to be kept at the royal court."[201] It was thus the responsibility of the feudal lords to enter the location of the main topographic features within their domains, emphasizing productive land. Two examples of maps from the survey, dating to 1597 at the latest, are those of Seba County (fig. 11.32) and Kubiki County in Echigo Province (now Niigata Prefecture). Both maps are oriented to the southeast, presumably so that the coastline would be at the bottom. In addition to containing topographic detail, they are of high artistic quality.[202]

199. See the *Azuma kagami*, which is in vols. 32 and 33 of the *Shintei zōho kokushi taikei*, vol. 32, chap. 8 (note 37). The first half of the *Azuma kagami* was compiled during the latter half of the thirteenth century, the second at the beginning of the fourteenth.

200. See the *Azuma kagami* in *Shintei zōho kokushi taikei*, vol. 32, chap. 9 (note 37). According to it, Yoritomo was at a loss when he heard that the administrative maps of Mutsu and Dewa had been destroyed in the fire at Hiraizumi castle. Two brothers who were familiar with the provinces, Buzen no Suke Sanetoshi and Tachibana no Tōgo Sanemasa, then presented him with these detailed maps.

201. The entry cited is under the twenty-ninth day of the seventh month, in the nineteenth year of Tenshō (1591, the era being 1573–91): see Tsuji Zennosuke, ed., *Tamon'in nikki* (Diary of the Tamon'in), 5 vols. (Tokyo: Sankyōshoin, 1935–39), 4:306. The diary was kept from 1478 to 1617 and is preserved at Kōfuku Temple, on the grounds of which is the Tamon'in (a small branch temple), in Nara.

202. Facsimiles of the maps are in Tōkyō Daigaku Shiryō Hensanjo (Historiographical Institute, Tokyo University), ed., *Echigo no kuni gun* (or *kōri*) *ezu* (Maps of counties in Echigo Province), vol. 1 (the Kubiki map, 340 × 586 cm) and vol. 2 (the Seba map) (Tokyo: Tōkyō Daigaku, 1983, 1985, and 1987). The book published in 1987 is an explanation and index containing the inscriptions on these maps. For a discussion

The yield of the productive land was calculated according to the amount of unhulled rice harvested per square *shaku* (ca. 30 cm), with allowances being made for variables such as soil type. The assessment of tax was to be based on this fixed amount, with similar allowances for factors such as soil type, difficulty of cultivation, upkeep of irrigation channels, and distance of transportation. The main classification of wet (paddy) fields was as follows: those producing 1.5 *koku* (7.5 bushels) per square *shaku* were first-class fields; 1.3 *koku*, second-class fields; and 1.1 *koku*, third-class fields. The final register defined the value of the cultivated land according to its yield in *koku*. Land transactions thereafter were made in *koku* rather than according to area.[203]

There is a strong possibility that Hideyoshi's land survey was less complete or less useful than the original order had demanded. Although by the time it was finished every province may have been surveyed, the project fell short of its objective. This was also true despite its thoroughgoing nature and the "ferocity," as Sansom terms it, with which the edicts pertaining to it were framed. Resistance by the peasantry, experiencing a time of prosperity, was intense: compliance meant revealing to the authorities the correct area of the land owned privately as well as the amount of previously evaded taxes. Threats of execution, including crucifixion, were issued by Hideyoshi in an attempt to crush resistance so that the survey would be thorough. Sansom's remark that the provinces were "not completely" surveyed suggests that the gaps were caused by resistance and deceit on the part of landholders.[204] Such a shortfall is confirmed by contemporary documents. Registers and maps submitted by the beginning of 1593 were entered on a list sent to Maeda Gen'i (1539–1602), a high-ranking vassal of Hideyoshi, by Komai Shigekatsu (1558–1635), an assistant to Hideyoshi's nephew Toyotomi Hidetsugu (1568–95). This list notes that twenty-nine of the sixty-six provinces submitted only registers, whereas thirteen submitted both; these thirteen were Kazusa, Shimōsa, Musashi, Sagami, Shima, Iga, Wakasa, Yamashiro, Inaba, and Hōki in Honshū; Tosa in Shikoku; and Bungo and Hizen in Kyūshū.[205] It may be related to this situation that in 1605 the Tokugawa shogunate issued a further order calling for newly compiled provincial maps.[206] Whether this was to be a continuation of the Hideyoshi survey or a completely different one still has not been determined.

We do know, according to evidence presented by Brown, that there were considerable errors in the results of surveys during the early Tokugawa period.[207] Measurements were routinely biased downward because surveyors rounded down, but not up, to the next *ken* (about 1.82 m) or half a *ken*. Hemp ropes—subject to stretching or contraction with varying moisture conditions—were routinely used, despite widespread knowledge that they were a significant source of error. Further, the principle of area calculation, which relied on the gridlike crossed-rope technique, was adequate for square or rectangular areas but could not satisfactorily accommodate irregular or curved boundaries. This lack of surveying accuracy resulted in an interesting paradox. Although Japanese rulers would clearly have benefited from surveys that did not underestimate land area, and though the technology was certainly available for more accurate measurements, routine land surveying did not develop as might have been expected. Brown proposes a number of reasons for this, including the deprecation of practical sciences by the samurai class (from which most surveyors came), the lack of mathematical education, the secrecy of surveying techniques, and most of all the confinement of the demand for surveying within the public sector, stifling competition and the incentive for improvement.[208]

In total, five large projects to compile provincial maps were undertaken during the course of the Tokugawa shogunate (appendix 11.8), although no permanent organizations resulted at either the national or the provincial level. Official cartographers (*ezukata*) were appointed for each project by the shogunate and the clans, but usually only a few of them did the actual work. Also involved were painters, calligraphers, and handymen when required, and presumably also some surveying and drafting specialists. The best documented of the projects is the third, which was conducted between 1644 and the mid-1650s.[209] Detailed instructions were given for com-

of the maps, refer to Itō Tasaburō, "Echigo Uesugi shi ryōgoku kenkyū no nishiryō" (Two historical materials for studying the domains of the Uesugi family in Echigo), *Nihon Rekishi* 138 (1959): 2–14; and also to Kazutaka Unno, "Government Cartography in Sixteenth Century Japan," *Imago Mundi* 43 (1991): 86–91.

203. See Sansom, *History of Japan*, 2:316–19 (note 32).

204. See Sansom, *History of Japan*, 2:316–19 (note 32).

205. See Unno, "Government Cartography" (note 202). See also *Shokoku gozenchō* (Books of the standard land productivity of the provinces) by Komai Shigekatsu, in *Mikikigusa* (Collection of various writings, 1830–ca. 1865), comp. Miyazaki Shigemi, vol. 6, no. 7; this is a manuscript at the National Archives in Tokyo, and the date given for the document corresponds to 6 February 1593. This material was first mentioned academically in Kuroda Hideo, "Edo bakufu kuniezu gōchō kanken" (A personal view of provincial maps and books of standard land productivity prepared by the order of the Tokugawa shogunate), *Rekishi Chiri* 93, no. 2 (1977): 19–42.

206. See the *Tokugawa jikki* (Authentic records of the Tokugawa shogunate [1849]), bk. 1, in vol. 38 of the *Shintei zōho kokushi taikei* (note 37), and the *Kansei chōshū shokafu* (Genealogies of families revised during the Kansei era), 26 vols. (1812; printed by Zoku Gunsho Ruijū Kanseikai, 1964–67), chap. 494, s.v. "Tsuda Hidemasa."

207. Philip C. Brown, "Never the Twain Shall Meet: European Land Survey Techniques in Tokugawa Japan," *Chinese Science* 9 (1989): 53–79.

208. Brown, "Land Survey Techniques," 78–79 (note 207).

209. For details of these projects, refer to Kawamura Hirotada, *Edo bakufu sen kuniezu no kenkyū* (A study of the provincial maps com-

piling the maps from the field surveys that were undertaken by the most powerful clan in the province. We are told that the scale was to be six *sun* to one *ri* (1:21,600) and that bold red lines were to be used for arterial roads, with marks at every one *ri*, and thinner lines for smaller roads. In the case of rivers without bridges, it was to be noted whether ferries were available or a traveler had to wade across. With seashores, the maps had to record whether they were rocky or had sandy beaches, and also if ships could be moored there (plate 25).[210] Identical instructions and the same scale were later stipulated for the fourth and fifth projects.

Owing to lack of information, it is impossible to define the areas covered in the first two projects. The maps from the third project include the area from Sakhalin (Karafuto) and the Kurile Islands (Chishima) in the north to the Ryūkyū Islands in the south. The map of Sakhalin, the Kuriles, and Hokkaidō by the Matsumae clan was compiled on a scale smaller than 1:21,600, and the outlines of the territories are greatly distorted.[211] That the shogunal authorities accepted this map and did not order the area resurveyed reflects their lack of interest in this region. The maps were designed, like those of Hideyoshi's survey, to express crop productivity for purposes of taxation; the northern frontier was notorious for poor crops because of its adverse climate.

The detailed instructions for the third project do not seem to have given sufficient thought to the problems involved in joining together the provincial surveys to form a national map. This task would have been practically impossible from the maps produced because the mountainous areas along the map borders were not accurately surveyed. The peripheral mountains were depicted pictorially only as they would have been seen from inside each province. In the fourth project, therefore, an order was introduced to draw the mountainous borders in the same way as the rest of the province, thereby facilitating the construction of a national map.[212]

Among the provincial maps compiled from the five projects and submitted to the shogunate, only the Tenpō provincial maps from the fifth project are preserved as a complete set.[213] In addition to these, there are maps of six provinces on eight sheets from the Genroku provincial maps (fourth project) preserved in the National Archives in Tokyo.[214] Duplicates and drafts made by the feudal lords exist in libraries and museums throughout Japan, along with later reproductions of the originals.[215] Many of the maps are undated, with dates and names of the lords in charge of map compilation being a feature added only in the fourth and fifth projects. Difficulties in studying these maps are compounded because none of the maps can be dated with any certainty to the first and second projects except a few examples such as the map of Settsu Province (see fig. 11.33).

As we have seen, national maps based on the provincial ones were part of the government's plans. At present two prototypes of these national maps are known, one based on the third project and the other on the fourth. Also extant are two national maps likely to have been based on the first and second projects, although it is unknown which belongs to which project. These latter are the two large manuscript maps at the National Diet Library, Tokyo, and the Saga Prefectural Library, Saga. The map at the National Diet Library is traditionally called the Keichō map of Japan, after the era when the order was given (1605 being the tenth year of the Keichō era [1596–1614]) (plate 26). The date of completion is not specified but appears to have been about 1639: strips of paper attached to the map give the names of daimyos for 1639 and 1653, the latter date being surmised as that of a revision. The symbols for the seats of the clans and the configuration of the country as a whole suggest that the map was not composed from scratch in 1639 but was based on earlier information. Characteristic of this configuration is a compressed northern Honshū, the shallow

piled by the Tokugawa shogunate) (Tokyo: Kokon Shoin, 1984); and to Hirotada Kawamura, "*Kuni-ezu* (Provincial Maps) Compiled by the Tokugawa Shogunate in Japan," *Imago Mundi* 41 (1989): 70–75.

210. See the documents pertaining to the old and new provincial maps that were submitted to the shogunate by Kondō Morishige in 1817; they are referred to in Kawada, "Honpō chizukō" (note 2). They are also reproduced in the *Kondō Seisai zenshū* (Collection of Kondō Seisai's [Morishige] works), 3 vols. (Tokyo: Kokusho Kankōkai, 1905–6), vol. 3.

211. The map by the Matsumae clan is not extant, but its reduced image is on the *Kōkoku michinori zu* (see below, pp. 399 and 400). The maps of the Ryūkyū Islands were completed by the Satsuma clan in 1649, and they are preserved at the Historiographical Institute at Tokyo University, *Shimazu ke monjo* (Documents of the Shimazu family), 76-2-4, 5, and 6. The maps are reproduced in color in *Ryūkyū Kuniezu Shiryōshū* (Collected historical materials of provincial maps of Ryūkyū), no. 1 (Naha: Okinawa ken Kyōiku Iinkai, 1992).

212. The order was issued in 1696; see *Genroku nenroku* (Diary of the Genroku years, 1688–1703 in 64 vols.), in the *Ryūei Hinamiki* (Diary of the shogunate, 1656–1856, manuscript in 734 vols.), owned by the National Archives in Tokyo. See also Fukui Tamotsu, *Naikaku Bunko shoshi no kenkyū* (Studies on the bibliography of the Naikaku Library) (Tokyo: Seishōdō, 1980), 365.

213. The Tenpō era was 1830–43. Eighty-three sheets of the original Tenpō provincial maps, thirty-six spare sheets, and the cases for keeping the maps are preserved at the National Archives in Tokyo. See Fukui, *Naikaku Bunko shoshi no kenkyū*, 355–60 (note 212).

214. The eight sheets of the original at the National Archives cover the provinces of Hitachi, Shimōsa, Hyūga, Ōsumi, Satsuma, and (on three sheets) Ryūkyū.

215. On the duplicates, drafts, and later reproductions, see "Kagaku Kenkyūhi ni yoru Kenkyū no Hōkoku" (Reports on the research depending on scientific research expenses), "Genson Kochizu no Rekishi Chirigakuteki Kenkyū (Ippan Kenkyū A) (Historical geographical research on extant old maps [general study A])," *Tōkyō Daigaku Shiryō Hensanjo Hō* 16 (1981): 25–40, esp. 31–33.

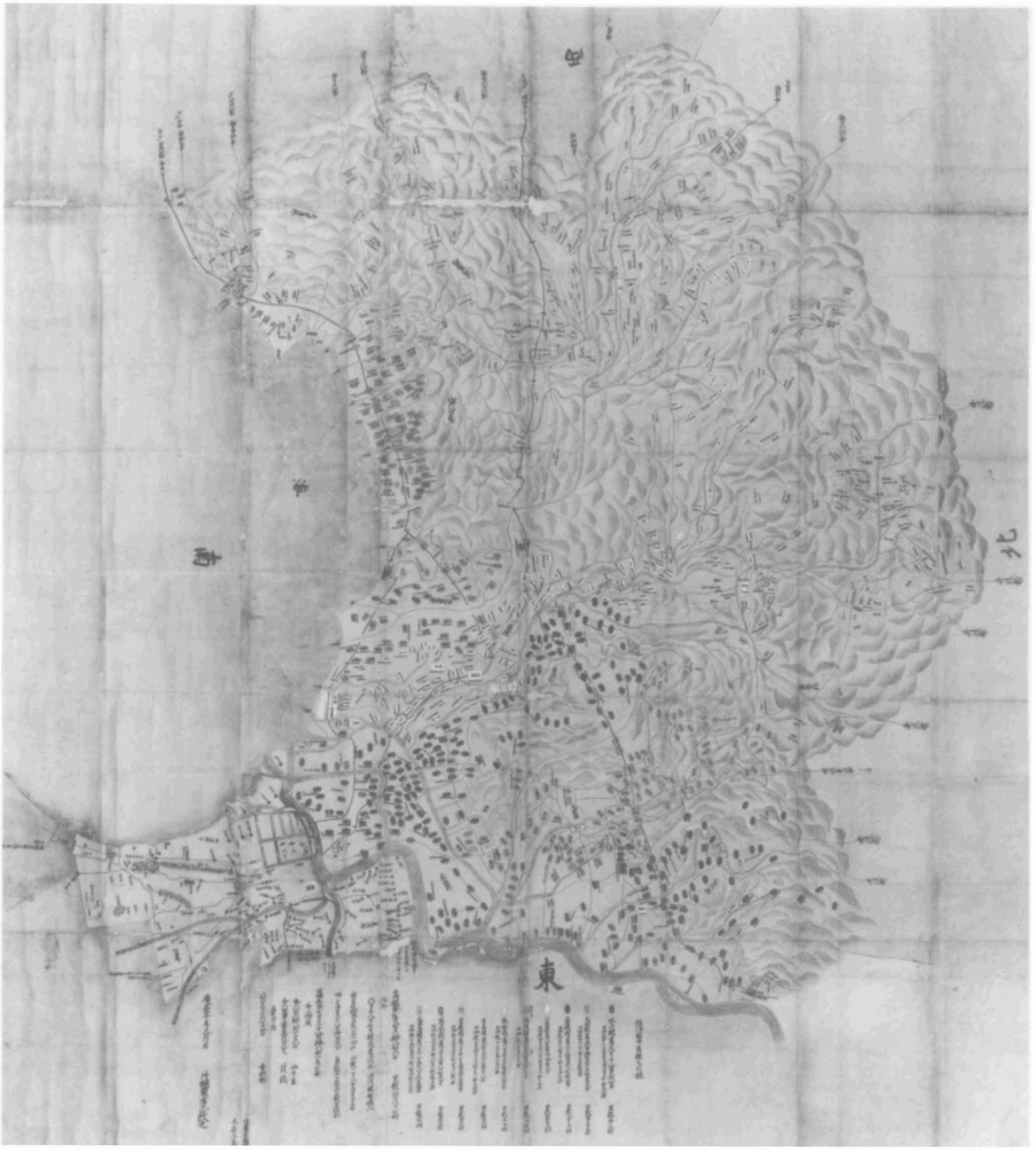


FIG. 11.33. AN EXAMPLE OF A KEICHŌ PROVINCIAL MAP: SETTSU PROVINCE (NOW SPLIT INTO PARTS OF HYŌGO AND ŌSAKA PREFECTURES). This manuscript has an inscription dating it to the ninth month of the tenth year of Keichō (1605) and noting that its execution was supervised by Katagiri Ichinokami (Katsumoto), the governor of Settsu, Kawachi, and Izumi provinces. The color of the ovals containing the names of villages differs by county. The marks along the main roads are spaced one *ri* apart. There is no particular orientation: information is recorded in different directions.
Size of the original: 249 × 225 cm. Nishinomiya City Office, Nishinomiya, Hyōgo Prefecture. Photograph courtesy of Kazutaka Unno.

curve of Mutsu Bay into the land area, and a Kyūshū elongated from north to south.

The map at the Saga Prefectural Library consists of three parts that together measure 622 by 674 centimeters.[216] There is no indication of when it was completed, even though it has the standard land productivity of each province in the margins. Northern Honshū and Kyūshū are closer to reality than on the Keichō map, but there is no difference between them with regard to the shape of Shikoku, in particular to the indistinctly drawn curve of Tosa Bay and Muroto and Ashizuri peninsulas.

The third project produced a markedly improved general map, called the Shōhō map of Japan. Although it is not known if the original draft still exists, the copy thought to be the closest to it is the *Kōkoku michinori zu* (Map of the distances of Japan), compiled from the Shōhō provincial maps by the military engineer and surveyor Hōjō Ujinaga (1608–70) (fig. 11.34).[217] On it the main part of the archipelago appears almost as accurately as on today's maps; the Ryūkyūs are excluded. The reason for the high degree of accuracy is still not known. Hōjō was provided only with the distances along the main roads between villages and towns, and since such information alone is not sufficient to make a good map, it is thought that he might have taken measurements for latitude. Errors were made in Hokkaidō, Sakhalin, and the Kuriles because for this area the erroneous map made by the Matsumae clan was used. Despite these errors, this is considered to be the earliest map preserved in the world that includes a large number of place-names in Sakhalin and the Kuriles.

The "Genroku map of Japan" is in turn based on the provincial maps from the fourth project.[218] It covers the area from Sakhalin and the Kuriles to the Ryūkyūs and Yonakuni Island in the Yaeyama group, as well as the southern part of the Korean peninsula. The content suggests that it was composed primarily to show coastal routes: not much information is given about the areas inland. The greatest errors appear in the northern tip of Honshū and in Shikoku: the first has a very small Shimokita peninsula and the second is shown as slanting more to the southwest than it should be. The authorities therefore commissioned Hōjō's son Ujisuke (1666–1727) to revise the map in 1717, but the results were not satisfactory. Two years later the shogun Yoshimune (1684–1751) made the mathematician Takebe Katahiro (1664–1739) responsible for mapmaking and personally gave him instructions for revising the map of Japan.[219] According to these instructions Takebe selected mountains to obtain a view of the peaks to be drawn on the map. His information was supplemented by that of the clans, which gave the angles at which the peaks were observed from their territories. When combined, this intersecting system of angles formed the network for Takebe's map.[220] Takebe completed a general map in 1723 and finished its revision in 1728. This is called the Kyōhō map of Japan, named after the contemporary era (1716–35).[221] Its scale was 1:216,000 (six *bu* to one *ri*), and though it corrected many of the mistakes on the Genroku map, including the slant of Shikoku, it was still rather inaccurate and indeed inferior to the Shōhō map. Takebe learned from his experience and noted that, in future, reliable maps would have to be based on observations of latitude and longitude. He concluded that the method of surveying then in use (intersection) was inadequate if precision was the objective. In other words, traversing and computing angles of high points were not enough.[222]

In addition to provincial and national maps, the Tokugawa shogunate commissioned other types of maps, plans, and charts. The third project included an order for each clan to compile and to submit plans showing the locations of their capitals; about 160 were collected by the government over sixteen years.[223] Sixty-three of these large-scale "Shōhō castle plans" (*shiro ezu*) are extant

216. The map is reproduced in Akioka Takejirō, *Nihon chizu sakusei shi* (A history of the making of Japanese maps) (Tokyo: Kajima Kenkyūjo Shuppankai, 1971), fig. 57.

217. A color reproduction is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 19 (note 8), and *Kokushi daijiten*, vol. 11, color pages "Nihon zu" (Maps of Japan), pl. 5 (note 95). There are many other copies of the Shōhō map under different titles.

218. Maps preserved at the Meiji University Library, Tokyo (two sheets, each 309 × 222 cm at 1:324,000) and the Shizuoka Prefectural Central Library, Shizuoka (*Kōkoku enkai ritei zenzu* [Map of the sea routes along the coasts of Japan], 355 × 446 cm) are the only known samples extant today. It appears that they number fewer than those from the Shōhō project. The Meiji University map is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 20 (note 8), and *Kokushi daijiten*, vol. 11, color pages "Nihon zu" (Maps of Japan), pl. 6 (note 95). The map in Shizuoka is reproduced in color in *Nihon no chizu: Kansen chizu no hattatsu* (note 13).

219. For the cartographical works of Hōjō Ujisuke and Takebe Katahiro, see Kawamura, *Edo bakufu sen kuniezu no kenkyū*, 320–49 (note 209). For Yoshimune's instructions, see Takebe Katahiro, *Nihon ezu shitate sōrō ikken* (The process of compiling a map of Japan [ca. 1723]), in vol. 3 of the *Kondō Seisai zenshū* (note 210).

220. See Kawamura, *Edo bakufu sen kuniezu no kenkyū*, 320–49 (note 209).

221. A copy of the Kyōhō map composed in 1793 (four sheets, from west to east: 147 × 188 cm, 173 × 203 cm, 172 × 207 cm, and 149 × 208 cm) was kept at the Rikuchi Sokuryō Bu (Army's Department of Land Survey) until it was lost in World War II. It is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 20 (note 8).

222. See Takebe, *Nihon ezu shitate sōrō ikken* (note 219); chap. 37 of the *Kōsho koji* (Historical allusion of worthy books, 1826), in *Kondō Seisai zenshū*, vol. 3 (note 210); and Ōta Nanpo, *Chikkyō yohitsu besshū* (Superfluous writings at Bamboo Bridge, Edo Castle, extra volume, ca. 1803), chap. 12 (modern edition [Tokyo: Kondō Shuppansha, 1985], 332–33). Triangulation in Japan began in 1872.

223. See chap. 28 of the *Kōsho koji*, in *Kondō Seisai zenshū*, vol. 3 (note 210); and Kawamura, *Edo bakufu sen kuniezu no kenkyū*, 121–23 (note 209).

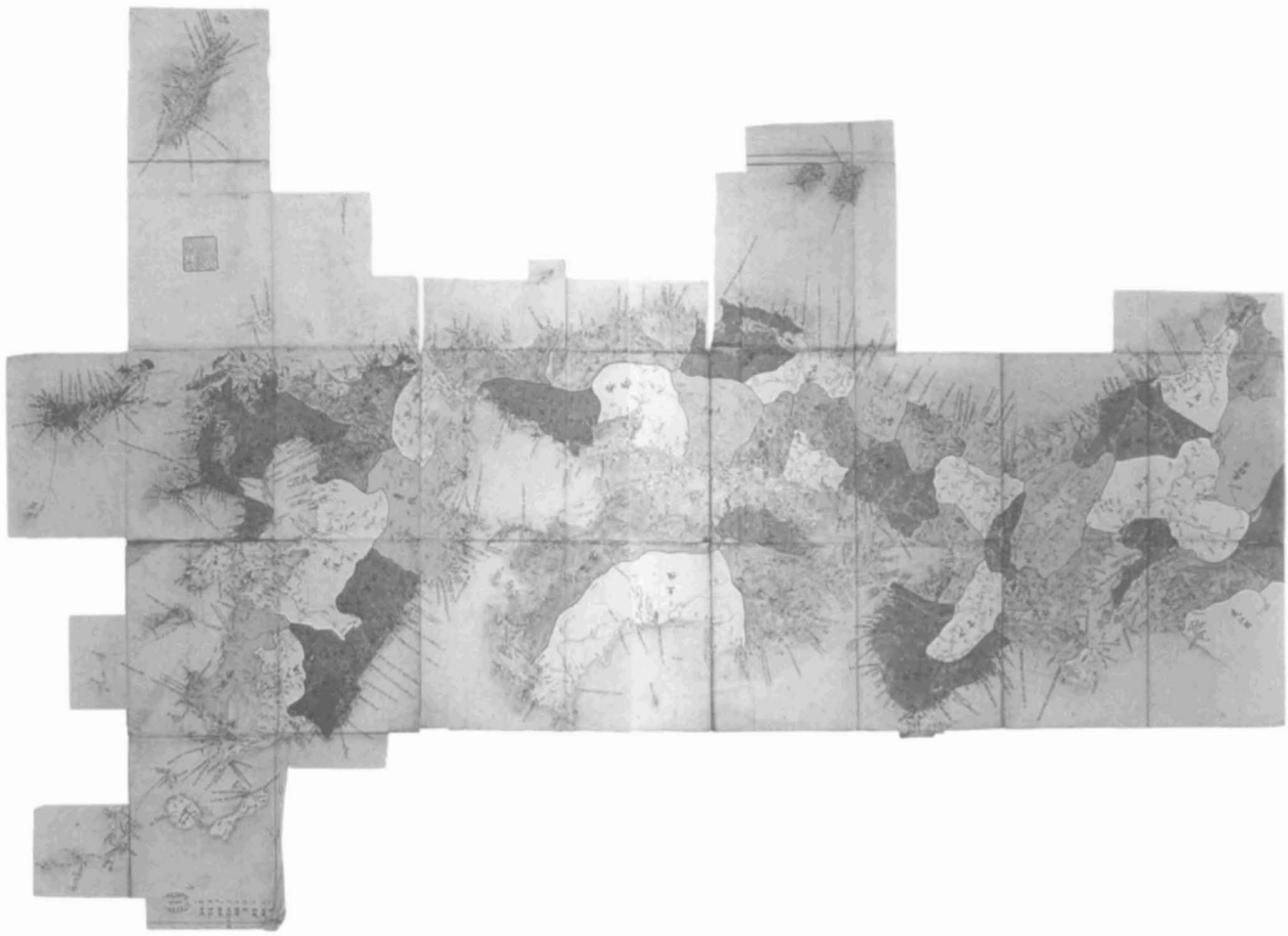


FIG. 11.34. THE *KŌKOKU MICHINORI ZU*, CA. 1670. This manuscript is compiled from the provincial maps of the third Tokugawa survey and generally known as the Shōhō map of Japan after the era when the survey began (1644–47). Whereas most of the archipelago is portrayed rather accurately, the islands to the north of Honshū (Hokkaidō, Sakhalin [Karafuto], and the Kuriles [Chishima]) are notably poor. This is because of the erroneous map compiled by the regional daimyate (Matsumae), which evidently did not follow the detailed instructions given by the shogunate. The scale is approximately 1:432,000. Size of the original: 129 × 178 cm (western part) and 162 × 83 cm (eastern part). By permission of the Ōsaka Prefectural Nakanoshima Library, Ōsaka.

and preserved at the National Archives in Tokyo.[224] They are so named because of the emphasis placed on the areas where the castles were situated (fig. 11.35). Characteristically, the moats, stone walls, and gates of the castles as well as the widths of the streets are all shown accurately on these plans.

Town plans, notable for their accuracy and minute detail, were also compiled of Edo, Kyōto, and Ōsaka, cities under the direct control of the shogunate.[225] Government experts did the surveying and drew plans that were to exert a strong influence on subsequent plans of these cities. For instance, the task of compiling the first accurate plan of Edo after the fire of 1657 (fig. 11.36) fell to the elder Hōjō.[226] Plans of Kyōto dating to 1637 and about 1642 by the Nakai family have also survived. That of 1637 is titled *Rakuchū ezu* (Plan of Kyōto) and

224. These plans have been reproduced by the National Archives since 1976 in annual publications under the title *Shōhō shiro ezu* (Shōhō castle plans). The project is still in progress, and fifty-five items had been issued as of the end of December 1991. The plans of Kokura (Buzen Province), Hiroshima (Aki Province), Matsue (Izumo Province), Kasama (Hitachi Province), and Sendai (Mutsu Province) are reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 96–100 (note 8).

225. A general history on city plans is Yamori Kazuhiko, *Toshizu no rekishi* (History of city maps), 2 vols. (Tokyo: Kōdansha, 1974–75), vol. 1. Another that concentrates on Edo is Iida Ryūichi and Tawara Motoaki, *Edozu no rekishi* (History of the maps of Edo), 2 vols. (Tokyo: Tsukiji Shokan, 1988). The subject is touched upon, although briefly, by Cortazzi, *Isles of Gold*, 39, 50, 54, 56–58 (note 14). Some early plans are reproduced in Harada Tomohiko and Nishikawa Kōji, eds., *Nihon no shigai kozu* (Old Japanese plans), 2 vols., *Nishi Nihon hen* (Western part of Japan), and *Higashi Nihon hen* (Eastern part of Japan) (Tokyo: Kajima Shuppankai, 1972–73).

226. It is generally accepted that Hōjō's work is associated with the

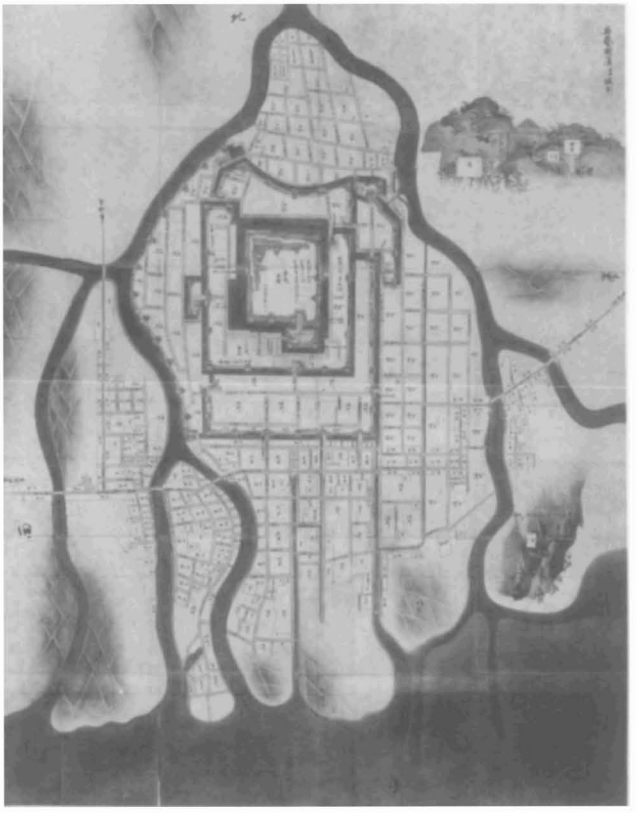


FIG. 11.35. AN EXAMPLE OF A SHŌHŌ CASTLE PLAN: HIROSHIMA, CA. 1645. Although the term *shiro ezu* (castle plan) was used for these enterprises, their content was not limited to the castles, as is demonstrated in this manuscript. Size of the original: 242 × 193 cm. By permission of the National Archives, Tokyo.

is at a scale of 1:1,500. The revision of about 1642 is on a scale of approximately 1:1,263 (fig. 11.37).[227] It is also recorded that the Nakai family was ordered to map Ōsaka in 1613, but the oldest surviving plan of that city dates to about 1655.[228]

Maps showing sea and land routes were also commissioned by the shogunate.[229] Route maps of the Tōkaidō (Tōkai road) from Kyōto to Edo were ordered to be made in 1634, 1646, and 1651.[230] Such land itineraries were

manuscript plan of Edo in the possession of the Mitsui Library in Tokyo, which is reproduced in *Kanbun gomai zu* (Five-sheet plans of Edo published during the Kanbun era [1661–72]) (Tokyo: Haga Shoten, 1970); in *Nihon no chizu: Kansen chizu no hattasu* (note 13); and in Iida and Tawara, *Edozu no rekishi* (note 225).

227. The first (505 × 236 cm) is preserved at the Archives and Mausoleums Department of the Imperial Household Agency. The revision of ca. 1642 (636 × 283 cm and 262 × 30 cm) is kept at the Kyōto University Library. Reproductions are the *Kunaichō Shoryōbu shozō Rakuchū ezu* (Plan of Kyōto owned by the Imperial Household Agency) (Tokyo: Yoshikawa Kōbunkan, 1969) and the *Rakuchū ezu: Kan'ei Manji zen* (Plan of Kyōto: Kan'ei era [1624–43], before the Manji era [1658–60]) (Kyōto: Rinsen Shoten, 1979); the first is of the 1637 manuscript, the second of the ca. 1642 revision.

228. It is a manuscript entitled *Ōsaka sangō machi ezu* (Map of the three districts of Ōsaka) (214 × 236 cm), kept at the Ōsaka City Museum. A color reproduction is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 87 (note 8). The Nakai family were hereditary *daiku gashira* (general carpenters) appointed by the shogunate in Kyōto.

229. Early examples are the *Kisoji Nakasendō Tōkaidō ezu* (Map of the Kiso/Nakasen road and the Tōkai road, 120 × 1,920 cm) and the *Saigokusuji kairiku ezu* (Map of the sea and land routes of the western regions, 124.8 × 732.6 cm), both of 1668 and owned by the National Diet Library. Parts of them are reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 114 and 115 (note 8).

230. In 1634 Miyagi Kazunami and Akiyama Masashige were ordered to investigate the roads and lodgings from Edo to Kyōto in preparation for the visit of the shogun Iemitsu (1604–51, r. 1623–51) to the imperial court at Kyōto; they went back to Edo just over a month later and

FIG. 11.36. PART OF THE PLAN OF EDO BY HŌJŌ UJINAGA, CA. 1658. This plan was compiled from the results of a survey ordered by the shogunate after the fire of 1657. There is no particular orientation, but the detail shown here has east at the top; Edo castle is in the center. Compass roses with twelve or twenty-four radiating lines begin at some of the gates of the castle, the lines being colored red or green. The scale of the manuscript is one *bu* to four *ken*, giving a value of between 1:2,400 (in which 1 *ken* = 6 *shaku*) and 1:2,600 (in which 1 *ken* = 6.5 *shaku*).
Size of the original: 318 × 418 cm. By permission of the Mitsui Library, Tokyo.

characteristically in linear form with no regard for distances and directions, but they did take into account the aesthetics of portraying landscapes (fig. 11.38). For the sea routes, a survey was ordered in 1667 of coastal Honshū from Edo to the west as well as of coastal Shikoku and Kyūshū. The charts from this survey differed from the marine charts discussed above in that the coastlines were represented as a long line with fewer indentations than had the interior been expressed correctly.[231] Shimaya's survey of 1670–71 was also sponsored by the government, and his marine charts, which were compiled

submitted the map. See the *Tokugawa jikki*, bk. 2, in vol. 39 of the *Shintei zōho kokushi taikei* (note 37). In 1647 Matsuda Sadahei and Iikawa Naonobu were ordered to investigate and make a map of the roads, post towns, and bridges from Edo to Ōsaka. See the *Tokugawa jikki*, bk. 3, in vol. 40 of the *Shintei zōho kokushi taikei*. Refer to Ashida Ijin (or Koreto), "Chizu to kōtsū bunka" (Maps and transportation culture), *Kōtsū bunka* 3–5 (1938–39): 282–90, 358–64, and 445–54.

231. These charts are referred to on the 1680 manuscript *Kaihin shūkō zu* (Chart of the sea routes along the coasts) by Ebi Gensui (or Gaishi), a participant in the survey. There are three copies of the chart, preserved at the Geographical Institute at Kyōto University (approximately 1:64,800, three folding books), at the Kōbe City Central Library

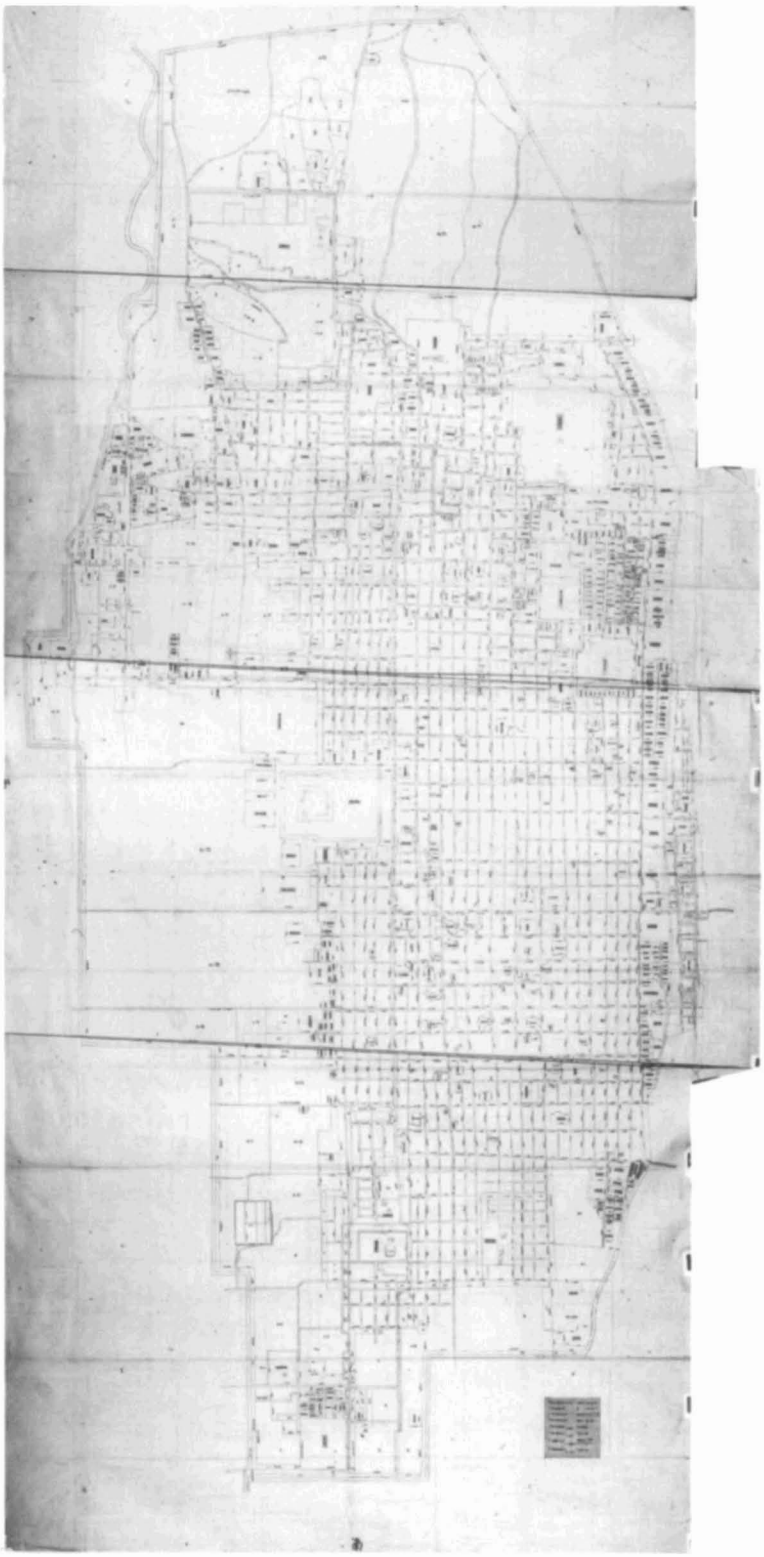


FIG. 11.37. PART OF THE REVISION OF THE *RAKUCHŪ EZU*, CA. 1642, BY SOME MEMBERS OF THE NAKAI FAMILY. Although there is no particular orientation, north is at the top of this detail, which shows the northern half of Kyōto. The manuscript was drawn on paper. The lines were made by pressing with a tracing spatula. The scale is about 1:1,263 at the ratio of one *ken* (1.81 m) to six *shaku* (1 *shaku* = 30.3 cm); each grid is 4.75 square *bu* (1 *bu* = 3 mm), which represents an area of ten square *ken*.
Size of the entire original: 636 × 283 cm and 262 × 30 cm. By permission of the Kyōto University Library, Kyōto.

FIG. 11.38. PANORAMIC ROUTE MAP: PART OF THE *KISOJI NAKASENDŌ TŌKAIDŌ EZU* (MAP OF THE KISO/NAKASEN ROAD AND THE TŌKAI ROAD), 1668. Note that the folding-book manuscript shows the castles from a realistic bird's-eye perspective, presumably because the wooden model castles presented to the government might have been made available to the painters. Both routes connected Edo to Kyōto, the Tōkai road following the Pacific coast and the Nakasen road being inland.
Size of the entire original: 120 × 1,920 cm. By permission of the National Diet Library, Tokyo.

from it, were scientific works giving degrees of latitude.[232] Besides the types of maps mentioned so far, the shogunate also ordered its experts and the daimyos to compile other maps, plans, and charts when necessary and for official purposes.

Development of the Printed Map Trade

WORLD MAPS DERIVED FROM MATTEO RICCI

The Jesuit Matteo Ricci (1552–1610) is best known for his role in the transmission of European ideas to China and as an agent by which knowledge of Chinese geography was sent back to Europe (above, pp. 171–77). In Japan, however, his place in cartographic history is somewhat different. The map of the world he compiled in China found its way to Japan, where it was printed in several versions. It becomes a fitting document with which to introduce the development of a Japanese map trade after the period of initial contact with Europeans.

In his memoirs, Ricci notes that his maps of the world not only were popular throughout China, where he was working, but were also sent to Macao and Japan.[233] The exact date when they first appeared in Japan is not known, but from 1605 copies were used for instruction in geography and astronomy at the Jesuit academy in Kyōto.[234] Among Ricci's world maps, however, the 1602 edition exerted the greatest influence in Japan, and almost all surviving examples in Japan were based on this model.[235] An important reason for the success of Ricci's map was that it was written in Chinese, and thus it was easy for the Japanese to understand. Some place-names on the

(five folding books and including the coast of eastern Japan), and by Nanba Matsutarō (four folding books plus four books of the surveying diary). Part of the Kyōto chart is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 116 (note 8); part of the Nanba chart is reproduced in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 34 (note 11).

232. See above, p. 385.

233. Matteo Ricci, *Storia dell'introduzione del Cristianismo in Cina*, 3 vols., ed. Pasquale M. d'Elia, Fonti Ricciane: Documenti Originali concernenti Matteo Ricci e la Storia delle Prime Relazioni tra L'Europa e la Cina (1579–1615) (Rome: Libreria dello Stato, 1942–49), 2:60.

234. Henri Bernard, *Matteo Ricci's Scientific Contribution to China*, trans. Edward Chalmers Werner (Beijing: Henri Vetch, 1935), 70.

235. An intact copy of the 1602 map is preserved at the Miyagi Prefectural Library in Sendai; it is on six hanging scrolls that together measure 171 by 361 centimeters. Two others are known to exist in a less than complete state. On the one at the Kyōto University Library, on six hanging scrolls (166.5 × 366 cm), the crests of the Society of Jesus have been cut out. The other at the National Archives, Tokyo (height 170.4 cm) is missing the articles around the main map, the supplementary maps, and the illustrations on astronomy; this copy is also divided and attached to the reverse of an album-type manuscript atlas of China. The topic of Ricci's world map and its influence throughout the Edo period is treated briefly by Shintaro Ayusawa, "The Types of World Map Made in Japan's Age of National Isolation," *Imago Mundi* 10 (1967): 123–27 (attached to this article is M. Ramming, "Remarks on the Reproduced Japanese Maps," 128); Ayusawa refers to Kurita Mototsugu, "Edo jidai no sekai chizu gaisetsu" (Outline of the world maps of the Edo period), *Shigaku Kenkyū* (a quarterly issued by Hiroshima University), vol. 10, no. 1 (1938): 73–80. See also Ayusawa Shintarō, "Mateo Ritchi no sekaizu ni kansuru shiteki kenkyū: Kinsei Nippon ni okeru sekai chiri chishiki no shuryū" (Historical research on Matteo Ricci's world map: On the main current of the knowledge of world geography during the Tokugawa age), *Yokohama Shiritsu Daigaku Kiyō* 18 (1953). Ricci is discussed in a broader scientific framework by Nakayama, *History of Japanese Astronomy*, 79–86 (note 38). The 1602 map at the Miyagi Prefectural Library was reproduced by the library in 1981 and is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 58 (note 8). The version at Kyōto University was reproduced

Ricci maps, however, are entered in the Japanese katakana syllabary, which points to Jesuit involvement in transmitting knowledge. Although Japanese experts at the time could read the Chinese characters, they could not yet transliterate place-names from the roman alphabet to the Japanese syllabary and thus would have required the help of informed Jesuits.[236] The syllabary was of course valuable not only for approximating the correct pronunciation of Western place-names, but also for transcribing other names written in Chinese characters. Place-names from the 1602 original edition were used on the Japanese Ricci maps, the only changes being the addition of Kinshima and Ginshima (Islands of Gold and Silver) and the correction of one of Ricci's errors by labeling the island north of Honshū as Ezo.

Changes started to take place in 1645, when place-names were introduced from European maps other than Ricci's and placed in the general structure of Ricci's outlines of the world's landmasses and his projection. One such amended version is the 1645 *Bankoku sōzu* (Map of all the countries) (fig. 11.39), made in the form of a scroll and paired with an illustration showing people of the world. Although its authorship is not known, it was printed in Nagasaki, and it has the distinction of being the first European-style map to be printed in Japan. Despite the closure of the country, European missionaries or Japanese who understood European languages appear to have been involved in its compilation. The translations for the Tropics of Cancer and Capricorn differ from those on the Ricci original, and the accompanying illustrations of people reveal a strong influence from *Nanban* world maps based chiefly on Mercator's world map, which has similar illustrations.[237] New place-names in katakana included Ribiainderiyoru ("Libya Interior") in northern Africa and Kabotebowaesuperanshiya ("Cabo de Boa Esperança") for the Cape of Good Hope. Place-names of large areas appear in a woodblock rendition of the cursive hiragana syllabary; others, however, are written with a brush in the square katakana syllabary. This suggests that the map was incomplete at the time of printing and may have been completed by adding more place-names in manuscript and coloring by hand.[238]

The *Bankoku sōzu*–type maps were oriented with east at the top.[239] As a result, the Americas appeared at the top of the sheet, Europe and Africa were at the bottom, and a massive southern continent formed a quarter of the map on the right side. Like the accompanying illustration of people, the *Bankoku sōzu*–type maps were designed to be hung in the alcoves (*tokonoma*) of houses. The mapmakers accordingly stressed their decorative qualities: Japanese and non-Japanese sailing boats were drawn in the otherwise blank spaces on the scroll.

