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The Early Cartography of the Bering Strait Region

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A discussion of the early cartography of the Bering Strait region might begin, presumably, with the concept of the Strait of Anian (Kohl, 1911:309-311; Sykes, 1915:167-171; Wagner, 1926:93-102; Wroth, 1944:214). That concept, however, for all its surprisingly accurate prediction of a strait in the far north separating Asia and America, was purely speculative with no basis in factual evidence. It arose in the middle of the sixteenth century and endured for more than a century. In its later phase, from the mid-seventeenth century on, the locale of this mythical strait was shifted eastward to a position between a legendary land of Jeso and America north of California, and became involved in the controversy over a Northwest Passage from Hudson's Bay to the Pacific. It was at this time that another cartography began to develop, based at first on a slim and tenuous knowledge of the facts, but nevertheless carrying with it the promise of a realistic cartography of the Bering Strait region. This was the Russian cartography of northeastern Siberia. Less is generally known about this cartography than about that of the Strait of Anian; yet, since World War II, Soviet scholars have greatly advanced our knowledge of it. This paper will focus on a selected group of maps from the Russian cartography.

The Bering Strait is usually defined as the passage through the narrowest part of the waters between the Chukotskiy Peninsula in Siberia and the Seward Peninsula in Alaska, namely the 56 miles between Cape Dezhneva and Cape Prince of Wales. Captain James Cook so defined it (see Fig. 26). This gives the strait width, but not length. I take its length to be the stretch between the northern and southern shores of the two peninsulas. By "Bering Strait region" I have in mind a larger context, that of the areas adjacent to these two peninsulas and their waters, the upper Bering Sea and the Chukchi Sea.

The starting point for our consideration of the cartography of this region is the 1648 voyage of Semen Dezhnev, a Siberian cossack who led a party of Russian *promyshlenniki* from the Kolyma River (which empties into the Arctic ocean) to a point south of the Anadyr' River (which empties into the Pacific Ocean). Seven years later, in two reports to the authorities at Yakutsk, he briefly related the voyage (it is doubtful that he understood its significance) and described a great rocky promontory around which he and his men had sailed (Arkheograficheskaya kommissiya, 1846-72:v.4:25-26; Belov, 1964:130, 131, 138; Fisher, 1981:52-53, 54, 63). This promontory extended far into the sea, lay between north and northeast, was big and rocky and inhabited by a great many people, and was far from the Anadyr'. Opposite it were two islands whose inhabitants wore labrets. Dezhnev gave the promontory no name, and it was not named until much later. But the important fact was that for the first time Europeans had sailed around the eastern tip of Asia, demonstrating its separation from America, and a description had been given of a prominent feature which was to be found somewhere in the vicinity of that easternmost point. Now the potential existed for a realistic representation of that corner of the world.

But for that to happen Dezhnev's voyage and his description of the great rocky promontory had to become known; yet his role in the voyage did not come to light until 1736 when Gerhard Friedrich Müller, a member of the Russian Academy of Sciences who spent 10 years in Siberia gathering historical and other materials for the Academy, uncovered Dezhnev's reports in the archives of Yakutsk. Still, there is evidence to indicate that the voyage was known before 1736 in Siberia, in northern maritime Russia, and in Moscow, even though the date of the voyage and its participants remained unspecified. And the implication of the voyage, a free passage between Arctic and Pacific, found expression on some of the maps in the later seventeenth and early eighteenth centuries. Likewise the existence of a large promontory in northeastern Siberia appears to have become known, as the maps suggest. However, it is essential to go farther and identify Dezhnev's promontory, the better to measure the accuracy of the representation on the Asiatic side of the Bering Strait during this time. The most recent identification, and in my judgment the correct one (Fisher, 1981:237-238), is that of the Soviet scholar Boris P. Polevoy, made in the 1960s on the basis of evidence turned up a decade earlier. His conclusion is that Dezhnev's promontory is the whole Chukotskiy Peninsula (Polevoy, 1962:149-150, 1965a:102-106; Fisher, 1981:221-237).