In origin, however, these maps appear to have served a different function. There is evidence that they were

in China by Yu Gong Xue Hui in 1936 (reprinted Tokyo: Daian, 1967). That at the National Archives is reproduced in Funakoshi Akio, "Kon'yo bankoku zenzu to sakoku Nippon" (Ricci's world maps and Japan in the age of national isolation), *Tōhō Gakuhō* (Kyōto) 41 (1970): 595–710, esp. pl. 2. At the Miyagi Prefectural Library there is also an early seventeenth-century copy of the 1602 original; in this version are the Islands of Gold and Silver (Kinshima and Ginshima) in the sea to the east of Japan. It is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 57.

236. An example of the Jesuit influence on toponymy involved "Castilia del Oro" in the northern part of South America: the place-name was entered in Chinese characters reading Jin-jia-xi-la (in their Japanese reading, Kin-ka-sai-rō) and in katakana Kasuteradouno (in the case of the Miyagi Prefectural Library version mentioned above), which resembles neither the Chinese nor the Japanese reading; *jin* (or *kin*) means gold (*oro*).

237. See appendix 11.4. The type B1 map at the Nanban Culture Hall in Ōsaka and the type C map at the Idemitsu Museum of Arts in Tokyo, formerly the Matsumi Tatsuo Collection (a pair of six-fold screens, each 166 × 363 cm [map only: 166 × 484 cm]), are each accompanied by an illustration showing forty types of people from throughout the world.

238. Generally, hiragana is used for writing words and names that appear in the Japanese language per se, and katakana for loan words or names—that is, those derived from other languages—as well as for highlighting words or names that could appear in hiragana; this latter use of katakana is similar to the use of italics in several European languages. On the *Bankoku sōzu*, however, it appears that the use of the two types of script was stylistic. The only extant copy of the *Bankoku sōzu* of 1645 is at the Shimonoseki City Chōfu Museum. Originally it was made in the form of a scroll, but it is now spread out and framed. For colored reproductions of the manuscript *Bankoku sōzu* and the woodblock illustration of people (map, 134 × 57.6 cm; illustration of people, 136 × 59.5 cm) at the Kōbe City Museum, see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 60 (note 8), and Cortazzi, *Isles of Gold*, 37–38 and 112–14 (pls. 42–43) (note 14). There is also a colored reproduction of the map at the Shimonoseki City Chōfu Museum (map, 132.4 × 57.9 cm; illustration, 132 × 57.6 cm) in vol. 8 of the *Kokushi daijiten*, color pages "Sekai zu" (Maps of the world), pl. 9 (note 95). That the *Bankoku sōzu* and the illustration of people were printed in Nagasaki is known by the inscription "Hishū Sonoki gōri Nagasaki no tsu ni oite kaihan" (Published in Nagasaki, Sonoki County, Hizen Province) at the top of the illustration of people. For the *Bankoku sōzu*, see Unno Kazutaka, "Shōhō kan 'Bankoku sōzu' no seiritsu to rufu" (The *Bankoku sōzu* [Map of all the countries] published in 1645 and its popularization), *Nihon Yōgakushi no Kenkyū* 10 (1991): 9–75, and idem, " 'Bankoku sekai igyō zu' ni tsuite" (On the map of all countries and picture of the strange people in the world), *Biburia* 99 (1992): 20–33.

239. Six other versions are known to exist at present: a 1652 *Bankoku sōzu* (65.5 × 41 cm) paired with a *Sekai ninkeizu* (Illustration of the people in the world; 65 × 41.5 cm) at the Kōbe City Museum; a 1671 *Bankoku sōzu* (40 × 56 cm, one sheet with the map and illustration of people, published by Hayashi Jizaemon in Kyōto) at the British Library, London, and the National Diet Library, Tokyo; an undated map at Saidai Temple in Nara (128 × 56.3 cm, published by Eya Shōbee in Kyōto, map only); an undated map (110.5 × 57.4 cm, map only) owned by Sakaguchi Shigeru in Tsu, Mie Prefecture; an undated map at the Kōbe City Museum, Ikenaga Collection (61.5 × 39.4 cm, map only); and a map dated Teiyū (Hinoto Tori) of Shōhō (1651; the era, however, included only the years 1644–47) (paired with an illustration of people, each 137 × 59 cm) at the Kōbe City Museum and the British Library. The last is a post-Shōhō imitation with some errors; the original *Bankoku sōzu* has "Shōhō Tori" only. For colored reproductions of the Saidai version and that of 1652, see Unno, Oda, and Muroga, *Nihon*

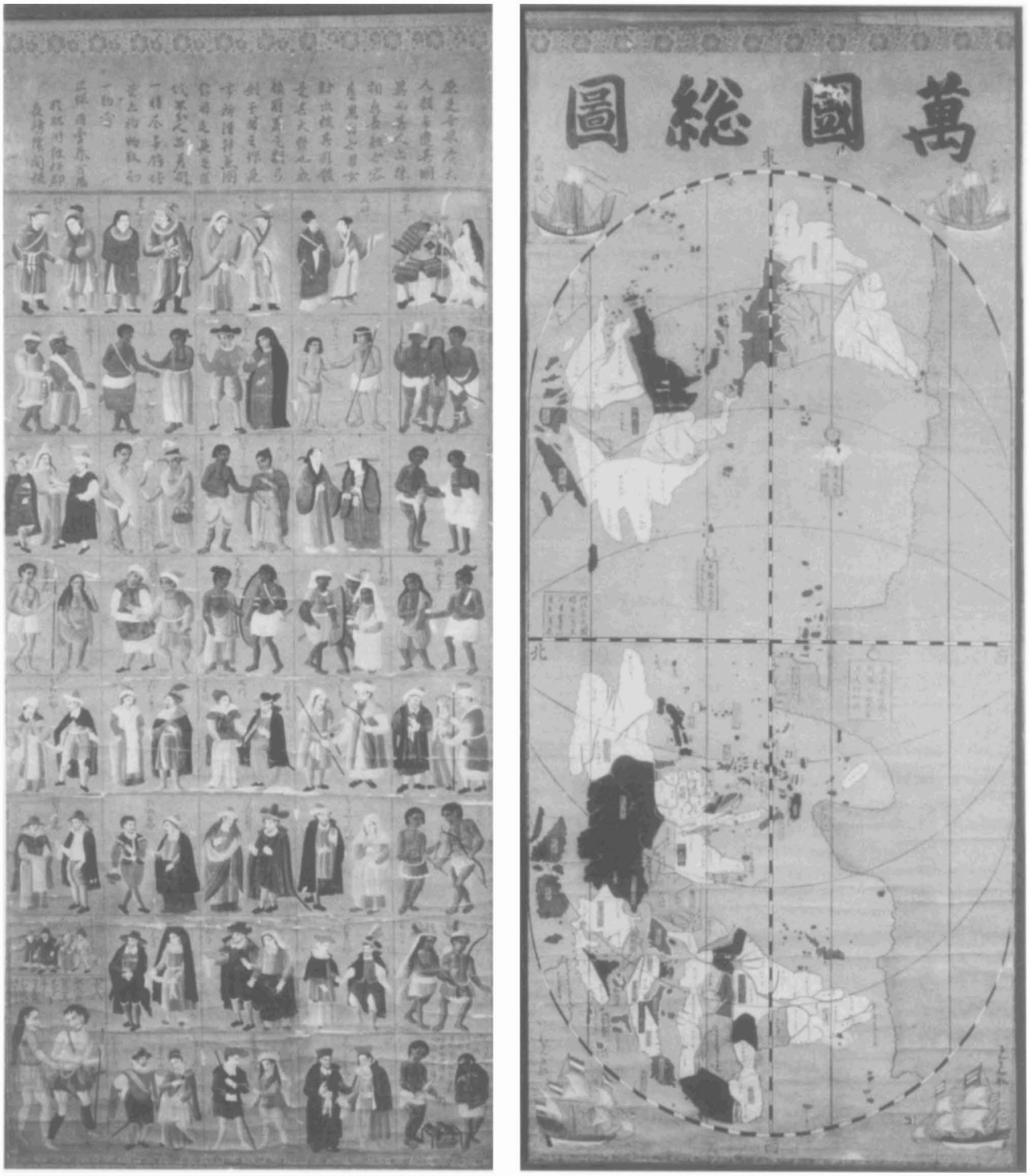


FIG. 11.39. THE FIRST PRINTED WESTERN MAP OF THE WORLD IN JAPAN: THE *BANKOKU SŌZU* OF 1645. The outlines of this woodblock print are based on those in Ricci's map, and some of the place-names are derived from Portuguese and entered in the two Japanese syllabaries. Paired with the map is an illustration of the people of the world, also a woodblock print. This suggests that the Western original for the *Nanban*-style world maps was accompanied by illustrations of people, such as that in plate 23, and might have been used to revise Ricci's information: all three of the known Mercator *Nanban*-style world maps have illustrations of the people of the world. The four ornamental ships outside the border of the map are Chinese and Japanese at the top and European at the bottom. The map is oriented to the east.
Size of the original: 132 × 57.6 cm (illustration of people) and 132.4 × 57.9 cm (map). Shimonoseki City Chōfu Museum, Shimonoseki. Photograph courtesy of Kazutaka Unno.

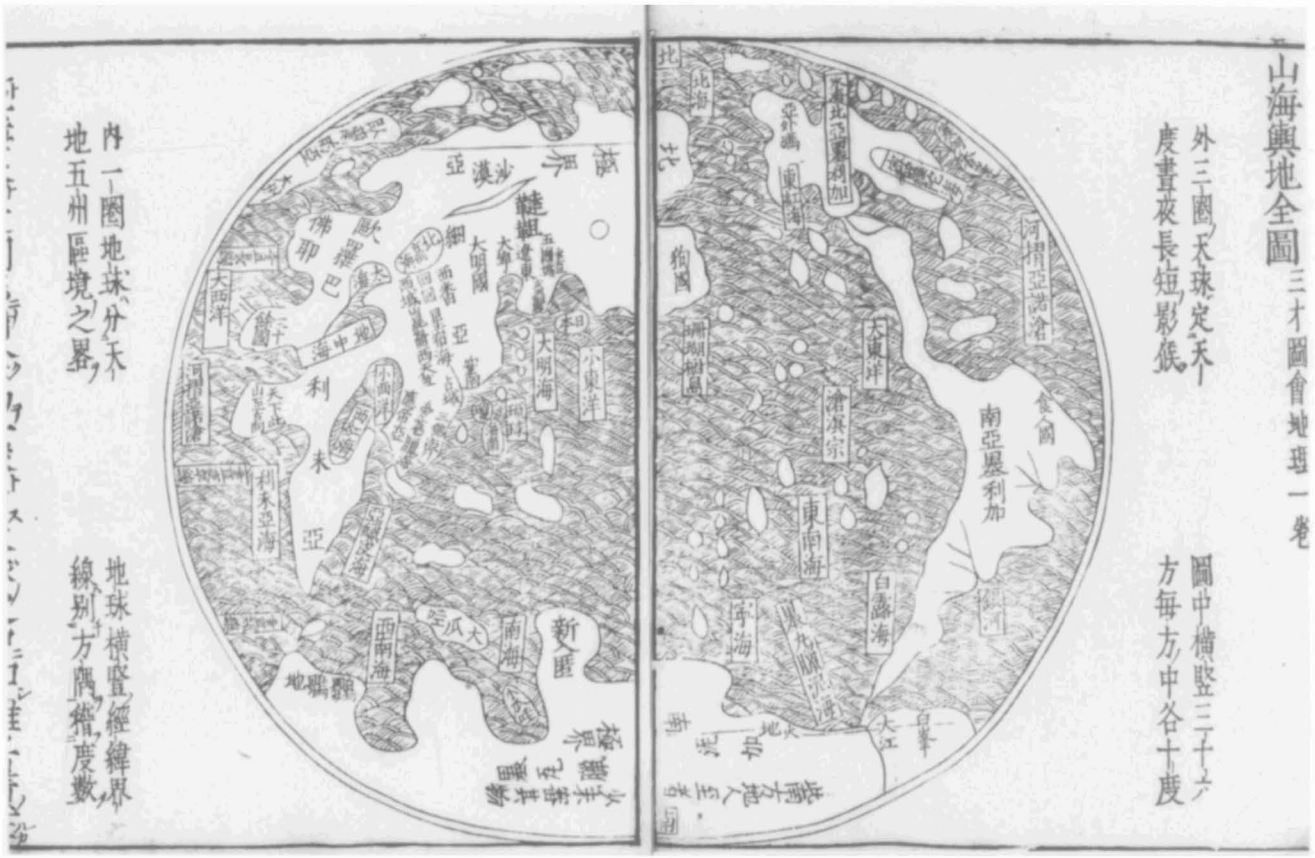


FIG. 11.40. THE "SANKAI YOCHI ZENZU" (MAP OF THE LANDS AND SEAS OF THE EARTH) IN MATSUSHITA KENRIN'S *RON'Ō BENSHŌ*, 1665. The map was reproduced from that of the same title in Chinese, "Shanhai yudi quantu" (Complete geographic map of the mountains and seas), in Wang Qi's *Sancai tuhui*. Wang's map was a reproduction of the map of the same title in Feng Yingjing's *Yueling guangyi* (Enlarged annotation of Monthly observances, 1602), a variation of the Nanjing edition of Ricci's map.
Size of the original: 19.4 × 33 cm. Collection of Kazutaka Unno.

presented as certificates to apprentices who had mastered surveying. In his manuscript book of 1717, for instance, Hosoi notes that he received a *Bankoku sōzu* as a certificate.[240] This practice was probably begun by Higuchi Kentei, a pioneer of surveying and navigation in Nagasaki. It was only after 1646, when Higuchi was imprisoned, that map publishers discovered the commercial potential of the image and produced versions of the *Bankoku sōzu*. These small copies with illustrations of people began to appear in seventeenth-century books and encyclopedias for the general public,[241] the most literate of whom were the upper classes and the urban population. According to Passin, "By the Genroku Period (1688–1704) a surprisingly modern publishing industry had developed." This included, besides professional writers and book illustrators, large publishing houses producing editions of more than ten thousand copies "to satisfy the audiences created by the spread of literacy and the cultural efflorescence of the cities." He estimates that from the middle of the eighteenth century, 40 to 50 percent of the male population was literate.[242] The geographical quality of these copies, however, tended to deteriorate. The same can be said for the only revision of the *Bankoku sōzu*,

kochizu taisei, vol. 2, pls. 59 and 61 (note 8). The 1671 map is reproduced in N. H. N. Mody, *A Collection of Nagasaki Colour Prints and Paintings* (1939; reprinted Tokyo: Charles E. Tuttle, 1969), pl. 24; and Helen Wallis, "The Influence of Father Ricci on Far Eastern Cartography," *Imago Mundi* 19 (1965): 38–45, esp. fig. 7. The Sakaguchi map is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 55; the Teiyū map is in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 7 (note 11); Mody, *Nagasaki Colour Prints*, pl. 23; and Wallis, "Father Ricci," figs. 5–6.

240. See above, p. 394.

241. Examples include the "Sekai bankoku sōzu" (General map of all the countries in the world) and the illustration of people in the *Tōsho zōho setsuyōshū taizen* (Enlarged dictionary) published by Yabuta in 1693 and in similar dictionaries dating to 1695, 1696, and 1699; and the "Bankoku no zu" (Map of all the countries) and illustration of people in the *Nendaiki eiri* (Illustrated chronicle, 1706) and in similar chronicles dating to 1710, 1711, and 1713. A reproduction of the 1711 map and illustration of people is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 57 (note 8).

242. See Herbert Passin, *Society and Education in Japan* (New York: Teachers College Press, Columbia University, 1965), 11–12, and 47–49.

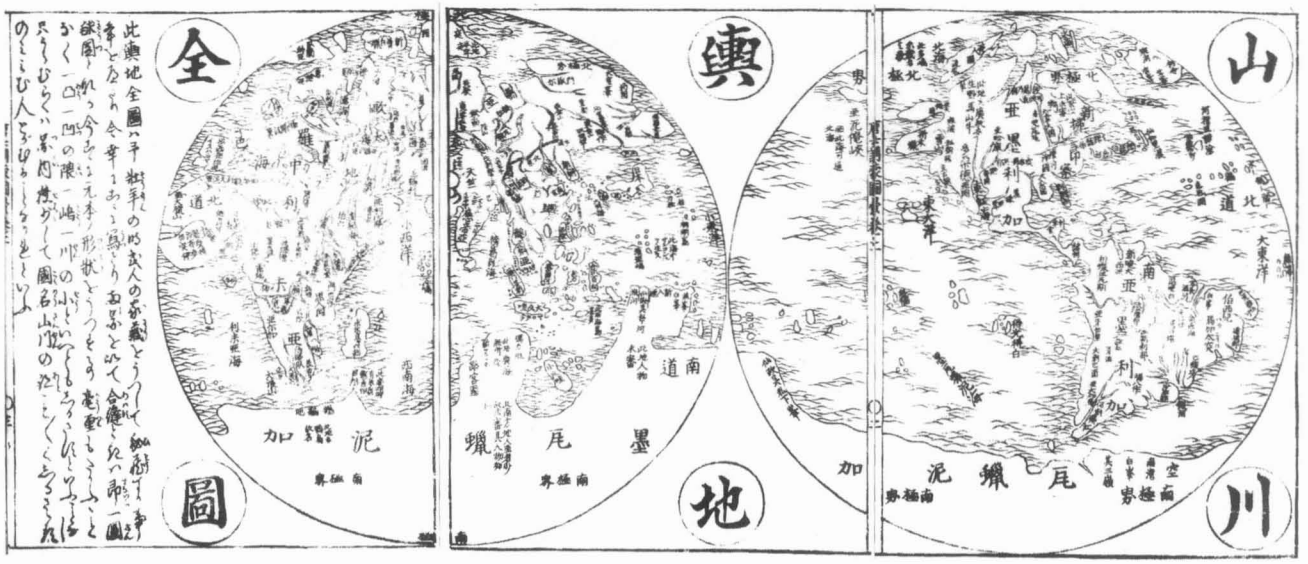


FIG. 11.41. "SANSEN YOCHI ZENZU" (MAP OF MOUNTAINS AND RIVERS ON THE EARTH) FROM HIRAZUMI SEN'AN'S *MOROKOSHI KINMŌ ZUI*, 1719. The map occupies three pages in the encyclopedia. Although meridians and parallels are not included, the following latitudes are inscribed: Arctic Circle (Hokkyokuken), Tropic of Cancer (Hokudō), Tropic of Capricorn (Nandō), and Antarctic Circle (Nankyokuken). Judging from the configurations and place-names, the source material must have been the map of the Eastern and Western hemispheres in the *Fangyu shenglüe* (Compendium of geography) by Cheng Boer et al., published in China in 1612. Size of the original: 18.3 × 42 cm. Collection of Kazutaka Unno.

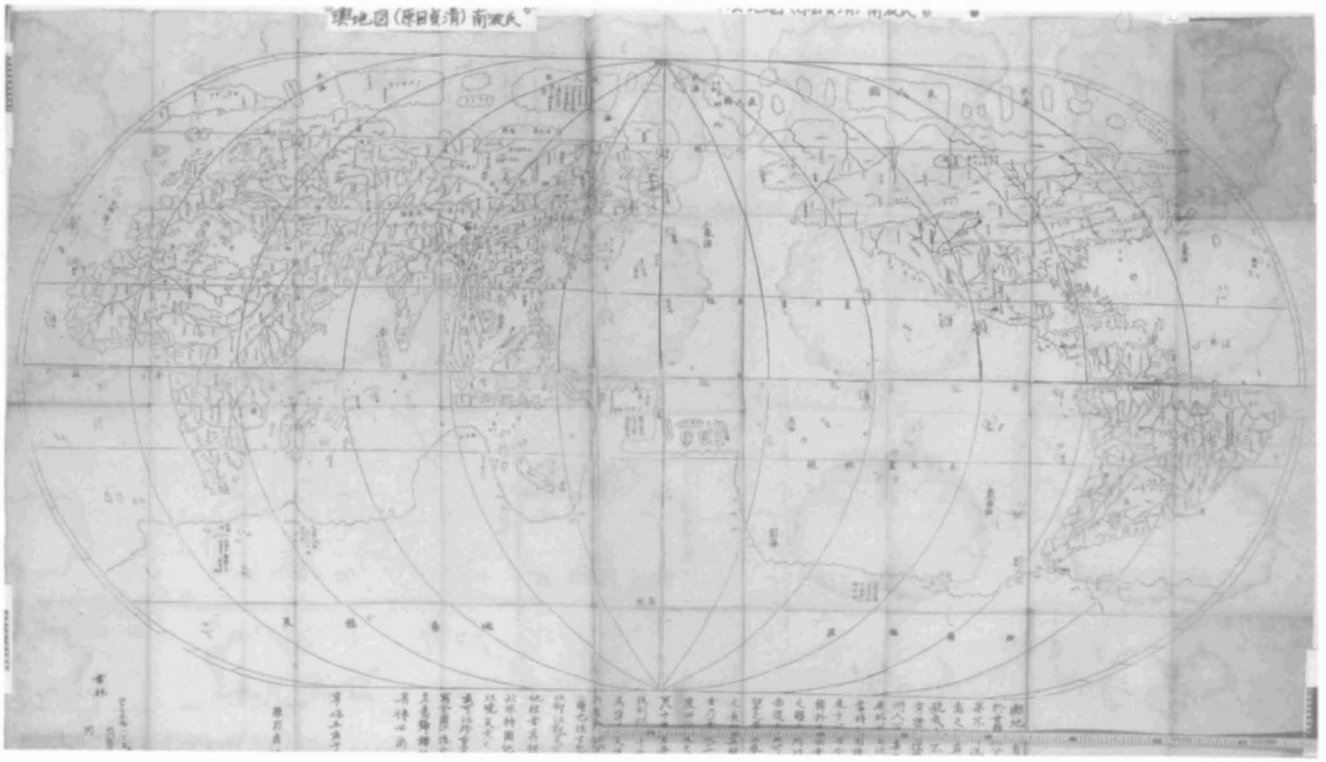


FIG. 11.42. HARAME SADAKIYO'S *YOCHI ZU* OF 1720. Unlike on Ricci's map, east of Japan in the ocean are the "Island of Gold" and the "Island of Silver." It appears that Harame's map is a reproduction of a revision of Ricci's map: various place-names throughout the world entered in katakana are the same as those on some of the revisions of Ricci's map in Japan. Size of the original: 91.5 × 154 cm. By permission of the Kōbe City Museum, Kōbe.

Ishikawa Ryūsen's (fl. 1686–1713) *Bankoku sōkaizu* (General world map) of 1688: although large areas of Asia were revised on it, the rest of the geographical content was actually worse than on the *Bankoku sōzu*.[243]

Ricci's maps were also published as book illustrations in China, and many were reprinted in Japan. An early example of a Ricci map in Japan was of the Eastern and Western hemispheres in Maezono Sobu's *Meisei tōki* (Account of the Ming-Qing war, 1661).[244] The map was reproduced from Pan Guangzu's *Huiji yutu beikao quanshu* (Reference work of the maps of China), published in China in 1633. The map had been copied from the *Fangyu shenglüe* (Compendium of geography) by Cheng Boer et al., published in China in 1612.[245] A greatly simplified version appeared in *Ron'ō benshō* (Argumentation of Unki Ron'ō, 1665) by Matsushita Kenrin (1637–1703) (fig. 11.40), and this had been reprinted from the Chinese *Sancai tuhui* (Illustrated compendium of the three powers [heaven, earth, man]), a pictorial encyclopedia compiled by Wang Qi dating to 1609.[246] In 1719 Hirazumi Sen'an also included a map of the Eastern and Western hemispheres in his *Morokoshi kinmō zui* (Illustrated encyclopedia of China) (fig. 11.41),[247] but this owed more to Ricci's map in the 1612 *Fangyu shenglüe*.

Sheet maps also continued to appear. In 1708 Inagaki Kōrō republished a copy of Ricci's 1602 map of the Northern and Southern hemispheres as the *Sekai bankoku chikyū zu* (Map of the world),[248] including on it sections of the illustration of people of the world and non-Japanese sailing boats. This was not merely a copy of Ricci's work, however, because it incorporated features from the *Bankoku sōzu*.

More innovative was the first independent version of Ricci's maps on an oval projection, published in 1720. The map, by Harame Sadakiyo, was titled *Yochi zu* (World map) (fig. 11.42).[249] Parts of Southeast Asia were revised, and most of the place-names were recorded in katakana. The *Yochi zu* seems to have stimulated further publishing ventures. Such was the anonymous *Bankoku zu* (Map of all the countries), a small and simple map issued by Hon'ya Hikoemon and appearing in 1744.[250] Harame's map appears to have been the model, but the continents of Eurasia and Magellanica (the unexplored southern landmass) had been revised: part of Eurasia was adopted from the *Nan'enbudai shokoku shūran no zu* (Outline map of the countries of Jambūdvīpa), a Buddhist map of the world also published by Hon'ya in 1744,[251] and Magellanica, elongated from east to west on Ricci's map, was here limited to the lower center and lower right of the *Bankoku zu*. The author of the Buddhist map was Kabō Hyōzō, who also composed the undated *Dainihonkoku no zu* (Map of Great Japan) similarly published by Hon'ya.[252] It is therefore suspected that he might be the author of the *Bankoku zu*. In 1783 a large Ricci-type oval map was introduced by Nakane Genran under the pen name Mihashi Chōkaku, titled *Chikyū ichiranzu* (Map of the world).[253] This was based on Harame's *Yochi*

243. Ishikawa's *Bankoku sōkaizu* (127 × 57.5 cm) was published in Edo by Sagamiya Tahee and is kept at the Kōbe City Museum; it is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 62 (note 8). A second edition was issued in 1708, and like the first it did not have an accompanying illustration of people. Copies of the 1708 edition are at the Kōbe City Museum, the Yokohama City University Library, the Tōyō Library in Tokyo, the Beans Collection at the University of British Columbia Library, and elsewhere.

244. The map, titled "Tendozu" (*Chan du tu*; graduated map) appears on four pages of the book; it is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 52 (note 8).

245. The map in the *Fangyu shenglüe* was a copy of Ricci's work published by Feng Yingjing (1555–1606) about 1604. Feng was a government official and a friend of Ricci's. For further information on the editions of Ricci's maps made in China and the various works produced under the influence of these maps, see Unno, "Min Shin ni okeru Mateo Ritchi kei sekaizu" (note 112). See also above, pp. 170–77.

246. Matsushita, a Confucian, was a physician; *unki* means luck, and *Ron'ō benshō* deals with astronomy.

247. Published in Ōsaka by Ōnogi Ichibee and in Edo by Suhara Mohee; reissued in Kyōto by Ogawa Tazaemon (1796) and in Ōsaka by Kawachiya Kichibee and three publishers (1802). The *Morokoshi kinmō zui* is at the National Archives in Tokyo and many other libraries in Japan; see Ayusawa, "Mateo Ritchi no sekaizu ni kansuru shiteki kenkyū," 205–7 (note 235).

248. The map (127.5 × 42.5 cm) was published in Ōsaka by Ikedaya Shinshirō and Iseya Heizaemon. It is at the Kōbe City Museum and is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 63 (note 8).

249. Harame's 1720 map was published by Izumoji Izuminojō and Izumoji Sashichirō in Edo.

250. Hon'ya's map (52.8 × 71.8 cm) is at the Kōbe City Museum. A reproduction is in Muroga Nobuo and Unno Kazutaka, "Edo jidai kōki ni okeru Bukkyō kei sekaizu" (Buddhist world maps in the Late Edo period), *Chirigakushi Kenkyū* 2 (1962): 135–229, esp. pl. 6; reprinted in *Chirigakushi kenkyū* (Researches in the history of geography), 2 vols. ed. Chirigakushi Kenkyūkai (Society for Research in Historical Geography) (Kyōto: Rinsen Shoten, 1979), 2:135–229.

251. The *Nan'enbudai shokoku shūran no zu* (53 × 73 cm) is at the Kōbe City Museum and is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 7 (note 8). This map was based on the Buddhist world map of Rōkashi (or Hōtan) published in 1710 as the *Nansenbushū bankoku shōka no zu* (Visualized map of all the countries in Jambūdvīpa). Rōkashi's maps became the prototype of the Buddhist genre in the eighteenth and nineteenth centuries; Ayusawa, "Types of World Map," reproduces it as fig. 2, to which Ramming has added some comments, p. 128 (note 235). On Rōkashi's map, see below.

252. The map of Japan has the name Kabō Sen'ichi with the title of ear doctor. On the Buddhist map of the world, shops with medicines for deafness are mentioned. The combination of this evidence suggests that Sen'ichi and Hyōzō are the same person. The *Dainihonkoku no zu* (48.8 × 69 cm) is owned by Tanaka Ryōzō in Kyōto and is reproduced in vol. 2 of *Chikusendō kosho tenkan mokuroku* (Chikusendō's catalog of an exhibition of antique books) (Kyōto: Chikusendō, 1974).

253. The map is preserved at the Waseda University Library in Tokyo and elsewhere. Among the versions, only for the one at Waseda is there a bag bearing Nakane's name, the title *Chikyū ichiran no zu* (Map of the world), and the name of the publisher, Asai Yūhidō [of] Kyōto. The cover title is *Chikyū ichiranzu*.

zu, but the figure and description of Magellanica are similar to those of the *Bankoku zu*. It is probable, then, that Mihashi had worked from a map with this earlier version of Magellanica. Several later editions of Mihashi's map are extant, each with a different title and publisher.[254] This was a common practice, not only with maps of the world but also with maps of Japan and cities: copyrights as well as printing blocks were sold.

The Ricci-type oval map that had the greatest impact was that of the Confucian scholar Nagakubo Sekisui (1717–1801), whose map of the world appeared about 1788. Originally it was titled *Chikyū bankoku sankai yochi zenzusetsu* (Map with an account of all the countries, lands, and seas in the world), but later it was called the *Kaisei chikyū bankoku zenzu* (Revised map of all the countries in the world).[255] Evidently based on Harame's *Yochi zu*, it revised the information on the northern frontier of Japan and added newly known place-names from elsewhere in the world. Like others of this type, Nagakubo's map underwent several editions and led to the publication of many compact, simple versions. Such miniature copies of Ricci's world maps were published repeatedly until the end of the Edo period and contributed to the dissemination of geographical knowledge, even while Japan was closed to outside influence.[256]

A notable example of a Ricci map from the last third of the Edo period is the *Kon'yo zenzu* (Map of the earth) by Inagaki Shisen (1764–1836). Dating to 1802, it is the printed map most faithful to Ricci's copy of 1602. It was reduced to 54.5 by 114 centimeters, but whatever information was omitted from the map was included in the accompanying book.[257] By the date when the *Kon'yo zenzu* was published, however, competing maps of the world with newer information from Dutch originals were also being compiled and sold. In spite of this, Inagaki's work was published with information that was two hundred years out of date. The reason for this might be found in the fact that other than the scholars of Dutch-learning, Japanese considered China to be a culturally advanced country; they, Inagaki included, placed a value on Ricci's maps because they thought he was Chinese, since his name appeared on them as "Li Madou" in Chinese characters.

POPULAR MAPS IN SEPARATE SHEET FORMAT

Books had been printed in Japan from the latter half of the eleventh century, but independent sheet maps were not printed until the seventeenth century. By this period there was a growing demand for separate maps not only among intellectuals but also from the wider public.[258] It is therefore appropriate to write of the "popularization" of cartography from this time on. This expanded market was served by a map trade of growing complexity that led to changes in the form and content of Japanese maps.

Maps of Japan

The earliest Japanese map of Japan to be printed on an independent sheet with a known date of publication is the anonymous *Dainihonkoku jishin no zu* (Earthquake map of Great Japan) of 1624 (fig. 11.43).[259] It was composed as a charm to protect against earthquakes and contains superstitious annotations about them. Depending on which month an earthquake occurred, it was believed to be an omen of various events: for June, for example,

254. The first to be issued was a version with two publishers, Ōnogi Ichibee in Ōsaka and Asai Shōemon in Kyōto, mentioned on the sheet (81.5 × 153.7 cm); it is reproduced in Kurita, *Nihon kohan chizu shūsei*, pl. 4 (note 15). A later edition, including a version titled *Bankoku chikyū saiken zenzu* (Detailed map of all the countries on the globe), has the names of these three publishers: Ōnogi Ichibee in Ōsaka, Umemura Saburobee in Kyōto, and Suharaya Ichibee in Edo; it is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 67 (note 8).

255. The map is 103.5 × 155 centimeters, and no publisher is mentioned on the first edition. The *Kaisei chikyū bankoku zenzu* was published by Yamazaki Kinbee in Edo and Asano Yahee in Ōsaka and has an anonymous preface (by Katsuragawa Hoshū?).

256. Almost none of the compact, simple versions name the reviser or give a publishing date. Two with dates are *Shinsei bankoku yochi zenzu* (Newly made map of all the countries in the world, 1844) by Den Ken (32.5 × 91.3 cm; the map is 25.7 × 39.5 cm), and *Chikyū bankoku sankai yochi zenzusetsu* (Map with an account of all the countries, lands, and seas in the world, 1850) by Yamazaki Yoshinari (40.5 × 60.5 cm). Both are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 100, and pl. 110 (note 8).

257. *Kon'yo zenzusetsu* (Explanation of the *Kon'yo zenzu*). The geographical explanations of Ricci's map are translated into Japanese, and the place-names given in Chinese characters are transliterated into the katakana syllabary; see Ayusawa, "Mateo Ritchi no sekaizu ni kansuru shiteki kenkyū," 182–88 (note 235).

258. For the early Japanese printed maps, see Kurita, *Nihon kohan chizu shūsei*, "Sōsetsu" (Introduction), 1–3 (note 15). Chamberlain and Sansom note that there were printed books in tenth-century Japan and that woodblock printing, via China, was known at least as early as the eighth century. In addition, Hillier reports that woodblock printing was "used for pictorial work . . . as early as the 10th century, probably a lot earlier": see Jack R. Hillier, *The Japanese Print: A New Approach* (London: G. Bell and Sons, 1960), 14; Chamberlain, *Japanese Things*, 396 and 509 (note 99); and George B. Sansom, *Japan: A Short Cultural History*, 2d rev. ed. (New York: Appleton-Century-Crofts, 1962), 434. On the woodblock prints and artists, strongly connected with the *ukiyoe* (pictures of the floating world) school, see Hillier, *Japanese Print*, 9–17; Stanley-Baker, *Japanese Art*, 184–90 (note 39); and Tsuda, *Handbook of Japanese Art*, 230–39 (note 99). See also Hugo Munsterberg, *The Japanese Print: A Historical Guide* (Tokyo: Weatherhill, 1982), esp. 11–136 (from the introduction of woodblock prints in the Nara period to the end of the Edo period).

259. See Saburō Noma, "Earthquake Map of Japan, 1624," *Geographical Reports of Tokyo Metropolitan University* 9 (1974): 97–106. An earlier printed map of Japan to appear in a book was in the Keichō edition of the *Shūgaishō*, ca. 1607 (see above, p. 369 and note 96).

the map notes that an earthquake foreshadows disease, drought, death of cows and horses, and some pleasure. Such inscriptions suggest that the map was designed for a general audience. The image of Japan follows in the Gyōki tradition, as was the case with many other maps of the country in calendars and books on fortune-telling throughout the Edo period. Some of these maps included a dragon around the archipelago, as does the *Dainihonkoku jishin no zu*.[260] In Buddhist belief the dragon is thought to cause earthquakes, and on the map its head is being crushed with the *kanameishi*, a stone kept in the sacred area of Kashima Shrine in Kashima, Ibaraki Prefecture. There is also a *waka* poem (a traditional thirty-one syllable verse form) on the map.[261]

The shape of Japan on maps printed from woodblocks changed for the first time in 1662, when the *Shinkai Nihon ōezu* (Newly revised map of Japan) was published.[262] It maintained the Gyōki tradition insofar as it still showed the routes from Yamashiro to the other provinces in the same way and included such legendary lands as the Rasetsukoku (Land of Women). The shape of the country, however, was much improved: the coastlines, including the major peninsulas and bays, were portrayed far more accurately. Its model appears to have been the modified Keichō type of map paired with the type C *Nanban*-style world maps on an equirectangular projection (appendix 11.4). The coasts on both maps have accentuated curves, perhaps to enhance their pictorial value, and representations of ships serve the same purpose. Demand for the *Shinkai Nihon ōezu* led to its reprinting in 1666.[263] This was also the year when the first atlas of Japan printed in Japan, the *Nihon bunkei*

FIG. 11.43. THE ANONYMOUS *DAINIHONKOKU JISHIN NO ZU* OF 1624. On the twelve spines of the dragon surrounding the archipelago are written monthly fortunes associated with earthquakes. The portrait of Japan is based on the Gyōki-type representation, and the map shows Kamakura—the center of the shogunate from 1192 to 1333 and, in the fourteenth and fifteenth centuries, the seat of the Muromachi shogunal office in charge of Kantō—as a province.
Size of the original: 44 × 26.7 cm. By permission of the Harada Masaaki Collection, Yanagida, Ishikawa Prefecture.

260. Examples of maps with a dragon include the Ise-Koyomi (Ise Province almanac or calendar) of 1673, 1675, 1676, 1680, and 1682, and those in the anonymous *Ōzassho* (Large miscellany) of 1693, 1715, 1774, 1816, 1846, and 1852. Four examples of Gyōki-type maps of Japan not to include a dragon are the ca. 1640 *Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa; 70.5 × 185 cm) at the Tokyo University Library, the 1651 *Nihonkoku no zu* (Map of Japan; 109.5 × 51 cm) at the National Museum of Japanese History in Sakura, the ca. 1651 *Gyōki Bosatsu setsu Dainihonkoku zu* (Map of Great Japan according to Bodhisattva Gyōki; 80.4 × 42.3 cm) at the Kōbe City Museum, and the 1654 *Nihonkoku no zu* (Map of Japan; 121 × 53 cm) in the Kurita Kenji Collection in Nagoya. For reproductions see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 12–13 and fig. 43 (the ca. 1640, 1651, and 1654 maps) (note 8); Akioka, *Nihon kochizu shūsei*, pl. 20 (the 1651 map) (note 15); and idem, *Nihon chizu shi*, folding plate (the ca. 1651 map) (note 7).

261. Although the creature on the *Dainihonkoku jishin no zu* is said to be a dragon, there is a similar creature, Namazu, that is popularly considered to cause earthquakes by its movements inside the earth. One description of Namazu reads: "—an eel-like creature, but thicker and flat-headed and supplied with mustachios,—which dwells somewhere in the bowls [*sic*] of the earth, and whose occasional wrigglings are the cause of earthquakes" (see Chamberlain, *Japanese Things*, 444 [note 99]). When Namazu took the place of the dragon is not certain, but toward the end of the Edo period it started to appear on a lot of maps.

262. This is the cover title. Printed on the map (59 × 88 cm) is *Fusōkoku no zu* (Map of the country Fusō); Fusō was a legendary land in ancient China and was placed in the eastern sea. The map is preserved at the Kōbe City Museum (formerly in the Nanba Collection), the National Museum of Japanese History, Sakura (formerly Akioka Collection), the Geographical Institute at Kyōto University, and the Kurita Kenji Collection, Nagoya; the last three, however, have lost the cover title. The Kōbe City Museum map is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 25 (note 8). The Kurita map is reproduced in Kurita, *Nihon kohan chizu shūsei*, pl. 16 (note 15).

263. This map is reproduced in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 26 (*Fusōkoku no zu*) (note 11), in Akioka, *Nihon chizu shi*, folding plate (note 7), in idem, *Nihon kochizu*

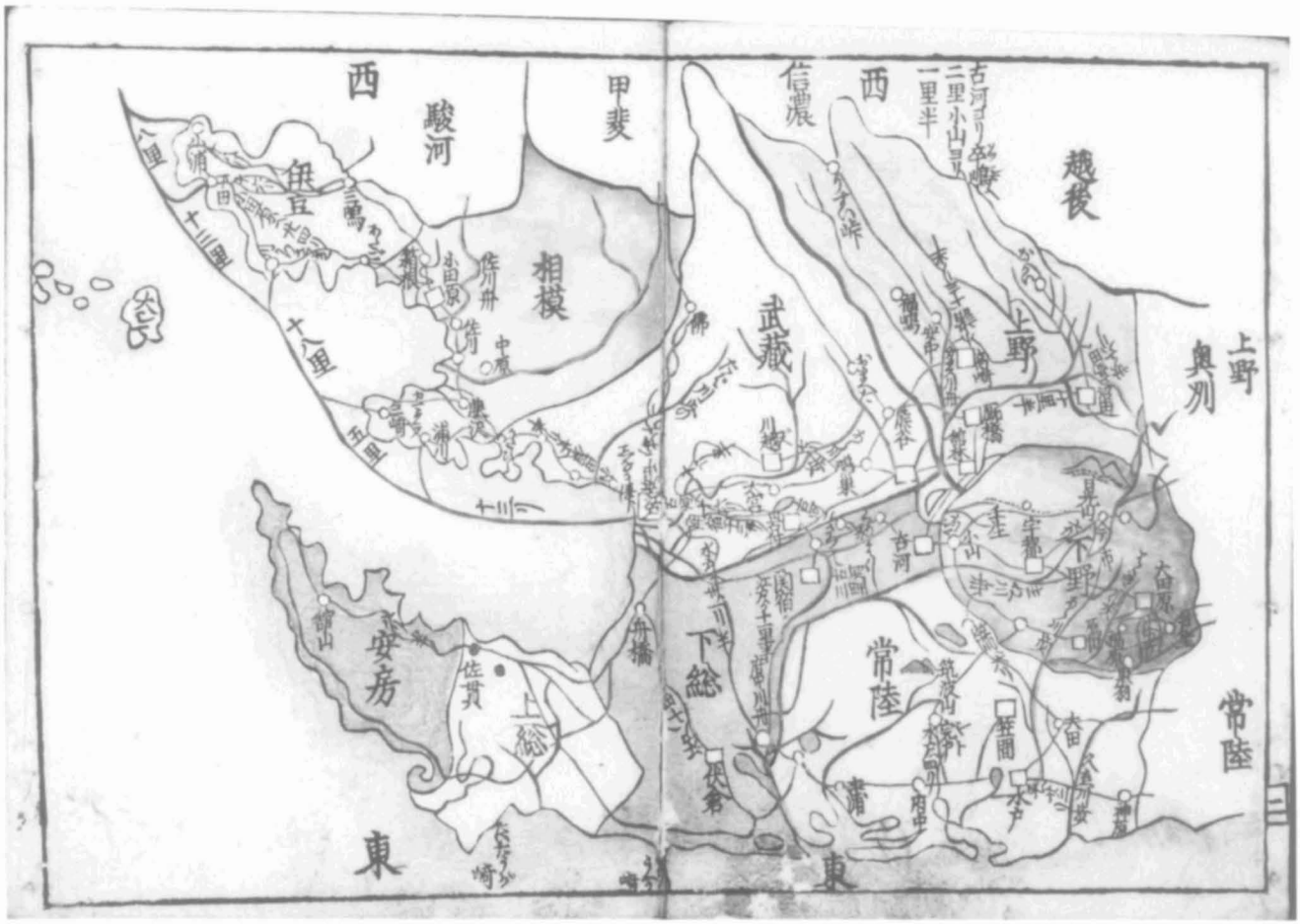


FIG. 11.44. THE FIRST AND SECOND MAPS, SHOWING THE ŌU AND KANTŌ REGIONS, OF THE ATLAS *NIHON BUNKEI ZU*, 1666. The album-style atlas was produced by dividing the Keichō map of Japan (plate 26) into sixteen parts. (Ōu is the generic name of the two provinces of Mutsu and Dewa, or the whole of northern Honshū.)
Size of each page: 18.7 × 13.5 cm. By permission of the Kōbe City Museum, Kōbe, Nanba Collection.

zu (Separate maps of Japan), was published (fig. 11.44).[264] This was produced by subdividing the Keichō map and keeping the same scale to preserve the accuracy of the original. This, however, was not as popular as the more decorative works like the *Shinkai Nihon ōezu*.

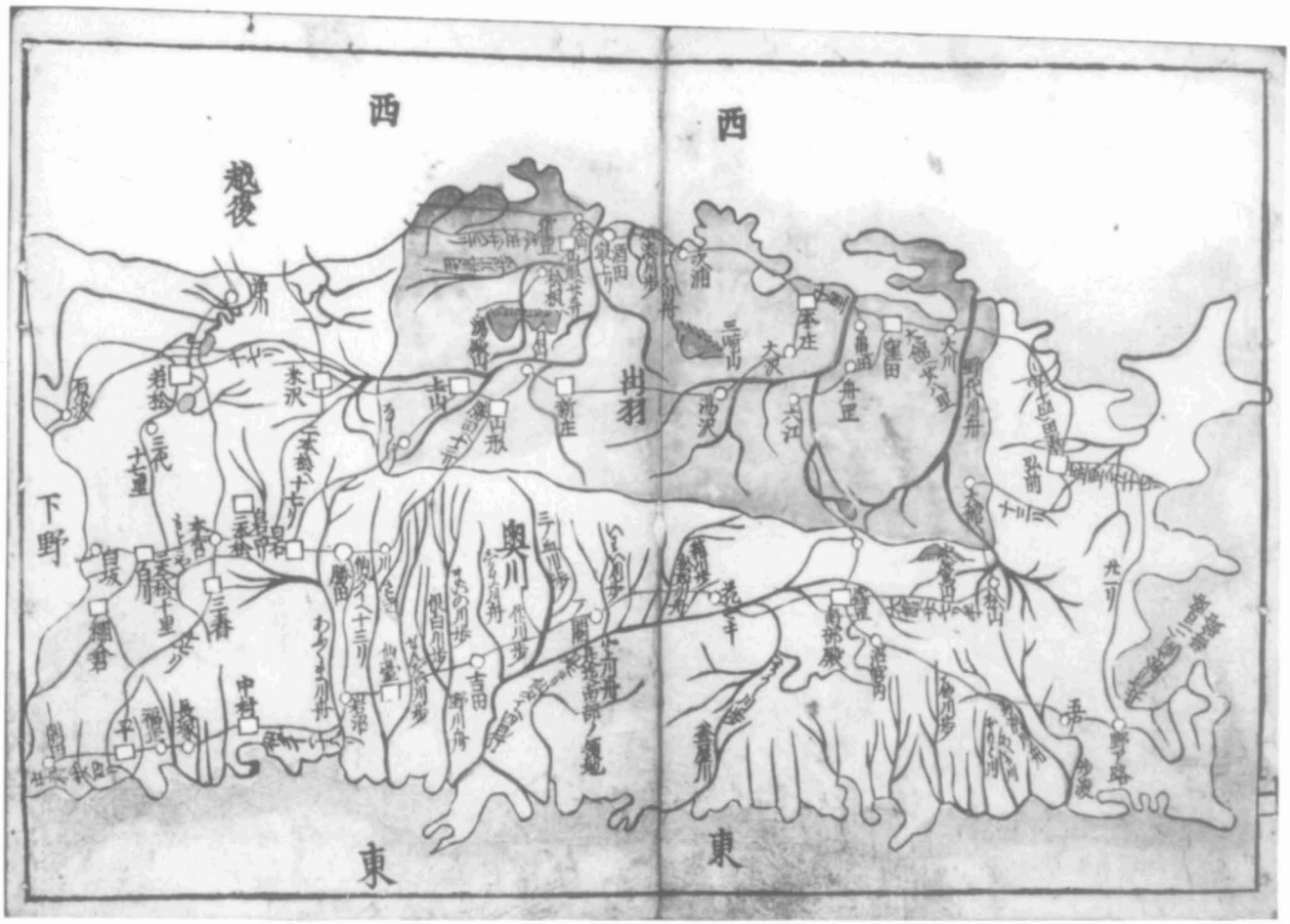
Because of the popularity of the *Shinkai Nihon ōezu*, a more decorative version was published in 1687 by Ishikawa Ryūsen, an *ukiyoe* artist. Titled *Honchō zukan kōmoku* (Outline map of Japan), it was the first of many maps published by Ishikawa, and it established a model for woodblock maps throughout most of the eighteenth century (plate 27).[265] Works based on Ishikawa's original version, and published mainly in the area of Edo, are referred to as Ryūsen-type maps of Japan.[266] Ishikawa's maps were both decorative and practical, and they served as a combined Who's Who and travel map. Useful infor-

shūsei, pl. 24 (note 15), and in Cortazzi, *Isles of Gold*, pl. 38 (note 14). Cortazzi translates the title as "Map of the land of the rising sun."

264. There are two versions of the atlas, one at the Kōbe City Museum, Nanba Collection, and the other at the Meiji University Library, Tokyo (binding 19.5 × 13.8 cm). One leaf of the Kōbe version is reproduced in color in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 28 (note 11); six maps of the Meiji atlas are reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 21 (note 8). The whole of the atlas is reproduced with the *Shinkan jinkoku ki* (Newly published notes on the provinces and their inhabitants, 1701) in *Kinsei bungaku shiryō ruijū, kohan chishi hen* (Classified series of materials of modern literature, early printed geographical descriptions), 22 vols. (Tokyo: Benseisha, 1975–81), vol. 22 (see also note 269).

265. On *ukiyoe* refer to note 258 above. Three versions exist: in the Nanba Collection, Kōbe City Museum (60.5 × 132 cm); in the National Archives, Tokyo (58 × 127.7 cm); and in the Akioka Collection, National Museum of Japanese History, Sakura (60.5 × 130 cm). All have been reproduced in color, the first in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 27 (note 11) and Cortazzi, *Isles of Gold*, pl. 44 (note 14); the second in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 27 (note 8) as well as color plate 27 (this volume); and the third in Akioka, *Nihon kochizu shūsei*, pl. 30 (note 15).

266. It was the custom of artists who belonged to the same family or school to use their given names.



mation to administrators, travelers, and the general public included the names of feudal lords, the standard productivity of the land in *koku* of rice, and important and scenic places along the routes. Each new edition tended to expand both the informative and ornamental aspects of the work.[267]

Nor were the Ryūsen maps without their competitors. In Ōsaka about 1703 there began the publication of rival maps claiming to be more accurate. In this venture, also printed by the woodblock process, Mabuchi Jikōan collaborated with Okada Keishi to publish the *Kōsei Dainihon enbizu* (Corrected perfect map of Great Japan). This went through different titles and a reduced edition over a period of at least thirty years.[268] Its sources may

267. Examples of later maps by Ishikawa are the *Nihon kaisan chōriku zu* (Map of the seas and lands of Japan, 1691) (82.1 × 171 cm) and the *Nihon sankai zudō taizen* (Map of the mountains and seas of Japan, 1703) (98.5 × 171.5 cm). For a reproduction of the first, see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 31 (note 8); for the second, see Akioka, *Nihon kochizu shūsei*, pl. 34 (note 15).

268. Examples include maps in the Kurita Kenji Collection, Nagoya (75.5 × 121.5 cm), and at the National Museum of Japanese History, Sakura (79 × 123 cm), which are reproduced in Kurita, *Nihon kohan chizu shūsei*, pl. 21 (note 15), and in *Akioka Korekushon Nihon no kochizu* (Old maps of Japan in the Akioka Collection), exhibition catalog (Sakura: Rekishi Minzoku Hakubutsukan Shinkōkai, 1988), pl. D-2. Others include the *Kaisei Dainihon bizu* (Revised satisfactory map of Great Japan; 78.7 × 122.5 cm) and the *Kaisei Dainihon zenzu* (Revised general map of Great Japan; 81.5 × 126.5 cm), which were probably printed with the woodblocks of the *Kōsei Dainihon enbizu* (which was most likely the first issue of this group), and only their cover titles differ from it. They are reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 28 (note 8), and Cortazzi, *Isles of Gold*, pl. 40 (note 14). They are preserved at the National Museum of Japanese History, and copies of the *Kōsei Dainihon enbizu* are at the Meiji University Library (76.4 × 121 cm) and the Kōbe City Museum (78.8 × 126.5 cm). The *Dainihonkoku zenbizu* (Complete map of Great Japan; 65.2 × 111.3 cm), National Museum of Japanese History, with no author's name, colophon, or tables of provinces, was published in Kyōto by Uemura Yaemon in 1735, according to Higuchi Hideo and Asakura Haruhiko, revisers, *Kyōhō igo edo shuppan shomoku* (Bibliography of books printed from the Kyōhō era) (Toyohashi: Mikan Kokubun Shiryō Kankōkai, 1962), 38.

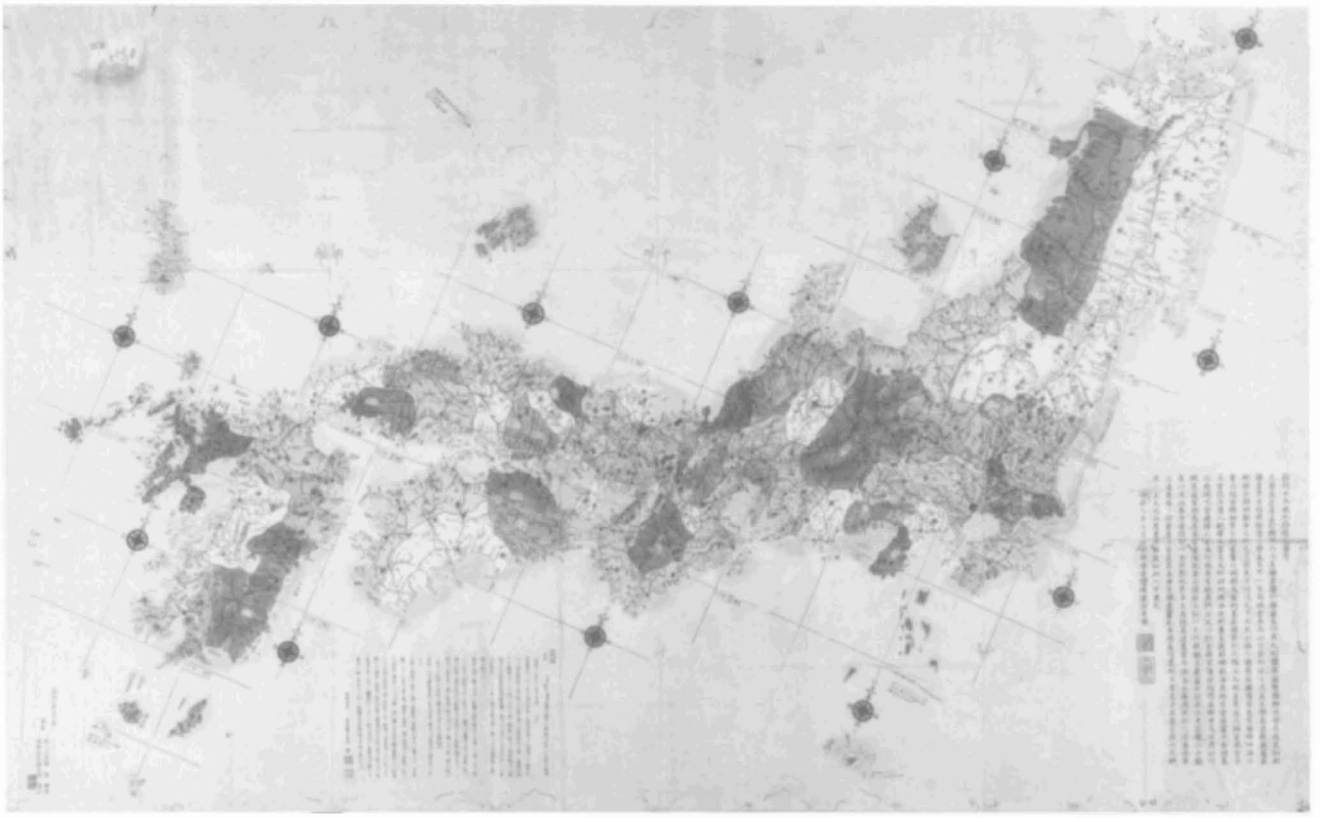


FIG. 11.45. NAGAKUBO SEKISUI'S *KAISEI NIHON YOCHI ROTEI ZENZU*, 1779. This was the first printed map of Japan with a graticule, which was superimposed from an existing official map. The copy shown here was the first issue of the first edition, attested to by the sickle-shaped Shimokita peninsula in the north of Honshū and by the lack of Mount Osore in the peninsula. Another issue and later editions show the peninsula as ax shaped as well as including Mount Osore. Size of the original: 84 × 136 cm. By permission of the Beans Collection, University of British Columbia Library, Vancouver.

have included charts of Japan, so that some coastal sections in the west appear more precisely than on the Shōhō map.[269] Although the *Kōsei Dainihon enbizu* shows improvements in northern Honshū and Tosa Bay, it is generally inferior to Ishikawa's *Honchō zukan kōmoku* in both information and decorative appeal.

Nagakubo Sekisui's *Kaisei Nihon yochi rotei zenzu* (Revised route map of Japan, 1779) (fig. 11.45) marked the end of the dominance of the Ryūsen type. Compiled at a scale of one *sun* to ten *ri*, or 1:1,296,000, it established a new model for the map trade that also lasted about a century. The map was revised and republished in 1791, and also in 1811, 1833, 1840, and 1844, after Nagakubo's death; a large number of other copies were also made.[270] In 1783, Nagakubo introduced a compact version (52 × 49.6 cm) titled *Jūsen Nihon yochi zenzu* (Reengraved map of Japan).[271] His map of 1779 is noted as the first printed map of Japan with parallels expressing degrees of latitude and meridians with no degrees for longitude. The grid of parallels and meridians was superimposed on an existing official map, probably the Shōhō map, rather than compiled from original survey data. The idea of using such a grid evidently came from the manu-

269. The Shōhō map itself was first printed in 1701 in the *Shinkan jinkoku ki* by Seki Sokō; it was divided into provinces and simplified. (The *Shinkan jinkoku ki* has been reproduced by Iwanami Bunko, blue series, no. 28-1 [Tokyo: Iwanami Shoten, 1978]). Five years previously Seki compiled the *Nihon bun'iki shishō zu* (Quickly understandable atlas of the regions of Japan, 1696), an atlas version of the Shōhō map that was never published. The general map of Japan in the *Nihon bun'iki shishō zu* is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 23 (note 8), and in Unno, "Kinsei kankō no Nihonzu" (Maps of Japan printed in [early] modern times), in *Chizu no shiwa*, 126–38, esp. 133 (note 136).

270. As in the case of Ishikawa Ryūsen, the personal name was preferred for professional reasons, and the map became known as the "Sekisui map." Two versions of the first map issued are found in the Meiji University Library (82.2 × 132.8 cm) and in the Beans Collection (fig. 11.45); on these versions the shape of the Shimokita peninsula is different than on later editions. The first is reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 33 (note 8). For the second issue of the first edition (83 × 135.5 cm), see Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 29 (note 11). The revised editions were the same size as the 1779 copy. The 1811 reprinted version, 83 × 134.5 cm and in Cortazzi's personal collection, is reproduced in Cortazzi, *Isles of Gold*, pl. 41 (note 14).

271. The *Jūsen Nihon yochi zenzu* was reduced by Sotani Ōsei, and the meridians and parallels run parallel with the edges of the paper. It is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 50 (note 8).

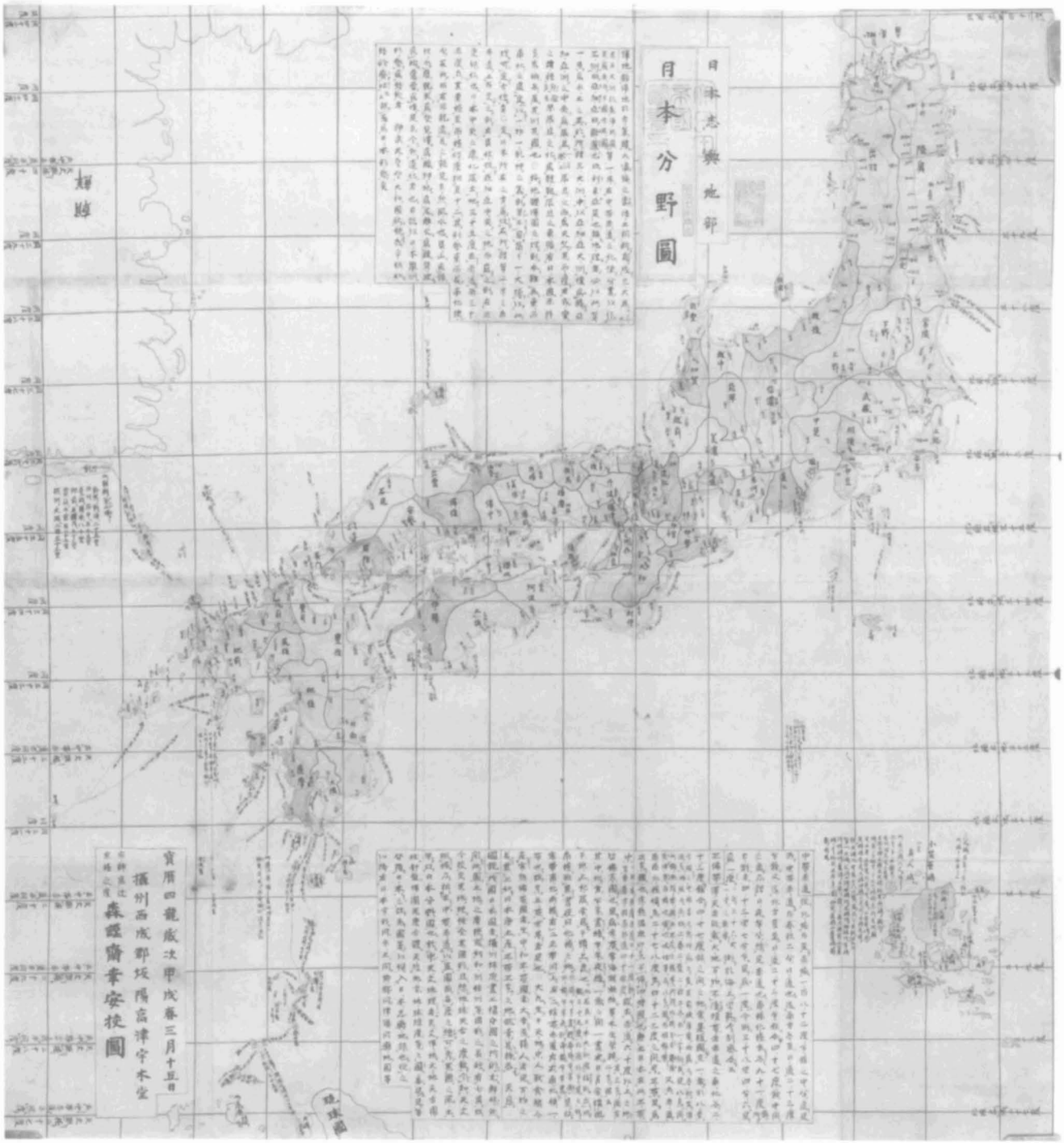


FIG. 11.46. MORI KŌAN'S *NIHON BUN'YA ZU*, 1754. This map, a copy of which was found in Nagakubo's belongings after his death, most likely gave him the idea of using a grid of parallels and meridians. As on Nagakubo's map of Japan, the manuscript gives values for latitude only. Mori's interest in latitude and longitude probably came from copying marine charts of South and East Asia.
Size of the original: 102.5 × 95 cm. By permission of the National Archives, Tokyo.

script *Nihon bun'ya zu* (Astronomical map of Japan, 1754) (fig. 11.46) by Mori Kōan (1692?–1757?).[272] On both maps Kyōto appears to be the point of origin for the longitude lines, but on neither are numerical values given.

272. Reproduced in color in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 29 (note 8).

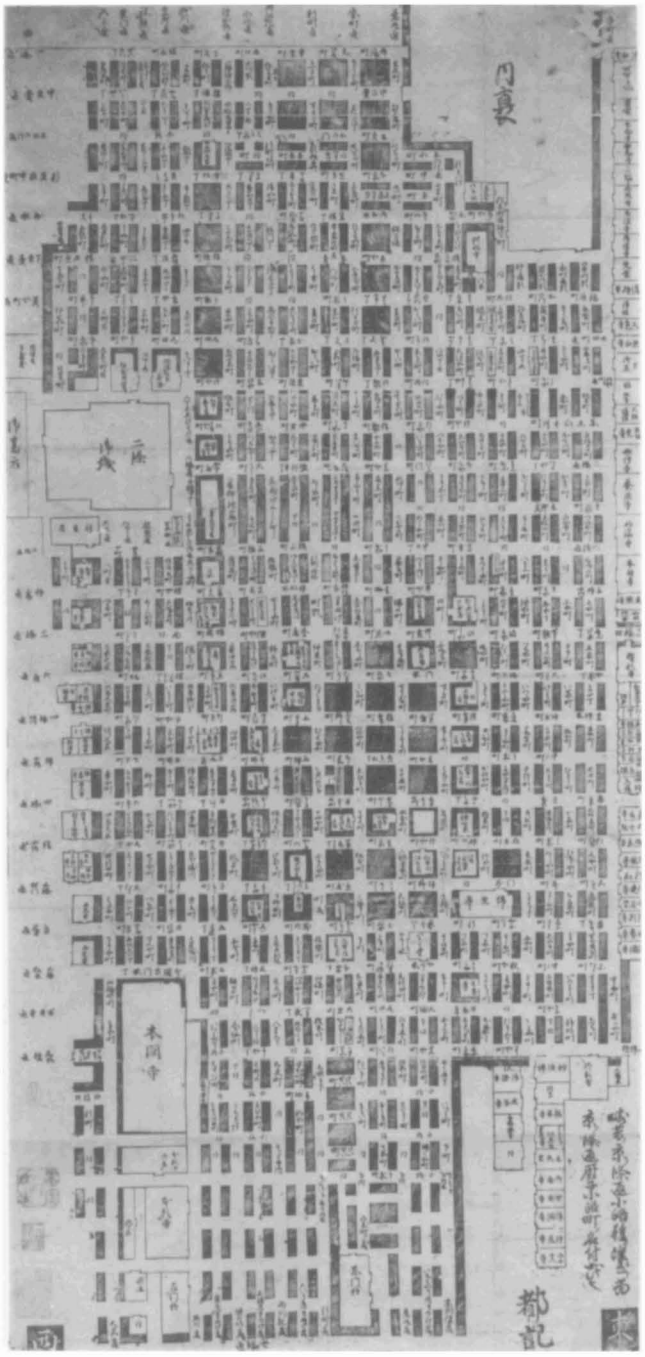


FIG. 11.47. PLAN OF KYŌTO, BEFORE 1641: A REVISION OF A TRADITIONAL DIAGRAMMATIC PLAN OF THE CAPITAL. At the upper right is the imperial palace and at the lower center are the "licensed quarters," which were moved to the western suburbs (off the plan) in 1641 and therefore date the map before this time.
Size of the original: 116.6 × 54 cm. Ōtsuka Takashi, Kyōto (formerly in the Moriya Yoshitaka Collection). Photograph courtesy of Kazutaka Unno.

Another genre of maps of Japan is exemplified in plate 28. These maps could be considered a hybrid between landscape drawings/paintings and maps in the last quarter of the Edo period, but there are very few examples of this genre. The map in plate 28 dates from about 1804.

Provincial Maps and Town Plans

Whereas the maps from the official Tokugawa provincial surveys gradually filtered into general circulation because they were not treated as state secrets, there were also provincial maps produced specifically for the popular market.[273] Beginning in 1709 with the *Kawachi no kuni ezu* (Map of Kawachi Province) by Hayashi Jōho, provincial maps of the Go Kinai region[274] were rapidly published. The dramatic increase in provincial maps at the beginning of the nineteenth century was probably a result of a popular interest in local geography: maps of thirty-six of the sixty-six provinces were published during the Edo period. Many popular encyclopedic geographies were also published. These were related to tourism, and examples include the *Miyako meisho zue* (Illustrated description of notable places in Kyōto, 6 vols.), the *Yamato meisho zue* (Illustrated description of notable places in Yamato Province, 7 vols.) of 1780 and 1791, and the *Izumi meisho zue* (Illustrated description of notable places in Izumi Province) of 1796, all by Akisato Ritō (fl. 1776–1830), and the *Edo meisho zue* (Illustrated description of notable places in Edo, 20 vols.) of 1836 by Saitō Chōshū (d. 1799) and others.[275]

Numerous maps and plans of towns were also pub-

273. For provincial maps printed in the Edo period, see Kurita Mototsugu, "Edo jidai kankō no kokugunzu" (Printed provincial maps of the Edo period), *Rekishi Chiri* 84, no. 2 (1953): 1–16, and Miyoshi Tadayoshi, "Nanba Korekushon chū no kankō shokokuzu ni tsuite" (On the printed provincial maps in the Nanba Collection), *Kōbe Shiritsu Hakubutsukan Kenkyū Kiyō* 4 (1987): 27–52.

274. The Go Kinai region includes the provinces of Yamashiro, Yamato, Kawachi, Settsu, and Izumi, and it incorporates the modern prefectures of Ōsaka and Nara and part of the prefectures of Kyōto and Hyōgo. The 1709 map (52 × 124.9 cm) is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 50 (note 8); and in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 52 (note 11). Other examples of provincial maps of Go Kinai are *Yamashiro meishōshi zu sōzu* (General map of the atlas describing scenic spots in Yamashiro Province, 1711) by Ōshima Takeyoshi (42.4 × 61.7 cm); *Yamato no kuni saiken ezu* (Detailed map of Yamato Province, 1734) by Ishikawa Shun'ei; a map of Izumi Province, 1736; and a map of Settsu Province, 1739.

275. In addition to these, there are seven others that belong to Akisato's *Meisho zue* group: *Shūi Miyako* (Kyōto, addendum, 1787); *Settsu*, 1796–98; *Tōkaidō*, 1797; *Ise sangū* (Visit to Ise Shrine, 1797); *Kawachi*, 1801; *Kisoji* (Kiso road, 1805); and *Ōmi*, 1814. See Miyoshi Manabu, "Meisho zue kaisetsu" (Explanation of the *Meisho zu*), in *Iwanami kōza chirigaku* (Iwanami lectures on geography), 76 vols. (Tokyo: Iwanami Shoten, 1931–34), Bekkō (Supplement) (1932): 1–22.

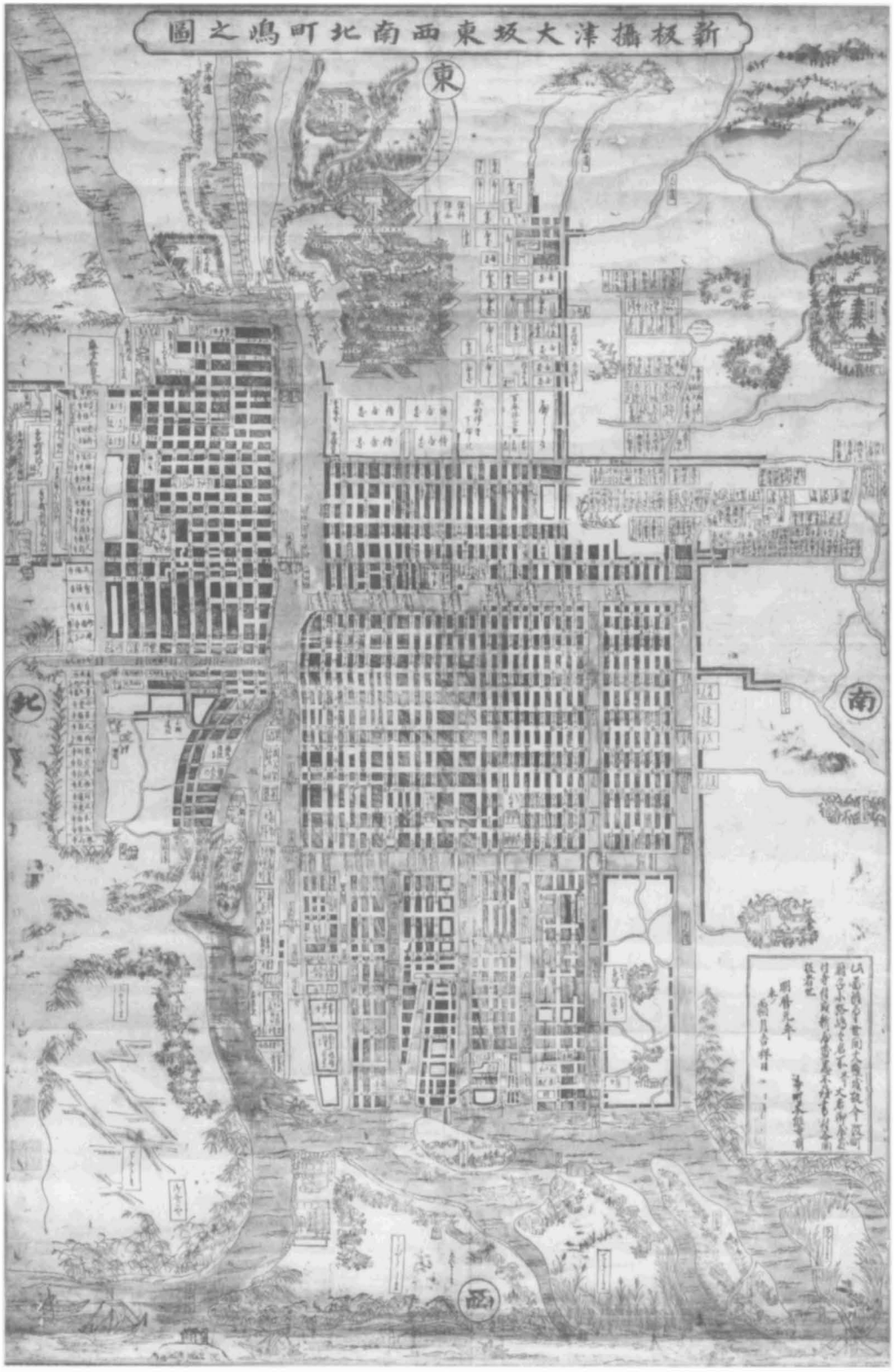


FIG. 11.48. *SHINPAN SETTSU ŌSAKA TŌZAINANBOKU MACHI SHIMA NO ZU*, 1655. This is the oldest known extant printed plan of Ōsaka. It is oriented to the east so that it would follow the convention of plans of Ōsaka by placing the castle at the top. The description is purely diagrammatic and could not have been a result of surveying.
Size of the original: 119.4 × 77.5 cm. By permission of the Beans Collection, University of British Columbia Library, Vancouver (1655.1).

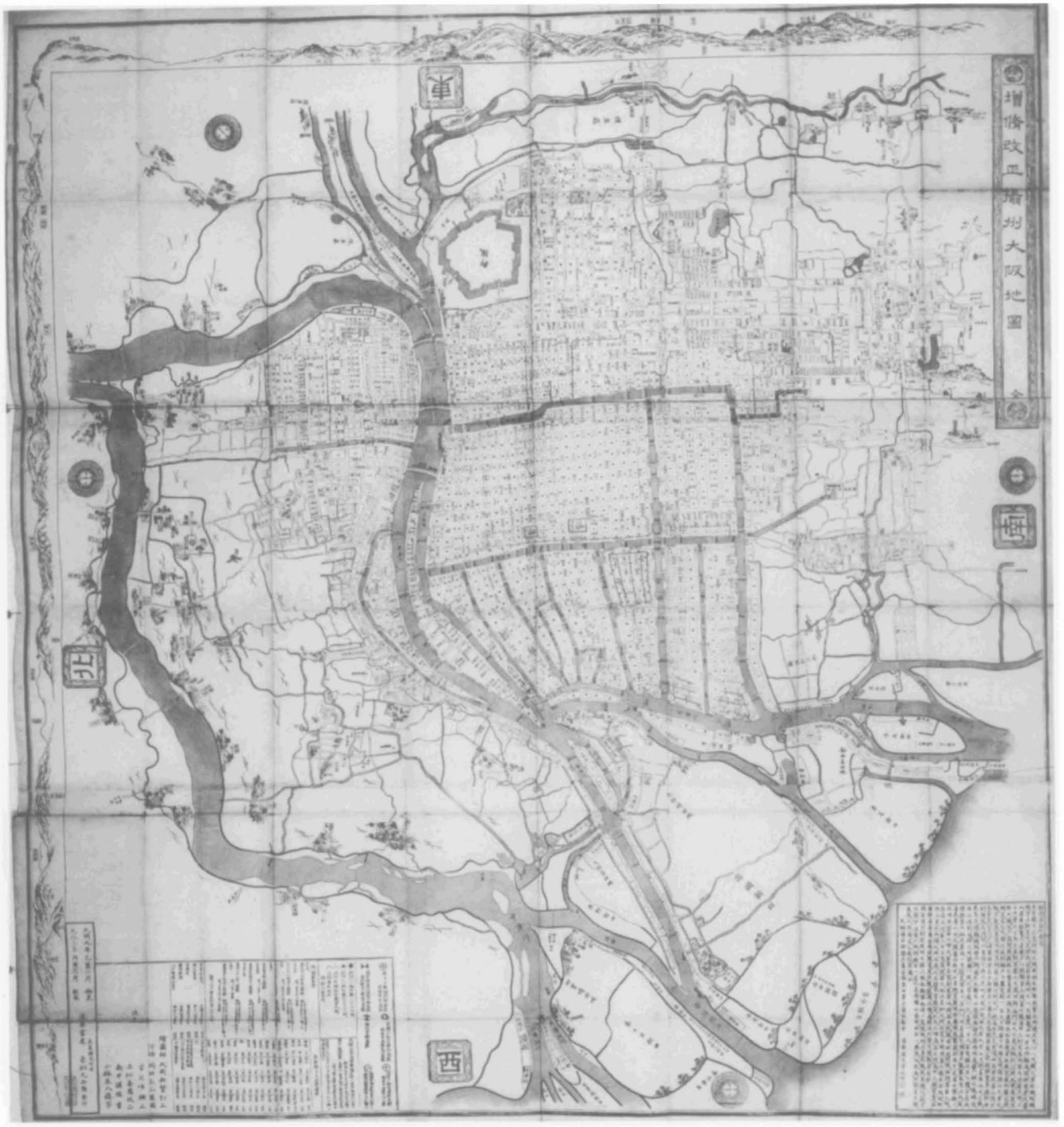


FIG. 11.49. *ZŌSHŪ KAISEI SESSHŪ ŌSAKA CHIZU* (ENLARGED AND REVISED PLAN OF ŌSAKA, SETTSU PROVINCE, 1806) BY ŌOKA SHŌKEN ET AL. With regard to accuracy in printed plans of Ōsaka, this is a milestone; revisions were published in 1844 and 1872. According to the preface by Sotani Ōsei, it was based on an unfinished plan by the cartographer Sawada Kazunori (1717–79).
Size of the original: 152 × 141 cm. Iwata Chinami Collection, Tokyo. Photograph courtesy of Kazutaka Unno.

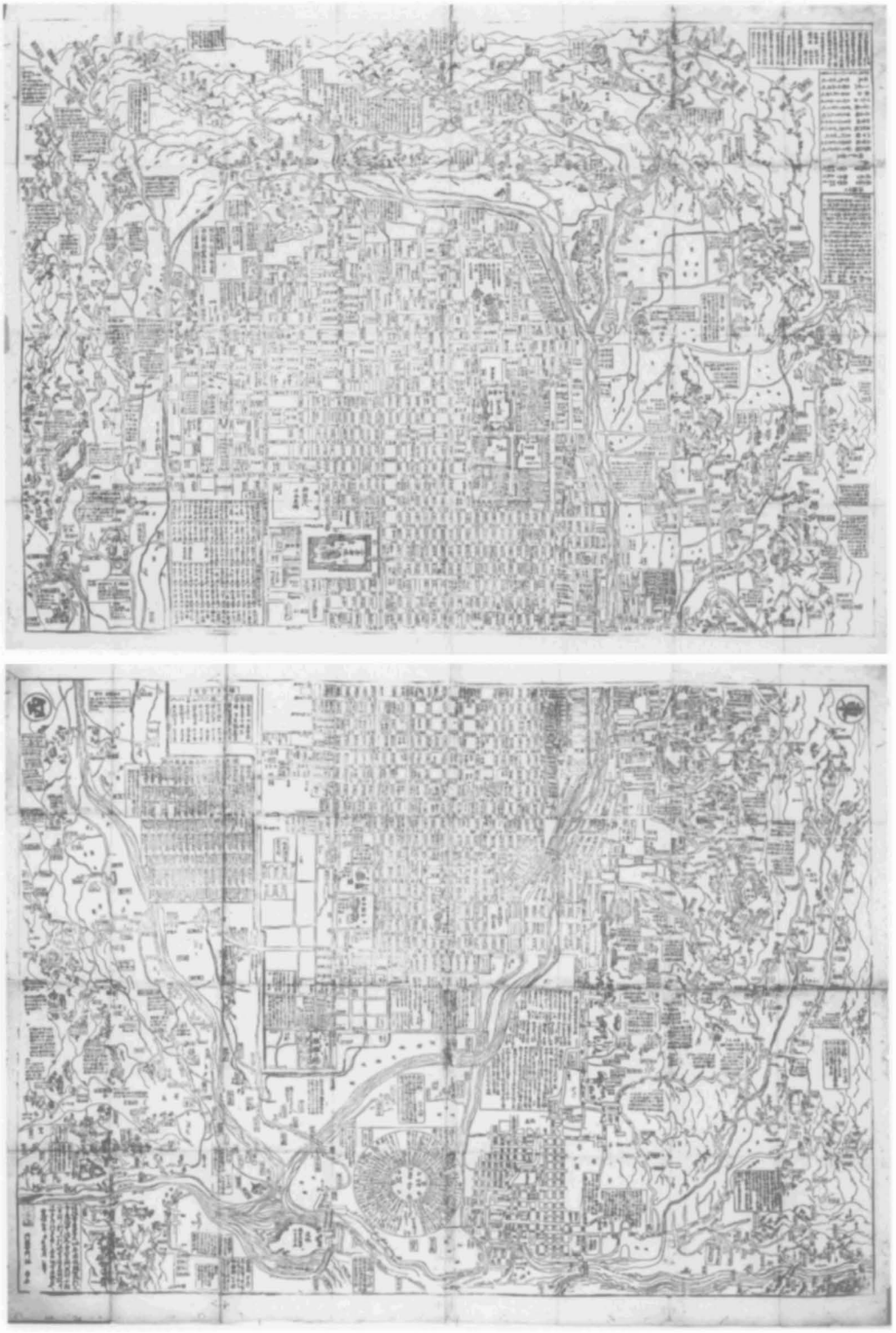


FIG. 11.50. *ZŌHO SAIHAN KYŌ ŌEZU* (LARGE PLAN OF KYŌTO, ENLARGED, SECOND EDITION, 1741), PUBLISHED BY HAYASHI YOSHINAGA. Compared with figure 11.47, the map of Kyōto seems less forceful and less artificial: shrines, temples, and notable places in the suburbs, for instance, have been added. The top sheet is northern Kyōto, the bottom southern, with Sanjō (Third Line [Street]) being the divider; the scale is eight *bu* (i.e., 2.4 cm) to one *chō* (109.09 m) or 1:4,500. Hayashi was a well-known map publisher in Kyōto in the seventeenth and eighteenth centuries.
Size of the originals: 87 × 121.5 cm (northern part), 86.5 × 120.5 cm (southern part). Iwata Chinami Collection, Tokyo. Photograph courtesy of Kazutaka Unno.

FIG. 11.51. *SHINPAN EDO ŌEZU* (NEWLY ISSUED PLAN OF EDO, 1671) BY OCHIKOCHI DŌIN. Modeled on a ca. 1658 plan of Edo (fig. 11.36), this is by far the most accurate printed plan of Edo, or rather the center of Edo. Four more sheets were published up until 1673 to show the surroundings of Edo, under the title *Shinpan Edo soto ezu* (Newly issued plan of the areas outside Edo). Ochikochi Dōin was the pseudonym of the surveyor Fujii Hanchi. One *bu* equals five *ken* (1:3,250).
Size of the original: 153.5 × 162.3 cm. Iwata Chinami Collection, Tokyo. Photograph courtesy of Kazutaka Unno.

lished throughout the Edo period (appendix 11.9).[276] These were not for administrative use but for ordinary citizens, and they emphasize notable places such as shrines, temples, and historical sites. Two of the oldest surviving examples are of Edo—the *Bushū Toshima gōri Edo no shō zu* (Plan of Edo, Toshima County, Musashi Province)—and Kyōto (fig. 11.47), thought to have been published, respectively, about 1632 and before 1641. The oldest extant plan of Ōsaka—the *Shinpan Settsu Ōsaka*

276. Town plans printed in the Edo period are described in detail in Kurita Mototsugu, "Nihon ni okeru kokan toshizu" (Old printed maps of cities in Japan), *Nagoya Daigaku Bungakubu Kenkyū Ronshū* 2 (1952): 1–13. For reproduced examples, see appendix 11.9 and Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pls. 60, 64, 65, 67, 68, 70, 73, 75, and 76 (note 11); Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 71–76, 78, 81, 83–86, 88, 90–92, 104–5, and 107–9 (note 8); Kurita, *Nihon kohan chizu shūsei*, pls. 41–70 (note 15); and Cortazzi, *Isles of Gold*, pp. 122, 126, pls. 50, 54, 56–58 (note 14). Despite such publications and reproductions, the study of

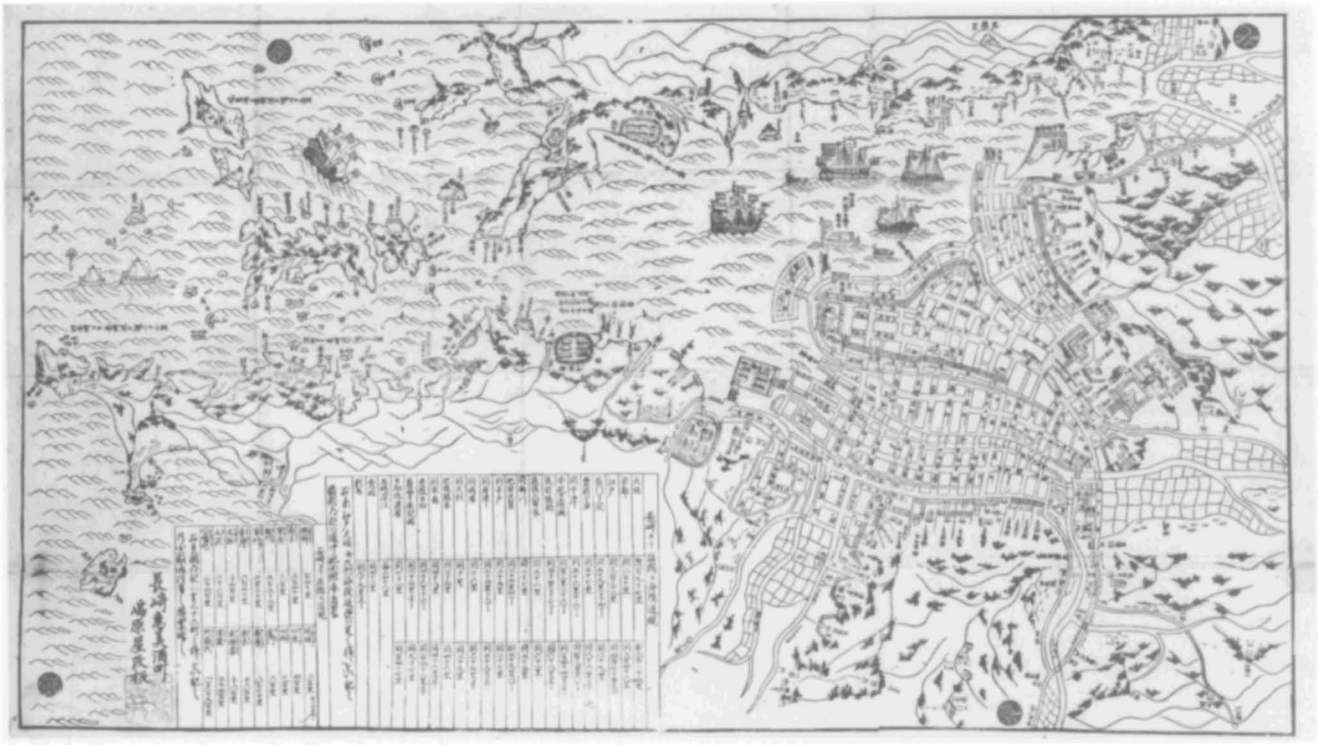


FIG. 11.52. *SHINPAN NAGASAKI ŌEZU* (NEWLY ISSUED PLAN OF NAGASAKI, CA. 1760) PUBLISHED BY SHIMABARAYA. Early printed plans of Nagasaki included Nagasaki peninsula, as does this one. Judging from the buildings and geographical features, the information may be dated to 1741–65.
Size of the original: 57 × 101.8 cm. By permission of the Kurita Kenji Collection, Nagoya.

tōzainanboku machi shima no zu (Newly issued plan of Ōsaka with the east-west and north-south streets and islands, Settsu Province)—dates from 1655 (fig. 11.48).[277] Plans of Kyōto were compiled in the same way as they had been in medieval times, merely depicting the simple grid pattern of the city. Those of Ōsaka (for example, fig. 11.49) and Edo, however, are presumed to have been compiled from ground surveys, albeit not to a high standard of accuracy. On the plans of Kyōto (for example, fig. 11.50) and Ōsaka, which had been issued by several publishers in Kyōto, the residential blocks were printed in black until about 1687, but thereafter they were left blank as on the plans of Edo (fig. 11.51). In terms of the number of plans published, Nagasaki ranks fourth after Edo, Kyōto, and Ōsaka. Its oldest city plan known to survive—the *Nagasaki ōezu* (Large plan of Nagasaki)—dates to approximately 1681. Plans published before the 1760s tended to cover the area of Nagasaki Bay (fig. 11.52); thereafter, plans focused on the port and its interior became more popular, such as the *Hishū Nagasaki no zu* (Plan of Nagasaki, Hizen Province).[278]

Other than these four cities, plans until the end of the Edo period concentrated on towns with famous shrines, temples, historical sites, and scenic spots. Examples include plans of Nara in 1666 and Kamakura about 1670, respectively the *Washū Nanto no zu* (Plan of the southern metropolis [Nara], Yamato Province) and the *Sōshū Kamakura no moto ezu* (Standard plan of Kamakura, Sagami Province).[279] Toward the end of the Edo period, the process of opening Japan to the world led to plans' being composed of the treaty ports of Shimoda, Hakodate, and Yokohama. Plans of the port of Shimoda and

town plans is incomplete. We still do not know, for example, exactly how many plans were published.

277. The plans of Edo and Ōsaka are listed in appendix 11.9; the plan of Kyōto (116.6 × 54 cm) is owned by Ōtsuka Takashi of Kyōto and was owned previously by Moriya Yoshitaka. The plans of Edo and Kyōto are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 72 and 80 (note 8). For the early printed plans of Edo, see Nagasawa Kikuya, "Edo no hanzu ni tsuite" (On the printed plans of Edo), *Shoshigaku*, n.s., 2 (1965): 31–51; Iida and Tawara, *Edozu no rekishi* (note 225); and Iwata Toyoki, *Edozu sōmokuroku* (General catalog of plans of Edo) (Tokyo: Seishōdō Shoten, 1980). For the early printed plans of Kyōto, see Fujita Motoharu, *Toshi kenkyū Heiankyō hensenshi, tsuketari kochizu shū* (History of the Kyōto region, accompanied by collected old plans) (Kyōto: Suzukake Shuppanbu, 1930; reprinted Nihon Shiryō Kankōkai, 1976), and Ōtsuka Takashi, *Kyōtozu sōmokuroku* (General catalog of plans of Kyōto) (Tokyo: Seishōdō Shoten, 1981).

278. For details see appendix 11.9.

279. On the first, see appendix 11.9; the second measures 70.9 by 103.3 centimeters. See Kurita, "Nihon ni okeru kokan toshizu" (note 276).

Hakodate Bay, for instance, were published in 1855; these are the *Zushū Shimoda minato no zu* (Chart of Shimoda harbor, Izu Province) by Shizunoya and the *Hakodate zenzu* (General chart of Hakodate) published by Shunjudō.[280] Those of Yokohama began to be published in 1859, two examples being the *Tōkaidō Kanagawa onbōeki ba* (Map of the Kanagawa trading port, Tōkai road) and Takashima Hōdō's *Yokohama meisaizu* (Detailed plan of Yokohama).[281] Plans of the capitals of feudal domains were also being printed late in the Edo period; they were used mainly for visiting temples and shrines and for tourism. Examples include plans of Okazaki in about 1840, Sunpu (Shizuoka) in 1842 and 1868, Kōfu in 1849, Hiroshima in 1865, and two undated mid-century plans of Kanazawa.[282] In all, printed plans of over thirty-one cities and towns, including pleasure and hot-spring resorts, were made during the Edo period.

FIG. 11.53. *TŌKAIDŌ MICHIYUKI NO ZU*, CA. 1654. Oblivious to direction, the road winds its way between Kyōto at the top and Edo at the bottom right. The names of the daimyos mentioned on the map date it to 1652–54. It is the oldest known extant Japanese printed itinerary map of Japan.
Size of the original: 130.7 × 57.7 cm. Photograph courtesy of Nakao Shōsendō, Ōsaka.

Itineraries

The history of pictorial itineraries can be traced back to at least the seventeenth century. The oldest surviving printed itinerary map is the *Tōkaidō michiyuki no zu* (Itinerary map of the Tōkai road; fig. 11.53), thought to be published in 1654, a date derived from the common date (1652–54) of service for the feudal lords mentioned on the map.[283] The road curves freely without regard to

280. The chart of Shimoda (74.5 × 51.5 cm) is reproduced in color in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 75 (note 11), and Kurita, *Nihon kohan chizu shūsei*, pl. 60 (note 15). The chart of Hakodate measures 72.7 by 77.3 centimeters. Shizunoya is the specialist in Dutch studies Ōtsuka Hachirō (1795–1855).

281. The former (23.5 × 60 cm) is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 69 (note 8), and the latter (36.9 × 46.3 cm and 15.6 × 21.8 cm) in Kurita, *Nihon kohan chizu shūsei*, pl. 62 (note 15).