The Russian or Siberian cartography examined here begins with the year 1667 and extends, in its first phase, to 1730. It may be characterized as parochial. It was almost wholly Russian-derived and limited to the Russian experience in Siberia. Not until late in the period were non-Russian influences reflected on the maps of northeastern Siberia. The cartography dealt only with Siberia, except for the border areas of China, not with America; so only the Asiatic side of Bering Strait was given attention until much later. It is parochial, too, in that the Russians did not publish their discoveries, but confined knowledge of them mainly to official circles. In the nature of things it is an original cartography, but it is also a rather hidden cartography, unlike that in the West where royal societies flourished and cartographers and map publishers were many.

Until well into the eighteenth century this Russian cartography consisted only of manuscript maps, called *chertezhi*. They were not as sophisticated as those in the West, lacking coordinates and being based not on astronomically determined

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points, but on river systems. Too, they were oriented with north at the bottom and east to the left. Distances were measured mainly in days of travel. The information on which they were based was provided by the reports of cossacks and *promyshlenniki* who roamed new areas of Siberia in search of sable pelts and the natives to supply them. Their reports contained their own observations as well as information obtained from natives. Often they were accompanied by *chertezhi* made by the informants (Bagrow, 1954:114; Keuning, 1954:99). By far the most noteworthy cartographer of Siberia of this period was Semen Yul'yanov Remezov (1663-1713), whose active career was spent in Tobol'sk, the main administrative centre through which many individuals and much information passed en route to Moscow, and these became Remezov's sources (Bagrow, 1954:111, 123-124; Keuning, 1954:99). But until the reign of Peter the Great these *chertezhi* were not published, and even then the number was minimal. It was not until this century, after World War II, that many of these maps came to light and were published. The major compendium of such maps, for our purpose, is the large atlas (Yefimov, 1964) of the geographical discoveries in Siberia and northwestern America in the seventeenth and eighteenth centuries, published by the Institute of Ethnography of the Soviet Academy of Sciences under the editorship of Aleksey V. Yefimov, a leading scholar in the field of Russian exploration and discovery. Without this indispensable atlas, any account of northeastern Siberian cartography would be meager indeed.

The Russian maps of the later seventeenth century share one feature in common: the rectangular shape given to Siberia and its northeast corner. The Arctic coastline runs east-west and the Pacific coastline north-south, each without major irregularities, to form a right angle. Later maps show the corner as rounded, but the coastlines do not change significantly (Bagrow, 1952:86). This uncertainty about the true geography of northeastern Siberia is also revealed, in the earlier maps, at least, by the positioning of the major rivers which empty into the Arctic and which in eastward order are the Lena, Yana, Indigirka, Alazeya, and Kolyma.

The earliest of the maps to have survived are the Godunov map (Fig. 1), made in Tobol'sk, and the 1673 map of Siberia (Fig. 2) probably made in Moscow (Bagrow, 1952:83, 86, 88; Andreyev, 1960:40-50; Yefimov, 1964:nos. 28-30). They exhibit a rectangular Siberia and misplace the rivers: on the Godunov map the Lena and Kolyma empty into the Pacific; on the 1673 map the Lena debouches into the Arctic close to the corner, and the Alazeya and Kolyma into the Pacific. The one significant feature is the presence of a free-water passage around the northeastern corner. There is, however, no suggestion of a strait. Three later maps add a feature not found on these two, a narrow elongated peninsula at or near the corner and cut off by the edge of the map. It extrudes from the shoreline like a peg from a wall. On the 1678 map of Nikolay Spafariy (or Milescu) (Fig. 3), made after his mission to China in 1675-76, the peninsula is situated south of the corner, is mountainous, and marks the northern limit of the Amur Sea (Bagrow, 1947:facing 69, 1952:84;[1] Andreyev, 1960:55-71; Yefimov, 1964:no. 32). These features identify it not as the Chukotskiy Peninsula, but as Kamchatka, known to the Russians as early as the 1650s (Polevoy, 1964:245-248, 1969: 115-124). On Remezov's map of eastern Siberia, made before 1696 (Fig. 4), the peninsula, though situated at the corner, is placed between the Yana and Indigirka rivers, the latter emptying into the Pacific, and is marked Svyatoy Nos or Sacred Cape (Yefimov, 1964:no. 44). It probably derives from the modern Cape Svyatoy Nos between those two rivers, shown greatly oversized. Only a later map of eastern Siberia by Remezov (Fig. 5) places a peninsula correctly at the corner east of the Kolyma River and close to the Anadyr' River south of it (Yefimov, 1964:no. 45). From these maps it can be seen that the Russians had an awareness of a peninsula in the vicinity of the northeast corner, but certainly not an understanding of its shape and size.