282. These are *Taihei Okazaki ezu* (Plan of Okazaki at peace), published by Okadaya Ichibee in Edo and Hon'ya Bunkichi in Okazaki (43.4 × 84 cm); *Sunpu hitori annai* (Guide to Sunpu for visiting alone), published by Nishinoya in Sunpu (now Shizuoka) (33.3 × 48 cm); *Sunpu meishō ichiran zu* (Visualized map of the scenic spots of Sunpu) (68.9 × 92.4 cm); *Kaihō Kōfu ezu* (Portable plan of Kōfu), published by Murataya Kōtarō in Kōfu (51.9 × 54.8 cm); *Hiroshima machimachi michishirube* (Guide to the towns of Hiroshima) (28.8 × 45.7 cm); untitled plan of Kanazawa (34.5 × 41.5 cm); and untitled plan of Kanazawa (70.9 × 97.4 cm). Reproductions are in Kurita, *Nihon kohan chizu shūsei* (note 15): the *Sunpu meishō ichiran zu* (pl. 59); the maps of Kōfu (pl. 59) and Hiroshima (pl. 67); and both maps of Kanazawa (pls. 65 and 66). See also Kurita, "Nihon ni okeru kokan toshizu," 11–12 (note 276). The *Sunpu meishō ichiran zu* and the smaller map of Kanazawa are in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pls. 73 and 70 (note 11).

283. Copies are in the possession of Nakao Shōsendō (fig 11.53) and the Kikkawa family in Iwakuni, Yamaguchi Prefecture. The second edition, with slipshod pictures and explanations, is kept at the Kōbe City Museum, reproduced in *Kōbe Shiritsu Hakubutsukan kanzō meihin zuroku* (Masterpieces of the Kōbe City Museum) (Kōbe: Kōbe Shi Supōtsu Kyōiko Kosha, 1985), fig. 17 (131 × 58 cm), and at the Beans Collection of the University of British Columbia Library, reproduced in Beans, *Japanese Maps of the Tokugawa Era*, facing p. 14 (131 × 59 cm) (note 22). See Unno Kazutaka, "Mukanki Tōkaidō michiyuki

FIG. 11.54. EXTRACTS FROM THE *TŌZAI KAIRIKU NO ZU* PUBLISHED BY NISHIDA KATSUBEE IN 1672. The top part includes Kyōto, Ōsaka, and Awaji Island, the bottom showing the western extremity of the map and including Nagasaki. Source material evidently included the *Kisoji Nakasendō Tōkaidō ezu* (fig. 11.38) and the *Saigokusuji kairiku ezu*, both manuscripts commissioned by the shogunate.
Size of the original: 33.7 × 1,530 cm. By permission of the Mitsui Library, Tokyo.

measured distance and direction, although the map does contain post towns and indicates the distance between them. Rich ornamentation is characteristic of this version, but pocket-sized editions of 1666 and 1667 were published with the more utilitarian geographic needs of travelers in mind.[284] Accuracy was again not a major concern of the mapmaker, but decorative features symbolic of the journeys were included as well as practical information such as lists of fares for travelers using horses.

The first itinerary map for travelers thought to be based on official sources was the *Tōzai kairiku no zu* (Map of the east-west sea and land routes) of 1672 (fig. 11.54).[285] It was published in Kyōto by Nishida Katsubee and was modeled on the official manuscript maps *Kisoji Nakasendō Tōkaidō ezu* (Map of the Kiso/Nakasen road and the Tōkai road) and *Saigokusuji kairiku ezu* (Map of the sea and land routes in the western regions). It would have been beyond the resources of private publishers to compile maps of such large areas of the country, so there are grounds for believing that these maps were produced under the auspices of the Tokugawa authorities. In 1690 Ochikochi Dōin (fl. 1670–96) published his *Tōkaidō bungen ezu* (Surveyed route map of the Tōkai road), on which were entered compass bearings in squares to assist in reading accurate directions (fig. 11.55).[286] The map was based on the results of the survey undertaken by Hōjō Ujinaga on behalf of the shogunate. Ochikochi himself

no zu no ihan" (Two undated editions of the *Tōkaido michiyuki no zu*, an itinerary map of the Tōkai road), *Gekkan Kochizu Kenkyū* 22, no. 6 (1991): 2–5.

284. The 1666 map, published by Fushimiya in Kyōto, measures 56 by 41 centimeters and is preserved in the Österreichische Nationalbibliothek, Vienna. It is mentioned and reproduced in Kawamura Hirotada, "Ōsutoria Kokuritsu Toshokan shūzō no Edo jidai Nihonsei chizu" (On the maps made by Japanese in the Edo period, owned by the Austrian National Library), *Gekkan Kochizu Kenkyū* 18, no. 7 (1987): 2–6. The 1667 map, published in Kyōto by Shijō Nakamachi (56.5 × 40 cm), is found in the Beans Collection at the University of British Columbia Library; it is reproduced in Unno, "Hokubei ni okeru Edo jidai chizu no shūshū jōkyō," fig. 6 (note 22). The woodblock for the 1667 map was probably the same as that for the 1666 map.

285. Two copies are known, one at the National Diet Library (35.5 × 1560 cm) and the other at the Mitsui Library, both in Tokyo (fig. 11.54). For a part of the first, see *Nihon no chizu: Kansen chizu no hattatsu*, fig. 22 (note 13); parts of the second are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 117 (note 8). The *Tōzai kairiku zu* (Map of the east-west sea and land routes), reproduced in Kurita, *Nihon kohan chizu shūsei*, pl. 71 (note 15), is another version.

286. Ochikochi Dōin is the pseudonym of the surveyor Fujii Hanchi (or Hisane); he is discussed in detail in Fukai Jinzō, *Zuō Ochikochi Dōin* (Zuō's [Fujii's] Ochikochi Dōin) (Toyama: Katsura Shobō, 1990). Parts of the map are reproduced in Kurita, *Nihon kohan chizu shūsei*, pl. 72 (note 15); Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 36 (note 11); and Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 118 (note 8). For reproductions of the entire map see *Tōkaidō meisho no ki; Tōkaidō bungen ezu* (Description of the famous places on Tōkai road; Surveyed route map of the Tōkai road), Nihon koten zenshū (Comprehensive collection of Japanese classical works), 4th ser. (Tokyo: Nihon Koten Zenshū Kankōkai, 1931);

FIG. 11.55. EXTRACT FROM THE *TŌKAIDŌ BUNGEN EZU* BY OCHIKOCHI DŌIN, 1690. The vicinity of the post towns of Hara and Yoshiwara lying to the south of Mount Fuji are shown. Ochikochi, a surveyor, edited the map from a previous route map of the Tōkai road completed after a government survey in 1651, and the scenes and people were painted by the artist Hishikawa Moronobu (1618–94). This map includes a scale of three *bu* to one *chō* (1:12,000) and square signs at each place to show directions. This is the first issue of the first edition giving fares between stations next to each post town.
Size of the original folding book: 26.7 × 14.9 cm (total length: 3,610 cm). By permission of the Tokyo National Museum, Tokyo.

participated in this survey, which was to result in a map divided into five folding books, drawn on rectangular paper 28 by 3,610 centimeters, and at the scale of three *bu* to one *chō* (1:12,000). Accuracy alone, however, was not sufficient to make the map marketable: it was therefore illustrated with pictures of travelers and scenes along the roads by Hishikawa Moronobu (1618–94), an *ukiyoe* artist who was the master of Ishikawa Ryūsen.[287] The map went through several editions. One was a pocket edition revised by Sōyō in 1752 under the same title and published as a folding book that was handy to carry.[288]

Pocket-sized itinerary maps depicting the roads and sea routes of all Japan came to be published in large numbers from the first half of the eighteenth century onward, and they were very popular. Five main categories, all drawn on rectangular sheets, were produced during the Edo period: picture scrolls, mandalas, labyrinths, diagrams with straight parallel lines, and "conformal" maps to minimize distortion.

The picture scrolls, such as Nishida's *Tōzai kairiku no zu* and Ochikochi's *Tōkaidō bungen ezu*, were originally large maps for ornamental use. Later, miniaturized versions, including the 1752 pocket edition of Ochikochi's work and the *Kisoji anken ezu* (Simple map of the Kiso road) of 1756 edited by Sōyō (11 × 16 cm), served as handy itinerary maps. Many of these works are in the form of rectangular bound books with the routes laid out horizontally and with illustrative views along both sides of the routes.

Itinerary maps from the mandala[289] category showed the routes as curved lines and included roadside scenes as if they were viewed from above. Not many maps of this type were produced. They were, in fact, more like pictures than maps and were designed mainly for ornamental use. Examples include the *Tōkaidō michiyuki no zu* of about 1654 (fig. 11.53 above); two works by Katsushika Hokusai, *Tōkaidō meisho ichiran* (Panoramic view of famous places on the Tōkai road) of 1818 (43 × 58 cm) and *Kisoji meisho ichiran* (Panoramic view of famous places on the Kiso road) of 1819 (42 × 56 cm); and the *Shinkoku kaisei Tōkaidō saiken ōezu* (Detailed large map of the Tōkai road, newly revised) (70 × 142 cm), edited by Shōtei Kinsui (Nakamura Yasusada, 1797–1862) and illustrated by the painter Kuwagata Shōi in the middle of the nineteenth century.[290]

Kohan Edozu shūsei (Collection of early printed plans of Edo), Bekkan (supplement, separate volume) (Tokyo: Chūō Kōron Bijutsu Shuppan, 1960); and the *Kohan chishi sōsho* (Series of early printed geographical descriptions), vol. 12 (Tokyo: Geirinsha, 1971). The *Tōkaidō bungen ezu* is a five-volume folding book, and it is reproduced in these modern editions by relief printing. Ochikochi and the *Tōkaidō bungen ezu* are compared with John Ogilby's *Britannia* (1675) in Koji Hasegawa, "Road Atlases in Early Modern Japan and Britain," in *Geographical Studies and Japan*, ed. John Sargent and Richard Wiltshire (Folkestone, Eng.: Japan Library, 1993), 15–24.

287. Hishikawa is noted as the "true founder of the *ukiyo-e* school . . . who brought about the change from painting to woodcut printing"; see Munsterberg, *Arts of Japan*, 154 (note 79). For an introduction to the Hishikawa school, see Munsterberg, *Japanese Print*, 16–22 (note 258).

288. It measured 15.8 by 9.2 centimeters folded (total length was 1,220 cm) and was published by Yorozuya Seibee in Edo. Part of the map is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 72 (note 8). The personal history of the reviser Sōyō is not known.

289. Since medieval times in Japan the term has been used for the precincts of shrines and temples. The term is applied to itinerary maps that resemble landscape drawings, similar to those of the medieval period mentioned previously, pp. 364–66.

290. The *Tōkaidō meisho ichiran* is reproduced in Cortazzi, *Isles of*

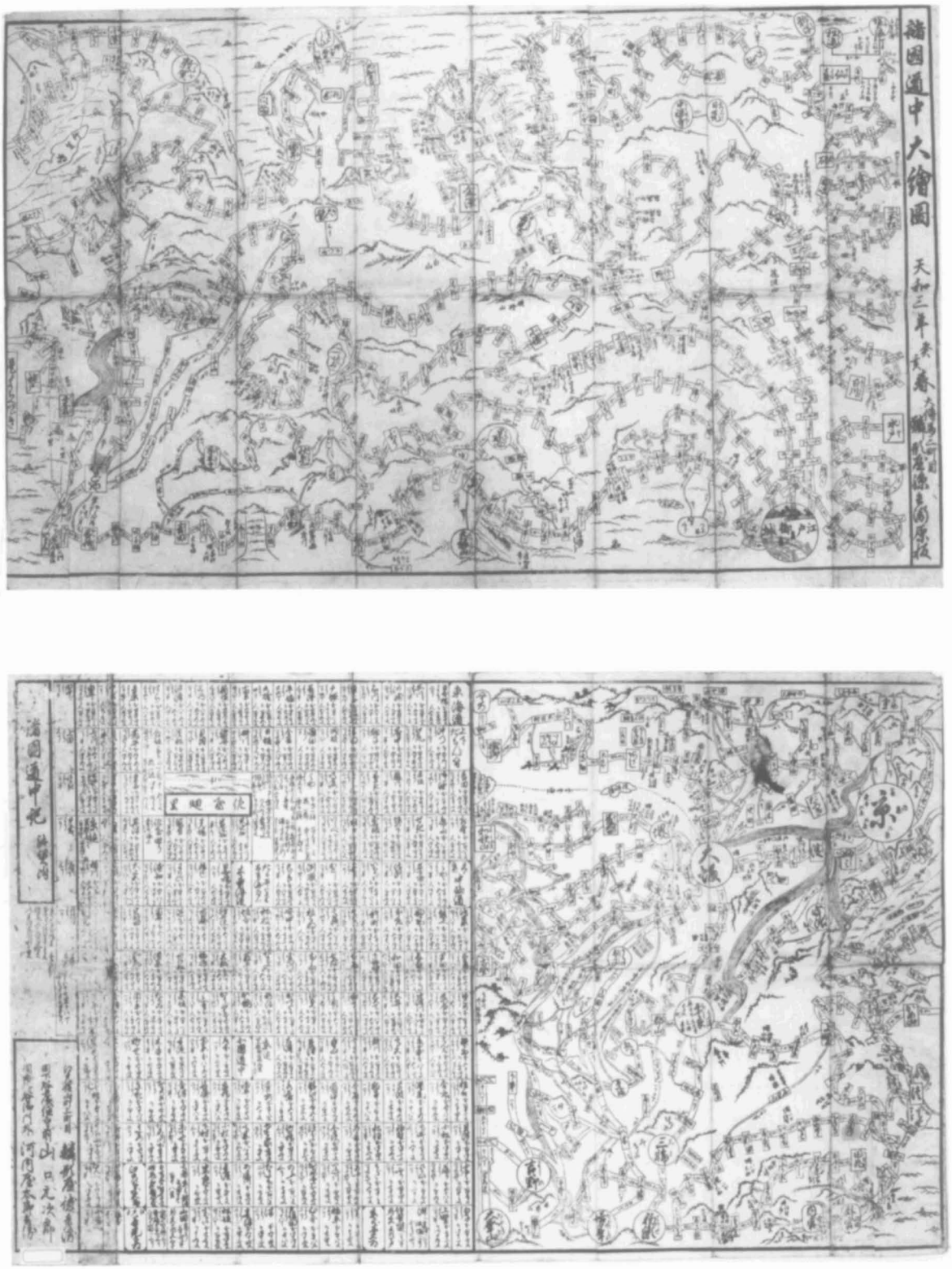


FIG. 11.56. AN EXAMPLE OF A LABYRINTH ITINERARY MAP, *SHOKOKU DŌCHŪ ŌEZU*. Originally published in 1683 by Urokogataya Magobee, the map shows the main roads and post stations in Honshū with no attention paid to distance and direction. Edo is represented by the circle in the lower right corner of the upper map, Kyōto by the circle in the upper right of the lower map. The left half of the lower map contains a table of fares between stations. They are printed on both sides of a single sheet.
Size of the original: 38.3 × 63 cm. By permission of the Kōbe City Museum, Kōbe, Nanba Collection.

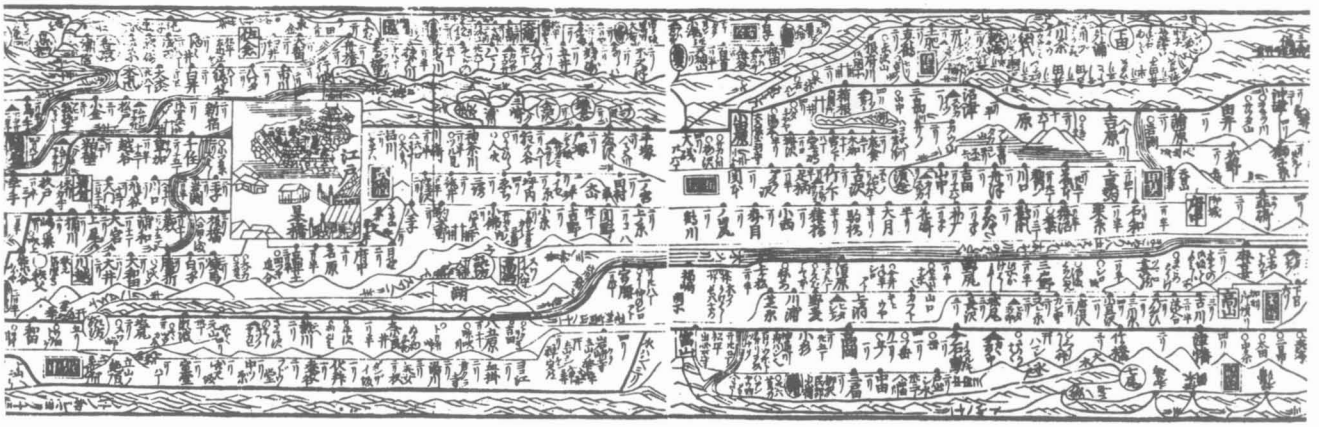


FIG. 11.57. AN EXAMPLE OF A DIAGRAMMATIC ITINERARY MAP, SHOWING THE PART CENTERED ON EDO IN KOKURYŪSAI'S *DAIZŌHO NIHON DŌCHŪ KŌTEI KI*, 1744. South is at the top: the large square toward the left is Edo, the upper part of the map is the Pacific Ocean, and the lower part is the Sea of Japan. Roads are shown by parallel straight lines.
Size of the original folding book: 16.5 × 7.3 cm (total length, 505 cm). Collection of Kazutaka Unno.

Disregarding distance, direction, and the shape of the land, "labyrinth" itinerary maps—often printed on both sides of the paper—were characterized by the scattering of roads and post towns throughout the map. As on the mandala maps, the roads were shown as curving lines. The main difference was that they were of greater practical than ornamental value. They include figure 11.56, the *Shokoku dōchū ōezu* (Large itinerary map of all the provinces) of 1683 and the *Dōchū hitori annai zu* (Map for traveling alone) of 1788 (29.9 × 77 cm; also printed on both sides).[291]

The diagrammatic maps with parallel lines include the *Kairiku Nihon dōchū hitori annai* (Guide to the sea and land routes of Japan for traveling alone) of 1722 (14.5 × 380 cm) and the *Daizōho Nihon dōchū kōtei ki* (Widely enlarged itinerary of Japan) of 1744 (fig. 11.57).[292] If it was shown at all, the shape of the land was distorted dramatically on such maps by generalizing routes and coastlines to straight parallel lines.

Finally, on maps of the conformal category ("conformal" is not used here in the sense of a map projection) there was an attempt to minimize distortion. Two examples are the *Dainihon dōchū hayabiki saiken zu* (Detailed and quickly discernible itinerary map of Great Japan) of 1830 (37.5 × 120 cm) by Akisato Ritō and the *Dainihon hayakuri dōchū ki* (Quickly discernible itinerary of Great Japan) of 1844 (39.5 × 91.5 cm; printed on both sides).[293] These versions were published late in the Edo period and were folded several times to make a portable book.

Not all of the itineraries can be categorized in these five groups. One style, known as *sugoroku* and so named after a Japanese dice game similar to backgammon, was a hybrid between the travel guidebook and a list of post towns. Examples include the *Tenmei kaisei shokoku dōchū ki taisei* (Complete itinerary of every province revised in the Tenmei era [1781–88]) of about 1785 and the *Toshidama ryōmen dōchū ki* (Itinerary printed on both sides, a New Year's gift) (fig. 11.58) dating from the mid-eighteenth century.[294] Another minor genre combined the picture scroll and diagrammatic categories; an example is the *Dainihon kairiku shokoku dōchū zukan* (Itinerary map of the sea and land routes of Great Japan) of 1864.[295]

Maps of the World and of China

As we have seen with the maps derived from Matteo Ricci, the Japanese map trade also issued a variety of printed editions of world maps during this period of popularization.[296] Until the publication of Nagakubo's

Gold, pl. 59 (note 14), and the last two are in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pls. 37 and 38 (note 11).

291. The latter was published by Kikuya Kihee, Kyōto.

292. Both were folding books published in Ōsaka; the first by Kemaya Hachirōemon and the second (edited by Kokuryūsai) by Torikai Ichibee.

293. The 1830 map is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 121 (note 8); the 1844 map was published by Akitaya Taemon at Ōsaka and five other publishers. On the cover of the 1830 map is another title: *Nihon kairiku hayabiki dōchū ki* (Quickly discernible itinerary of the sea and land routes of Japan); a folio edition was also made because even when folded up and doubled over to form a book, the map was still too long to be practical.

294. Both are printed on both sides; the former measures 30.4 by 39.3 centimeters.

295. A bound book (8.5 × 18 cm), published by Sakaiya Naoshichi and eight others.

296. World maps from the period of isolation (1639–1854) are described in Ayusawa, "Types of World Map," 123–27 (with Ramming's comments on 128) (note 235), and Ayusawa Shintarō, "Sekai chiri no bu" (Section of world geography), in *Sakoku jidai Nihonjin*

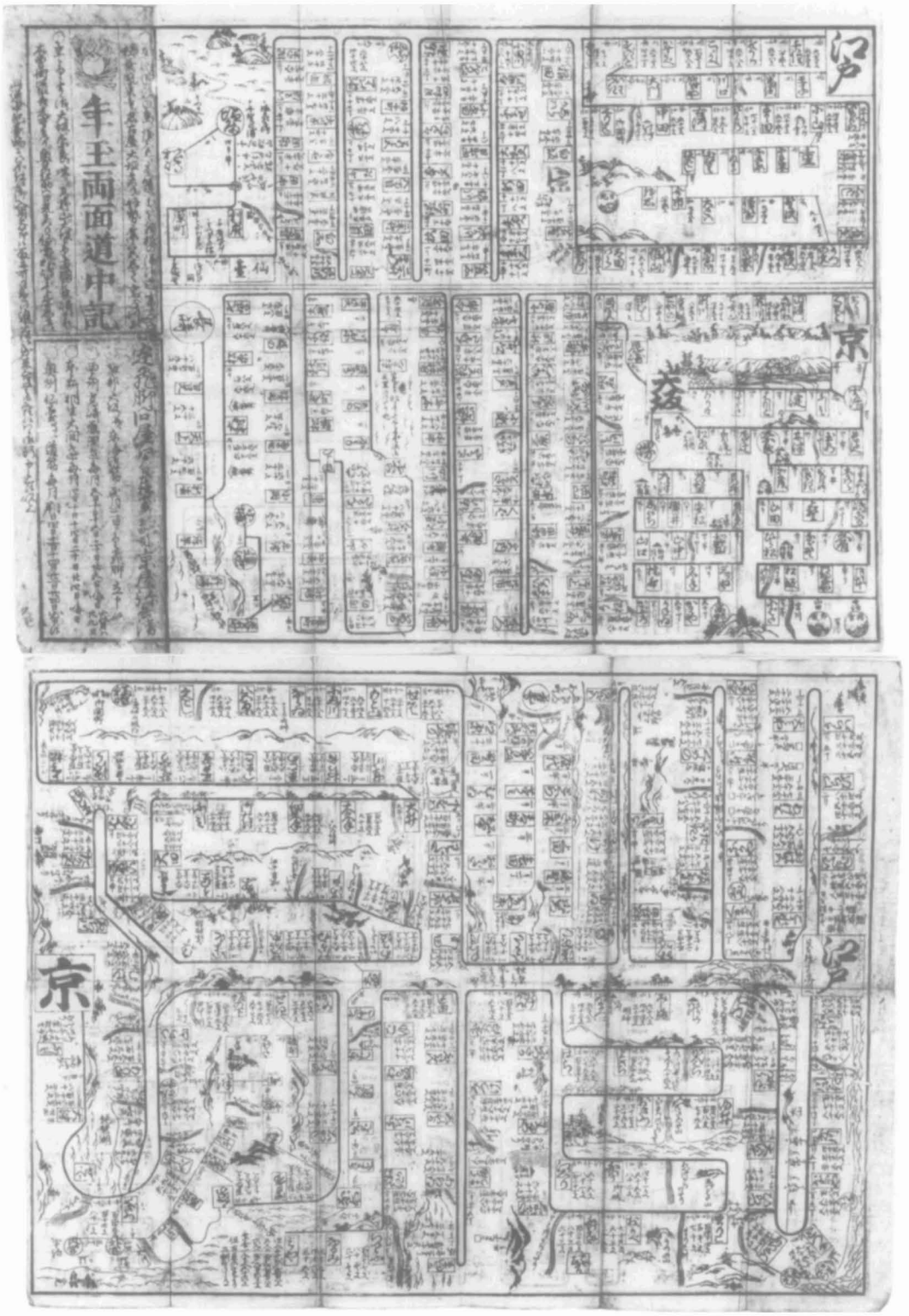


FIG. 11.58. AN EXAMPLE OF AN ITINERARY MAP OF THE *SUGOROKU* VARIETY: *TOSHIDAMA RYŌMEN DŌCHŪ KI*. This variety differs from the labyrinth maps in that the starting and finishing points of each road are clearly indicated, and the roads themselves are straight lines with curves for continuation. *Sugoroku* is a game played with dice in which the object is to move from a starting point to a finishing point, thus the association with maps that could be used for travel. This map was published by Kyōya Yahee in the mid-eighteenth century.
Size of the original: 30 × 39.5 cm. Collection of Kazutaka Unno.

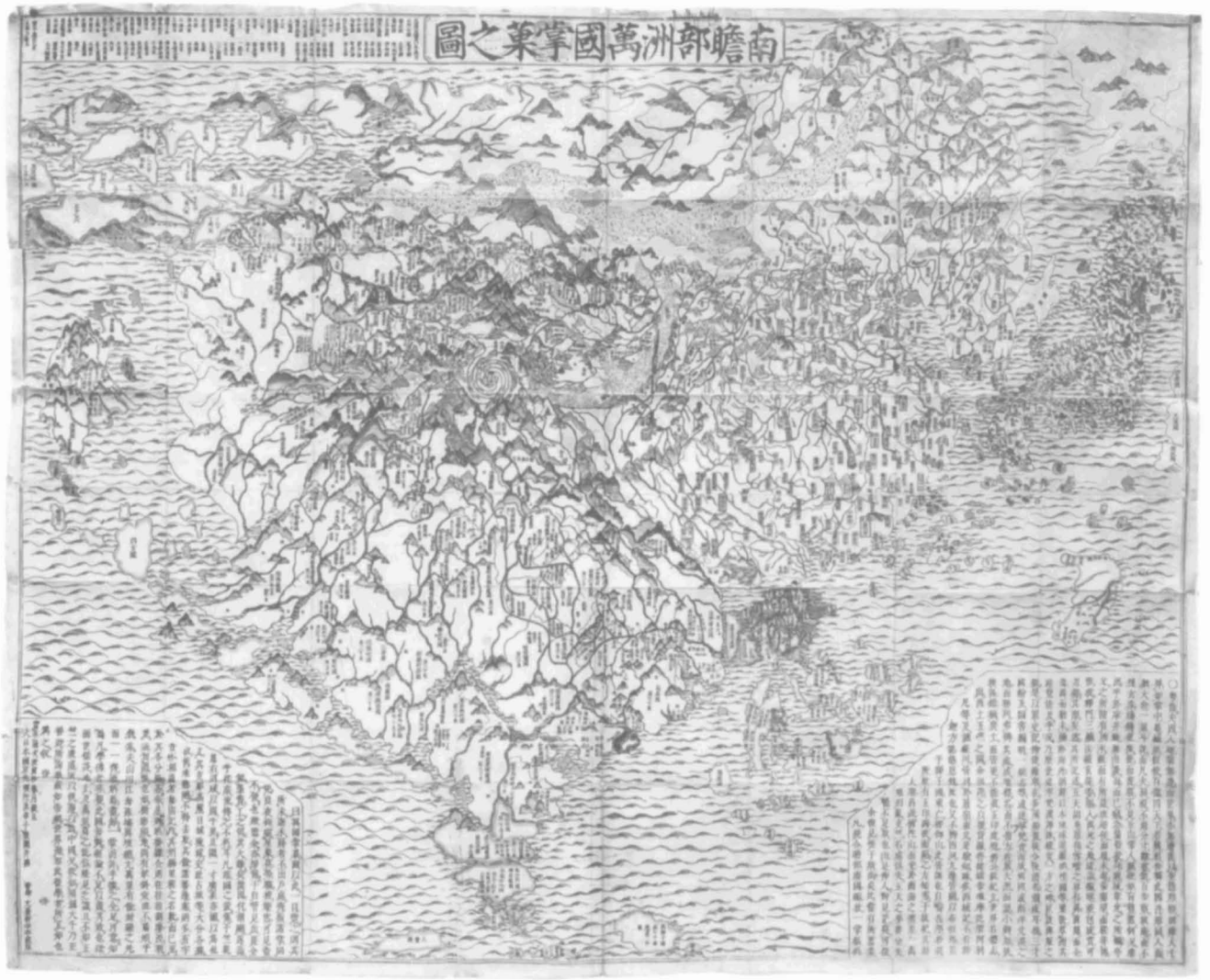


FIG. 11.59. *NANSENBUSHŪ BANKOKU SHŌKA NO ZU* BY RŌKASHI, 1710. Modeled directly on the ca. 1709 map of Jambūdvīpa at the Kōbe City Museum (plate 29), this is the first Buddhist world map printed with European geographical knowledge. In the upper left corner Europe is described as a group of islands, and in the ocean south of Japan is South America as an island. Changes from the ca. 1709 original include the omission of part of the continental outline and some unrealistic islands.
Size of the original: 113.5 × 144 cm. Geographical Institute, Faculty of Letters, Kyōto University. Photograph courtesy of Kazutaka Unno.

Chikyū bankoku sankai yochi zenzusetsu about 1788, the mainstream of printed world maps had been based on the *Bankoku sōzu* type (above). They tended to be published as illustrations in books and were probably related to an interest in the geography of the world. This interest was, however, probably superficial: the distortion was often great, and the intention was more often to arouse a sense of exoticism than to disseminate correct geographical information.

Nagakubo's map gained in popularity early in the nineteenth century, when many copies appeared on the market. Although these were small and simplified versions, often lacking the cartographer's name and date of publication, we are able to trace the models employed. These were Den Ken's *Shinsei bankoku yochi zenzu* (Newly made map of all the countries in the world, 1844) and Yamazaki Yoshinari's (1796–1856) *Chikyū bankoku sankai yochi zenzusetsu* (Map with an account of all the countries, lands, and seas in the world, 1850).[297]

no kaigai chishiki (Japanese knowledge of overseas during the age of national isolation), ed. Kaikoku Hyakunen Kinen Bunka Jigyō Kai (Society of Cultural Projects to Commemorate the One Hundredth Anniversary of the Opening of the Country) (Tokyo: Kengensha, 1953), 3–367.

297. See note 256 for information on Den Ken's and Yamazaki's maps.

The world maps based on the *Bankoku sōzu* and the Nagakubo map were influenced by European cartography, but popular Buddhist world maps continued to be published throughout the Edo period.[298] The reason for their success rests not in religious conviction or in a belief that the Buddhist image of the world was correct, but in their traditional image of Asia and in the place-names, especially in the interior of China and India, that were missing from the maps derived from European models. Some priests, nonetheless, tried to combine the conventional Buddhist image of the world with information from European geographical knowledge. A notable attempt was made by Sōkaku (1639–1720), the head priest at Kushuon'in Temple in Hirakata, Ōsaka Prefecture. Among his surviving works are probably a manuscript version of the Tō Temple map titled *Gotenjikukoku no zu* (Map of the countries of the Five Indias, ca. 1692), the manuscript *Daimin sei zu* (Map of the provinces of Ming China, 1691), and a Buddhist terrestrial globe of his own invention dating to about 1703.[299] On the evidence of the outlines and place-names on the globe, two anonymous and untitled manuscript maps of Jambūdvīpa were attributed to Sōkaku; they are not dated, but they appear to have been made about 1698 and 1709. On the first, in the collection of Muroga Emiko, the northern part of Jambūdvīpa (shaped like a radish) is left blank, and Europe is not shown. The second, at the Kōbe City Museum, shows a complete Jambūdvīpa in the shape of a fan and has Europe in the northwest (plate 29).[300] Sōkaku's image of the world was later improved by incorporating elements from the more realistic *Nansenbushū bankoku shōka no zu* (Visualized map of all the countries in Jambūdvīpa; fig. 11.59), published in 1710 by the priest Rōkashi (Hōtan, 1654–1738).[301] With demand for it enhanced by its inclusion of traditional Asian place-names, it was reprinted in the same year and frequently republished with the same date until about 1815.[302] A miniaturized version was published by Kabō Hyōzō in 1744;[303] there were several copies of this map, and new editions were published without dates late into the Edo period.[304]

China was also the subject of popular printed maps in the Edo period. Here we can trace the links with the older practice of making maps of Japan's cultural neighbors, Korea and China. In the early Edo period the maps of China were reproductions of those made in China. From the middle of the eighteenth century, however, they were edited in Japan and published either as sheet maps or as illustrations in books (fig. 11.60). The first map of China printed in Japan based on a European model appeared in the latter half of the nineteenth century.[305]

298. The development of Buddhist maps of the world in the Edo period is treated in Muroga and Unno, "Buddhist World Map," 58–68 (note 110); Muroga Nobuo and Unno Kazutaka, "Nihon ni okonowareta Bukkyō kei sekaizu ni tsuite" (On Buddhist world maps in Japan), *Chirigakushi Kenkyū* 1 (1957): 67–141, reprinted in *Chirigakushi kenkyū*, 1:67–141 (note 250); and Muroga and Unno, "Edo jidai kōki ni okeru Bukkyō kei sekaizu," 135–229 (note 250).

299. Respectively 168 by 172 centimeters, 382 by 181.5 centimeters, and 381 by 179 centimeters (two sheets), and 20 centimeters in diameter. All are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pls. 2, 21, and 5 (note 8).

300. On the Muroga map (138.5 × 154.5 cm), see Unno, "Sōkaku no chikyūgi to sono sekaizō" (note 184). For reproductions of both, see Muroga and Unno, "Buddhist World Map," figs. 6–7 (note 110); and Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pls. 3–4 (note 8).

301. Two editions of Rōkashi's map were published in 1710, both in Kyōto, by Bundaiken Uhei and Nagata Chōbee. The woodcut map published by Bundaiken is reproduced and discussed, for example, in Ayusawa, "Types of World Map," 124, 128 (Ramming's comments), and fig. 2 (121 × 144 cm) (note 235); in Muroga and Unno, "Buddhist World Map," 62–63 and fig. 9 (note 110); in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 8 (note 11); in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 6 (note 8) (fig. 11.59); and in Cortazzi, *Isles of Gold*, pl. 48 (note 14) (118 × 145.2 cm, at the Kōbe City Museum). A reproduction of an early nineteenth-century manuscript (127.5 × 152.2 cm) at the Kōbe City Museum, Nanba Collection, modeled on Rōkashi's map, is in Muroga and Unno, "Buddhist World Map," 64–65 and fig. 11, and Cortazzi, *Isles of Gold*, 38 and pl. 49.

302. A book published by Nagata Chōbee carries an advertisement that mentions the map: see Tōkōji Sōryō, *Sessō yawa* (Night talk beside a window commanding a view of snow) (Kyōto, 1815) (a list of publications that were finally bound and for which Nagata held the copyright). Nagata also dealt with the first edition of the map, and the advertisement gives "Hōtan" as the author, meaning that Rōkashi and Hōtan are the same person. I doubted this in my "Sōkaku no chikyūgi to sono sekaizō" (note 184), and the view there should be corrected according to this evidence. The map published by Nagata is reproduced in Beans, *Japanese Maps of the Tokugawa Era*, facing p. 21 (note 22).

303. See notes 251 and 252 above.

304. Examples are the *Nan'enbudai shokoku shūran no zu* (Outline map of the countries of Jambūdvīpa) by Kabō Hyōzō, published by Mikuniya Ryūsuke in the early nineteenth century in Edo (56.5 × 86 cm), and the *Bankoku shūran zu* (cover title) or *Bankoku shōka no zu* (map title) (Visualized map of all the countries; 47 × 65 cm). Both are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 7 and pl. 8 (note 8).

305. Chronologically, the first reprinted Chinese map of China was the *Kō Min yochi no zu*, ca. 1659 (of the *Huang Ming yudi zhi tu*, Map of Ming China, 1631) published by Rinsendō in Kyōto (124 × 57 cm); a large map of China compiled by a Japanese was Nagakubo Sekisui's *Dai Shin kōyozu* (Enlarged map of Great Qing China, 1785), published by Suharaya Ichibee and Suharaya Ihachi in Edo (fig. 11.60); an atlas of China was Tōjō Shinkō's *Shin nikei jūhassei yochi zenzu* (Atlas of the two capitals and eighteen provinces in Qing China, 1850), published by Suharaya Ihachi in Edo and others (34.4 × 23.7 cm); and the first printed map of China based on a European model was Shibata Shūzō's *Dai Shin ittō zu* (General map of Great Qing China, ca. 1865) (45.5 × 66 cm). All are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 16 and pls. 26, 28, and 30 (note 8).

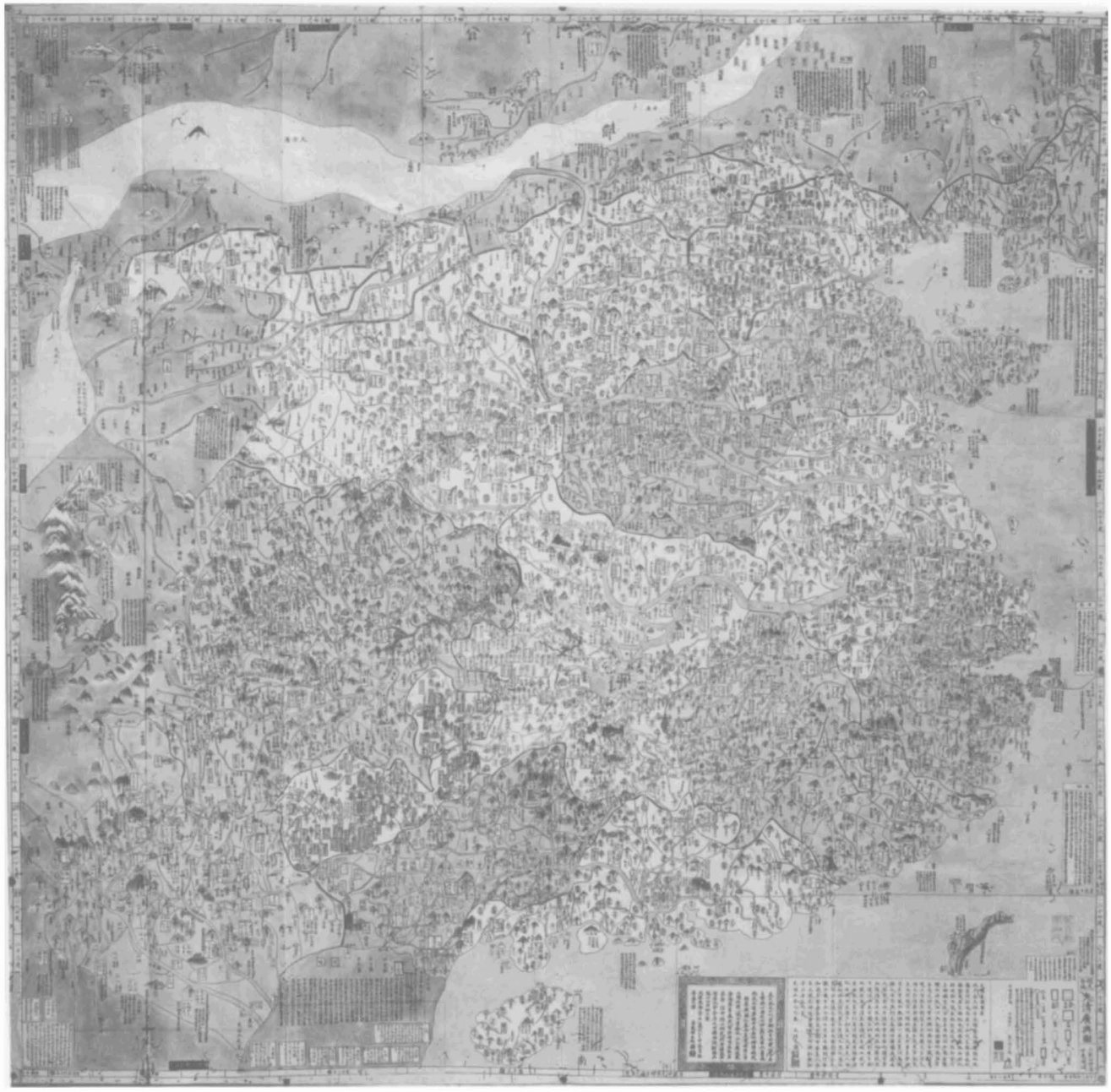


FIG. 11.60. *DAI SHIN KŌYOZU* (ENLARGED MAP OF GREAT QING CHINA) BY NAGAKUBO SEKISUI, 1785. This was modeled on the "Yushu jingtian hedi zhi tu" (Map of China with latitude, longitude, and scale clarified) in You Yi, *Tianjing huowen* (Questions and answers on astronomy), published in China in 1672 and reproduced in Japan in 1730. On Sekisui's map is written "*Keiten gatchi*" (i.e., "*Jingtian hedi*": Clarification of latitude, longitude, and scale) at the beginning of its sheet title. The information about the provinces was taken from the provincial maps in the *Da Qing yitong zhi* (Comprehensive gazetteer of the Great Qing realm, 1746).
Size of the original: 182 × 188 cm. Geographical Institute, Faculty of Letters, Kyōto University. Photograph courtesy of Kazutaka Unno.

Maps of Fictional Places

Finally, among the commercial productions there were maps of fictional places compiled late in the Edo period.[306] An early example is the "Daigepponkoku no zu" (Map of Great Geppon) in Dōjarō Maa's *Shōhi chiriki* (Geographical description of geisha girls, 1777). The title is a parody of *Dainippon* (Great Japan): the character

306. See Unno, "Tawamure no chizu" (Amusing cartographic works) and "Zoku tawamure no chizu" (Amusing cartographic works, continuation), in *Chizu no shiwa*, 5–7 and 8–17 (note 136).

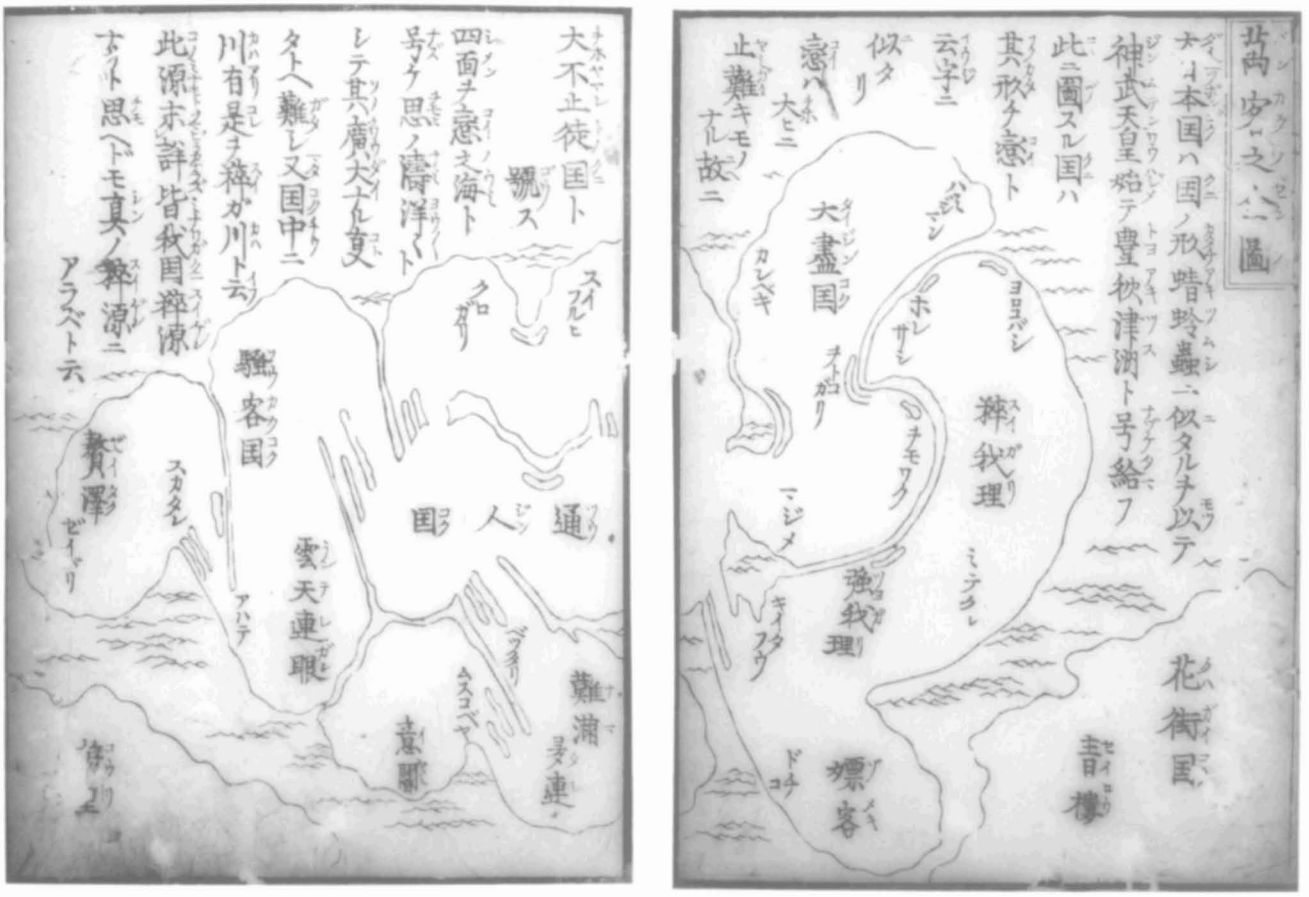


FIG. 11.61. "BANKAKU NO ZENZU," 1822. When the left side is placed at the top, the outline of the landforms is a cursive *koi*, "romance." The place-names refer to words pertaining to entertainment districts such as Yoshiwara in Edo. Size of the original: 18.7 × 27.5 cm. Collection of Kazutaka Unno.

日, meaning sun may be read *ni*; in the title it is replaced by 月 the character for moon, and read *ge*.[307] This map likened the entertainment district of Edo, Yoshiwara, to a group of small islands.[308] Two further examples displayed similar districts in Kyōto and Ōsaka in the form of the world. These were the "Ajina Myōjū bankoku sōzu" (Map of all the countries in Ajina Myōjū [Asia]), included in the *Zatto ichiran* (Handbook of "Zatto") of Suisai in 1820, and the "Bankaku no zenzu" (Map of many guests; fig. 11.61) in *Akan sanzai zue* (Encyclopedia of the insatiable spending of money, 1822) by Akatsuki no Kanenari (1793–1860).[309] On the latter the land that resembles Japan is portrayed as a cursive 戀, the Chinese character for *koi* (romance). The name of the country on the map, Ōyamanto no Kuni, is a parody of Ōyamato no Kuni (The Country of Great Japan) and means "people are not stopping very much"; the reason given for using 戀 is that it is very difficult to stop loving. A similar method using the hiragana script was used on the "Godō meisho no zenzu" (Map of obstacles to spiritual awakening; fig. 11.62) in the *Zen'aku meisho zue* (Illustrated book of noted places of good and evil), published in 1846 and drawn by Ippitsuan Eisen (1790–1848).[310] The land was depicted as さとるべし and まようぁ, *satorubeshi* and

307. 日本 can be read *Nihon* and *Nippon*, among other possibilities. 日 is used for *nichi* but read *ni* in the name of the country; 月 or *getsu* has here been reduced likewise to the first syllable *ge*. The sounds *shōhi chiriki* are the same as the musical instruments *shō* and *hichiriki*. Part of the compiler's pen name, Dōjarō, was taken from the jocular name of his study (room) and means "what shall I do?" or "what nonsense!" Maa is an exclamation. The map appears on two pages of the book, published by Kōshodō in Edo. A reproduction of the map is in Unno, "Tawamure no chizu," 6 (note 306).

308. On Yoshiwara, the amusement and brothel district of Edo, see Stephen Longstreet and Ethel Longstreet, *Yoshiwara: The Pleasure Quarters of Old Tokyo* (Tokyo: Yenbooks, 1988).

309. *Bankoku* and *bankaku* refer to "world"; *Ajina* is a parody of "Asia." The *Zatto ichiran*, which also means "looking at roughly," was published by Yoshinoya Jinbee in Kyōto; the *Akan sanzai zue*—this title is a pun on *Wakan sansai zue* (see note 93)—was published in Ōsaka. Both maps are reproduced in Unno, respectively, "Zoku tawamure no chizu," 9, and "Tawamure no chizu," 6 (note 306).

310. The second edition of the *Zen'aku meisho zue* was published by Chōondō, Hon'ya Matasuke in Edo in 1858.

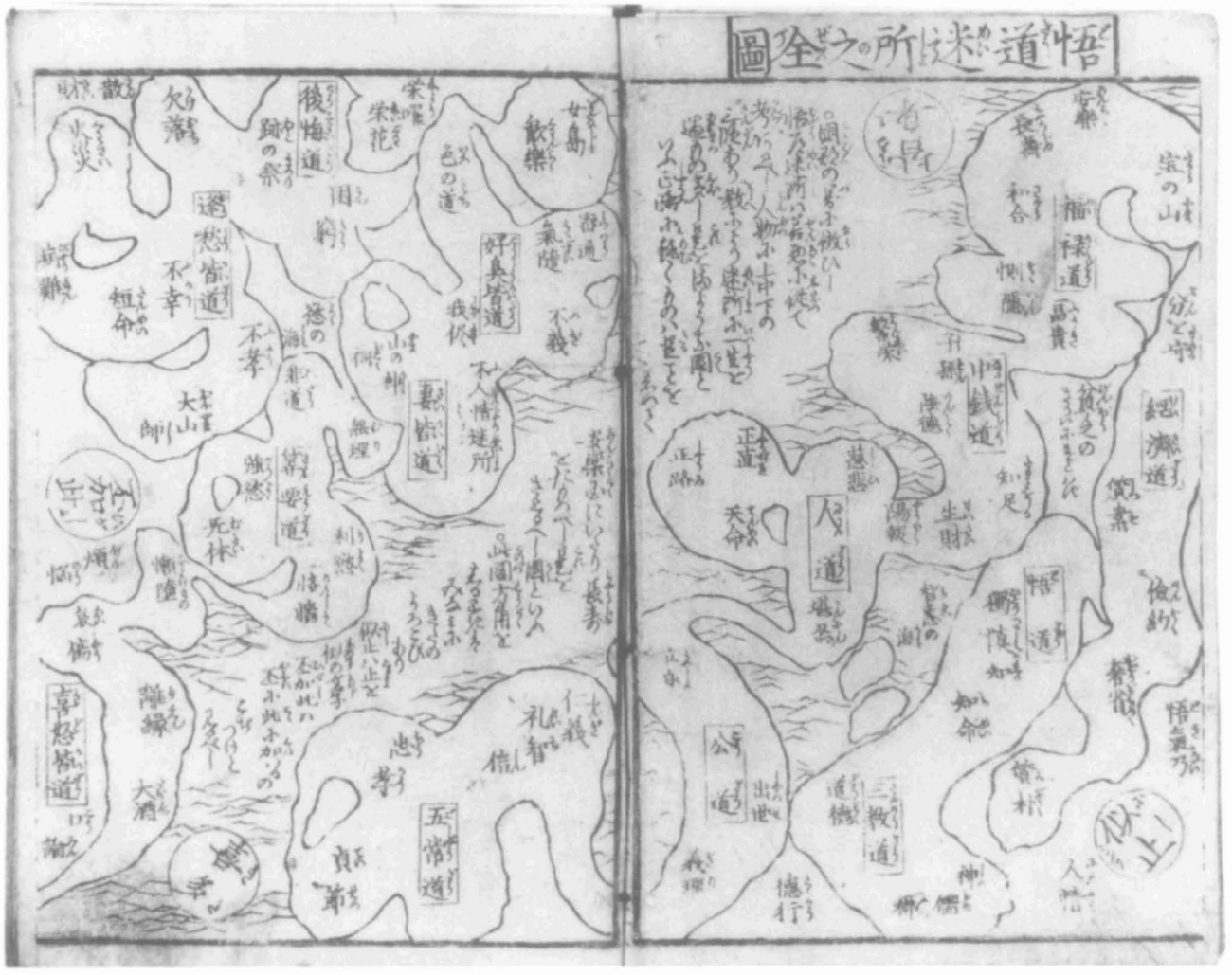


FIG. 11.62. "GODŌ MEISHO NO ZENZU," 1846. The expressions *satorubeshi* ("you should be spiritually awakened") and *mayouna* ("don't go astray") may be seen in their hiragana forms: the first by turning the map so that the left side is on top and reading on a slant from the new left side; the second by turning the map so that the right side is on top and likewise reading from the new left side. Also, some of the Chinese-character combinations are puns: different meanings have been created by reading (pronouncing) the characters differently from the way they are read (pronounced) in the place-names. Size of the original: 17.4 × 21 cm. Collection of Kazutaka Unno.

mayouna (respectively, "you should be spiritually awakened" and "don't go astray").

Japanese Cartography and "Dutch Learning"

Like the adoption of marine charts in an earlier age, "Dutch learning" or "Dutch studies" (*Rangaku*), literally Japanese learning via Dutch-language materials, began to exert a significant influence on cartography from the mid-eighteenth century.[311] Especially while Tokugawa Yoshimune (1684–1751) was in office as shogun (from 1716 to 1745), the adoption of the new knowledge coincided with a transitional period in Japanese society. Yoshimune, the eighth of the Tokugawa shoguns, was a notable reformer.[312] Economic development increased the influence of the merchants in society, despite their low rank,[313] and nurtured a sense of freedom in the cities. Confucianism began to develop a positivist outlook at the expense of its traditional idealistic position. This was typified by the use of the inductive method for studying

311. *Rangaku* (Dutch learning) is discussed in, for example, Nakayama, *History of Japanese Astronomy*, 165–69 (note 38); Sansom, *History of Japan*, vol. 3 (1615–1867), 188–89 (note 32); and Plutschow, *Historical Nagasaki*, 95–109 (note 128).

312. His regime is discussed in Sansom, *History of Japan*, 3:154–72 (on his interest in science specifically, see 168–70) (note 32).

313. The four strata below the shogun were the daimyos and their samurais, the peasants, the artisans, and then the merchants. Below them were the outcastes.

Chinese classics, adopted by the *kogaku* (ancient learning) school under the leadership of Itō Jinsai (1627–1705) and Ogiu (Ogyū) Sorai (1666–1728). The *kogaku* school was a reaction to Neo-Confucianism—which had promoted the concept of harmony between human nature and the physical world—and it challenged the assumption that the natural order was reflected in the social hierarchy. The *kogaku* school distinguished human affairs from those of the heavens, noting that the latter were an object not of rational inquiry but of worship only.[314]

In such circumstances, academic research in agriculture and mining was promoted as a part of industrial policy, and Yoshimune undertook to reform the Japanese calendar, which was closely related to agriculture. The astronomer he had appointed for the project, Nakane Genkei (1662–1733), noted that the reform was not possible without referring to Chinese books on astronomy and calendars composed by the Jesuits in China. After consulting a Chinese book, itself only an extract from a Chinese version of a European work, Nakane told Yoshimune that "no progress could be made so long as Chinese translations of Western books were kept out of Japan for such absurd reasons as a mere mention in the text of something related to Christianity or Christians."[315] This led Yoshimune to lift an existing ban on importing books in 1720, provided they did not relate to Christianity. The shogun's interest in European science and technology also led him to take advantage of every opportunity to speak with the director and staff of the Dutch factory in Nagasaki when they paid courtesy calls to Edo. From them he also ordered books, telescopes, and other items of interest.

About 1740, a number of Japanese scholars began to study Dutch. There were at the time Japanese who were linguistically proficient for diplomatic and mercantile affairs, especially the official translators in Nagasaki, but their ability to interpret accurately the content of academic books was limited. Some of the official translators in Nagasaki nonetheless attempted to translate technical material, notably maps and books on geography.

The first result of such efforts was a translation of the terrestrial and celestial globes of the Valcks dating from 1700. This was undertaken by the astronomer Kitajima Kenshin (fl. 1719–37) and an unidentified official translator thought to be Nishi Zenzaburō (ca. 1716–68). Together they converted the globe into plane maps. The map of the celestial sphere has been lost, but the map of the world, a manuscript in the form of a scroll, is extant. The title is *Oranda shintei chikyū zu* (World map based on a Dutch source), and though neither a date nor an author is mentioned, a comparison with the description in Kitajima's booklet noted below suggests that the map is either his own work or a faithful copy of it (fig. 11.63). It is drawn on a globular projection with the Eastern and Western hemispheres halved into north and south. It is not known for certain where Kitajima obtained his knowledge of projections, but it is likely that he acquired it from Ro Sōsetsu (1675–1729), a successor of Hayashi Sensei. The booklet that Kitajima wrote in 1737 describes the task and the translation of the names on the globes and provides a brief explanation.[316] The project was undertaken on the order of the authorities, probably the Nagasaki magistrate.

Official translators were involved in several subsequent projects. Among them, special mention must be made of Motoki Ryōei (1735–94) and Matsumura Mototsuna (or Genkō, fl. 1771–92), who help reveal the place of cartography in the wider context of the history of Japanese science. It has been said of Motoki that his translations "are significant not only as the first Japanese sources on the Copernican heliocentric system, but also as a landmark in the advancement of the study of Western languages in Japan."[317] Their cartographic work, executed either jointly or singly, appeared for the most part in two periods: the first half of the 1770s and from 1790 to 1793. In the first period they concentrated on older materials, and in the second on translating more recent works.

In 1772 Motoki translated the section on map use in the 1722 Dutch edition of *Kort begryp der oude en nieuwe geographie* by Johann Hübner (1668–1731) and compiled a booklet titled *Oranda chizu ryakusetsu* (Outline of Dutch cartography).[318] The next year he completed the *Oranda chikyū zusetsu* (An explanation in a Dutch atlas of the world), which is preserved in a manuscript at Nagasaki City Museum. This is a translation of

314. See Nakayama, *History of Japanese Astronomy*, 108 and 156–58 (note 38). He refers to Ogiu Sorai, *Gakusoku furoku* (Appendix to the principles of learning, 1727) in *Nihon jurin sōsho* (Collection of Confucian writings in Japan), 6 vols. (Tokyo: Tōyō Tosho Kankōkai, 1927–29), vol. 4; and to Maruyama Masao, *Nihon seiji shisō shi kenkyū* (A study of the history of political thought in Japan) (Tokyo, 1952), 52–54, 80–82, and 210.

315. Quotation from Sansom, *History of Japan*, 3:169 (note 32); see also Nakayama, *History of Japanese Astronomy*, 166 (note 38). On Nakane Genkei see Watanabe Toshio, *Kinsei Nihon tenmongaku shi* (History of modern Japanese astronomy), 2 vols. (Tokyo: Kōseisha Kōseikaku, 1986–87), 1:91–94.

316. The map of the world is preserved at the Ōsaka Prefectural Nakanoshima Library, Ōsaka. Details are given in Unno Kazutaka, "Faruku chikyūgi denrai no hamon" (The influence of the Valcks' globe on Japanese maps and globes), *Nihon Yōgakushi no Kenkyū* 8 (1987): 9–34. Kitajima's booklet, *Kōmō tenchi nizu zeisetsu* (Explanation of Dutch celestial and terrestrial globes, 1737), is preserved at the Tokyo University Library (Nanki Library Collection), Kyōto University Library, and Tōhoku University Library, Sendai. A facsimile of the Kyōto University Library version was published by Chinsho Dōkōkai (Tokyo, 1916).

317. Nakayama, *History of Japanese Astronomy*, 173 (note 38); for a discussion of Motoki's work, see 173–79.

318. Motoki's manuscript (1772) is preserved at the Seikadō Library, Tokyo.

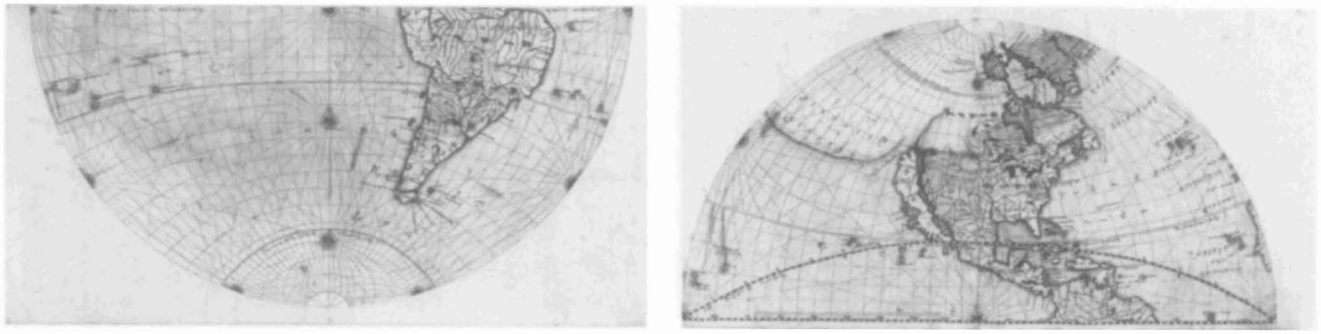


FIG. 11.63. *ORANDA SHINTEI CHIKYŪ ZU*, CA. 1737. Although he is not mentioned on the map, this manuscript scroll may be ascribed to the Nagasaki astronomer Kitajima Kenshin, who was involved in converting Gerard and Leonard Valck's terrestrial and celestial globes into flat maps. Size of the original: 25.5 × 247 cm. By permission of the Ōsaka Prefectural Nakanoshima Library, Ōsaka.

the introduction to the *Atlas van zeevaart* of 1745.[319] Finally, in this period Motoki translated (in 1774) the *Tenchi nikyū yōhō* (The use of celestial and terrestrial globes) from Willem Jansz. Blaeu's *Tweevoudigh onderwiis van de hemelsche en aerdsche globen* (Amsterdam, 1666 [first edition, 1634]).[320]

In 1790, at the request of the high-ranking official Matsudaira Sadanobu (1758–1829),[321] Motoki translated an edition of about 1785 of the *Nieuwe atlas* (1730) of Johannes Covens and Cornelis Mortier as *Oranda zensekai chizusho yaku* (Translation of a Dutch atlas of the world). The original *Nieuwe atlas* used for the translation is in the Shizuoka Prefectural Central Library, Shizuoka; on the maps are pasted gold and silver slips of paper with the Japanese translation of the main cities on each map. In addition to these works, there was the *Seijutsu hongen taiyō kyūri ryōkai shinsei tenchi nikyū yōhōki* (The ground of astronomy, newly edited and illustrated; on the use of celestial and terrestrial globes according to the heliocentric system) in seven volumes, 1792–93. The Dutch original in this case was *Gronden der sterrenkunde* (1770), itself a translation of *A Treatise Describing and Explaining the Construction and Use of New Celestial and Terrestrial Globes* (London, 1766) by George Adams the elder (ca. 1704–73).[322] Finally, there are two translated collections of place-names that appear to have been by-products from the copies that Motoki made of Dutch atlases of the world.[323]

Matsumura appears to have been a close friend of Motoki and was mentioned as a collaborator in most of the translations, including the *Oranda chizu ryakusetsu* and *Oranda chikyū zusetsu*. Two works compiled by Matsumura alone are also known. These are his *Shinzō bankoku chimei kō* (Newly enlarged list of geographical names in the world) of 1779 and a map showing the Eastern and Western hemispheres that contains the place-names from the other work.[324]

In contrast to that at Nagasaki, Dutch learning in Edo developed by emphasizing medicine. Physicians who had gained knowledge of European medicine were, however, later encouraged to acquire more general knowledge, notably in geography and astronomy. The earliest work of a cartographic nature by a Dutch scholar in Edo was the *Shinsei chikyū bankoku zusetsu* (Explanation of the new map of all the countries in the world) of 1786. The translation was undertaken by Katsuragawa Hoshū (1751–1809) from the topographical explanation attached to Joan Blaeu's (1598–1673) world map of 1648, the *Nova totius terrarum orbis tabula*. Katsuragawa was a physician in the employ of the shogunate, which owned the Blaeu map, and had doubtless acquired it from the Dutch factory at Deshima. The map had already been

319. The *Atlas van zeevaart en koophandel door de geheele weereldt* (Amsterdam, 1745) is itself a translation of Louis Renard's *Atlas de la navigation et du commerce qui se fait dans toutes les parties du monde* (Amsterdam, 1715). See Nakayama, *History of Japanese Astronomy*, 174 (note 38).

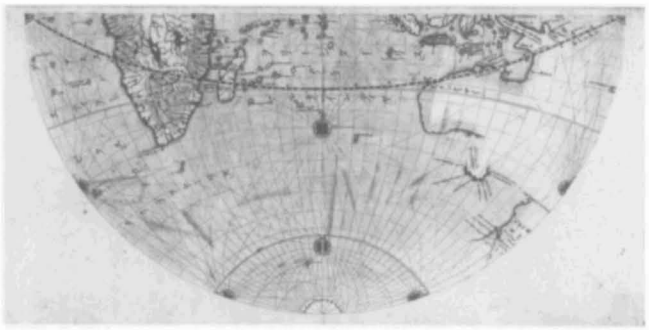
320. Motoki's manuscript is preserved at the Nagasaki City Museum. See Nakayama, *History of Japanese Astronomy*, 175 (note 38).

321. Matsudaira rose to prominence when he was appointed president of the Council of Elders to determine national policy after riots in 1787 stemming from a succession of poor harvests. He was also appointed adviser to the shogun (Ienari [1773–1841, r. 1787–1837], the eleventh of the Tokugawas). The changes he presided over are known as the Kansei Reform, after the era name of 1789–1800. See Sansom, *History of Japan*, 3:193–206 (note 32).

322. The full Dutch title was *Gronden der starrenkunde, gelegd in het zonnestelzel, bevatlyk gemaakt; in eene beschrijving van 't maaksel en gebruik der nieuwe hemel- en aarrd-globen* (Amsterdam, 1770). See Nakayama, *History of Japanese Astronomy*, 177 and 285 (note 38).

323. One is the *Yochi kokumei yaku* (Translation of the names of countries on the earth, ca. 1777), and the other is the *Tenchi nikyū yōhō kokumei* (The use of celestial and terrestrial globes, names of countries, ca. 1794); both are manuscripts. For these two works see Unno Kazutaka, "*'Tenchi nikyū yōhō kokumei'* kō" (On the *Tenchi nikyū yōhō kokumei*), *Nihon Yōgakushi no Kenkyū* 3 (1974): 113–37.

324. The 1779 work is at the Tenri Central Library. On Matsumura's works, see Unno, "*'Tenchi nikyū yōhō kokumei'* kō," 113–37 (note 323).



used in 1709 by Arai Hakuseki (1657–1725) to obtain geographical information from the Italian Jesuit Giovanni Battista Sidotti (1668–1715), so that it was well known by the time of the translation. An appendix to the translation, made in 1791, contains a colored miniature of the original map, copies of its various illustrations, and translated names of the main places.[325]

The first printed Japanese map of the world to be influenced by *Rangaku* is a copperplate engraving of 1792, the *Yochi zenzu* (Map of the earth) by Shiba Kōkan (1747–1818). This was also the first map to be engraved on copperplates in Japan. The *Yochi zenzu* is a translation of Alexis Hubert Jaillot's revision of Guillaume Sanson's map of the Eastern and Western hemispheres issued by Covens and Mortier (Amsterdam, ca. 1730), with revisions of Japan based on the latest information.[326] It was reprinted at least three times with the same copperplate and colophon, supplemented with place-names or illustrations added around the map. From the second edition onward, the title became *Chikyū zu* (Map of the terrestrial globe) (fig. 11.64). Explanatory booklets were published for each edition, the *Yochi ryakusetsu* (Brief explanation of the earth) for the first edition being the simplest.[327]

Dutch maps were the earliest to be translated, but by the late eighteenth century Japanese scholars were also working with maps in other foreign languages. Thus, Katsuragawa was the translator not only of a more up-to-date Dutch map of the world, but also of Russian maps that were presented to the shogunate by Adam K. Laxman (1766–96?) in 1792.[328] The first put him in competition with the publisher Shiba, whose *Yochi zenzu* was issued while his work was in progress. A mutual friend, Ōtsuki Gentaku (1757–1827), who had provided Shiba with the Jaillot map, attempted to dissuade Shiba from publishing the translation on the grounds that Katsuragawa's work was more advanced. Katsuragawa, however, never finished his work: only the Western Hemisphere

325. Katsuragawa notes that the *Shinsei chikyū bankoku zu* is a translation of the original title, *Nova totius terrarum orbis tabula*. Blaeu's map is now in the Tokyo National Museum: see Minako Debergh, "A Comparative Study of Two Dutch Maps Preserved in the Tokyo National Museum—Joan Blaeu's Wall Map of the World in Two Hemispheres, 1648 and Its Revision ca. 1678 by N. Visscher," *Imago Mundi* 35 (1983): 20–36. Katsuragawa's translation is reproduced in Ono Tadashige, ed., *Kōmō* [or *Oranda*] *Zatsuwa* (Miscellaneous notes of Holland) (Tokyo: Sōrinsha, 1943), 1–34. Codices including the appendix of 1791 are in the Ashida Collection at the Meiji University Library, Tokyo, the Hōsa Library in Nagoya, and the National Archives in Tokyo. Those in the Hōsa Library and the Ashida Collection are the most complete.

326. Shiba's 1792 map (50.5 × 92.8 cm) is reproduced in Kurita, *Nihon kohan chizu shūsei*, pls. 5 and 6 (note 15). The Covens and Mortier issue, ca. 1730, of Jaillot's map was formerly preserved at the Miyagi Prefectural Library in Sendai but was burned during a bombing in the Second World War. For a reproduction, see Ayusawa Shintarō, *Chirigakushi no kenkyū* (Studies on the history of geography) (Tokyo: Aijitsu Shoin, 1948; reprinted Hara Shobō, 1980), frontispiece, and Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 69 (note 8). Shiba, a student of European culture, painted under the influence of Dutch models, studied European astronomy, geography, and history, and was the first Japanese to engrave using copperplates. A visual synthesis of the arts and sciences seems to have marked his work; a brief summary notes that "he was particularly interested in the scientific rendering of space through perspective" (Munsterberg, *Arts of Japan*, 159 [note 79]). That Shiba would have chosen to use Dutch names is no surprise; he acknowledged the superiority of Europe in such areas as the sciences and of course learned from the scholars of Dutch studies at Edo and Nagasaki. In the realm of science, his greatest achievement was probably the popularization of Copernican theory through three books: *Chikyū zenzu ryakusetsu* (Brief explanation of the world map, 1793), *Oranda tensetsu* (Dutch astronomy, 1796), and *Kopperu tenmon zukai* (Copernican astronomy illustrated, 1808); see Nakayama, *History of Japanese Astronomy*, 187 (note 38).

327. On the maps and books, see Sugano Yō, *Nihon dōhanga no kenkyū: Kinsei* (Studies on Japanese copperplate prints: The modern age) (Tokyo: Bijutsu Shuppansha, 1974), 358–75.

328. Two objectives of Laxman's voyage were to repatriate some Japanese who had been shipwrecked on the coast of Russian Asia and to negotiate for trade. One of the castaways was a certain Kōdayū, who had taught Japanese in Irkutsk under the protection of Eric Laxman, the father of the mariner and a Swede by birth. Under official order and with the assistance of Kōdayū, Katsuragawa wrote a book about

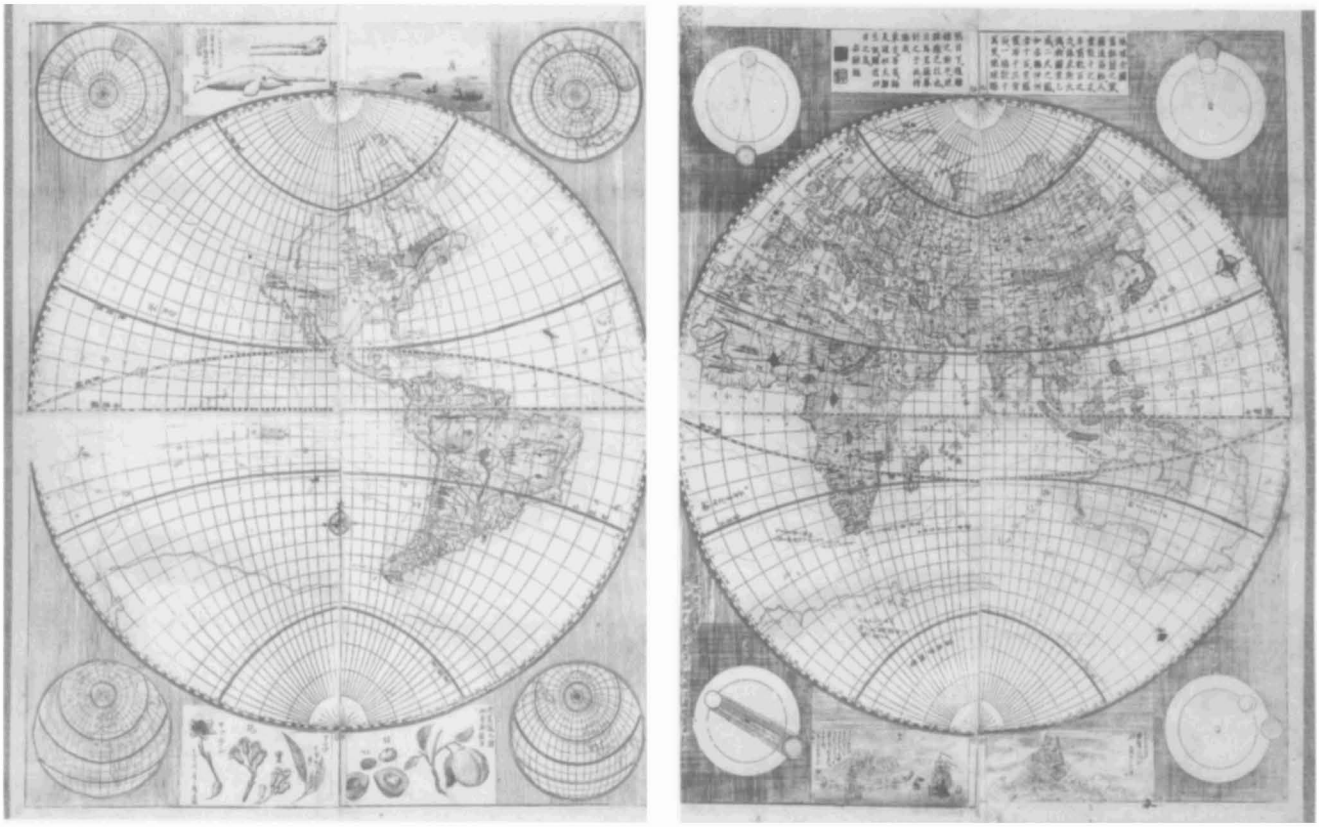


FIG. 11.64. SHIBA KŌKAN'S *CHIKYŪ ZU*, CA. 1795. This is a reprint of Shiba's *Yochi zenzu* of 1792. The Covens and Mortier issue, ca. 1730, of Jaillot's world map, owned at the time by the well-known specialist in Dutch studies Ōtsuki Gentaku, was the translated source of the copperplate, notable for its portrayal of the Japanese northern frontier based on the first shogunal expedition.
Size of the original: 55 × 86 cm. By permission of the Kayahara Hiroshi Collection, Tsu, Mie Prefecture.

was printed from a woodblock, and the manuscript of both hemispheres is lost.[329] In 1794 he did complete maps of the world, the Americas, Europe, Africa, Asia, and other places based on the Laxman maps. These contained better information than the Dutch maps, and this may explain why Katsuragawa abandoned the other project in favor of the map of the world from Russian sources. The maps translated from the Russian became appendixes to the *Hokusa bunryaku* (Story of a driftage to the north, 1794). They were kept in the shogunal library and never published.[330]

The works of Shiba and Katsuragawa in Edo influenced map publishers in Ōsaka. Most notably, Shiba's world map inspired the *Oranda shin'yaku chikyū zenzu* (Map

the castaways titled *Hokusa bunryaku* (Story of a driftage to the north, 1794). Laxman's attempt to open trade was rebuffed: he was ordered to go to Nagasaki but instead returned to Russia, dissatisfied. See Sansom, *History of Japan*, 3:202 (note 32), and Philipp Franz von Siebold, *Manners and Customs of the Japanese in the Nineteenth Century* (1841; reprinted Tokyo: Charles E. Tuttle, 1985), 193. Ten kinds of maps are attached to the *Hokusa bunryaku*; of them, the maps of the world, Asia, Africa, America, and Europe were probably presents from the Russian government. Copies of two maps of Europe and America with the Russian language are preserved at the Yokohama City University Library (Ayusawa Collection). For a reproduction of the map of America (50 × 63 cm), see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 83 (note 8).

329. The printed map does not have the name of the author or publisher or the date of publication. For details on the translation of the Dutch map of the world, see Unno Kazutaka, "Katsuragawa Hoshū no sekaizu ni tsuite" (On Katsuragawa Hoshū's map of the world), *Jinbun Chiri* 20, no. 4 (1968): 1–12. The cover title for the map of the Western Hemisphere (79.5 × 88.5 cm) is *Bankoku chikyū zenzu* (Map of all the countries on the globe, ca. 1792). The trial print is preserved by Nakao Ken'ichirō of Ōsaka. On the paper casing, Kimura Kenkadō wrote "Getchi Katsuragawa shi chikyū zu" (Getchi Katsuragawa's map of the terrestrial globe); Kimura was a well-known collector in Ōsaka, and Getchi was Katsuragawa's pseudonym. For reproductions of the map and paper casing, see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 78 and fig. 68 (note 8).

330. They are now preserved at the National Archives in Tokyo. Reproductions are in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 80 (world map of the Eastern and Western hemispheres, each 56.6 cm in diameter), pl. 81 (map of Asia, 46.8 × 58.7 cm), and fig. 72 (map of the northern Pacific, 46 × 62 cm) (note 8). See note 328 for the *Hokusa bunryaku*.

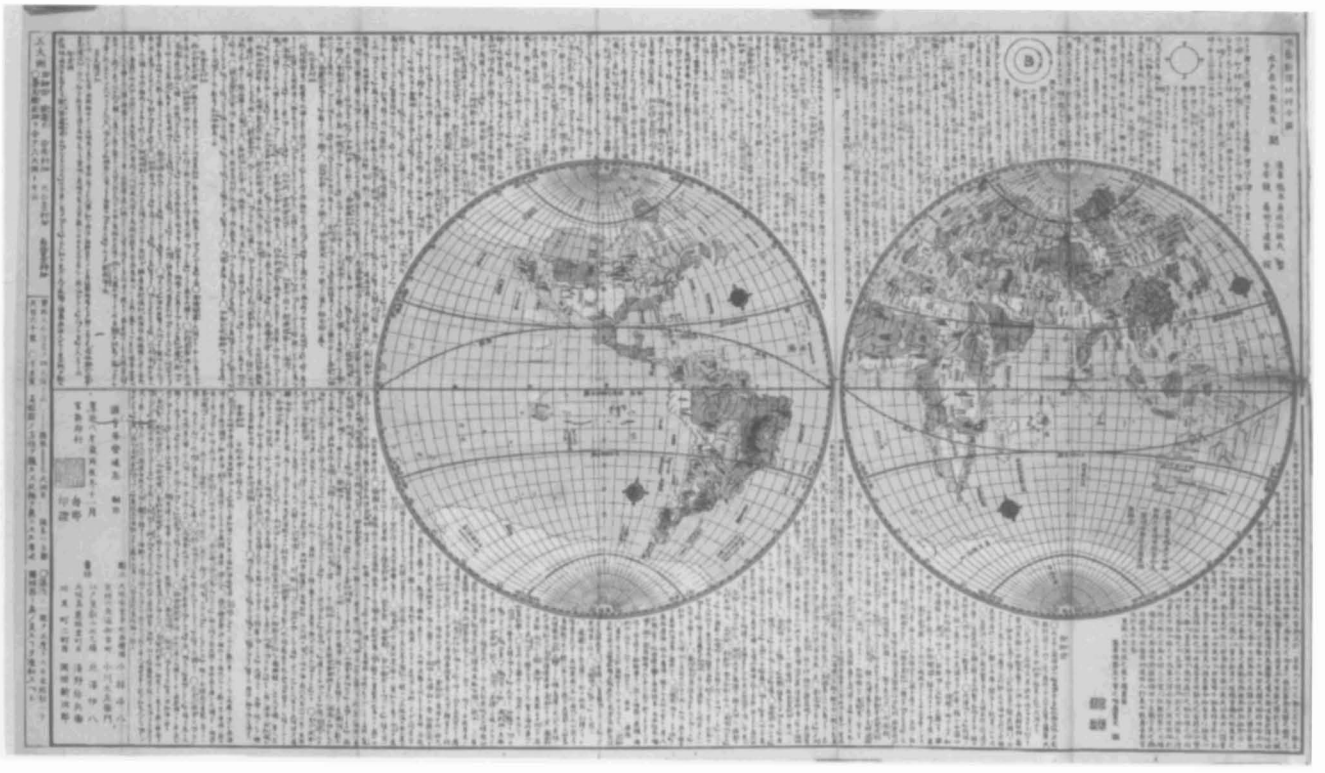


FIG. 11.65. *ORANDA SHIN'YAKU CHIKYŪ ZENZU.* The date is 1796 according to the map, or 1797 according to what is printed on the paper cover attached to the first issue. The content of the map suggests that the Dutch original dated from the first half of the eighteenth century, but not much else is known. Interesting is the rare globular projection. Size of the original: 55.5 × 93.7 cm. Yokohama City University Library, Yokohama, Ayusawa Collection. Photograph courtesy of Kazutaka Unno.

of the world, newly translated from a Dutch edition), printed from a woodblock in 1797 (fig. 11.65). Allegedly translated by the Ōsaka *Rangaku* scholar Hashimoto Sōkichi (1763–1836), it was probably done by Sotani Ōsei (1738–97), a scholar of Chinese who wrote the preface to the map as well as composing other maps.[331] The map, drawn on a globular projection, followed Shiba's map in its depiction of northern Japan. At least four editions bearing the same year of publication are known. They do, however, have different combinations of copublishers, suggesting that the map was published repeatedly over time. Imitations were also made, and the map was even copied onto a globe.[332]

In 1804 the Russian envoy Nikolai Rezanov (1764–1807) repatriated some Japanese who had been ship-

331. The reason for doubting Hashimoto as its author lies in the explanation around the map: it gave no more information than previous books published in Japan and suggests that no Dutch literature was consulted as a primary source. It is likely that Hashimoto's name was used to lend an air of authority to the map. Ōsaka was known not to have many scholars of Dutch studies. Sotani is therefore the likely compiler, but if Hashimoto actually was involved, it may have been to read and explain the geographical names and notes on a Dutch map. This is discussed in Unno Kazutaka, "Oranda shin'yaku chikyū zenzu ni okeru sanshōshiryō" (Reference materials in a Dutch map of the world newly translated), *Nihon Yōgakushi no Kenkyū* 7 (1985): 65–102. The first edition by Sotani Rinzō and three other publishers is reproduced in Beans, *Japanese Maps of the Tokugawa Era*, facing p. 29 (note 22); an edition by Okada Shinjirō and three other publishers (measuring 51 × 92 cm) is in Kurita, *Nihon kohan chizu shūsei*, pl. 8 (note 15), and Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 82 (note 8). Other maps by Sotani Ōsei include the *Jūsen Nihon yochi zenzu* of 1783 (see above, p. 414 and note 271), the *Kaisei Settsu Ōsaka zu* (Revised plan of Ōsaka, Settsu Province, 1789), and the *Zōshū kaisei Sesshū Ōsaka chizu* (Enlarged and revised plan of Ōsaka, Settsu Province, 1806) (fig. 11.49) with Sotani's preface of 1781 (Sotani corrected this plan; it is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 88 [note 8]).

332. Publishers for four editions of Hashimoto's map of the world are Ogawa Tazaemon, Kitazawa Ihachi, Asano Yahee, and Sotani Rinzō; Ogawa, Kitazawa, Asano, and Okada Shinjirō; Ogawa, Asano, and Okada; and Ogawa, Yanagihara Kihee, and Okada. The globe, approximately thirty centimeters in diameter, is preserved at the Hagi Local Museum, Yamaguchi Prefecture. Two imitations were another *Oranda shin'yaku chikyū zenzu*, 32.8 by 20.4 centimeters, with no colophon and in an album style; and Tajima Ryūkei's *Oranda chikyū zenzu* (Complete Dutch map of the world, 1840; 45 × 69.5 cm). A reproduction of Tajima's map is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 75 (note 8). On the imitations, see Unno, "Hashimoto Sōkichi sekaizu no ihan gihan mohōban" (Some unusual fake and imitative editions of Hashimoto Sōkichi's world map), in *Chizu no shiwa*, 305–18 (note 136).

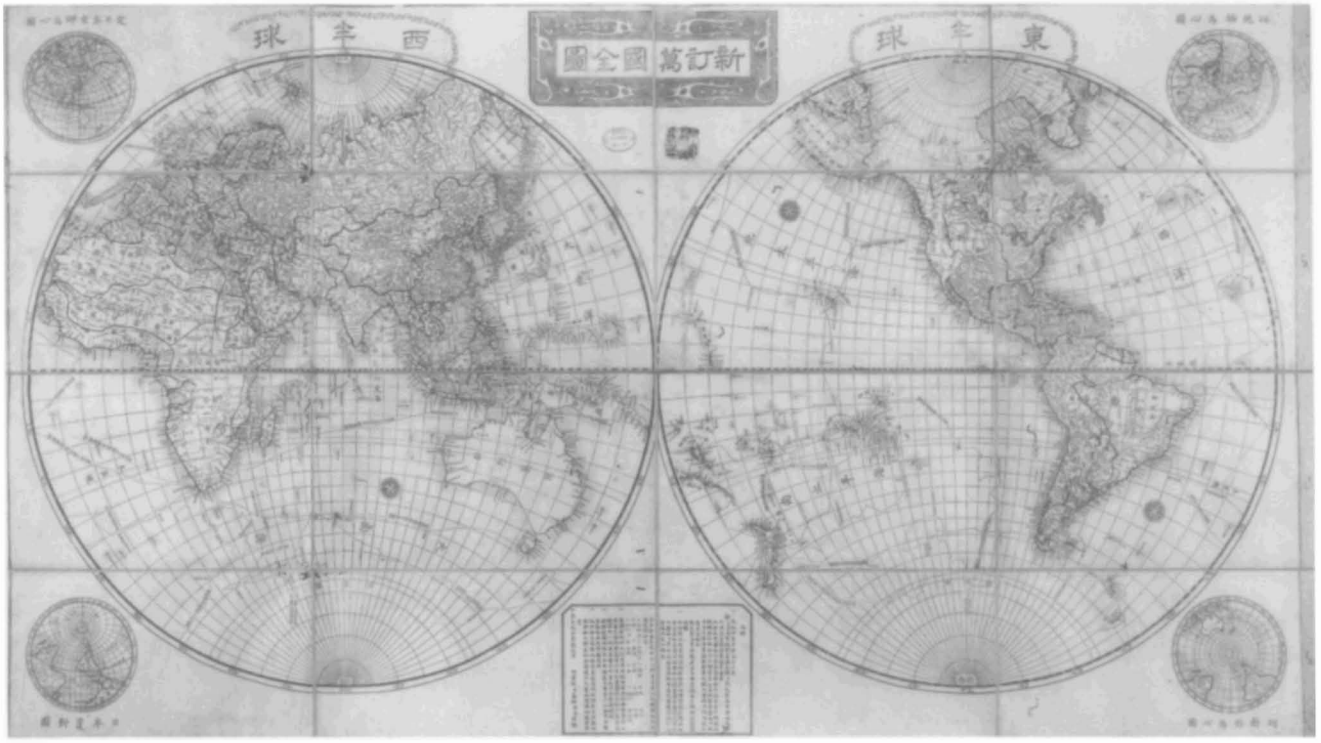


FIG. 11.66. *SHINTEI BANKOKU ZENZU* BY TAKAHASHI KAGEYASU ET AL., CA. 1816. In order to show Japan near the center of this copperplate map, the conventional Eastern Hemisphere has been placed on the left and labeled *nishi hankyū* (Western Hemisphere); the Western Hemisphere has been placed on the right and labeled *higashi hankyū* (Eastern Hemisphere). Of the four small hemispheres in the corners, the one in the upper left is centered on Kyōto.
Size of the original: 114 × 198 cm. Geographical Institute, Faculty of Letters, Kyōto University. Photograph courtesy of Kazutaka Unno.

wrecked in Russia.[333] Rezanov presented some maps to the authorities, and these were translated along with others that the shipwrecked Japanese had obtained in Russia. One of the maps the Japanese brought back was translated by the *Rangaku* scholar Matsubara Uchū (fl. 1789–1808) and titled *Bankoku yochi zenzu* (Map of all the countries in the world). It was a copperplate print of the Eastern and Western hemispheres and has an exotic look because of the Russian words in the Cyrillic alphabet copied from the original.[334] The map does not give the name of the cartographer or the date of publication, but it can be traced to Matsubara and dated to about 1808 on the grounds of a book on world geography, the *Honkoku yochi zenzu ryakusetsu* (Brief explanation of the reproduced map of the world). This book, corresponding to the map, was published in 1808 and was written by Matsubara Josui (Uchū).[335]

Japan at the time was receiving pressure from Russia and other countries to establish commercial relations.[336] The shogunate therefore decided in 1807 to commission the astronomical observatory at Asakusa in Edo to con-

333. For accounts of Rezanov's mission in 1804–5, again an unsuccessful attempt to open Japan to Russian trade, the subsequent retaliatory raids by Khvostov and Davidov in Sakhalin and Hokkaidō in 1806, and the Japanese captivity of Vasily Golovnin in 1811–13, see Sansom, *History of Japan*, 3:202–4 (note 32), and von Siebold, *Manners and Customs*, 193–203 (note 328).

334. Folding map (37 × 16.5 cm; each hemisphere measures 33.5 cm in diameter). Copies are preserved at the Tōhoku University Library in Sendai, at the Waseda University Library in Tokyo, and by Kayahara Hiroshi in Tsu, Mie Prefecture. For a reproduction, see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 85 (note 8).

335. Josui was a pseudonym; the map is discussed in Okamura Chibiki, "Wasurerareta dōban gaka Matsubara Uchū" (A forgotten copperplate artist, Matsubara Uchū), in *Kōmō bunka shiwa* (Historical essays on Dutch culture), by Okamura Chibiki (Tokyo: Sōgensha, 1953), 198–206; and in Unno Kazutaka, "Hyōryūmin Tsudayūra no kikoku to chizu no denrai" (Introduction of European cartography when Tsudayū [one of the repatriated castaways] and others returned to Japan), *Nihon Yōgakushi no Kenkyū* 4 (1977): 101–22. According to the records of the voyage, *Kankaiibun* (Novel news from a trip around the world, completed in 1807) by Ōtsuki Gentaku, the Russian map was bought by the castaways in Russia. The *Kankaiibun* has been published (Tokyo: Yasaka Shobō, 1986) and is in *Hokumon sōsho* (Northern gateway series), 6 vols., ed. Ōtomo Kisaku (Tokyo: Hokkō Shobō, 1943–44; reprinted Tokyo: Kokusho Kankōkai, 1972), vol. 4. It has been translated into modern Japanese by Ikeda Akira (Tokyo: Yūshōdō Shuppan, 1989). Matsubara's *Honkoku yochi zenzu ryakusetsu* was discovered in 1985.

336. Mainly the United States and Britain. See von Siebold, *Manners and Customs*, 188–93 (note 328).

struct a new world map that could be used for diplomatic purposes. The operations were placed under the direction of Takahashi Kageyasu (or Sakuzaemon the younger, 1785–1829), the shogunal astronomer. Others involved with the production of the map were the astronomer Hazama Shigetomi (1756–1816), the two official interpreters, Baba Sajūrō (1787–1822) and Motoki Seiei (1767–1822), and Aōdō Denzen (Nagata Zenkichi, 1748–1822), the last of whom engraved it in copper. This team collected materials from Japan, China, and Europe and in 1810 completed a manuscript version showing the Eastern and Western hemispheres. The map was titled *Shintei bankoku zenzu* (Newly revised map of all the countries). An interesting feature is that in an attempt to show Japan near the center of the world, the "Eastern" and "Western" hemispheres are transposed from their conventional positions. The Japanese labeling has been changed so that the Americas are in the "Eastern Hemisphere" (*higashi hankyū*).[337] In the margin were drawn supplementary hemispheric maps, one centered on Kyōto and the other being its opposite.

The greatest difficulty the compilers experienced was in depicting the area around Sakhalin. It was still being explored at the time and was represented in conflicting ways on different European maps. After the map was completed, Takahashi and his colleagues sought to correct it with more reliable information on the west coast of Sakhalin and around the mouth of the Amur River, such as that obtained by Mamiya Rinzō (1780–1844). To improve the image of East Asia, they used the *Huangyu quanlan tu* (Map of a complete view of imperial territory; known as the Kangxi Jesuit atlas), completed in China in 1718.[338] A revision of the 1810 *Shintei bankoku zenzu* (fig. 11.66) was issued about 1816 as a government publication, engraved on copperplates by Nagata Zenkichi but without his name on the map. Lines of longitude were entered on the map, but no numerical values were given. Overall, the map compares favorably with European maps of the same period, and it is the first in the world to show the Mamiya (Tatar) Strait.[339]

While the *Shintei bankoku zenzu* was still being compiled, Takahashi ordered a small trial print run. This was done in 1809 by Nagata, evidently to confirm his skill at engraving in copper, and titled *Shinsen sōkai zenzu* (Newly printed map of the whole world; 23.3 × 34 cm). Differences from European maps included the arrangement and names of the Eastern and Western hemispheres. The world map was paired on a scroll with the *Nihon henkai ryakuzu* (Simple map of the frontiers of Japan), the first in Japan to be executed on a predetermined equidistant conic projection with the prime meridian running through Kyōto (fig. 11.67).[340] It was, moreover, distinguished by its highly accurate delineation of Japan, derived by using the results of the official coastal survey then in progress under Inō Tadataka (or Chūkei, 1745–1818). It was this map that was translated and used by Philipp Franz von Siebold (1796–1866) in his *Nippon* of 1832 (fig. 11.68).[341]

The story of von Siebold's maps illustrates the significance Japanese authorities attached to maps. It becomes clear that although foreign maps were being sought by Japanese officials, copies of recent maps of Japan were regarded as "classified" documents. Von Siebold, who was born in southern Germany and had been the personal physician of Wilhelm I of Holland, arrived in Deshima as a physician to the Dutch East India Company in 1823. He practiced and taught in the city of Nagasaki as well as opening the first Japanese medical academy. In 1829, when he was starting his voyage back to Europe, Japanese officials discovered in his belongings a recently made map of Japan based on Inō's maps; possessing it constituted an illegal act both for von Siebold and for Takahashi, who had given it to him. Von Siebold was banished from Japan, but Takahashi was sentenced to death (or at least

337. The manuscript map (106.5 × 188 cm) is now at the National Archives in Tokyo. A color reproduction is in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 87 (note 8), and it is discussed in Akabane Sōzō, "Takahashi Kageyasu no Shintei bankoku zenzu ni tsuite" (On the *Shintei bankoku zenzu* by Takahashi Kageyasu), *Nihon Rekishi* 131–32 (1959): 78–95, 51–56.