Three other maps place not one, but two peninsulas in the vicinity of the northeast corner. With these maps there enters into the cartography of the Bering Strait region the concept of a mythical peninsula, which I call the Shalatskiy promontory (Fisher, 1977:42-47, 99-101). It appears on maps as a large peninsula extending northeastward from the real Chukotskiy

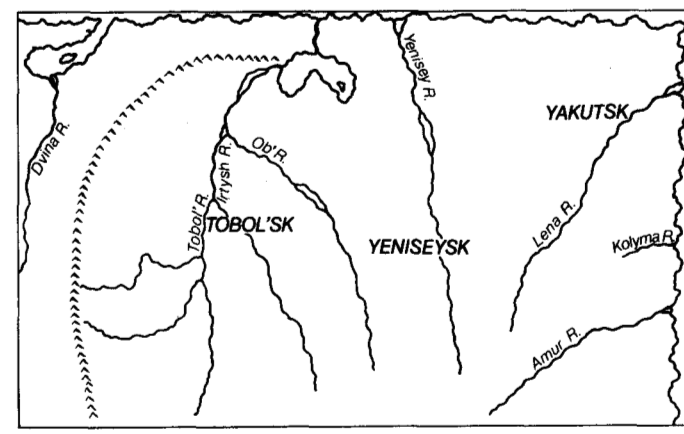

FIG. 1. Godunov's map of Siberia, 1667 (detail) (Yefimov, 1964: no.28).

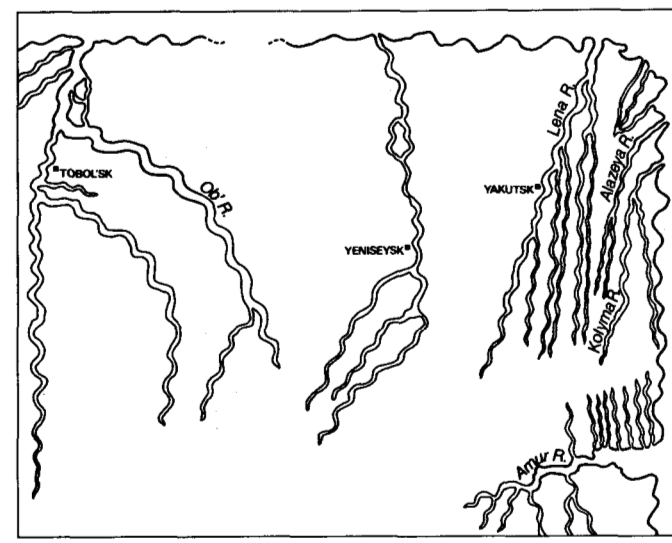

FIG. 2. Map of Siberia, 1673 (Yefimov, 1964: no. 30).

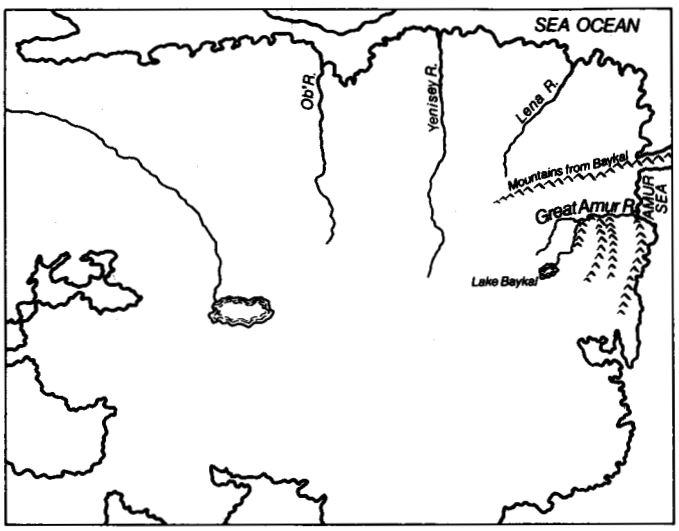

FIG. 3. Spafariy's map of Siberia, 1678 (Yefimov, 1964: no.32).