338. On the exploration of the northern frontier, including Sakhalin, see below. The Kangxi Jesuit atlas used was in the collection of Kimura Kenkadō and was copied at the shogunal observatory about 1808. There are three copies: at the National Archives in Tokyo, at the National Diet Library in Tokyo, and in my personal collection. The two scrolls of *Jūrokusei zu* (Maps of the sixteen provinces [of China]) and *Kyūhen zu* (Maps of nine frontiers) include thirty-two maps in all. What is probably a later copy is in the Takami Collection, Koga, Ibaraki Prefecture.

339. The map (114 × 198 cm) was referred to by Ōtsuki Gentaku in *Ran'yaku teikō* (Account of my difficulties in translating Dutch books, ca. 1816); Ōtsuki's work can be found in *Yōgaku* (Western studies), 2 vols., ed. Numata Jirō et al., Nihon Shisō Taikei (Series of Japanese thought), vols. 64–65 (Tokyo: Iwanami Shoten, 1972–76), esp. 1:379, giving the date of about 1816. A reproduction is in Kurita, *Nihon kohan chizu shūsei*, pls. 10 and 11 (note 15), and in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 16 (note 11). For the copperplate map, see Ayusawa, "Types of World Map," 124, 126, and fig. 1; see also Ramming's comments, 128 (note 235).

340. The *Shinsen sōkai zenzu* is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, fig. 82 (note 8).

341. Philipp Franz von Siebold, *Nippon, Archiv zur Beschreibung von Japan und dessen Neben- und Schutzländern*, 4 vols. (Leiden, 1832–[54?]), vol. 1, pl. I ("Japan mit seinen Neben und Schutzländern"). He entered the place-names on the map in two ways: on some editions, such as the one at the Kinki University Library in Higashiōsaka (22.5 × 34.1 cm), the place-names are all written in the same direction, whereas on other editions, such as the one at the Kyūshū University Library in Fukuoka (21.9 × 34.1 cm), the place-names in western Japan are written in various directions. Von Siebold's map is described in detail in Unno Kazutaka, "Shīburoto to 'Nihon henkai ryakuzu' " (Siebold and his small map of Japan), *Nihon Yōgakushi no Kenkyū* 5 (1979): 101–28. On Inō Tadataka, see below.

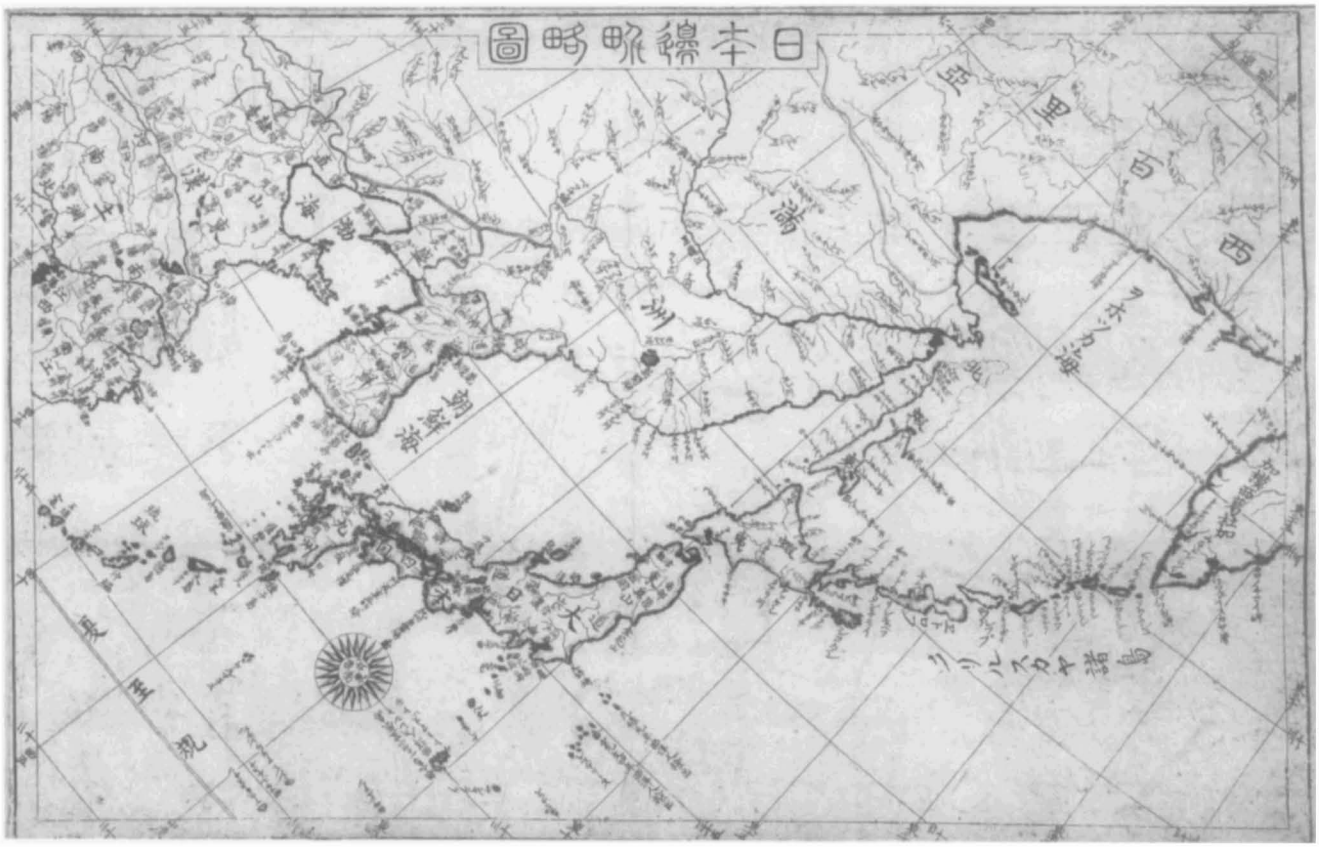


FIG. 11.67. TAKAHASHI KAGEYASU'S *NIHON HENKAI RYAKUZU*, 1809. This map is paired on a scroll with Takahashi's *Shinsen sōkai zenzu*, a small trial print of the *Shintei bankoku zenzu*. This copperplate was the first map of Japan made in Japan to be executed on a predetermined projection, conical with equidistant parallels; the prime meridian runs through Kyōto. The portrait of Sakhalin (Karafuto in Japanese) was based on surveying reports of Mamiya Rinzō before 1808. Size of the original: 21.5 × 34.5 cm. Photograph courtesy of Kazutaka Unno.

to prison, where he died), and many of von Siebold's students were also imprisoned. The map was confiscated, but von Siebold was able to make a copy and publish it.[342] In addition to the attempt to smuggle a map out of the country, von Siebold had also engaged in further cartographic espionage. It is known that he secretly made topographic measurements during a journey to Edo, undertook a hydrographic survey of the Strait of Shimonoseki, studied Japanese maps of territories north of Honshū in the shogun's library, and consulted Japanese geographical works including a map by Mogami Tokunai (1754–1836), a diary by Mamiya Rinzō, and a work by Takahashi, presumably a map of Hokkaidō and Sakhalin.[343]

As far as Japanese cartography was concerned, the exchange worked in the other direction. Takahashi's map stimulated the compilation and publication of maps of the world and foreign countries, based mainly on recently acquired European models. Examples include the *Shinsei yochi zenzu* (Newly made map of the world, 1844) by Mitsukuri (or Mizukuri) Shōgo (1821–47), *Dōhan bankoku yochi hōzu* (cover title, Copperplate square map of all the countries in the world, 1846) by Nagai Seigai (or Soku, d. 1854) (fig. 11.69), *Shintei kon'yo ryakuzenzu* (Newly revised map of the earth, 1852) by Shibata Shūzō (1820–59), *Chōtei bankoku zenzu* (Repeatedly revised map of all the countries, 1855) by Yamaji Akitsune (fl. 1835–60) and Shibata Shūzō, *Yochi kōkaizu* (Chart of

342. The map in von Siebold, *Nippon* (1840) (note 341) measures 91.8 by 67.9 centimeters (only Honshū, Shikoku, and Kyūshū). Von Siebold himself mentions the affair in *Manners and Customs*, 169–70 (note 328). For a brief discussion of von Siebold and Japan, see Cortazzi, *Isles of Gold*, 51–53 (note 14), and Plutschow, *Historical Nagasaki*, 106–9 (note 128).

343. See Cortazzi, *Isles of Gold*, 51 (note 14); one of von Siebold's maps is reproduced (pl. 83): *Karte vom japanischen Reiche*, dated 1840 (39.5 × 55 cm) and kept at the British Library, London. In regard to Mogami's work, von Siebold states that on 16 April 1826 he was given maps of Ezo, the Kuriles, and Sakhalin by Mogami and promised not to publish them for twenty-five years; he adhered to this and published them in 1852. See von Siebold in J. C. Coen, *Reize van Maarten Gerritsz. Vries in 1643 naar het noorden en oosten van Japan* . . . (Amsterdam, 1858), 336. On Mogami, see below.

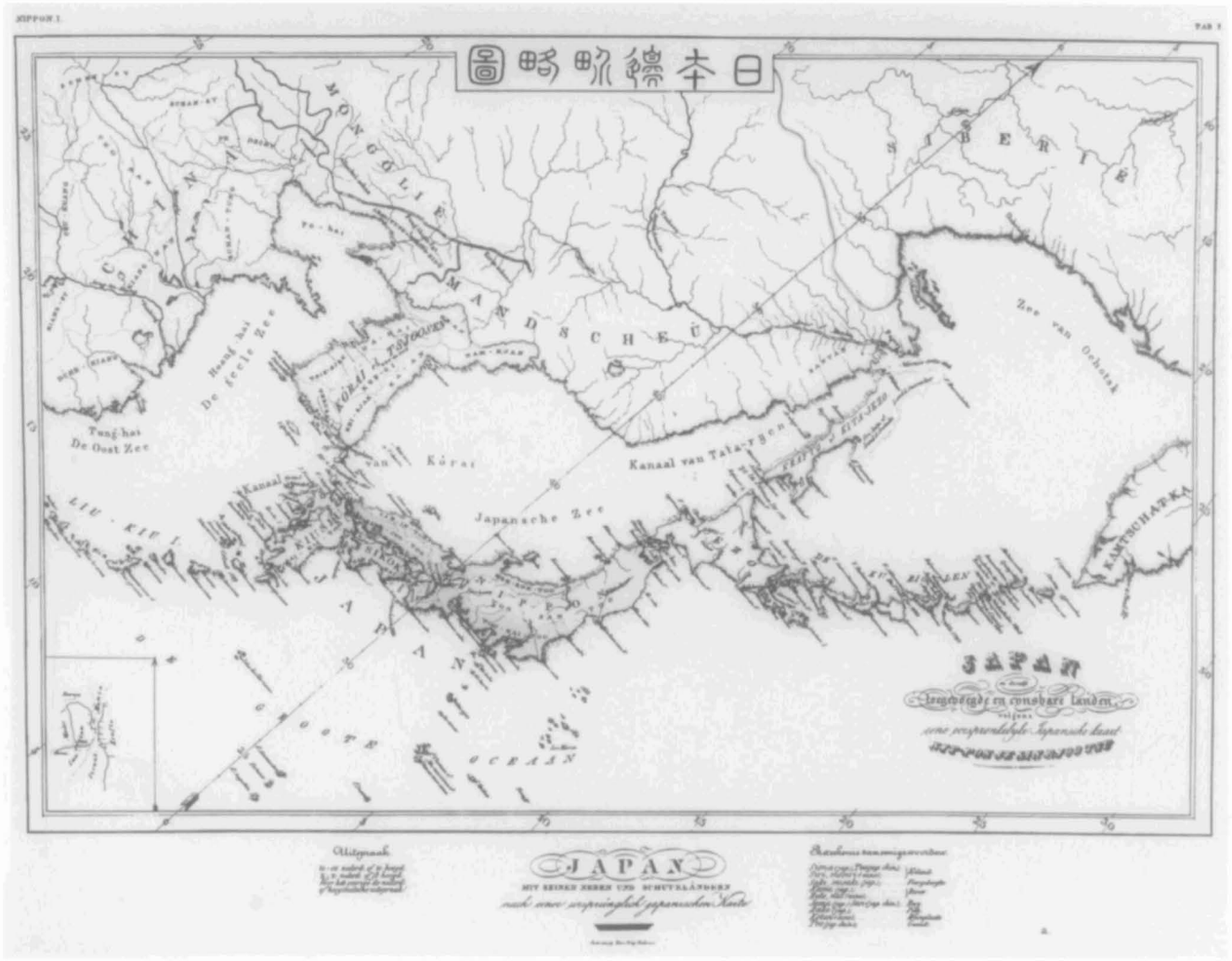


FIG. 11.68. *JAPAN MIT SEINEN NEBEN UND SCHUTZ-LÄNDERN* BY PHILIPP FRANZ VON SIEBOLD, 1832. The Chinese characters at the top are the same as on Takahashi's *Nihon henkai ryakuzu* (fig. 11.67), of which this map is a translation with some additional information such as "Str. Mamia" and "De la Pérouse Str." (respectively the Tatar Strait and the La Pérouse or Sōya Strait).
Size of the original: 22.5 × 34.1 cm (frame). By permission of the Kinki University Library, Higashiōsaka, Ōsaka Prefecture.

the world, 1858) by Takeda Kango (d. 1859), and *Shinkan yochi zenzu* (Newly published map of the world, 1861) by Satō Masayasu (1821–77).[344]

Each of these maps exhibited some notable feature or revision that indicates the breadth of geographical sources and knowledge available to the *Rangaku* scholars by the late Edo period. Thus Mitsukuri's map contains a revision of the southeast coast of Australia, the rest of the content being based on the *Shintei bankoku zenzu* and, evidently, partly on a French map dating from 1835. One of its characteristics is the representation of colonies so that it is possible to determine at a glance whose rule they lay under. Nagai's map claims to have been based on a British map of 1839. This appears to be true because of its use of the Mercator projection and the outlines of the land, but there are many similarities to the place-names on Mitsukuri's map, suggesting that at least one other original source was employed.[345] While appearing

344. Those of 1844, 1846, 1855, and 1858 are mentioned in Ayusawa, "Types of World Map," 125–27, and Ramming's comments, 128 (note 235). Reproductions of the six examples cited here are in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 89 (1844 map, 33.5 × 59 cm, on a scroll measuring 35 × 120 cm), pl. 91 (1846 map, 32 × 36 cm, on a scroll measuring 33.5 × 109.5 cm), pl. 95 (1852 map, 40 × 72.5 cm, on a sheet measuring 49 × 107 cm), pl. 99 (1855 map, 104 × 185 cm), pl. 100 (1858 map, 88.5 × 156.5 cm), and fig. 94 (1861 map, 136 × 133.5 cm) (note 8). A copy of the 1846 map is also in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 17 (note 11).

345. Yasuda Raishū, an artist, was in charge of the copperplate printing. The first Japanese printed map to use the Mercator projection was Shiba Kōkan's *Hinkai zu* (Map of coastal regions, 1805), which includes the Indian Ocean and East Asia. It is preserved in the Beans Collection at the University of British Columbia Library (38 × 53 cm) and at the

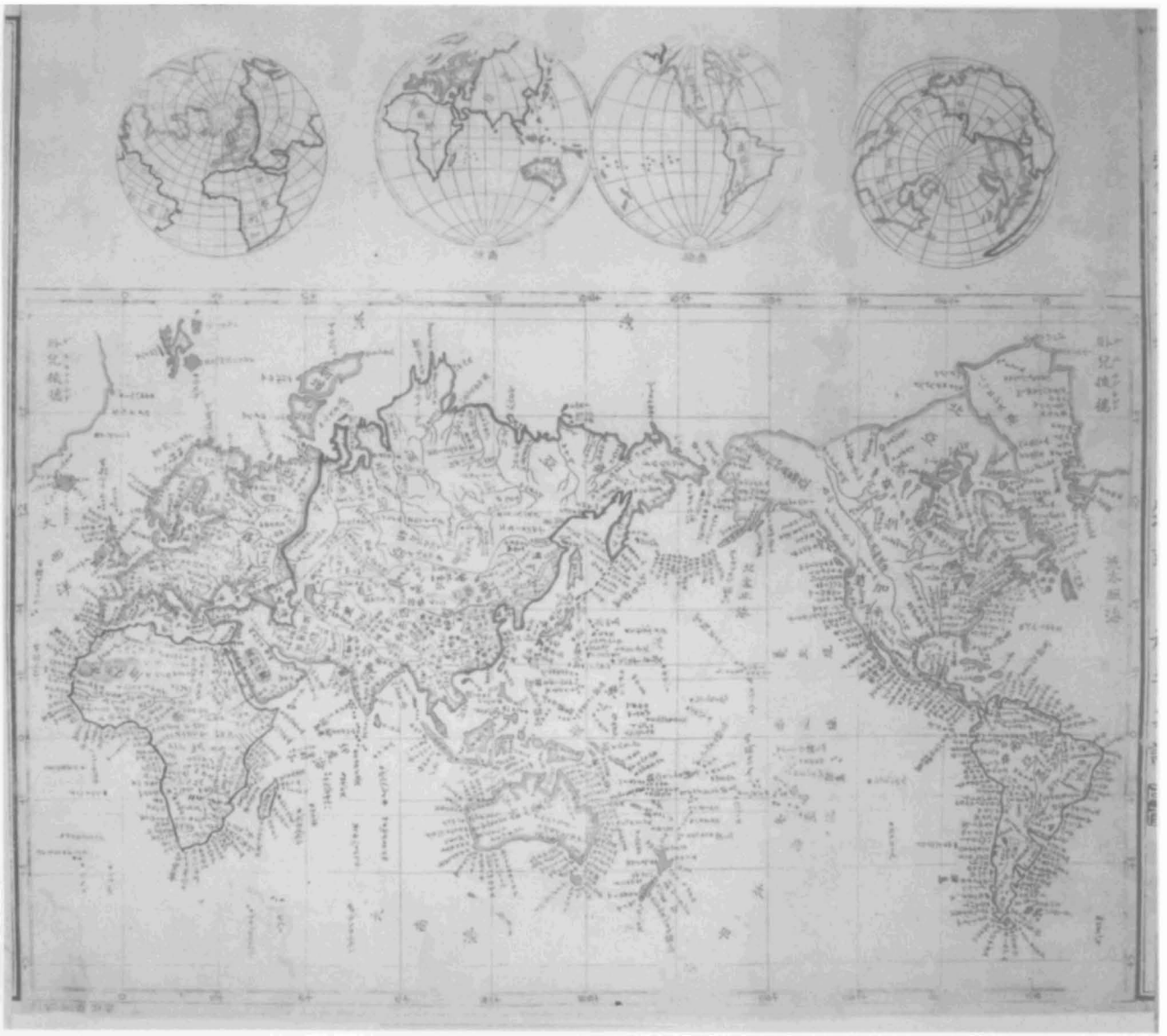


FIG. 11.69. *DŌHAN BANKOKU YOCHI HŌZU* BY NAGAI SEIGAI, 1846. Sources for this scroll included the *Shinsei yochi zenzu* and a British map dating from 1839. Size of the entire scroll: 33.5 × 109.5 cm (map only: 32 × 36 cm). By permission of the Kayahara Hiroshi Collection, Tsu, Mie Prefecture.

on an old-fashioned oval projection, Shibata's map makes a contribution through its new content.[346] Moreover, to designate mountainous areas, it employs hachures that had been introduced to Japanese printed maps in 1850 on the *Shin'yaku Orandakoku zenzu* (Newly translated map of Holland) by Takami Senseki (1785–1858).[347] The map by Yamaji and Shibata revised southern Australia and the northern part of North America according to information from Karl Sohr and Friedrich H. Handtke's *Vollständiger Universal-handatlas der neueren Erdbeschreibung über alle Theile der Erde* of 1846.[348] Though

Mitsui Library in Tokyo; for a reproduction, see Mody, *Nagasaki Colour Prints*, pl. 195 (note 239). Which British map was involved in Nagai's map is not known.

346. According to Shibata's explanation, he used an oval projection after taking into account the deficiencies of the stereographic and Mercator projections. Shibata says that a map that consists of two circles (stereographic projection) makes the central part of the circles too small, and a square map (Mercator projection) makes the parts close to the poles too large.

347. The map is 57 by 86 centimeters, and on the case is printed a statement to the effect of "permission to publish, the first month of the third year of Kaei" (1850). For a reproduction, see Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 90 (note 8). A facsimile was published by Noma Kagaku Igaku Kenkyūshiryō Kan (Tokyo, 1981).

348. The *Chōtei bankoku zenzu* (also *Jūtei bankoku zenzu*) was an official publication like the *Shintei bankoku zenzu*, of which it was a revision. The *Chōtei* was compiled under the direction of Yamaji Yukitaka (or Kaiko). Ayusawa notes that the information came from the world map in Sohr and Handtke's atlas. See Ayusawa, "Types of World

other sources were also consulted, Takeda's map is a translation of John Purdy's chart of the world (1845), brought to Japan by Russian sailors in 1854.[349] Both this map and Satō's work are large and based on the Mercator projection. Satō's map was derived mainly from an unidentified Dutch map issued in 1857.

The impact of *Rangaku* on Japanese cartography can thus hardly be overestimated. Not only were new basic maps of the country compiled and published, but many of these accurate and detailed maps were also in turn popularized by the publication of reduced and simplified versions.

Japanese Mapping of Their Northern Frontier and Coastlines

Important surveying work was undertaken in the northern frontier region late in the eighteenth century and in the first quarter of the nineteenth. Although overlapping to some extent, there were two principal objectives. One brought to a conclusion a protracted episode in Japanese cartography involving the exploration and mapping of the islands to the north of Honshū.[350] In a sense we can refer to this region as the "northern frontier," although only Hokkaidō today is uncontestedly Japanese.[351] The other objective was an accurate portrait of the archipelago as a whole, which was completed in 1821 and based on the remarkable survey of the coastlines by the former sake maker Inō Tadataka.

Throughout the ancient and medieval periods the political unification of the archipelago excluded the northern part of Honshū and the islands lying to the north of it. Since antiquity the terms used for these islands were "Ezochi" and "Ezo,"[352] and although the origin is not known for certain, Ezo is thought to have been derived ultimately from the Ainu language as a corruption of "Emichiw" (man). Two corruptions of Emichiw—"Emishi" (hairy people) and "Ebisu" (barbarians)—were used before the Nara period to designate the non-Japanese to the east of the area of Japanese settlement on Honshū. As the Japanese expanded eastward and northward, the term moved northward to denote the unconquered, unassimilated peoples. From the beginning of the Edo period, the coastal areas along the Pacific Ocean and the Sea of Japan, to which ships sailed from the provincial seat of Matsumae at the southern tip of Hokkaidō, were known as East and West Ezochi. In the case of West Ezochi most of the ships headed directly north, the end

Map," 126, and Ramming's comments, 128 (note 235). A copy of Sohr and Handtke's atlas is preserved at the National Diet Library, Tokyo (formerly the Mitsukuri Shōichi Collection).

349. Ayusawa remarks that Takeda's map went through several editions before 1900: Ayusawa, "Types of World Map," 126 (note 235). Purdy's chart was brought to Japan in 1854 by the envoy Evfimy Putyatin, who concluded a treaty to open Japan to Russian trade in 1855, following in the footsteps of the United States and Britain, which had negotiated treaties in 1854; it was on board the frigate *Diana*, which was damaged by tsunamis following an earthquake while anchored at Shimoda harbor (now in Shizuoka Prefecture). For an account of the Russian mission's sojourn in Japan, see Howard F. Van Zandt, *Pioneer American Merchants in Japan* (Tokyo: Lotus, 1980), 77–142. For more information on Takeda's map, see Ayusawa Shintarō, "Takeda Kango no Yochi kōkaizu no keitō" (Genealogy of Takeda Kango's *Yochi kōkaizu*), in his *Sakoku jidai no sekaichirigaku* (World geography in the age of national isolation) (Tokyo: Nichidaidō Shoten, 1943; reprinted Hara Shobō, 1980), 331–49.

350. On Japanese exploration to the north of Honshū, see Nobuo Muroga, "Geographical Exploration by the Japanese," in *The Pacific Basin: A History of Its Geographical Exploration*, ed. Herman R. Friis (New York: American Geographical Society, 1967), 96–105. On the history of cartography of the northern frontier, refer to three articles by Takakura Shin'ichirō and Shibata Sadakichi and a fourth (the supplement) by Takakura alone: "Wagakuni ni okeru Karafuto chizu sakuseishi" (History of the development of the cartography of Sakhalin in Japan); "Wagakuni ni okeru Chishima chizu sakuseishi" (History of the development of the cartography of the Kuriles in Japan); "Wagakuni ni okeru Hokkaidō hontō chizu no hensen" (Development of the cartography of Hokkaidō in Japan), 1 and 2; and "Hokkaidō chizu no hensen hoi" (Development of the cartography of Hokkaidō: Supplement)—all in *Hokkaidō [Teikoku] Daigaku Hoppō Bunka Kenkyū Hōkoku*, nos. 2 (1939): 1–48, 3 (1940): 1–75, 6 (1942): 1–80 and 7 (1952): 97–166, and 11 (1956): 49–73, respectively. Important maps of the northern frontier are reproduced in Hoppō Ryōdo Mondai Chōsakai (Japan Society for Research on the Northern Territories), ed., *Hoppō Ryōdo: Kochizu to rekishi* (The northern territories of Japan: Old maps and history) (Tokyo: Chūōsha, 1971), and in Narita Shūichi, ed., *Ezo chizu shō* (Extracted maps of Ezo) (Tokyo: Sara Shobō, 1989). Important maps of Hokkaidō are reproduced in Takakura Shin'ichirō, ed., *Hokkaidō kochizu shūsei* (Collection of historical maps of Hokkaidō and the adjacent regions) (Sapporo: Hokkaidō Shuppan Kikaku Sentā, 1987). See also Teleki, *Atlas zur Geschichte der Kartographie* (note 163); Cortazzi, *Isles of Gold*, 54–61 (note 14); John A. Harrison, "Notes on the Discovery of Yezo," *Annals of the Association of American Geographers* 40 (1950): 254–66; and Koreto Ashida, "Old Maps of Hokkaido," in *Dainippon* (Great Japan), ed. Bunmei Kyōkai (Tokyo: Bunmei Kyōkai, 1936), 127–37.

351. From the Japanese point of view, the Kurile Islands (Chishima) lying to the south of Urup (in Japanese, Uruppu) were occupied illegally by the Soviet Union at the end of the Second World War and are thus still considered Japanese. The islands in question are, from north to south: Iturup, Kunashir, Shikotan, and the Malaya Kuril'skaya Gryada (Small Kurile Ridge); their Japanese names are Etorofu, Kunashiri, Shikotan, and the Habomai group. The rest of the Kuriles are not disputed and have been a part of Russia since 1945. Before then, the entire chain was Japanese from 1875, when an agreement was reached giving Russia Sakhalin (Karafuto in Japanese) and Japan the Kuriles. Sakhalin itself had been under joint rule from 1867 until 1875, and in 1905 the southern half of it was annexed by Japan after the 1904–5 Russo-Japanese War. During the Russian civil war of 1917–22, northern Sakhalin became a part of the Russian Far Eastern Republic of 1920–22, but it was incorporated into the Soviet Union in 1922. In 1945 the Soviet Union annexed the southern part of the island; it is not disputed and is now part of Russia.

352. Ezo or Yezo was evidently divided into three parts: Matsumae and Ezochi (Hokkaidō), Kita or Oku (northern or distant: Sakhalin), and Ezo ga Chishima or Chishima (thousand islands of Ezo or thousand islands: the Kuriles).

FIG. 11.70. AN EXAMPLE OF A MAP SHOWING HOKKAIDŌ AS A PENINSULA: THE SEVENTEENTH-CENTURY MANUSCRIPT *MATSUMAE EZOCHI EZU* (MAP OF MATSUMAE AND EZOCHI). In the lower right corner is the northern extremity of Honshū, with Hokkaidō shown as a peninsula stretching from the upper right corner to the center of the map. A delineation of Sakhalin (Karafuto) in the upper left is noted to be near northern Korea.
Size of the original: 113 × 96 cm. By permission of the Hokkaidō University Library, Sapporo.

of the shipping line being known as "Teshio-furo," a corruption of the Ainu term *Teshio-kuru* (people of Teshio, a place in northwestern Hokkaidō). The end of the East Ezochi line was known as "Menashi-furo," a corruption of the Ainu *menashi-kuru* or "eastern people" (today's Nemuro region).[353]

Until this time, the geography of what is now known as Hokkaidō (so called since 1869) was a question mark. Only the southwestern part of the island had been governed by the Japanese since the fourteenth century, and when Tokugawa Ieyasu recognized the Matsumae clan as overlords in 1604, it was still uncertain whether Hokkaidō was part of continental Asia or a separate island. The first recorded surveying expedition to the northern frontier dates to 1633, when the daimyo of Matsumae ordered a vassal, Takahashi Giemon, to determine the distance between East and West Ezochi. The next expedition appears to have been conducted in 1635 by another vassal, Murakami Hiroyoshi. He was ordered to circumnavigate and map Hokkaidō, but it is not known whether he completed this voyage or what kind of map, if any, he compiled. The first map to be identified from the Matsumae clan was one submitted to the shogunate in connection with the 1644 project to complete the Shōhō provincial maps. This map has been lost, but the miniature and inaccurate copy incorporated in the Shōhō map of Japan has survived. In 1661 another circumnavigation of Hokkaidō took place; this was entrusted to the vassal Yoshida Sakubee, who sailed along the eastern coast to the north and then around to Matsumae that summer. In 1700, for the fourth national project to compile provincial maps, the clan submitted only another small map with the same detail as that included in the Shōhō map.[354]

Despite the lack of original survey maps, there are other maps of the northern frontier. These were compiled from those in the possession of the Matsumae clan before the Ezochi expedition under the auspices of the shogunate in 1785–86. These maps may be classified according to their depiction of Hokkaidō as an archipelago with exaggerated rivers, as a long island stretching north to south, or as a peninsula curving from the east to the southwest (figs. 11.70 and 11.71).[355]

353. Teshio-furo and Menashi-furo appeared, for instance, as Texxoy and Menaxi on the 1621 map accompanying the report of the Italian Jesuit Girolamo de Angelis (1567–1623), the first European to visit and to compose a map of what is now Hokkaidō. It was depicted as an elongated island stretching from west to east, with these names at either end. Angelis's reports of 1618 (London, British Museum, Add MS. 9860, fols. 239–42) and of 1621, accompanied by a map (39 × 53 cm; Archivum Romanum S.J., Epistolae Martyrum, Jap. Sin. 34, fols. 49–54v), are reproduced in Hubert Cieslik, ed., *Hoppō Tanken Ki* [Record of an exploration of the northern region]: *Foreigners' Reports on Ezo in the Genna Period* (Tokyo: Yoshikawa Kōbunkan, 1962). Studies pertaining to the Angelis map include Kitagawa, "Map of Hokkaido"; Schütte, "Map of Japan"; and Kudo, "De Angelis' Yezo Map" (all in note 121). Kitagawa also reproduces the map, as does Cortazzi, *Isles of Gold*, pl. 84 (note 14).

354. For a brief history of the cartography undertaken by the Matsumae clan, see Matsumae Hironaga, *Matsumae shi* (History of Matsumae, 1781), chap. 2, 122–34, in the *Hokumon sōsho*, vol. 2 (note 335). Also see Matsumae Hironaga, ed., *Fukuyama hifu* (Important records of Fukuyama [Matsumae], 1776), *Nenrekibu* (Chronicle), in *Shinsen Hokkaidō shi* (Newly compiled history of Hokkaidō), 7 vols., ed. Hokkaidō Chō (Hokkaidō Office) (Sapporo, 1936–37), vol. 5. See above for information on the third and fourth projects to compile provincial maps and the resulting Shōhō and Genroku national maps. The Genroku map of Matsumae and Ezo was preserved at the Tokyo University Library but was lost in the fire following the Great Kantō Earthquake of 1923; a reduced copy (83 × 65 cm), however, is kept at the Hokkaidō University Library, Sapporo, and reproduced in Takakura, *Hokkaidō kochizu shūsei*, pl. 10 (note 350).

355. An example of a map showing Hokkaidō as an archipelago is the early eighteenth-century *Ezo zu* (Map of Ezo), a manuscript at the Hokkaidō University Library, Sapporo (102 × 101.5 cm). Two with Hokkaidō as an island elongated from north to south are "Ezo no zu" (Map of Ezo) in the *Wakan sansai zue* (1715) (see note 93), and Hayashi Shihei's *Ezo no kuni zenzu* (fig. 11.71). An example with Hokkaidō as a peninsula is the seventeenth-century manuscript *Matsumae Ezochi*

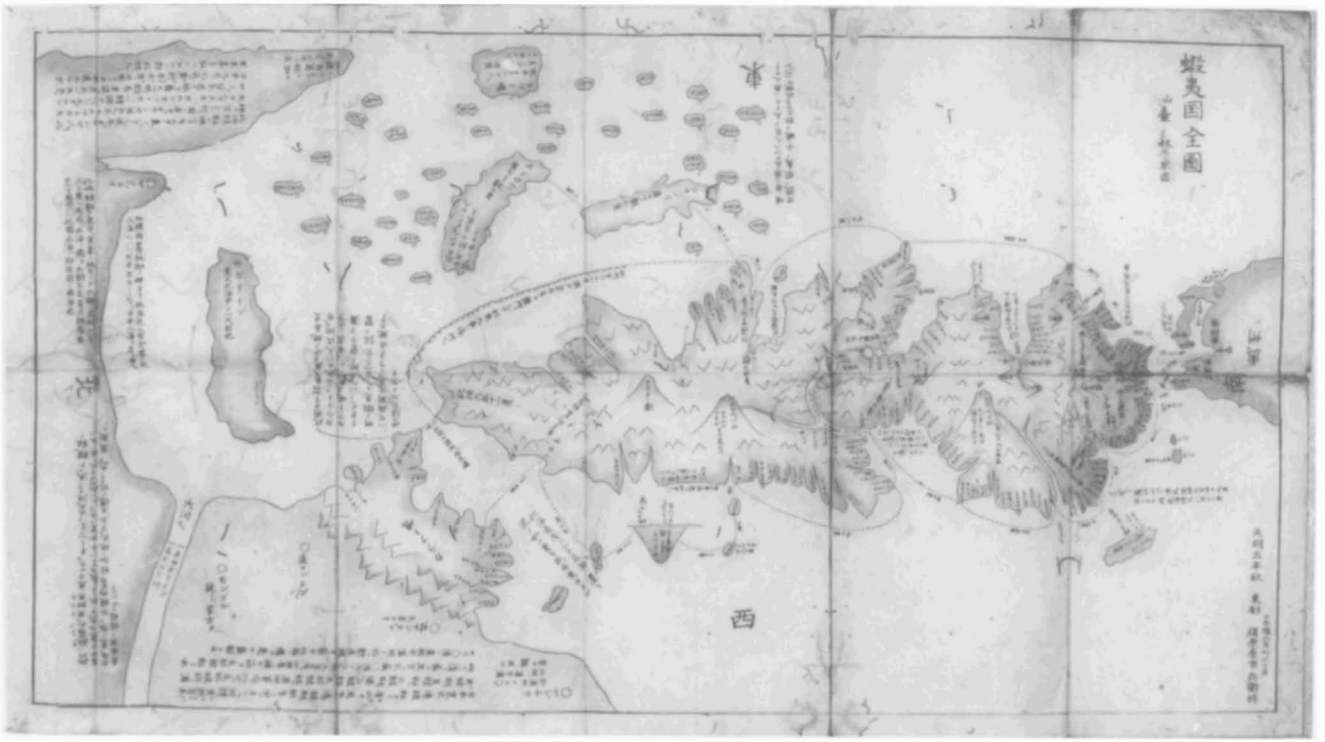


FIG. 11.71. *EZO NO KUNI ZENZU* (MAP OF THE EZO REGION) BY HAYASHI SHIHEI, 1785. Oriented to the east, this is an example of Hokkaidō's being elongated from north to south. The islands toward the top are the Kuriles (Chishima), and Sakhalin is shown as an island to the left. An interesting point is that Karafuto, later determined to be the same as Sakhalin, is shown as part of the Asian continent to the northwest of Hokkaidō and the southwest of Sakhalin. The source of information was a map submitted to the shogunate by the Matsumae clan before the official Ezochi expedition in 1785–86. Size of the original: 50 × 92 cm. By permission of the Kōbe City Museum, Kōbe, Nanba Collection.

The 1785–86 exploration of the northern frontier by the shogunate was a new departure prompted by the advance of the Russians in northeastern Asia.[356] This move had created official anxiety, and geographical information on the northern frontier was essential on the grounds of both diplomacy and national defense. Ten shogunal officers including Yamaguchi Tetsugorō were appointed as formal members of the expedition. Mogami Tokunai, who later gained fame as an explorer and surveyor, was among them as an assistant to Aoshima Shunzō, and together with Yamaguchi and two others they were in charge of East Ezochi. Among the five to explore West Ezochi were Satō Genrokurō and Ihara Yaroku. In 1785 the eastern contingent explored along the Pacific coast of Hokkaidō and eventually reached the island of Kunashir in the Kuriles before returning to Hokkaidō. After reaching Sōya, three of the western group, including Ihara, crossed to Sakhalin, where they went to Tarantomari (at approximately 47°10′N) on the west coast, and then to Shiretoko on Hokkaidō before returning to Sōya. In 1786 Yamaguchi and Mogami went to Iturup and Urup, islands in the Kurile chain; Ōishi Ippei went north along the west coast of Sakhalin to Kushunnai (Il'inskiy, at approximately 48°N) and then turned back.[357] Surveying was conducted en route as well as at

ezu (fig. 11.70). All are reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pls. 63 and 64 and figs. 30 and 58 (note 8).

356. On Russian expansion in relation to Japan see Sansom, *History of Japan*, 3:201–5 (note 32), and Harrison, "Discovery of Yezo," 259–62 (note 350). Several treatises have been compiled about Russian exploration, which included exceptional activity in the Far East and northern Pacific during the eighteenth century. Examples include D. M. Lebedev, *Ocherki po Istorii Geografii v Rossii XVIII v. (1725–1800 gg.)* (Essays on the history of geography in Russia in the eighteenth century [1725–1800]) (Moscow: Izdatel'stvo Akademii Nauk SSSR, 1957); L. S. Berg, *Otkrytie Kamchatki i ekspeditsii Beringa, 1725–1742* (The discovery of Kamchatka and the expeditions of Bering, 1725–1742) (Moscow: Izdatel'stvo Akademii Nauk SSSR, 1946); G. P. Müller, *Voyages et découvertes faites par les Russes le long des côtes de la Mer Glaciale & sur l'Océan Oriental, tant vers le Japon que vers l'Amérique*, 2 vols. (Amsterdam: Marc-Michel Rey, 1766); and Innokenty Gerasimov, ed., *A Short History of Geographical Science in the Soviet Union* (Moscow: Progress, 1976). For reproductions of some of the maps from this period, see A. V. Efimova (Yefimov), *Atlas geograficheskikh otkrytiy v Sibiri i v severo-zapadnoy Amerike XVII–XVIII vv.* (Atlas of geographical discoveries in Siberia and northwestern America, seventeenth to eighteenth century) (Moscow: Nauka, 1964).

357. Reports of the expedition are in Satō Genrokurō, *Ezo shūi* (Supplement of Ezo, 1786) in the *Hokumon sōsho*, vol. 1 (note 335); a translation into modern Japanese is in Inoue Takaaki, trans., *Akaezo fusetsu kō* (Research on the rumors about the Red Ezo [Russians])

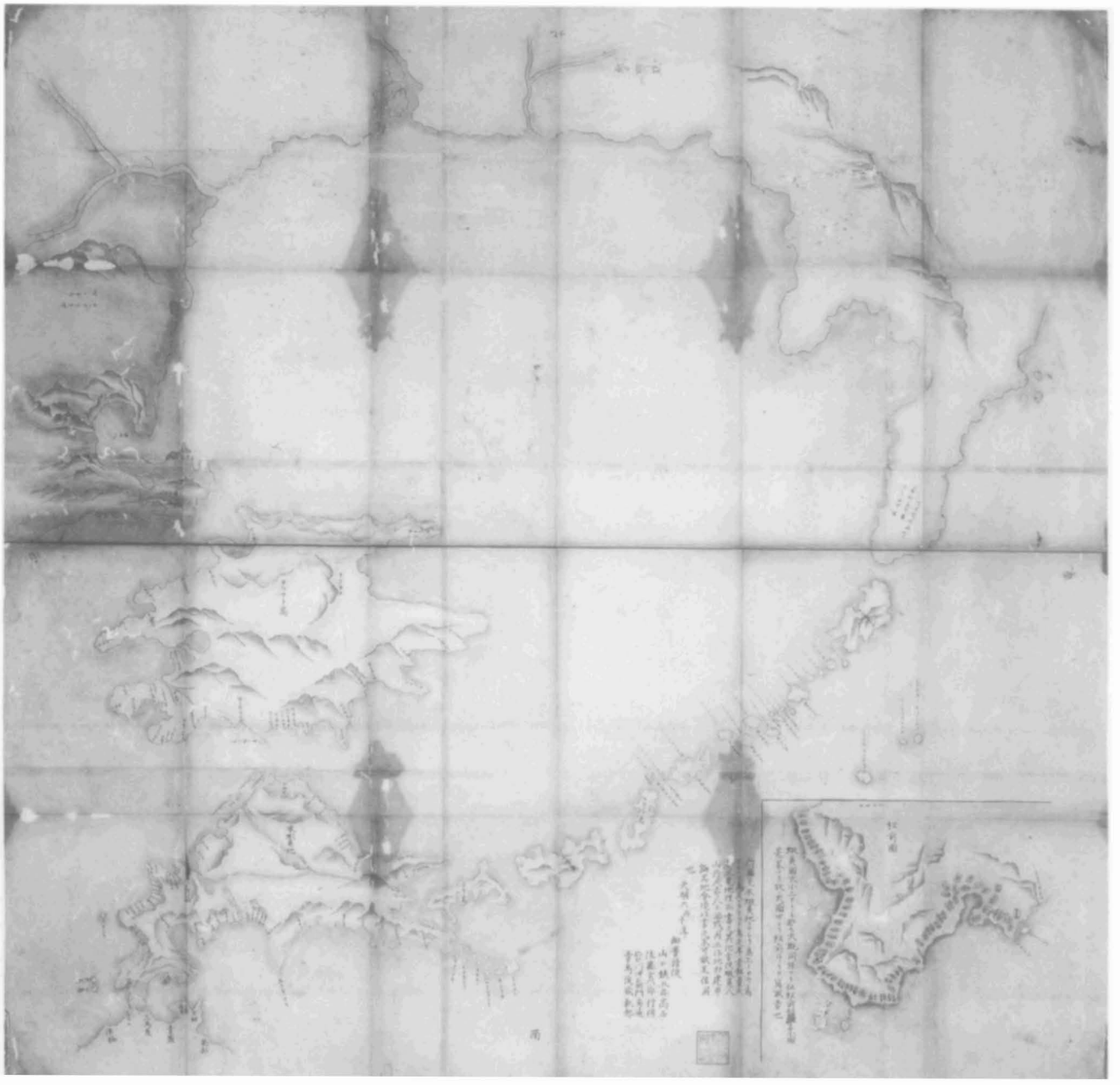


FIG. 11.72. MAP OF EZO (1786) FROM THE 1785–86 EXPEDITION COMMISSIONED BY THE SHOGUNATE. Possibly an interim report of the suspended project, the manuscript shows Sakhalin larger than it should be, but the representation of Hokkaidō and the Kuriles is reasonable. This version has the signatures of Yamaguchi Tetsugorō and three others. Size of the original: 96.5 × 100.5 cm. Muroga Emiko Collection, Kyōto. Photograph courtesy of Kazutaka Unno.

the final destinations. The resulting map, compared with its largely conjectural predecessors, showed a remarkable improvement in the representation of the territory (fig. 11.72).

The map nevertheless had its defects. Hokkaidō is shown shorter from north to south than it actually is, while Sakhalin is drawn as larger than Hokkaidō but with a similar appearance.[358] This first map may be regarded as an interim report of the expedition: the project was suspended when only half completed because of the

(Tokyo: Kyōikusha, 1979), 95–211. A work with a complete account of the 1785–86 expedition is Terui Sōsuke, *Tenmei Ezo tanken shimatsu ki* (The circumstances of the exploration of Ezo during the Tenmei era) (Tokyo: Yaedake Shobō, 1974).

358. Copies are preserved in the Muroga Emiko Collection, Kyōto, the National Archives in Tokyo, the Tenri Central Library (Matsudaira Sadanobu Collection), and the Yamaguchi Prefectural Archives (Mōri Family Collection) in Yamaguchi.

political downfall of its promoter, the chief of the cabinet Tanuma Okitsugu (1719–88). Yet even in its incomplete state it marked a new stage in knowledge of the northern frontier, and it was incorporated into Nagakubo's map of the world of about 1788. The same cartographer published the *Ezo Matsumae zu* (Map of Ezo and Matsumae), based on the shogunal expedition's map of about 1790.[359]

While the shogunate's project was still under suspension, the Matsumae clan conducted an independent survey of Sakhalin in 1790. The expedition reached Kotantoru at approximately 48°40′ north on the west coast and Cape Aniva (Nakashiretoko) at 46° north on the east coast, and the results of the survey were recorded in the manuscript map of about 1793, *Matsumae chizu* (Map of Matsumae) by Katō Kengo. This, however, perpetuated the error of the previous expedition and overextended the island from east to west. Only the image of southern Sakhalin around Aniva Bay showed an improvement.[360]

In 1791 the shogunate resumed its interest in the territory and dispatched a second party to the north, headed by Mogami Tokunai, who had served as a highly praised assistant on the first expedition. Mogami began by resurveying Iturup and Urup, and in 1792 he extended the work to Sakhalin. Here he explored Tōfutsu at 46°30′ north on the eastern coast of Aniva Bay and Kushunnai. The information he obtained was incorporated into improved maps of these areas.[361]

In the same year that Mogami was surveying on Sakhalin, Laxman sailed into Nemuro, and in 1796–97 British ships anchored in Uchiura (or Funka [Eruption]) Bay.[362] These events forced the shogunate to intensify its interest in the northern frontier. The result was an expedition launched in 1798 on an unprecedented scale, with 182 members in all, including Mogami. The expedition was really a pretext for establishing a shogunal administration in the north.[363] After examining the results of this expedition, the shogunate decided in 1799 to rule eastern Hokkaidō and the southern islands in the Kurile chain directly rather than allowing them to remain under the control of the Matsumae fiefdom. Subsequent exploration was undertaken under the aegis of the shogunate and led to the collection of more data to improve the map of Hokkaidō.[364]

The compilation of a manuscript chart—*Kōto (Edo) yori Tōkai Ezochi ni itaru shinro no zu* (Chart of the course from Edo to Ezochi)—to ensure safe travel by sea from Edo to the Pacific coast of Hokkaidō was also completed in 1799. This was undertaken by Hotta Nisuke (1745–1829), an employee of the astronomical observatory, on the orders of the shogunate.[365] In 1800 the shogunate permitted Inō Tadataka to survey the Pacific coast of Hokkaidō, and the remainder of the coastline had been completed by 1817 by Mamiya. Before the completion of this survey, however, the shapes of Hokkaidō, the southern Kuriles, and southern Sakhalin were already well delineated. The proof of these improvements is to be found in Kondō Morishige's (1771–1829) *Ezochi zushiki* (Map of Ezo) of 1802 (fig. 11.73).[366] Kondō had surveyed in the north regularly since

359. The *Ezo Matsumae zu* (33.3 × 45.5 cm) is reproduced in Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 47 (dated ca. 1795) (note 11). It is at the Kōbe City Museum (Nanba Collection).