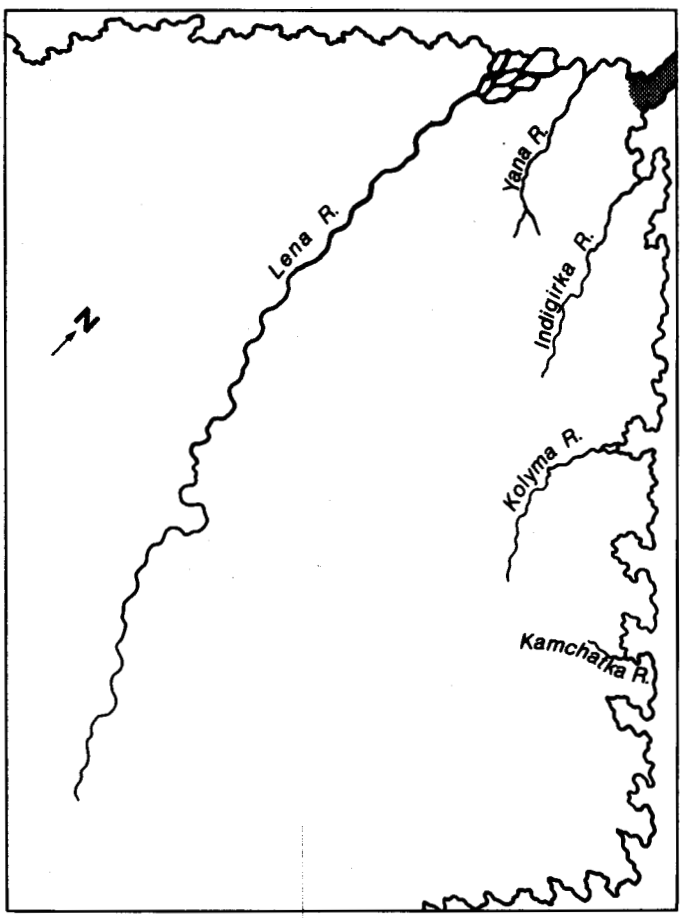

FIG. 4. Remezov's map of eastern Siberia, before 1696 (detail) (Yefimov, 1964: no.44).

Peninsula. Its basis in fact was Cape Svyatoy Nos and Cape Shelagskiy at the entrance to Chaun Bay, some 1000 km west of Bering Strait. By exaggerating the size of these two capes, each to the proportions of a peninsula, and placing one or the other close to the northeast corner, our attention is commanded but our understanding confused by putting two peninsulas where only one belongs. Two of the maps, the Ethnographic Map of Siberia of 1673 (Fig. 6; Yefimov, 1964:no. 41) and Remezov's Ethnographic Map, made sometime before 1700 (Fig. 7; Yefimov, 1964:no. 42), show a larger and more northerly peninsula stretching into the Icy Sea just east of the mouth of the Lena, its end cut off by the border of the map. The Yana and Kolyma rivers are shown to empty into the Pacific. A shorter and more southerly peninsula, which should be the larger of the two, forms a hook into the sea. The third map, made between 1680 and 1689 by Andrey Vinius (Fig. 8) (Bagrow, 1947:69;[2] Andreyev, 1960:53-54; Yefimov, 1964:no. 46), then employed in the Department of Ambassadors, later head of the Siberian Department, is not much of an improvement. One peninsula extends eastward north of the Kolyma, which empties into the "sea-ocean" (the Pacific?); the other also extends eastward, but south of the Kolyma. Both are cut off at the edge of the map. These three maps, together with the preceding three, present unterminated peninsulas which give the impression of impassable promontories and preclude the idea of a strait.