360. Takahashi Hiromitsu, a vassal of the clan, was in charge of the survey, and Katō Kengo was a physician of the Matsumae lord; see Takakura and Shibata, "Wagakuni ni okeru Karafuto chizu sakuseishi," 14–18 (note 350).

361. There were six people, two of whom were in charge of the expedition, in 1791; in 1792 there were twelve all together. Those who went to Sakhalin were Mogami, Wada Hyōdayū, and Kobayashi Gennosuke. See Minagawa Shinsaku, *Mogami Tokunai* (Tokyo: Dentsū Shuppanbu, 1943), 98–129.

362. Presumably associated with the discoveries of Broughton in 1795–97. See William Robert Broughton, *A Voyage of Discovery to the North Pacific Ocean* (London: T. Cadell and W. Davies, 1804; reprinted Amsterdam: Nico Israel, and New York: Da Capo Press, 1967).

363. In the summer of 1798 Mogami went to Iturup with Kondō Morishige; see Minagawa, *Mogami Tokunai*, 140–202 (note 361). For Mogami's reports see his *Ezo sōshi* (Draft of Ezo, 1790) and his *Ezo sōshi kōhen* (Draft of Ezo: Sequel, 1800), both in the *Hokumon sōsho*, vols. 1 and 3 (note 335).

364. Besides Mogami, other important explorers and surveyors who were active in Ezo in and after 1798 included Kondō Morishige, Hata Ahakimaro (or Murakami Shimanojō, 1760–1808), and Mamiya Rinzō. Kondō went to Ezochi in 1798 with Watanabe Kyūzō, a high-level shogunal officer, and also reached Iturup that year and the next; in 1798 it was Mogami who guided them to Iturup. Kondō explored Ezochi five times in all until he was released from the office in 1808. Hata went with Kondō in 1798 and investigated eastern Hokkaidō and Kunashir; from 1799 to 1807 he often went to Hokkaidō to explore. In 1801 he and another high-ranking shogunal official, Matsudaira Tadaakira, went on an expedition around Hokkaidō, which led to a great improvement of its shape on maps. Hata is not known only for his work in the north: he was an eminent surveyor, as his maps of the Kantō provinces (Awa, Izu, and Kazusa) of 1789–93 attest. See Minagawa Shinsaku, "Murakami Shimanojō no Ezochi kinmu" (Murakami Shimanojō's service in Ezochi), *Denki* 7, nos. 4–6 (1940): 10–15, 19–24, 17–24. Mamiya went to Ezochi for the first time in 1799 as an assistant to Hata, and the next year he was appointed to a lower-level position in the shogunate. He was involved in surveying and exploring Ezochi until the shogunate abolished its direct control in 1822. He might have learned his surveying skills from Hata. See Akaba Eiichi, *Mamiya Rinzō* (Tokyo: Shimizu Shoin, 1974); and Hora Tomio, *Mamiya Rinzō*, rev. ed. (Tokyo: Yoshikawa Kōbunkan, 1987).

365. The chart (116.4 × 270.3 cm) is preserved at the Kyōdokan Museum in Tsuwano, Shimane Prefecture. It is reproduced in Takakura, *Hokkaidō kochizu shūsei*, pls. 26 and 28 (note 350).

366. A manuscript on two sheets: *Ken* map (Hokkaidō and Sakhalin) (fig. 11.73), and *Kon* map (of the Chupuka Shotō [the Kuriles], 45 × 74.5 cm). In addition to the copy preserved at the Hakodate City Library, copies are also preserved at the Tenri Central Library (Matsudaira Sadanobu Collection) and at the Monbushō Shiryōkan (Library of Historical Materials at the Ministry of Education) (Tsugaru Family Collection) in Tokyo.

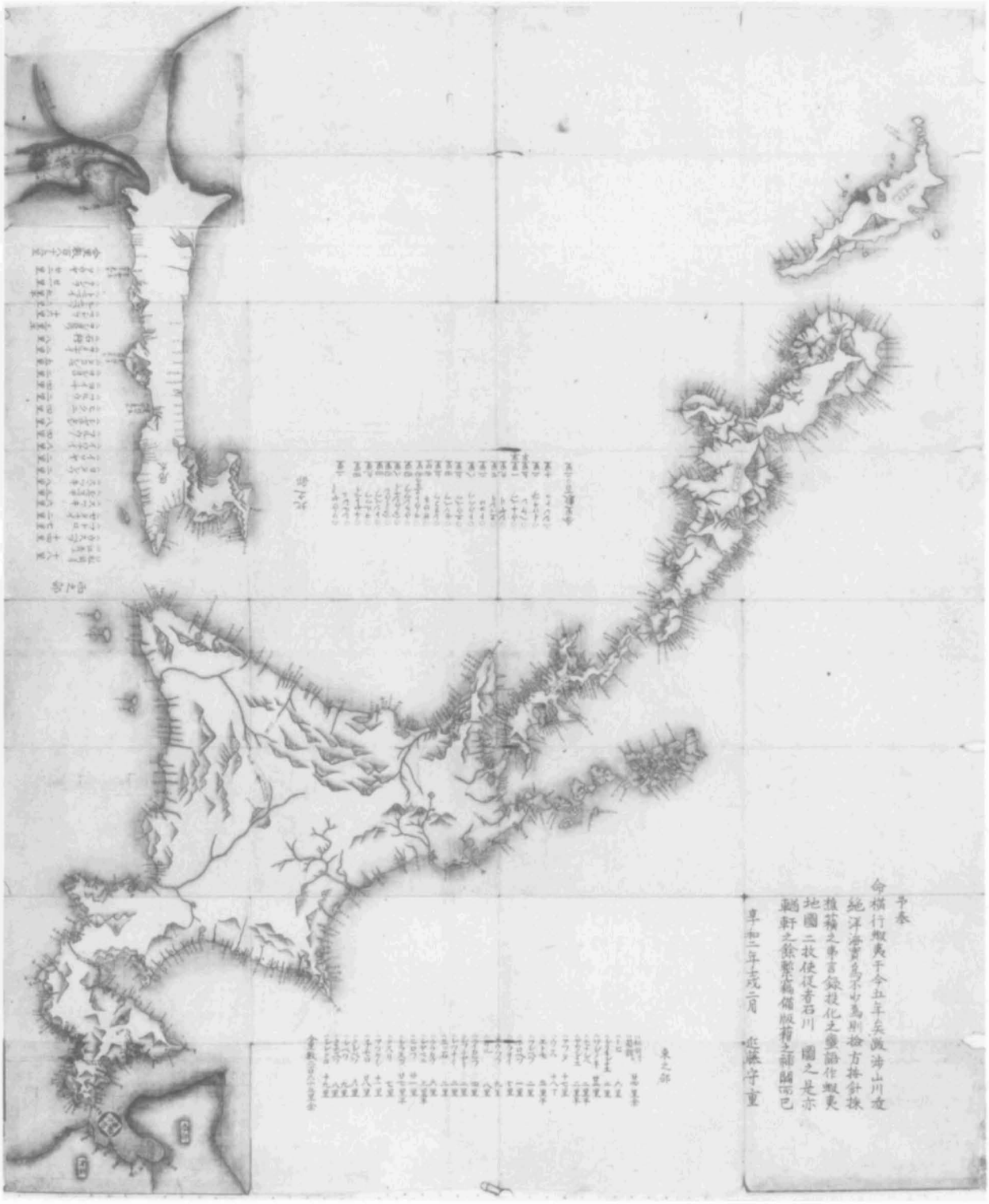


FIG. 11.73. ONE OF THE TWO SHEETS OF KONDŌ MORISHIGE'S *EZOCHI ZUSHIKI* OF 1802. Based on information from shogunal expeditions to the north of Honshū, in which Kondō himself participated, this map represents an important stage in worldwide knowledge of Hokkaidō, Sakhalin (Karafuto), and the Kuriles (Chishima). The geographical status of Sakhalin was of interest to Russians and Japanese alike at this time. On this manuscript, Kondō leaves the question open by showing two possibilities, one whereby Sakhalin is an island and the other whereby it is a peninsula.
Size of the original: 89.5 × 74.5 cm. By permission of the Hakodate City Library, Hakodate.

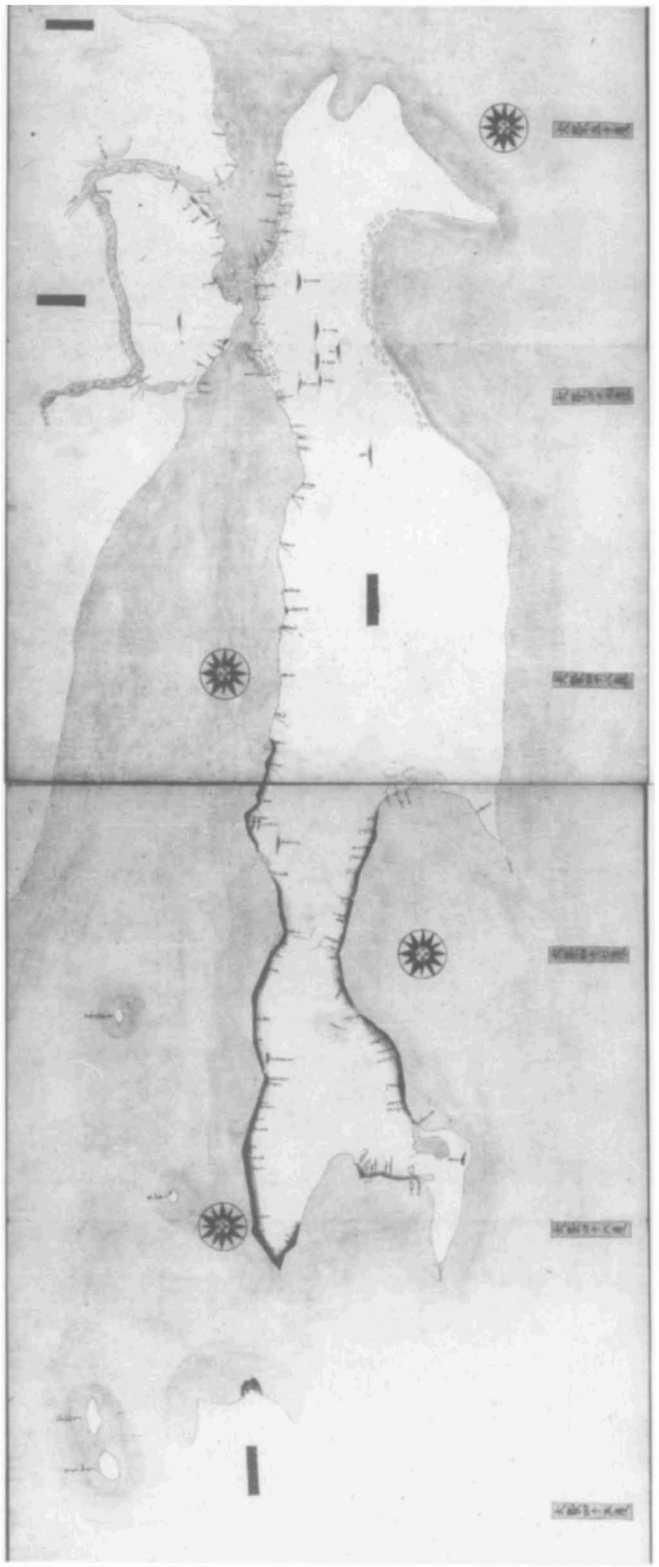


FIG. 11.74. "KITA EZOCHI" IN THE FIRST VOLUME OF THE *HOKUI BUNKAI YOWA* (MISCELLANEOUS RECORDS OF THE NORTHERN EZO REGION, 1811) BY MAMIYA RINZŌ. Mamiya's reports, comprising ten volumes in all, were submitted to the shogunate to present the findings of his 1808–9 expedition to Sakhalin. A prominent weakness of the manuscript map is its portrait of northeastern Sakhalin, where Japanese had yet to explore.
Size of the original: 72.8 × 29.6 cm. By permission of the National Archives, Tokyo.

1798, the year of his participation in the shogunal expedition. The information for his map was derived from various previous expeditions, however. In the case of Sakhalin, for example, the information came from a shogunal expedition in 1801, which reached Shōya at approximately 49°20′ north on the west coast and Naibutsu at approximately 47°20′ north on the east coast. Since proof was still lacking on whether Sakhalin was connected to continental Asia, the expedition compiled a map of Sakhalin and attached to it another map showing a possible link to the mainland, thereby juxtaposing the two theories.[367] Kondō became particularly interested in this question and studied not only the Japanese evidence but also Chinese and European maps of northeastern Asia. In 1804 his study was completed as a book titled *Hen'yō bunkai zukō* (Cartographical study of the important frontiers of Japan), and in it he concluded that "Karafuto" was a peninsula separated by a river and was therefore different from the land Europeans called Sakhalin.[368]

The task of completing the survey of the coastline of Sakhalin fell to Matsuda Denjūrō (1769–1843) and Mamiya, who were dispatched by the shogunate in 1808 on the grounds of national defense.[369] The two acted independently. Matsuda traveled along the west coast and Mamiya went from the eastern part of Aniva Bay along the east coast. Mamiya reached Cape Terpeniya (Kitashiretoko) but proceeded no farther on the advice of his local guides, who argued that navigation farther to the north would be dangerous. Rather, he turned back and crossed the island to catch up with Matsuda, who was by then at Cape Rakka at approximately 52° north on the west coast and was convinced that Sakhalin was an island. The coast to the north of the cape was difficult to reach by ship or on foot, so together they decided to return to Hokkaidō along the west coast. Mamiya regretted not having been able to continue to the north of Sakhalin, so he sailed there again later in the year. In 1809 he reached Naniō, at approximately 53°15′ north near the northern end of the strait separating Sakhalin from the mainland, crossed the strait in a local ship, and extended his journey to Delen in the lower reaches of the Amur.[370] The result was that he was convinced that Karafuto was indeed the Sakhalin depicted on European maps. A manuscript map that presented the results of his expedition to the shogunate, the *Kitaezotō chizu* (Map of northern Ezo Island) of 1810, depicted the west coast of Sakhalin and the lower reaches of the Amur in detail on a scale of three *sun* and six *bu* to one *ri* (1:36,000). The whole of Sakhalin was included on the manuscript "Kita Ezochi [zu]" ([Map of] northern Ezo) (fig. 11.74) in the itemized reports of the expedition, which were completed in 1811.[371] The unsurveyed northeastern coastline was shown as a dotted line, and the eastward bend at the north is an example of its errors.

Related in part to the geographical questions of the northern frontier was the surveying work of Inō Tadataka. In 1800, under the guidance of Takahashi Yoshitoki (or Sakuzaemon the elder, 1764–1804), an official astronomer whose calendar reform was adopted in 1797, he surveyed the land route from Edo to the coast of southeastern Hokkaidō.[372] This was designed to determine the length of a degree of latitude, in conjunction with improving the accuracy and the amount of astronomical data for further calendric study. Inō calculated the length

367. The explorers were Nakamura Koichirō (to Naibutsu) and Takahashi Jidayū (to Shōya). Their map is preserved at the Tokyo University Library (Nanki Library Collection) and at the Hokkaidō University Library in Sapporo; the latter, a manuscript (107.5 × 38.8 cm), is reproduced in Hoppō Ryōdo Mondai Chōsakai, *Hoppō Ryōdo*, pl. 30, and Narita, *Ezo chizu shō*, pl. 78 (both in note 350).

368. The *Hen'yō bunkai zukō* is preserved at the National Archives in Tokyo, the Daitōkyū Kinen Library in Tokyo, and elsewhere. The works of Kondō Morishige (common name, Jūzō; pseudonym, Seisai) have been published under the title *Kondō Seisai zenshū* (note 210); the *Hen'yō bunkai zukō* is in vol. 1. Karafuto and Sakhalin, of course, have since been proved to be the same island.

369. For a report on the exploration of Sakhalin see Matsuda Denjūrō, *Hokui dan* (Story of northern Ezo, ca. 1823), chap. 3, which is reproduced in the *Hokumon sōsho*, vol. 5 (note 335), and in the *Nihon shomin seikatsu shiryō shūsei* (Collected historical records about the lives of the Japanese people), 20 vols. (Tokyo: San'ichi Shobō, 1968–72), vol. 4. See also Mamiya Rinzō, *Kitaezo zusetsu* (Illustrated exposition on Kitaezo [Sakhalin], 1811) (Edo: Harimaya Katsugorō, 1855); it is reproduced in vol. 5 of the *Hokumon sōsho*.

370. See Mamiya Rinzō, *Tōdatsu chihō kikō* (Voyage to eastern Tartary, 1811); reproduced in the *Nihon shomin seikatsu shiryō shūsei*, vol. 4 (note 369), and also *Tōdatsu chihō kikō*, ed. Hora Tomio and Tanisawa Shōichi, Tōyō Bunko (Eastern library series), no. 484 (Tokyo: Heibonsha, 1988), 115–65. Delen was a Chinese settlement.

371. The maps, reports, and records of Mamiya's expedition are preserved at the National Archives in Tokyo. The reports, entitled *Hokui bunkai yowa* (Miscellaneous records of the northern Ezo region), were dictated by Mamiya, although his name is not mentioned; a reproduction of this book is in Hora and Tanisawa, *Tōdatsu chihō kikō*, 3–113 (note 370). The *Kitaezotō chizu* is a manuscript on seven sheets, each sheet being 306.5 by 121 centimeters; a sheet showing the Mamiya (Tatar) Strait is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 67 (note 8).

372. Yoshitoki was the father of Kageyasu; both were also known as Sakuzaemon: see Papinot, *Dictionary of Japan*, 629 (note 43). The revision of the Japanese calendar (or rather, an ephemeris that included information useful for constructing the official calendar) was conducted jointly by Takahashi the elder and Hazama Shigetomi (1756–1816), students of the independent astronomer Asada Gōryū (1734–99) at Ōsaka. It was known as the Kansei Calendar Reform after the contemporary era (1789–1800) and was "significant because in it the Japanese for the first time successfully adopted Western measurements in an official reform." See Nakayama, *History of Japanese Astronomy*, 194–95 (note 38). On Inō, who became a surveyor and cartographer late in life, see Ryōkichi Ōtani, *Tadataka Inō, the Japanese Land-Surveyor*, trans. Kazue Sugimura (Tokyo: Iwanami Shoten, 1932); Cortazzi, *Isles of Gold*, 35–37 (note 14); E. B. Knobel, "Inō Chūkei and the First Survey of Japan," *Geographical Journal* 42 (1913): 246–50; and Norman Pye and W. G. Beasley, "An Undescribed Manuscript Copy of Inō Chūkei's Map of Japan," *Geographical Journal* 117 (1951): 178–87.

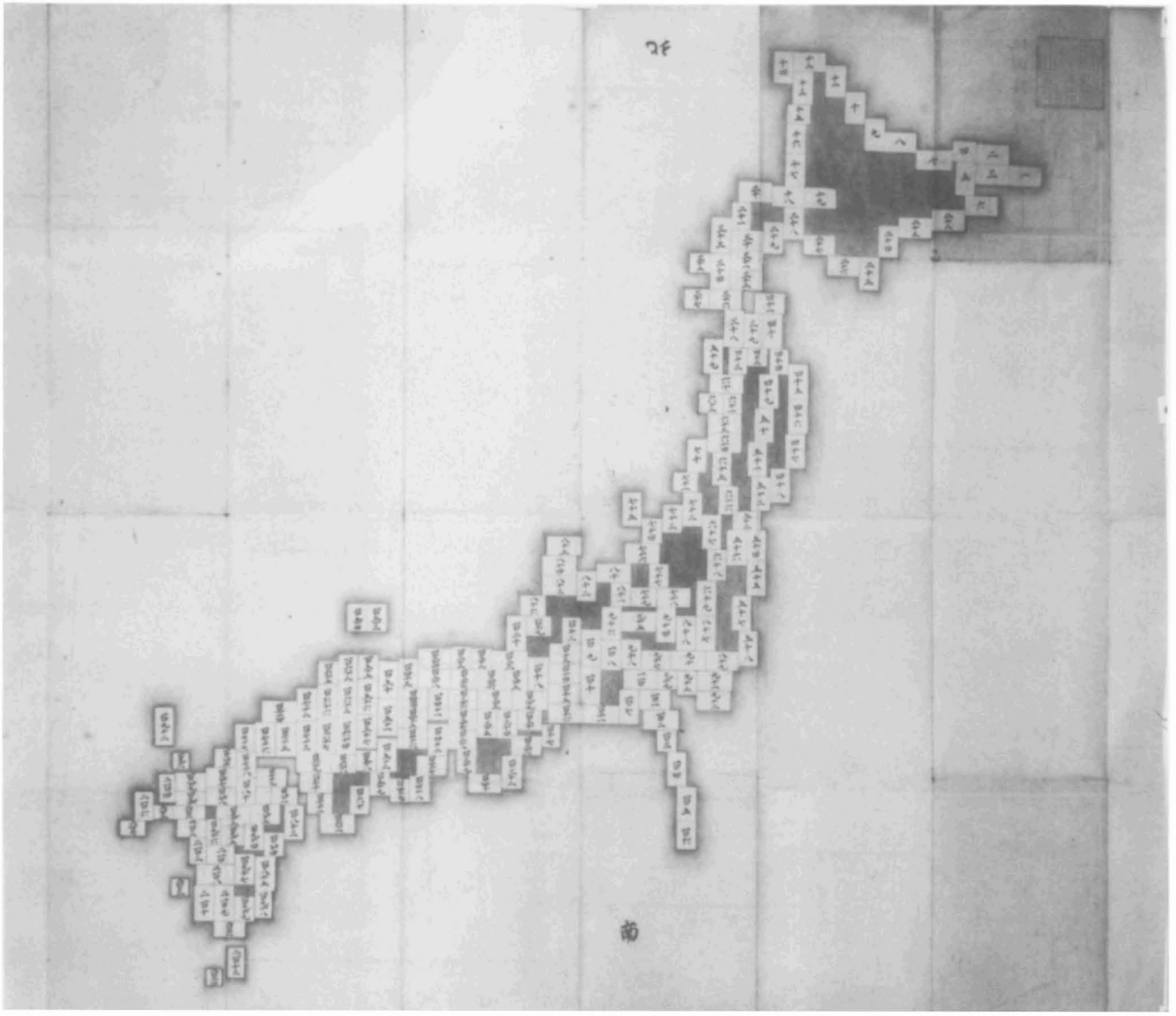


FIG. 11.75. *CHIZU SESSEI BENRAN* (INDEX TO THE DISTRIBUTION OF MAP SHEETS), 1821. This was an appendix to *Yochi jissoku roku* (Collection of land-survey data), the notes from the survey of Japan undertaken by Inō Tadataka and completed by Takahashi Kageyasu between 1800 and 1821. The index numbers and shows the correct distribution of the 214 manuscript maps at 1:36,000 that were derived from the survey. Size of the original: 107 × 121 cm. By permission of the National Archives, Tokyo.

of a degree of latitude to be 28.2 *ri* (110.85 km), departing about 130 meters from the mean for the modern value, between 35 and 41 degrees. This information was useful for predicting solar and lunar eclipses.

In the following year Inō started his survey of the coastlines of Japan, beginning on the northeast of Honshū, and continued until 1815 when the archipelago was completed. Maps were compiled from the results of these surveys, beginning in 1804 with one of the northeastern coast of Honshū that was presented to the shogunate. This led to Inō's appointment as a low-level official and to an order for the observatory to support the surveying project. Other maps were submitted periodically as the survey proceeded, including a plan of Edo, which he surveyed in 1816. The task of completing the maps of the entire coastline was finished by the observatory in 1821 under the direction of Takahashi Kageyasu.

As a group, these maps were titled *Dainihon enkai yochi zenzu* (Maps of the coastlines of Great Japan) and consist of 225 sheet maps on three different scales. The largest scale, three *sun* and six *bu* to one *ri* (1:36,000), includes 214 maps (fig. 11.75); there are eight maps on a medium scale of six *bu* to one *ri* (1:216,000); and there are three maps at the smallest scale of three *bu* to one

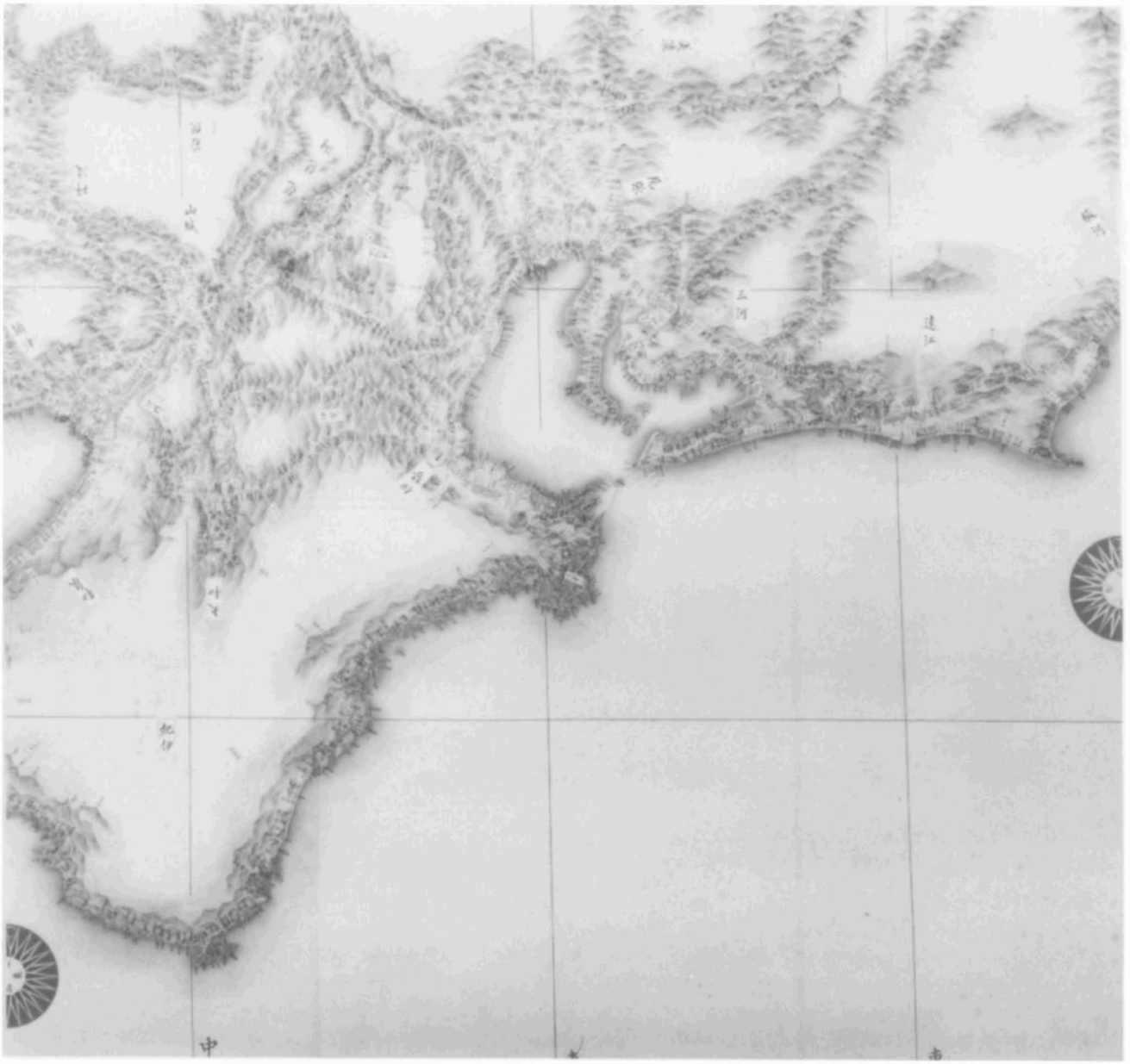


FIG. 11.76. A SHEET FROM THE *DAINIHON ENKAI YOCHI ZENZU* DATING FROM 1821. This is one of the eight sheets to show Japan at a medium scale of 1:216,000 (six *bu* to one *ri*). Although some of the maps were prepared before Inō's death in 1818, the task of completing the series was undertaken by the shogunal observatory until 1821. Since the emphasis of the map is on the coastlines, the interior is left blank except for the places where the surveyors went. The manuscript sheet shown here is centered on Nagoya.
Size of the original: 241 × 131.8 cm. By permission of the Tokyo National Museum.

ri (1:432,000).[373] The projection is trapezoidal, with the prime meridian running through Kyōto.[374] In addition to the maps, the notes from the survey were also submitted to the government.[375] Only the maps at 1:432,000 were printed about 1867, after the interior was filled in and Sakhalin added with the assistance of the Kaiseijo (Institute for Western Studies). These printed versions are entitled *Kanpan jissoku Nihon chizu* (Maps of Japan from surveys published by the government).[376]

Two manuscript sets of the 225 maps were made, one for the shogunate and the other for the Inō family. The one in the possession of the government was destroyed in the 1873 fire at Edo castle (the imperial palace). Inō's heirs were then forced to submit their set to the Meiji government, which handed it over to Tokyo University Library; unfortunately, this set was also lost in the Great Kantō Earthquake of 1923. Although the originals no longer exist, there are some copies that were made as extras from the small- and medium-scale maps while the work was being completed (fig. 11.76), as well as later copies. None of these have titles, and they are therefore known simply as "Inō's maps."

These maps of the coastlines, with only surveying courses in the interior, were highly accurate. This was recognized in 1861 by the British navy, which began to survey the coasts but settled for a copy of the three sheets at 1:432,000 and started to supplement them. The maps were presented to the British minister plenipotentiary by the Japanese government and are now at the National Maritime Museum in Greenwich.[377]

Conclusion

The functions of traditional Japanese maps described in this chapter are similar to those of China and Korea, with some significant exceptions arising from Japan's special relationships with the outside world at various times in its history and its strong Buddhist tradition. In addition to the more obvious uses of maps for political and fiscal administration in a strongly hierarchical society and for wayfinding on land and sea, maps were also used to a remarkable degree for rhetorical and symbolic purposes.

Several literary references to maps (*kata* and *katachi*) from the seventh century point to their value in recording boundaries and summarizing provincial information for the central government. In the eighth and ninth centuries, following the Taika or Great Reform of A.D. 646 (the main purpose of which was to centralize government and introduce a new system of land tenure, local government, and taxation), maps of Buddhist temple lands reclaimed for paddy fields were produced. No other civilization has preserved as many original eighth-century map documents. Similarly, maps were used to establish acreage for the annual tax exemption of manors in the *shōen* system of private landownership by religious institutions and the aristocracy covering more than half of the country by the eleventh century. Surveying for siting drainage and irrigation canals, roads, temples, and capital cities is also recorded in this early period.

It is in the sixteenth century that coordinated efforts were made to survey and map the provinces, beginning in 1591 with the government of Toyotomi Hideyoshi. During the period of Tokugawa administrations that followed, although no systematic effort was made to establish cartographic organizations, official cartographers were appointed ad hoc for various projects. Large-scale maps of 1:21,600 that covered the country from northernmost Honshū to the Ryūkyūs were completed in the middle of the seventeenth century. Despite underestimated acreages—caused by rounding down but never up and by systematic errors in surveying instruments—a national map of Japan and the islands to the north thus emerged under the Togukawa shoguns. There is evidence that such official cartography was jealously secretive, as is indicated by von Siebold's experience in the nineteenth century described above.

373. The medium-scale maps are preserved at the Tokyo National Museum, and two of the three small-scale ones are at the Kōbe City Museum. A complete set of the large-scale maps, however, is not known to exist. Inō's survey and the maps are discussed in detail in Ōtani, *Tadataka Inō* (note 372); and Hoyanagi Mutsumi, ed., *Inō Tadataka no kagakuteki gyōseki: Nihon chizu sakusei no kindaika eno michi* (A new appreciation of the scientific achievement of Inō Tadataka) (Tokyo: Kokon Shoin, 1974, rev. ed. 1980). For reproductions of Inō's maps, see Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 31 (one of the small-scale maps in Kōbe) and pl. 30 (Shōdo Island from the large-scale maps) (note 11); Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 35 (two of the medium-scale maps), pl. 36 (the road from Takasaki to Mikuni from the large-scale maps), pl. 37 (map of Ōshima, Izu Islands), and pl. 39 (Plan of Edo) (note 8); and Cortazzi, *Isles of Gold*, pl. 45 (one of the small-scale maps in Kōbe; 203.5 × 162.1 cm) (note 14). The Tokyo National Museum maps are reproduced in facsimile (Tokyo: Buyōdō, 1993).

374. The prime meridian ran through Nishisanjōdai (now Nishigekkōchō, Nakagyō ku) in Kyōto, where the calendric office of the shogunate was located. See Watanabe, *Kinsei Nihon tenmongaku shi*, 2:469–74 (note 315). The projection was trapezoidal, not the sinusoidal Sanson-Flamsteed as incorrectly judged by Ōtani Ryōkichi and repeated by Cortazzi (*Isles of Gold*, 36–37 [note 14]); see Hoyanagi, *Inō Tadataka no kagakuteki gyōseki*, 22–24 (note 373).

375. The notes, *Yochi jissoku roku* (Collection of land-survey data), in fourteen books, are accompanied by the manuscript *Chizu sessei benran* (Index to the distribution of map sheets) of 1821 (one sheet, 107 × 121 cm) (fig. 11.75); they are preserved at the National Archives in Tokyo. The *Chizu sessei benran* shows the disposition of the 214 numbered maps and is reproduced in Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, fig. 52 (note 8).

376. The *Kanpan jissoku Nihon chizu* was a woodcut on four sheets published by the Kaiseijo in Edo; a revision was issued in 1870 by the Daigaku Nankō (University Southern School, later Tokyo University) with the *Dainihon enkai jissoku roku* (Survey notes of the coastlines of Great Japan), in fourteen books.

377. Pye and Beasley, "Copy of Inō Chūkei's Map" (note 372).

During the Edo period—Japan's long history of undisturbed independence and isolation from the rest of the world—it should not be thought that Japan was immune to outside influence. As in the case of China, there was no wholesale transmission of European scientific mapping until the nineteenth and twentieth centuries. Japan did not become Christian or Europeanized despite its contacts with the Spanish and Portuguese (the "southern barbarians") in the sixteenth century. Nevertheless, there are strong influences in surveying and mapping practice from the seventeenth century. The Portuguese may be said to have introduced surveying and navigation instruments into Japan, and this influence survived despite a ban on contacts with the Portuguese in the 1630s. The Dutch, who had special dispensation from the exclusion edicts (although through very limited contact, carefully segregated from mainland Japan), influenced a trend to more empirical studies (*Rangaku*) and a separation of the once indissoluble heavenly and earthly concerns of traditional Japanese society. From the mid-eighteenth century, the influx of Dutch books, globes, and maps, the introduction of the heliocentric Copernican system, and the translation of Dutch atlases of the world and treatises on globe making into Japanese enlarged the Japanese scope of the world through Dutch eyes. Its importance can hardly be overestimated both on the widening of the Japanese horizon and also for compiling more technically accurate maps of the country and its surrounding seas.

Furthermore, an important aspect of the Edo period—domestic and international peace—might be said to have heightened popular interest in culture and travel, which in turn helped to stimulate demand for maps. The rhetorical and ornamental character of maps thus becomes important, and Western maps were frequently used for this purpose, as in the largely ornamental *Nanban* world maps on Western projections that served as large folding screens. Similarly, the Jōtoku-type maps, also on folding screens, were largely decorative, portraying a conventional national image. These were related to the Gyōki-type maps, which were largely symbolic in character and may have originally been associated with the annual purification ritual of Tsuina.

The Jesuit Matteo Ricci's role in providing models for world maps was somewhat different in Japan than in China, where only some intellectuals took an interest in his maps. His world map was printed in several versions and became the basis of a printed map trade for maps designed to be hung in houses or published in books and encyclopedias when cartography was popularized during the Edo period. Our knowledge of the sources for these maps and the process of their transmission is incomplete and needs further study. The popularization of maps is

also reflected in their frequent display on personal items for daily use, such as sword guards, fans, mirrors, *inrō* (portable medicine pouches), netsuke, combs, and plates. Maps of fictional places were also popular in the late Edo period.

When the Dutch monopolized European trade with Japan, there was apparently no particular need for improved sea charts. The Portuguese information on surveying and navigation gleaned earlier was evidently sufficient, and Japanese were in any case prohibited from traveling abroad. With some interesting exceptions, therefore, charts were not updated for use at sea but fulfilled an honorary function, often being presented as graduation certificates for surveyors. The eclectic sources and widely varying characteristics of these charts thus make it impossible to conceive of a "Japanese tradition" of charting in the European sense.

A quite different tradition, that of the Buddhist world map (map of the Five Indias), was apparently current in the seventh century (although the earliest surviving map is from the fourteenth), and survived until the mid-nineteenth century. The maps, rich in Buddhist cosmology, were objects of worship, and several survive both in large painted versions and as small woodcut book illustrations. Also associated with Buddhist beliefs are a series of models of the Buddhist universe and terrestrial globes replete with Buddhist cosmological worldviews. Indeed, although celestial globes were common in China, there appears to have been far more interest in terrestrial globes in Japan than in China, and this issue needs to be explored further. There are many reports of terrestrial globes being brought by the Dutch as gifts in the seventeenth century, and records survive of Japanese globe making and of the repair of existing Dutch examples.

This chapter, which provides the most detailed account of traditional Japanese cartography in English, should serve as a springboard for further analytical studies of the maps and concepts presented. Generalizations need to be drawn that will enhance our understanding of Japanese cartography in relation to the main historical forces of the country. More comparative studies between the cartographies of Japan, China, and Korea need to be undertaken, particularly concerning the transmission of Buddhist ideas of cosmographical mapping. Detailed studies by historical geographers who can use maps as evidence for reconstructing past geographies of Japan at the local level need to be pursued. More studies are needed that trace the European sources of maps in the *Nanban* and other genres. In short, we are now at a stage where connections can be drawn and sound generalizations may emerge.

APPENDIX 11.1 EXTANT ANCIENT MAPS OF PADDY FIELDS

Content of Map: Place	Province	Paddy-Field Owner	Year of Completion	Size (cm) (h × w)	Material
1 Yamada County	Sanuki	Gufuku Temple (in Yamato Province [Nara Prefecture])	736	28 × 127.5	Paper
2 Minuma, Inugami County 3 Heru, Inugami County	Ōmi	Tōdai Temple	751	68 × 252	Hemp
4 Minase, Shimanokami County	Settsu	Tōdai Temple	757	28.5 × 69	Paper
5 Daizudokoro, Nakata County	Awa	Tōdai Temple	758	28.6 × 51.9	Paper
6 Niijima, Nakata County	Awa	Tōdai Temple	758	57 × 103	Paper
7 Ikarugi, Tonami County	Etchū	Tōdai Temple	759	82 × 99	Hemp
8 Suka, Imizu County	Etchū	Tōdai Temple	759	81 × 108	Hemp
9 Kubota, Imizu County	Etchū	Tōdai Temple	759	79 × 126	Hemp
10 Ōyabu, Niikawa County	Etchū	Tōdai Temple	759	79 × 141	Hemp
11 Hasetsukabe, Niikawa County	Etchū	Tōdai Temple	759	79 × 115	Hemp
12 Kusooki, Asuha County	Echizen	Tōdai Temple	759	78 × 109	Hemp
13 Isawa, Tonami County	Etchū	Tōdai Temple	759	56.3 × 110	Paper
14 Naruto, Imizu County	Etchū	Tōdai Temple	759	77 × 141	Hemp
15 Nukada Temple and surroundings	Yamato	Nukada Temple	ca. 760	113.7 × 72.5	Hemp
16 Kusooki, Asuha County	Echizen	Tōdai Temple	766	69 × 113	Hemp
17 Chimori, Asuha County	Echizen	Tōdai Temple	766	144 × 194	Hemp
18 Takakushi, Sakanoi County	Echizen	Tōdai Temple	766	55.8 × 114	Paper
19 Iyama, Tonami County 20 Ikarugi, Tonami County 21 Kinahiru, Tonami County 22 Suka, Imizu County 23 Naruto, Imizu County 24 Shikata, Imizu County 25 Ōyabu, Niikawa County	Etchū	Tōdai Temple	767	68 × 623	Hemp
26 Naruto, Imizu County	Etchū	Tōdai Temple	ca. 767	62.6 × 57.7	Paper
27 Shikata, Imizu County	Etchū	Tōdai Temple	ca. 767	37 × 57.9	Paper

(IN CHRONOLOGICAL ORDER AND DATING TO THE NARA PERIOD, 710–84)

Orientation	Provincial Seal	Signature of Surveyor	Owner of Map	Remarks
South	No	No	Tawa Library, Shido, Kagawa Prefecture	Original date: 15, 12th month, 7th year of Tenpyō; possibly copied at end of eleventh century
North	Yes	Not known (damaged)	Shōsōin	Two maps, nos. 2 and 3, are connected and make scroll
North	Yes	No	Shōsōin	Original date: 16, 12th month, 8th year of Tenpyōshōhō
West	No	No	Shōsōin	Manuscript for composing a formal map
West (?)	No	No	Shōsōin	As above; actually a map of Hirakata in same county
East	Yes	Yes	Shōsōin	
East	Yes	Yes	Shōsōin	
South	Yes	Yes	Shōsōin	
East	Yes	Yes	Shōsōin	
South	Yes	Yes	Shōsōin	
North	Yes	Yes	Shōsōin	
East	Yes	Not known (damaged)	Nara National Museum, Nara	This might have been owned previously by Shōsōin
East	Yes	Yes	Fukui Seikō, Kyōto	This might have been owned previously by Shōsōin
North	Yes	No	National Museum of Japanese History, Sakura	Some parts are missing
North	No	Yes	Shōsōin	See figure 11.8
North	No	Yes	Shōsōin	Although part with date is missing, 766 is almost certain
North	No	Yes	Nara National Museum, Nara	Possibly owned previously by Shōsōin
South	Yes	No	Shōsōin	Seven maps, nos. 19–25, are connected to form a scroll
South	No	No	Nara National Museum, Nara	Some parts are missing; copy of no. 23
South	No	No	Nara National Museum, Nara	Some parts are missing; copy of no. 24

APPENDIX 11.2 EXTANT EARLY MANUSCRIPTS OF THE GYŌKI-TYPE MAP OF JAPAN, INCLUDING THE SEMI-GYŌKI TYPE (IN CHRONOLOGICAL ORDER)

Owner(s) of Map	Title	Date	Size (cm) (h × w)	Orientation	Attributed to Gyōki	Remarks
1 Shōmyō Temple, Yokohama	Not known	Second half of 13th century	34.1 × 52.2	South	Not known	Eastern half is missing; no entries for routes; kept at Kanazawa Bunko, Yokohama
2 Ninna Temple, Kyōto	None	1306	34.5 × 121.5	South	Yes	Part with Kyūshū is damaged; see figure 11.14
3 Sonkeikaku Library, Tokyo	None	ca. 1324–28	22.7 × 30.6	North	No	Included in *Nichūreki* (Two guides, late 12th century); routes only; inscription says copied from *Kaichūreki* (Pocket guide) 1128; see fig. 11.16
4 Sonkeikaku Library, Tokyo	None	ca. 1324–28	22.7 × 30.6	North	No	Included in *Nichūreki*; entries about number of days required for transporting tribute from each province to government; no inscription as in 3
5 Tenri Central Library, Tenri, Nara	"Dainihonkoku zu" (Map of Great Japan)	1548	26.3 × 41.3	East	Yes	Included in *Shūgaishō* (Collection of oddments) of 1548; see fig. 11.15
6 Tōshōdai Temple, Nara	*Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa)	ca. 1550	168 × 85.4	West	Yes	
7 Zhongshan University, Guangzhou (Canton); and others	*Riben xingji tu* (Gyōki's map of Japan)	ca. 1564	Not certain	South	Yes	Included in *Riben yi jian* (Outline of Japan) by Zheng Shungong, reproduced 1939
8 Archivio di Stato, Florence	*Iapam*	ca. 1585	28 × 60	South	No	All entries in Latin
9 Sonkeikaku Library, Tokyo	"Dainihonkoku zu" (Map of Great Japan)	1589	26 × 36.5	East	Yes	Included in *Shūgaishō* of 1589
10 Mutō Kinta, Kamakura	None	ca. 1595	Maximum length, 51	North	No	Map of eastern Asia drawn on fan owned by Toyotomi Hideyoshi
11 Kitano Shrine, Kyōto	None	ca. 1600	98 in diameter	North	No	Relief on back of bronze mirror by Kise Jōami; no entries of routes

APPENDIX 11.2 (*continued*)

Owner(s) of Map	Title	Date	Size (cm) (h × w)	Orientation	Attributed to Gyōki	Remarks
12 Tokyo National Museum, Tokyo	*Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa)	ca. 1625	156 × 315 (map only, 57.5 × 108)	North	Yes	Folding screen paired with map of world
13 Okazawa Sagenta, Nishiwaki	*Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa)	ca. 1640	103 × 273	South	Yes	Folding screen
14 Hosshin Temple, Obama	None	Early 17th century	154 × 352	South	No	Folding screen paired with map of world
15 Ishikawa Prefectural Gallery, Kanazawa	None	Early 17th century	155 × 364	North	No	Folding screen paired with two plans of Kyōto and area of government offices; no entries of routes
16 Formerly N. H. N. Mody, Kōbe	None	Mid-17th century	204 × 447	North	No	Folding screen paired with map of world
17 Fukushima Kitarō, Obama	*Nansenbushū Dainihonkoku shōtō zu* (Orthodox map of Great Japan in Jambūdvīpa)	Mid-17th century	96.5 × 249	South	Yes	Folding screen paired with map of world
18 National Museum of Japanese History, Sakura; and others	"Yochi zu" (Land map)	Second half of 18th century	27.5 × 85	West	No	Included in *Shūko zu* (Illustrations of collected antiques) by Fujii Sadamiki; refers to an 805 original, now lost

APPENDIX 11.3 LIST OF MANUSCRIPT MAPS OF THE FIVE INDIAS (IN CHRONOLOGICAL ORDER)

Owner	Title	Date	Size (cm) (h × w)	Remarks
1 Hōryū Temple, Nara	*Gotenjiku zu* (Map of the Five Indias)	1364	177 × 166.5	Drawn by priest Jūkai; see figure 11.18
2 Muroga Emiko, Kyōto (former Ayusawa Collection)	*Tenjiku ezu* (Map of India)	16th century	119.4 × 128	Upper part is missing; title may not be original one
3 Kushuon'in Temple, Hirakata	*Gotenjikukoku no zu* (Map of the Five Indias)	ca. 1692	168 × 172	Copied by priest Sōkaku
4 Hōryū Temple, Nara	*Gotenjiku zu* (Map of the Five Indias)	17th century?	167 × 175	Copy of 1364 map; drawn by priest Zenjō
5 Hōshōin Temple, Tokyo (no longer extant)	*Saiiki zu* (Map of the western regions)	1736	Not known	Lost in fire during Second World War; recorded in *Saiiki zu sofuku nikō roku* (Two revisions on a map of the western regions), which is reproduced in second volume of *Yūhōden sōsho* (Series of travels, 1915) in *Dainihon Bukkyō zensho* (Collected records on the Buddhism of Great Japan); map reproduced as frontispiece
6 Kōbe City Museum, Kōbe (formerly Akioka Takejirō, Tokyo)	*Tenjiku no zu* (Map of India)	1749	167.5 × 134.8	Copy from a copy of lost version at Shōrin Temple, Kyōto
7 Chion'in Temple, Kyōto	*Tenjiku zu* (Map of India)	1755	156.5 × 130	Copy of lost version at Shōrin Temple
8 Jōgon'in Temple, Azuchi	*Gotenjiku zu* (Map of the Five Indias)	18th century?	159.2 × 133.8	
9 Ishihara Akira, Tokyo (deceased)	*Gotenjiku zu* (Map of the Five Indias)	18th century?	Not known	Not yet researched
10 Kongō Zanmaiin Temple, Kōya	*Gotenjiku zue* (Map of the Five Indias)	1816	152 × 130.7	
11 Ryūkoku University Library, Kyōto	*Gotenjiku no zu* (Map of the Five Indias)	ca. 1865	173 × 128.7	
12 National Archives, Tokyo	*Tō Genjō Sanzō Gotenjiku zu* (Xuanzhuang, Map of the Five Indias)	19th century	164 × 133	Tō Genjō Sanzō in title means Xuanzhuang, a priest who lived during time of Tang dynasty

APPENDIX 11.4
CLASSIFICATION OF THE *NANBAN*-STYLE WORLD MAPS (MAPS SHOWING ONLY THE OLD WORLD [OR THE EASTERN HEMISPHERE] ARE INCLUDED)

MARINE CHART

Owner	Companion	Format
Hosshin Temple, Obama	Gyōki-type map of Japan	One of a pair of six-fold screens; 154 × 352 cm; see fig. 11.21
Ikenaga Hajime, Kōbe (formerly)	Scene of arrival of "southern barbarians"	One of a pair of six-fold screens; 158 × 347 cm

Characteristics:
1. Pacific Ocean in center of map
2. Graduation of latitude on both left and right sides
3. West coast of South America with protrusions near Tropic of Capricorn
4. No government areas marked (Hosshin Temple version has evidence that many slips of paper with place-names were pasted on it)
5. Bar scale at bottom in middle

OVAL PROJECTION

Owner	Companion	Format
Yamamoto Hisashi, Sakai	None	One of a pair of six-fold screens; 135.5 × 269.5 cm
Kobayashi Ataru, Tokyo	Jōtoku-type map of Japan	One of a pair of six-fold screens; 158 × 368 cm
Jōtoku Temple, Fukui	Jōtoku-type map of Japan	One of a pair of six-fold screens; 148.5 × 364 cm; see figure 11.23
Kawamura Heiemon, Obama	Jōtoku-type map of Japan	One of a pair of eight-fold screens; 117 × 375 cm

Characteristics:
1. Atlantic Ocean in center of map
2. Courses from Portugal and Spain to East Asia noted
3. West coast of South America runs straight southeast from equator

EQUIRECTANGULAR PROJECTION (TYPE A)

Owner	Companion	Format
Formerly N. H. N. Mody, Kōbe	Gyōki-type map of Japan	One of a pair of six-fold screens; 204 × 447 cm
Jingū Library, Ise	None	Folding map; 85.3 × 156.8 cm

Characteristics:
1. Atlantic Ocean in center of map
2. Supplementary maps of Northern and Southern hemispheres on Mody version
3. More place-names than other styles

EQUIRECTANGULAR PROJECTION (TYPE B1)

Owner	Companion	Format
Tokyo National Museum, Tokyo	Gyōki-type map of Japan	One of a pair of six-fold screens; 156 × 316 cm; see figure 11.22
Nanban Culture Hall, Ōsaka	Revised Jōtoku-type map of Japan	One of a pair of six-fold screens; 155 × 356.2 cm
University of California–Berkeley	Revised Jōtoku-type map of Japan	One of a pair of six-fold screens; 68 × 226.5 cm

Characteristics:
1. Pacific Ocean in center of map
2. Tierra del Fuego, Nova Guinea, and Terra Australis indicated as separate landmasses
3. With maps of Northern and Southern hemispheres and illustration of Ptolemaic theory
4. *Typus orbis terrarum* for title (except on version at California–Berkeley)

EQUIRECTANGULAR PROJECTION (TYPE B2)

Owner	Companion	Format
Fukushima Kitarō, Obama	Gyōki-type map of Japan	One of a pair of four-fold screens; 96.5 × 247 cm
Nanba Matsutarō, Nishinomiya	Revised Keichō-type map of Japan	One of a pair of six-fold screens; 97 × 273 cm

Characteristics:
1. Pacific Ocean in center of map
2. Tierra del Fuego, Nova Guinea, and Terra Australis indicated as separate landmasses
3. Does not include characteristics 3 and 4 of type B1 maps

APPENDIX 11.4 (*continued*)

EQUIRECTANGULAR PROJECTION (TYPE C)

Owner	Companion	Format
Shimonogō Kyōsai Library, Nagahama	Modified Keichō-type map of Japan	One of a pair of six-fold screens; 105 × 262 cm
Masuda Tarō, Odawara	Modified Keichō-type map of Japan	One of a pair of six-fold screens; 105 × 266 cm
Gokōin Temple, Nikkō	Modified Keichō-type map of Japan	One of a pair of six-fold screens; 86 × 239 cm; second panel missing
Idemitsu Museum of Arts, Tokyo (formerly owned by Matsumi Tatsuo)	Forty types of people from all over the world on either side	Pair of six-fold screens; each 166 × 363 cm; map of world split into two parts, each occupying two-thirds of a screen; when screens are placed together, map measures 166 × 484 cm

Characteristics:
1. Atlantic Ocean in center of map (the Idemitsu Museum version places Europe and Africa in center of map)
2. Supplementary maps of Northern and Southern hemispheres
3. Includes Novaya Zemlya, which was explored in 1596 (the Idemitsu Museum version omits parts of both top and bottom of map)

EQUIRECTANGULAR PROJECTION (TYPE D1)

Owner	Companion	Format
Kawamori Kōji, Sakai, Ōsaka Prefecture	Jōtoku-type map of Japan	One of a pair of four-fold screens; 109.5 × 273 cm (map only, 90 × 152.4 cm)
Myōkaku Temple, Okayama Prefecture	None	Six-fold screen; 97 × 272.5 cm
Usuki City Library, Ōita Prefecture	None	Folding map; 117 × 137 cm
Saga Prefectural Library, Saga	None	Folding map; 87 × 160 cm
Sōji Temple, Yokohama	None	Hanging scroll; 130 × 140 cm

EQUIRECTANGULAR PROJECTION (*continued*)

Characteristics:
1. Shows only Old World or Eastern Hemisphere
2. No entry of equator, Tropics of Capricorn and Cancer, or polar circles
3. Accompanied by table about countries and regions exporting goods to Japan about 1627

EQUIRECTANGULAR PROJECTION (TYPE D2)

Owner	Companion	Format
Koga City Museum of History, Koga (formerly Takami Yasujirō, Koga)	None	Folding map; 118.5 × 117.5 cm
Yamakuni Shrine, Kyōto Prefecture	None	Folding map (?); 118.8 × 120.5 cm
Yokohama City University Library, Yokohama	None	Folding map; 116.5 × 121.5 cm
Yamaguchi University Library, Yamaguchi	None	Folding map; 114 × 120 cm

Characteristics:
1. Shows only Old World or Eastern Hemisphere
2. Has date 8th month of Kan'ei 14 (1637)
3. Enlarges accounts of table in type D1
4. Includes equator and pictures of Western sailing vessels
5. Political division different from that of type D1
6. Representation of rivers simpler than in type D1

MERCATOR PROJECTION

Owner	Companion	Format
Imperial Household Agency, Kyōto	Plans or views of twenty-eight cities	One of a pair of eight-fold screens; map 177 × 483 cm; see plate 23
Kōbe City Museum, Kōbe (Ikenaga Collection)	Views of four cities	One of a pair of eight-fold screens; map 159 × 478 cm

APPENDIX 11.4 (*continued*)

MERCATOR PROJECTION (*continued*)		
Owner	Companion	Format
Kōsetsu Museum of Art, Kōbe	Picture of Battle of Lepanto	One of a pair of six-fold screens; map 153.5 × 370 cm

Characteristics:
1. Atlantic Ocean or Europe in center of map
2. Part of Terra Australis facing South America protrudes
3. Supplementary maps of northern and southern polar regions (not on version at Kōsetsu Museum of Art)
4. Includes illustrations of people of world

APPENDIX 11.5 LIST AND GENEALOGY OF JAPANESE MARINE CHARTS OF SOUTHEAST AND EAST ASIA

Number and Owner	Title	Author or Copier	Material	Westernmost Area	Nakamura[a] (table 1)	Remarks[b]
1 Tokyo National Museum, Tokyo	[*Tōyō shokoku kōkai zu* (Chart of the eastern countries)]	Anonymous	Vellum	Madagascar	4	ca. 1615; title given later
2 Okayama Museum of Art, Okayama	None	Anonymous	Vellum	Arabian Sea	1	Latter half of 16th century
3 Koga City Museum of History, Koga (formerly Takami Yasujirō, Koga)	None	Takami Senseki (copier)	Paper	Arabian Sea	2	Copy of chart in Itoya Zuiemon's (d. 1650) belongings, 1833
4 Sueyoshi Kanshirō, Ōsaka	None	Anonymous	Vellum	Arabian Sea	5	ca. 1610; labels with Chinese characters, recorded to have been attached in 1787, indicate Tropic of Cancer, foreign place-names, and bar scale

[a]Hiroshi Nakamura, "The Japanese Portolanos of Portuguese Origin in the XVIth and XVIIth Centuries," *Imago Mundi* 18 (1964): 24–44, table 1, between 26 and 27.

[b]Numbers 1, 2, 6, 7, 8, 11, 14, and 16 are reproduced in color in Unno Kazutaka, Oda Takeo, and Muroga Nobuo, eds., *Nihon kochizu taisei* (Great collection of old Japanese maps), 2 vols. (Tokyo: Kōdansha, 1972–75), vol. 2, *Nihon kochizu taisei sekaizu hen*, plate nos. 46, 45, 47, 48, 50, 51, 52, and 49. Number 5 (*Kōmōi Kairo zu*) is reproduced in color in Okamoto Yoshitomo, *Jūroku seiki ni okeru Nihon chizu no hattatsu* (Development of the map of Japan in the sixteenth century) (Tokyo: Yagi Shoten, 1973), frontispiece 7. Number 1 is reproduced in color in Michel Mollat du Jourdin and Monique de La Roncière, *Les portulans: Cartes marines du XIII^e au XVII^e siècle* (Fribourg: Office du Livre, 1984), and the English translation, *Sea Charts of the Early Explorers: 13th to 17th Century*, trans. L. de R. Dethan (New York: Thames and Hudson, 1984), pl. 72.

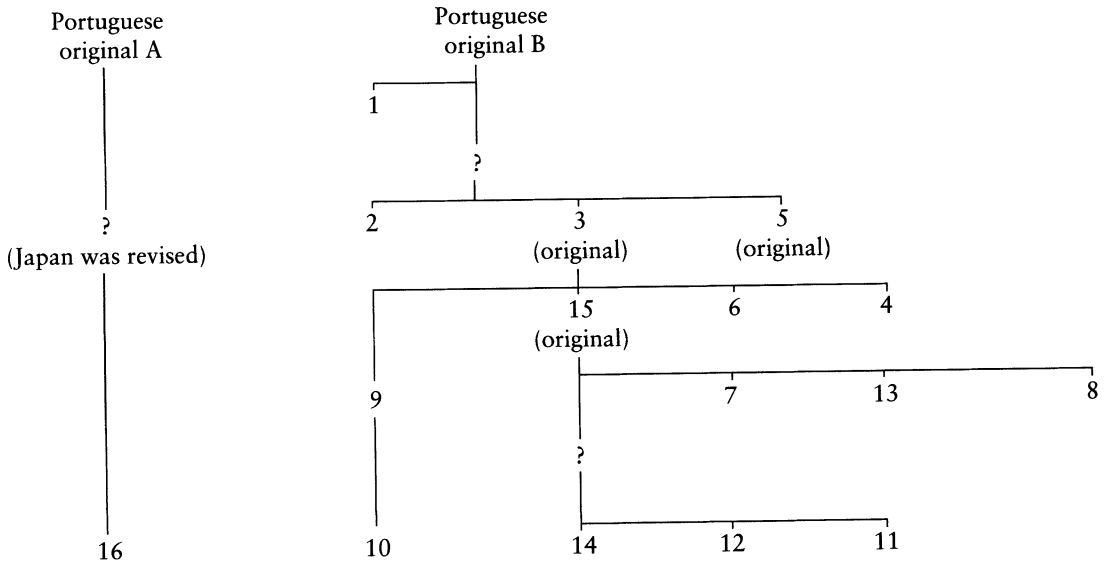
APPENDIX 11.5 (*continued*)

Number and Owner	Title	Author or Copier	Material	Westernmost Area	Nakamura[a] (table 1)	Remarks[b]
5 Okamoto Michiko, Tokyo	*Kōmōi Kairo zu* (Dutch chart)	Uchiyama Hachisaburō (copier)	Paper	Sri Lanka	3	Copy dating to 1845
6 Jingū Historical Museum, Ise	None	Anonymous	Vellum	Malay Peninsula	7	ca. 1630; formerly belonged to the Kadoya family; see figure 11.24
7 Shimizu Takao, Kyōto	None	Anonymous	Paper	Malay Peninsula	—	On two wooden boards attached with hinges. Bonin Islands (then known as Tatsumi Islands) are included. Location of Bonins at 27°N was confirmed in 1675 by Shimaya, who led expedition under order of shogun to determine their location.
8 Tōhoku University Library, Sendai	*Ko karuta* (Small chart)	Anonymous	Paper	Malay Peninsula	8	
9 National Archives, Tokyo	*Kon'en tendo gattai zu* (Chart corresponding to astronomical degrees)	Mori Kōan (copier)	Paper	Malay Peninsula	10	Copy dating to 1752
10 Nagakubo Atsushi, Takahagi	*Kōmō karuta zu* (Dutch chart of sea routes)	Nagakubo Sekisui (copier)	Paper	Malay Peninsula	—	
11 Nagasaki Prefectural Library, Nagasaki	None	Ro Kōrō (copier)	Paper	Malay Peninsula	11	Copy dating to ca. 1865
12 National Archives, Tokyo	*Tensen chihō no zu* (Planisphere with astronomical lines)	Mori Kōan (copier)	Paper	Malay Peninsula	9	Copy dating to 1752; chart has several revisions, exemplified by fact that area up to 28°S has been widened so parallels at intervals of one degree fill whole area
13 Jingū Library, Ise	None	Anonymous	Paper	Malay Peninsula	—	
14 Nagasaki Prefectural Library, Nagasaki	None	Anonymous	Paper	Malay Peninsula	—	In manuscript *Batanjin emaki* (Painted scroll showing Bataan Islanders, 1680); chart 15 of Nakamura's table 1 is copy of this chart

APPENDIX 11.5 (*continued*)

Number and Owner	Title	Author or Copier	Material	Westernmost Area	Nakamura[a] (table 1)	Remarks[b]
15 (Published)	*Bankokuzu kawa shōzu* (Sketch from a map of various countries, drawn on vellum)	Anonymous	Paper	Malay Peninsula	12	In Inaba Tsūryū (Shin'emon), *Sōken kishō* (Sword ornaments, 1781)
16 Nanba Matsutarō Nishinomiya	None	Anonymous	Paper	Gulf of Guinea	6	

GENEALOGY



APPENDIX 11.6 LIST AND GENEALOGY OF JAPANESE MARINE CHARTS OF JAPAN

Number and Owner	Author or Copier	Number of Compass Points	Material	Nakamura[a] (table 2)	Remarks[b]
1 Mitsui Library, Tokyo	Anonymous	32	Vellum	19	Wooden stick attached to both right and left sides; see figure 11.25
2 Tokyo National Museum, Tokyo	Anonymous	32	Vellum	18	

[a]Hiroshi Nakamura, "The Japanese Portolanos of Portuguese Origin in the XVIth and XVIIth Centuries," *Imago Mundi* 18 (1964): 24–44, table 2 on p. 28.

[b]Numbers 1, 2, and 3 are reproduced in Unno Kazutaka, Oda Takeo, and Muroga Nobuo, eds., *Nihon kochizu taisei* (Great collection of old Japanese maps), 2 vols. (Tokyo: Kōdansha, 1972–75), vol. 1, pls. 18 and 17 (color), and fig. 17; number 2 is in color in Michel Mollat du Jourdin and Monique de La Roncière, *Les portulans: Cartes marines du XIII^e au XVII^e siècle* (Fribourg: Office du Livre, 1984), and the English translation, *Sea Charts of the Early Explorers: 13th to 17th Century*, trans. L. de R. Dethan (New York: Thames and Hudson, 1984), pl. 77; number 3 is in Akioka Takejirō, *Nihon kochizu shūsei* (Collection of old maps of Japan) (Tokyo: Kajima Kenkyūjo Shuppankai, 1971), pl. 16; number 5 is in Kazutaka Unno, *Chizu no shiwa* (Map creases; or, Essays on the history of cartography) (Tokyo: Yūshōdō Press, 1985), fig. 28; number 6 is in Nanba Matsutarō, Muroga Nobuo, and Unno Kazutaka, eds. and comps., *Nihon no kochizu* (Old maps in Japan) (Ōsaka: Sōgensha, 1969), English translation, *Old Maps in Japan*, trans. Patricia Murray (Ōsaka: Sōgensha, 1973), pl. 22 (color), and Akioka, *Nihon kochizu shūsei*, pl. 15.

APPENDIX 11.6 (*continued*)

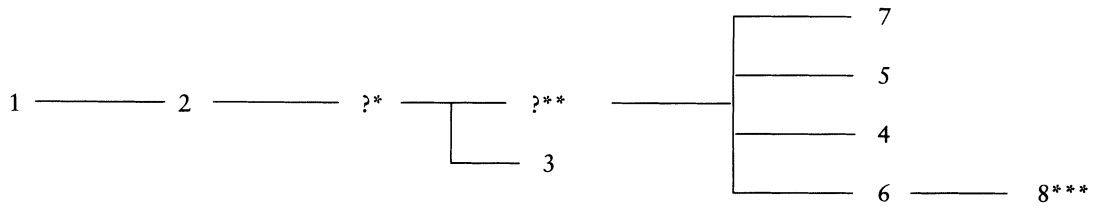
Number and Owner	Author or Copier	Number of Compass Points	Material	Nakamura[a] (table 2)	Remarks[b]
3 Ōkōchi Masatoshi, Tokyo	[Matsudaira Terutsuna?]	32	Paper	17	
4 Koga City Museum of History, Koga (formerly Takami Yasujirō, Koga)	Takami Senseki (copier)	24	Paper	16	Title: *Pirōto no hō karuta* (Chart used by pilots); copy dating to 1811
5 Saga Prefectural Library, Saga	Anonymous	24	Paper	—	
6 National Museum of Japanese History, Sakura (formerly Akioka Takejirō)	Anonymous	24	Paper	20	
7 Nagakubo Atsushi, Takahagi	Nagakubo Sekisui (copier)	24	Paper	—	Two copies; one is revision of northern Honshū
8 Nagasaki City Museum, Nagasaki	Fujishima Chōzō (copier)	24	Paper	—	Copy dating to 1920; together with map of China

APPENDIX 11.7 EARLY JAPANESE TERRESTRIAL GLOBES

Owner	Author(s)/Maker(s)	Date	Diameter (cm)	MS or Printed	Material
1 Jingū Historical Museum, Ise	Shibukawa Harumi	1690	24	MS	Paper
2 National Museum of Science, Tokyo	Shibukawa Harumi	1697	33	MS	Paper
3 Kayahara Hiroshi, Tsu		17th century	ca. 3.8	MS	Wood
4 Nanban Culture Hall, Ōsaka		17th century	25.2	MS	Wood? lacquered

[a]Akioka Takejirō, *Nihon chizu sakusei shi* (A history of the making of Japanese maps) (Tokyo: Kajima Kenkyūjo Shuppankai, 1971); Akioka Takejirō, *Sekai chizu sakusei shi* (A history of making world maps) (Tokyo: Kawade Shobō Shinsha, 1988); Fujita Motoharu, *Kaitei zōho Nihon chirigaku shi* (Revised and enlarged history of Japanese geography) (Tokyo: Tōkō Shoin, 1942, reprinted Tokyo: Hara Shobō, 1984); Hirotada Kawamura, Kazutaka Unno, and Kazuhiko Miyajima, "List of Old Globes in Japan," *Der Globusfreund* 38–39 (1990–91): 173–75; Kōbe Shiritsu Hakubutsukan (Kōbe City Museum), *Kochizu ni miru sekai to Nippon* (The world and Japan as seen in old maps) (Kōbe, 1983); idem, *Akioka Kochizu Korekushon meihin ten* (A collection of masterpieces: The Akioka collection of old maps) (Kōbe, 1989); Sugano Yō, "Eisei Bunko shozō Shiba Kōkan sei chikyūgi" (Shiba Kōkan's terrestrial globe in the Eisei Library collection), *Nihon Yōgaku-*

GENEALOGY



* Correction of northern Honshū
** Incorporates Hokkaidō and Korea
*** Together with a map of China

(IN CHRONOLOGICAL ORDER)

Origin of Cartographic Image	Source(s) with Reproductions[a]	Paired Celestial Globe	Remarks
Matteo Ricci's map	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 56	33 cm, paper	
Matteo Ricci's map	Akioka, *Sekai chizu sakusei shi*, 190	36 cm, paper	Formerly in Tani Kanjō Collection
Nanban style: oval projection	Unno, *Chizu no shiwa*, 249		Possible to spin both globe and attached doll
Japanese copy of Matteo Ricci's map	Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 26	25 cm, wood?, lacquered	

shi no Kenkyū 7 (1985): 47–64; Takagi Takeo, *Tenmon kyōgu* (Tools for teaching astronomy) (Tokyo, 1973); Unno Kazutaka, Oda Takeo, and Muroga Nobuo, eds., *Nihon kochizu taisei* (Great collection of old Japanese maps), 2 vols. (Tokyo: Kōdansha, 1972–75), vol. 2, *Nihon kochizu taisei sekaizu hen*; Unno Kazutaka, *Chizu no shiwa* (Map creases; or, Essays in the history of cartography) (Tokyo: Yūshōdō Press, 1985); Unno Kazutaka, "Akashi Shiritsu Tenmonkagakukan shozō kochikyūgi ni tsuite" (On the early terrestrial globe in the Akashi Planetarium collection), *Kagakushi Kenkyū* 124 (1977): 235–36; Unno Kazutaka, "Faruku chikyūgi denrai no hamon" (The influence of the Valcks' globe on Japanese maps and globes), *Nihon Yōgakushi no Kenkyū* 8 (1987): 9–34; Yamamoto Takeshi, ed., *Kōchi ken no rekishi* (History of Kōchi Prefecture) (Tokyo: Yamakawa Shuppansha, 1970).

APPENDIX 11.7

Owner	Author(s)/Maker(s)	Date	Diameter (cm)	MS or Printed	Material
5 Kushuon'in Temple, Hirakata	Sōkaku	ca. 1702	20	MS	Paper
6 National Museum of Japanese History, Sakura (Akioka Collection)	Irie Shūkei?	ca. 1750	20	MS	Paper
7 Yamanouchi Shrine, Kōchi	Kawatani Keizan	1762	?	MS	Wood? lacquered
8 Kayahara Hiroshi, Tsu		18th century?	21	MS	Paper
9 Muroga Emiko, Kyōto		18th century?	?	MS	Paper
10 Geographical Institute, Kyōto University		18th century	32	MS	Paper
11 Sue Fumito, Iwadeyama, Miyagi Prefecture		18th century?	ca. 28	MS	Paper
12 Kōbe City Museum, Kōbe (Ikenaga Collection)		ca. 1805	25.3	MS	Paper
13 Taikodani Inari Shrine, Tsuwano	Hotta Nisuke	1809	36	MS	Wood
14 Eisei Library, Tokyo	Shiba Kōkan	1810	45.2	MS	Wood, lacquered
15 Kamata Kyōsaikai Museum, Sakaide	Chūjō Sumitomo	1838	28.7	MS	Paper
16 Iizuka Jūzō, Himeji	Akashika Yoshisada	1843	15.5 × 16.4	MS	Clay
17 Akashi Planetarium, Akashi	Fujimura Tanjō	1847	37.6	MS	Paper
18 Hagi Local Museum, Hagi		Early 19th century	28	MS	Paper
19 Kumamoto City Museum, Kumamoto		First half of 19th century	ca. 20	MS	Paper

(continued)

Origin of Cartographic Image	Source(s) with Reproductions[a]	Paired Celestial Globe	Remarks
Buddhist world map	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 5	52 cm, copper copy of Shunkai's globe	
Gerard and Leonard Valck's globe, 1700	Akioka, *Nihon chizu sakusei shi*, 15; Akioka, *Sekai chizu sakusei shi*, 186; Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 27; idem, *Akioka Kochizu Korekushon meihin ten*, pl. 37	35 cm, paper	
Shibukawa's globe	Takagi, *Tenmon kyōgu*, 122; Yamamoto, *Kōchi ken no rekishi*, frontispiece		Painted by Ikegawa Sōkurō; original date: 12th month, 11th year of Hōreki
Shibukawa's globe		23 cm, plaster, Shunkai globe	Formerly owned by Date Aki family
Matteo Ricci's map			Stand is lost
Gerard and Leonard Valck's globe, 1700	Fujita, *Kaitei zōho Nihon chirigaku shi*, 425, 428; Unno, "Faruku chikyūgi denrai no hamon"		
Matteo Ricci's map		ca. 28 cm, paper	Exhibited in Yūbikan, Iwadeyama
Kon'yo zenzu (Map of the earth) and *Kon'yo zenzusetsu* (Explanation of the *Kon'yo zenzu*), by Inagaki Shisen, 1802	Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 24		
Katsuragawa Hoshū's globe, 1794	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 86	37 cm, wood	Katsuragawa's globe was kept at Shōkōkan Library, Mito; original date: 12th month, 5th year of Bunka
Jaillot's map, ca. 1730	Sugano, "Eisei Bunko shozō Shiba Kōkan sei chikyūgi," figs. 1, 2, 8, 10, 13		
Shintei bankoku zenzu (Newly revised map of all the countries), by Takahashi Kageyasu, 1816			The stand is lost
			Jujube type, weight: 1.78 kg
Shinsei yochi zenzu (Newly made map of the world), by Mitsukuri Shōgo, 1844	Unno, "Akashi Shiritsu Tenmonkagakukan shozō kochikyūgi ni tsuite"		
Hashimoto Sōkichi's map, 1797	Kawamura, Unno, and Miyajima, "List of Old Globes," pl. 38		The earth's axis is level
Katsuragawa globe	Akioka, *Sekai chizu sakusei shi*, 193	21 cm, paper, Reimeikan Museum Collection, Kagoshima	

APPENDIX 11.7

Owner	Author(s)/Maker(s)	Date	Diameter (cm)	MS or Printed	Material
20 Kamata Kyōsaikai Museum, Sakaide	Kume Michikata	First half of 19th century	30.3	MS	Paper gores over plaster
21 Shimonoseki City Art Museum, Shimonoseki		Mid-19th century	30.6	MS	Paper
22 Kōbe City Museum, Kōbe (Ikenaga Collection)		Mid-19th century	31	MS	Paper
23 Shōryū Temple, Wakayama	Nakatani Sōnan	Mid-19th century	21.4	MS	Paper
24 Imperial Household Agency, Tokyo	Suzuki Shigetoki	1852	119	MS	Paper
25 Honma Takao, Tsuchiura	Numajiri Bokusen	1855	23	Printed	Paper and bamboo
26 Kōbe City Museum, Kōbe (Akioka Collection)	Numajiri Bokusen	1855	23	Printed	Paper and bamboo
27 Mōri Museum, Hōfu	Numajiri Bokusen	1855	23	Printed	Paper and bamboo
28 Kōbe City Museum, Kōbe (Nanba Collection)	Horiuchi Naotada	1855	31.7	MS	Paper
29 Shōko Shūsei Museum, Kagoshima	Takagi Hidetoyo and Miki Ikkōsai	1856	19.5	Printed	Paper
30 National Museum of Japanese History, Sakura (Akioka Collection)	Takagi Hidetoyo and Miki Ikkōsai	1856	19.5	Printed	Paper
31 Abe Masamichi, Tokyo	Tokyo Prefectural Secondary School	1871	41 (axis)	Printed	Cloth and steel
32 Kayahara Hiroshi, Tsu	Kajiki Genjirō	1873	16	Printed	Paper
33 Kayahara Hiroshi, Tsu	Ōya Gaikō	1873	21	Printed	Paper

(continued)

Origin of Cartographic Image	Source(s) with Reproductions[a]	Paired Celestial Globe	Remarks
	Takagi, *Tenmon kyōgu*, 122	28 cm, paper over plaster	Badly damaged
Shinsei bankoku yochi zenzu (Newly made map of all the countries in the world), by Den Ken, 1844			Formerly in Kazuki Yasuo Collection; the earth's axis is level
Revision of the globe at the Shimonoseki City Art Museum, above.	Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 25		Earth's axis is level and form of stand is same as that of Shimonoseki globe
Hashimoto Sōkichi's map, 1797	Takagi, *Tenmon kyōgu*, 122	22 cm, paper	
	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 93		
Shintei kon'yo ryakuzenzu (Newly made revised map of the earth), by Shibata Shūzō, 1852	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 103		Twelve folding ribs; see figure 11.29
Shintei kon'yo ryakuzenzu, by Shibata Shūzō, 1852	Kōbe Shiritsu Hakubutsukan, *Akioka Kochizu Korekushon meihin ten*, pl. 32		Twelve folding ribs
Shintei kon'yo ryakuzenzu, by Shibata Shūzō, 1852	Kawamura, Unno, and Miyajima, "List of Old Globes," pl. 37		Twelve folding ribs
Shinsei yochi zenzu, by Mitsukuri Shōgo, 1844	Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 28		
Shintei kon'yo ryakuzenzu, by Shibata Shūzō, 1852	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 2, pl. 102		
Shintei kon'yo ryakuzenzu, by Shibata Shūzō, 1852	Kōbe Shiritsu Hakubutsukan, *Kochizu ni miru sekai to Nippon*, pl. 29; Akioka, *Sekai chizu sakusei shi*, 193		
J. Betts's *New Portable Globe*, ca. 1860			Folding
			Balloon title, *Bankoku fukikyū* (Rich and joyful globe of all the countries)
	Fujita, *Kaitei zōho Nihon chirigaku shi*, 525		

APPENDIX 11.8 PROJECTS TO COMPILE PROVINCIAL MAPS UNDER THE TOKUGAWA SHOGUNATE

Enterprise	Year of Official Announcement	Year of Completion	Scale	Total Number of Sheets	General Map of Japan Based on Provincial Maps	Remarks
First	1605	Unknown	Unknown	Unknown	Years of completion not known, but works that seem identical exist	
Second	1633?	Unknown	Unknown	Unknown	Years of completion not known, but works that seem identical exist	
Third	1644	ca. 1656	6 *sun* to 1 *ri* (1:21,600)	76	Completed ca. 1670	Plans of cities where clan offices were situated and models of castles along Tōkai road were also made
Fourth	1697	1702	6 *sun* to 1 *ri* (1:21,600)	83	Completed 1702	
Fifth	1835	1838	6 *sun* to 1 *ri* (1:21,600)	83	Not made	

APPENDIX 11.9 EARLY PRINTED PLANS OF SIX MAIN CITIES

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
EDO					
1 *Bushū Toshima gōri Edo no shō zu* (Plan of Edo, Toshima County, Musashi Province)	ca. 1632	None	None	National Diet Library, Tokyo	97 × 128.5 cm; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 72
2 *Shinpan Bushū Edo no zu* (Newly printed plan of Edo, Musashi Province)	1661	None	Kyōto: Kawano Michikiyo	Mitsui Library, Tokyo	84 × 121 cm; Kurita, *Nihon kohan chizu shūsei*, pl. 42
3 *Shinpan Bushū Edo no zu* (Newly printed plan of Edo, Musashi Province)	1662	None	None	Tōyō Bunko (the Oriental Library), Tokyo	Type of Kawano's plan mentioned above

[a]Akioka Takejirō, *Nihon chizu shi* (History of maps of Japan) (Tokyo: Kawade Shobō, 1955); idem, *Nihon kochizu shūsei* (Collection of old maps of Japan) (Tokyo: Kajima Kenkyūjo Shuppankai, 1971); George H. Beans, *A List of Japanese Maps of the Tokugawa Era* (Jenkintown, Pa.: Tall Tree Library, 1951), supplements A, B, and C (1955, 1958, 1963); idem, "Some Notes from the Tall Tree Library," *Imago Mundi* 11 (1954): 146–47; Hugh Cortazzi, *Isles of Gold: Antique Maps of Japan* (Tokyo: Weatherhill, 1983); Fujita Motoharu, *Toshi kenkyū Heiankyō hensenshi, tsuketari kochizu shū* (History of the Kyōto region, accompanied by collected old plans) (Kyōto: Suzukake Shuppanbu, 1930; reprinted Nihon Shiryō Kankōkai, 1976); Kurita Mototsugu, ed., *Nihon kohan chizu shūsei* (Early maps and plans printed in Japan) (Tokyo: Hakata Seishōdō, 1928); Kyōto Koten Dōkō-kai (Kyōto Classical Studies Group), comp., *Kohan Nagasaki chizushū* (Early printed plans of Nagasaki) (Kyōto: Kyōto Koten Dōkōkai, 1977); *Kyōto shi shi, chizu hen* (History of Kyōto City, section of plans) (Kyōto, 1947); N. H. N. Mody, *A Collection of Nagasaki Colour Prints and Paintings* (1939; reprinted Tokyo: Charles E. Tuttle, 1969); Nanba Matsutarō, Muroga Nobuo, and Unno Kazutaka, eds. and comps., *Nihon no kochizu* (Old maps in Japan) (Ōsaka: Sōgensha, 1969); English edition, *Old Maps in Japan*, trans. Patricia Murray (Ōsaka: Sōgensha, 1973); Unno Kazutaka, Oda Takeo, and Muroga Nobuo, eds., *Nihon kochizu taisei* (Great collection of old Japanese maps), 2 vols. (Tokyo: Kōdansha, 1972–75).

APPENDIX 11.9 (*continued*)

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
EDO (*continued*)					
4 *Shinpan Bushū Edo no zu* (Newly printed plan of Edo, Musashi Province)	1664	None	Kyōto: Kawano Michikiyo	Kōbe City Museum, Kōbe (Nanba Collection)	
5 *Shinpan Bushū Edo no zu* (Newly printed plan of Edo, Musashi Province)	1664	None	None	University of British Columbia Library, Vancouver (Beans Collection)	Beans, *Japanese Maps*, facing p. 13; type of Kawano's plan mentioned above
6 *Shinpan Bushū Edo no zu* (Newly printed plan of Edo, Musashi Province)	1666	None	Kyōto: Kawano Kakunojō	Daitōkyū Kinen Library, Tokyo	95.1 × 120.6 cm
7 None	1666	None	Edo: Daikyōji Kahee	Tokyo University Library, Tokyo	47.5 × 70.2 cm
8 *Shinpan zōho Edo zu* (Newly printed, enlarged plan of Edo)	1666	None	Kyōto: Kawano Kakunojō	Nanba Matsutarō Collection, Nishinomiya	51.4 × 71.8 cm; Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 76
9 *Shinpan Edo ōezu* (Newly issued plan of Edo)	1671	Ochikochi Dōin	Edo: Kyōjiya Kahee	National Diet Library, Tokyo; National Archives, Tokyo; and others	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 73
KYŌTO					
10 None	1624–41	None	None	Ōtsuka Takashi Collection, Kyōto (formerly Moriya Collection)	Kurita, *Nihon kohan chizu shūsei*, pl. 48; *Kyōto shi shi, chizu hen*, pl. 14; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 80; see figure 11.47
11 *Heianjō Motodachiuri yori Kujō made machinami no zu* (City plan of Heianjō [Kyōto] from Motodachiuri to Kujō)	1624–41	None	None	National Museum of Japanese History, Sakura (Akioka Collection)	Including eastern suburbs; Kurita, *Nihon kohan chizu shūsei*, pl. 49; Akioka, *Nihon chizu shi*, pl. 46; Akioka, *Nihon kochizu shūsei*, pl. 93
12 *Heianjō tōzainanboku machinami no zu* (East-west, south-north city plan of Heianjō)	1624–41	None	None	Mitsui Library, Tokyo; Kurita Kenji Collection, Nagoya	Including eastern and western suburbs; Fujita, *Toshi kenkyū Heiankyō hensenshi tsuketari kochizu shū*, pl. 2; *Kyōto shi shi, chizu hen*, pl. 15
13 *Heianjō tōzainanboku machinami no zu* (East-west, south-north city plan of Heianjō)	1641–52	None	None	National Museum of Japanese History, Sakura (Akioka Collection)	Including red-light district of Shimabara; Akioka, *Nihon chizu shi*, pl. 47; Akioka, *Nihon kochizu shūsei*, pl. 92

APPENDIX 11.9 (*continued*)

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
KYŌTO (*continued*)					
14 *Heianjō tōzainanboku machinami no zu* (East-west, south-north city plan of Heianjō)	1652	None	Yamamoto Gohee	Institute of Japanese History, Kyōto University	Fujita, *Toshi kenkyū Heiankyō hensenshi tsuketari kochizu shū*, pl. 3; *Kyōto shi shi, chizu hen*, pl. 16; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 81
15 *Shinkai Rakuyō narabini rakugai no zu* (Newly revised plan of Rakuyō [Kyōto] and its surroundings)	1654	None	None	?	Including Kamo and Ōi rivers; *Kyōto shi shi, chizu hen*, pl. 17; original date: 12th month, 2d year of Shōō
16 *Shinpan Heianjō tōzainanboku machinami rakugai no zu* (Newly printed east-west, south-north plan of the city and surroundings of Heianjō)	1654	None	Kitayama Shūgakuji mura (Kyōto): Muan	University of British Columbia Library, Vancouver (Beans Collection)	Fujita, *Toshi kenkyū Heiankyō hensenshi tsuketari kochizu shū*, pl. 4; Beans, "Tall Tree Library," 147
17 *Shinpan Heianjō tōzainanboku machinami rakugai no zu* (Newly printed east-west, south-north plan of the city and surroundings of Heianjō)	1657	None	Kyōto: Maruya	Satō Collection, Kariya, Aichi Prefecture	Probably later issue of Muan edition of 1654
18 *Shinkai Rakuyō narabini rakugai no zu* (Newly revised plan of Rakuyō [Kyōto] and its surroundings)	1657	None	None	Kōbe City Museum, Kōbe (Nanba Collection)	Probably later issue of 1654 edition with same title
ŌSAKA					
19 *Shinpan Settsu Ōsaka tōzainanboku machi shima no zu* (Newly issued plan of Ōsaka with the east-west and north-south streets and islands, Settsu Province)	1655	None	Kyōto: anonymous	University of British Columbia Library, Vancouver (Beans Collection), formerly owned by Kanda Kiichirō; Kidō Library Collection, Kishiwada, Ōsaka Prefecture; Hōsa Library, Nagoya	119.4 × 77.5 cm; see figure 11.48
20 *Shinpan Ōsaka no zu* (Newly printed plan of Ōsaka)	1657	None	Kyōto: Kawano Michikiyo	Hōsa Library, Nagoya; Sako Collection, Ōsaka	Kurita, *Nihon kohan chizu shūsei*, pl. 52; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 86
21 ?	1661	None	Maruya Shōzaemon	Kōbe City Museum, Kōbe (Nanba Collection)	

APPENDIX 11.9 (*continued*)

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
ŌSAKA (*continued*)					
22 *Zōho Ōsaka no zu* (Enlarged plan of Ōsaka)	ca. 1670	None	None	Sako Collection, Ōsaka	
23 *Shinpan Ōsaka no zu* (Newly printed plan of Ōsaka)	1671	None	Kyōto: Fushimiya	Kidō Library Collection, Kishiwada, Ōsaka Prefecture	
24 *Shinpan Ōsaka no zu* (Newly printed plan of Ōsaka)	1678	None	Kyōto: Fushimiya	Ōsaka Prefectural Nakanoshima Library, Ōsaka	
25 *Shinsen zōho Ōsaka ōezu* (Newly compiled, enlarged large plan of Ōsaka)	1686	None	Kyōto: Hayashi Yoshinaga	University of British Columbia Library, Vancouver (Beans Collection); Waseda University Library, Tokyo; and others	
26 *Shinsen zōho Ōsaka ōezu* (Newly compiled, enlarged large plan of Ōsaka)	1687	none	Kyōto: Hayashi Yoshinaga	Mitsui Library, Tokyo; Ōsaka Prefectural Nakanoshima Library, Ōsaka; Sako Collection, Ōsaka	Kurita, *Nihon kohan chizu shūsei*, pl. 53; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 91
27 *Shinpan Ōsaka no zu* (Newly printed plan of Ōsaka)	1687	None	Kyōto: Hayashi Yoshinaga	Kidō Library Collection, Kishiwada, Ōsaka Prefecture	
NAGASAKI					
28 *Nagasaki ōezu* (Large plan of Nagasaki)	ca. 1681	None	None	Tenri Central Library, Tenri; Kōbe City Museum, Kōbe (Ikenaga Collection); British Library, London	63.4 × 143 cm (Tenri copy); Kyōto Koten Dōkōkai, *Kohan Nagasaki chizushū*, pl. 1; Cortazzi, *Isles of Gold*, pl. 50
29 *Karafune raichō zu Nagasaki zu* (Plan of Nagasaki with illustrations of Chinese ships coming to Japan)	ca. 1690	None	Edo: Matsue (Murata Sanshirō)	Tenri Central Library, Tenri; Kurita Kenji Collection, Nagoya; Kōbe City Museum, Kōbe (Ikenaga Collection); and others	Kurita, *Nihon kohan chizu shūsei*, pl. 68; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 108; Kyōto Koten Dōkōkai, *Kohan Nagasaki chizushū*, pl. 2
30 [*Nagasaki ōezu*] [Large plan of Nagasaki]	ca. 1730	None	Nagasaki: Nakamura Sanzō (Chikujuken)	Kōbe City Museum, Kōbe (Ikenaga Collection)	

APPENDIX 11.9 (*continued*)

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
NAGASAKI (*continued*)					
31 *Kaisei Nagasaki zu* (Revised plan of Nagasaki)	1745	Hassendō Shujin	Kyōto: Hayashi Jizaemon	Kurita Kenji Collection, Nagoya; University of British Columbia Library, Vancouver (Beans Collection); Kōbe City Museum, Kōbe (Ikenaga and Nanba Collections)	Issued in 1808 and 1830; cover title of later issues changed to *Nagasaki saikenzu* (Detailed plan of Nagasaki)
32 *Shinkan Nagasaki ōezu* (New version [of the] large plan of Nagasaki)	1752	None	Nagasaki: Nakamura Sōzaburō (Chikujuken)	Formerly N. H. N. Mody Collection, Kōbe	Mody, *Collection of Nagasaki Colour Prints and Paintings*, pl. 29
33 *Shinpan Nagasaki ōezu* (Newly issued plan of Nagasaki)	ca. 1760	None	Nagasaki: Shimabaraya	Kurita Kenji Collection, Nagoya; Kōbe City Museum, Kōbe (Ikenaga Collection)	57 × 101.8; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 107; see figure 11.52
34 *Hishū Nagasaki no zu* (Plan of Nagasaki, Hizen Province)	1764	None	Nagasaki: Ōhata Bunjiemon	University of British Columbia Library, Vancouver (Beans Collection); Kōbe City Museum, Kōbe (Ikenaga and Nanba Collections)	61 × 88.5 cm (Beans Collection); Beans, *Japanese Maps*, facing p. 23; Kyōto Koten Dōkōkai, *Kohan Nagasaki chizushū*, pl. 5
35 *Hishū Nagasaki zu* (Plan of Nagasaki, Hizen Province)	1778	None	Nagasaki: Ōhata Bunjiemon	University of British Columbia Library, Vancouver (Beans Collection); Kōbe City Museum, Kōbe (Ikenaga and Nanba Collections)	Kurita, *Nihon kohan chizu shūsei*, pl. 69; Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 109; Kyōto Koten Dōkōkai, *Kohan Nagasaki chizushū*, pl. 6
NARA					
36 *Washū Nanto no zu* (Plan of the southern metropolis [Nara], Yamato Province)	1666	None	Nara: Ozaki San'emon	Tōhoku University Library, Sendai; Nara Prefectural Library, Nara	99.3 × 62.4 cm
37 *Washū Nanto no zu* (Plan of Nara, Yamato Province)	1709	None	Nara: Yamamura Juzaburō	Kōbe City Museum, Kōbe (Nanba Collection)	Kurita, *Nihon kohan chizu shūsei*, pl. 55
38 *Washū Nanto ezu* (Plan of Nanto, Yamato Province)	1778	None	Ōsaka: Shibukawa Seiemon and Yanagihara Kihee	Kōbe City Museum, Kōbe (Nanba Collection)	Nanba, Muroga, and Unno, *Nihon no kochizu/Old Maps in Japan*, pl. 67

APPENDIX 11.9 (*continued*)

Title	Date	Author	Publisher(s)	Owner(s)	Reproduction or Remarks[a]
SAKAI					
39 *Senshū Sakai no zu* (Plan of Sakai, Izumi Province)	1704	None	Sakai: Takaishi Kimei	Kōbe City Museum, Kōbe (Nanba Collection)	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 104
40 *Sakai ōezu kaisei kōmoku* (Large plan of Sakai: Revised outline)	1735	Kawai Morikiyo	Ōsaka: Murakami Ihee	Kurita Kenji Collection, Nagoya; National Diet Library, Tokyo; Kōbe City Museum, Kōbe (Nanba Collection); and others	Kurita, *Nihon kohan chizu shūsei*, pl. 56; cover title is *Kaisei Sakai ezu kōmoku* (Revised outline plan of Sakai)
41 *Sakai saiken ezu* (Detailed plan of Sakai)	1798	None	Sakai: Kitamura Sahee; Ōsaka: Kashiharaya Kahee	Kōbe City Museum, Kōbe (Nanba Collection)	Unno, Oda, and Muroga, *Nihon kochizu taisei*, vol. 1, pl. 105