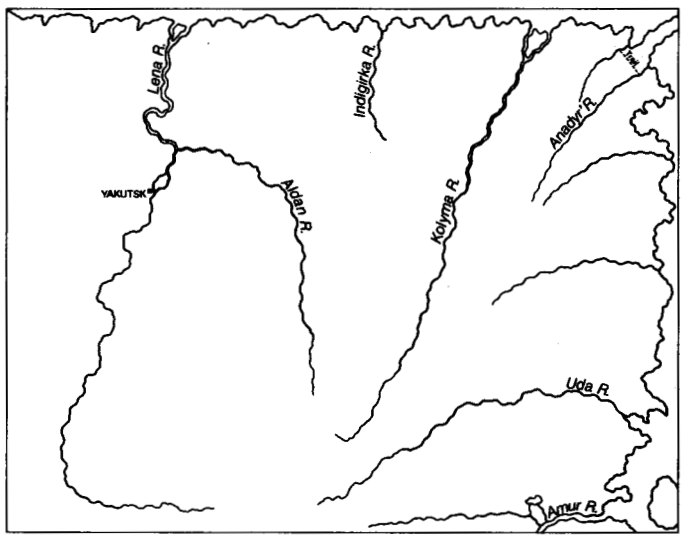

FIG. 5. Remezov's later map of eastern Siberia (Yefimov, 1964: no. 45).

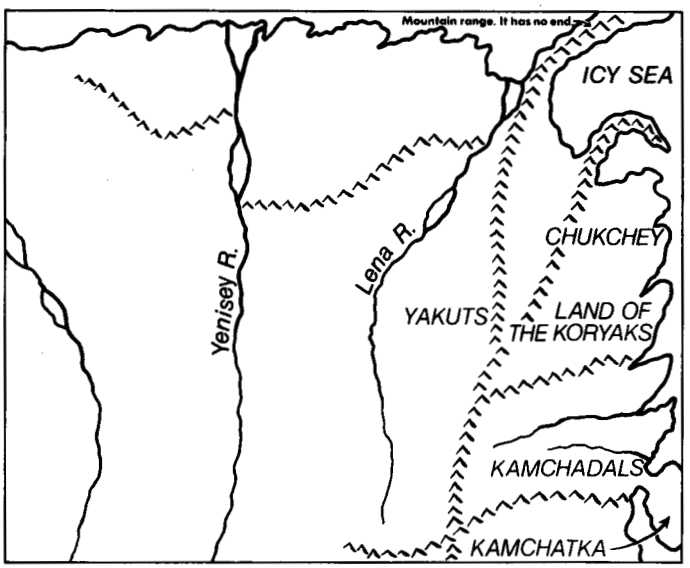

FIG. 6. Ethnographic map of Siberia, 1673 (Yefimov, 1964: no. 41).

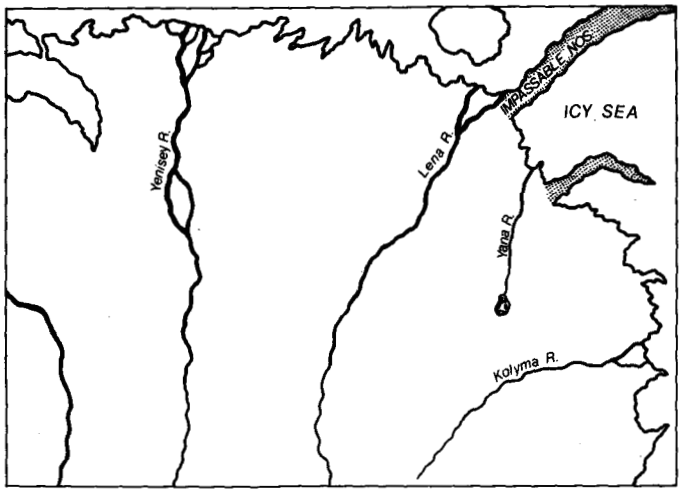

FIG. 7. Remezov's ethnographic map of Siberia, before 1700 (Yefimov, 1964: no. 42).

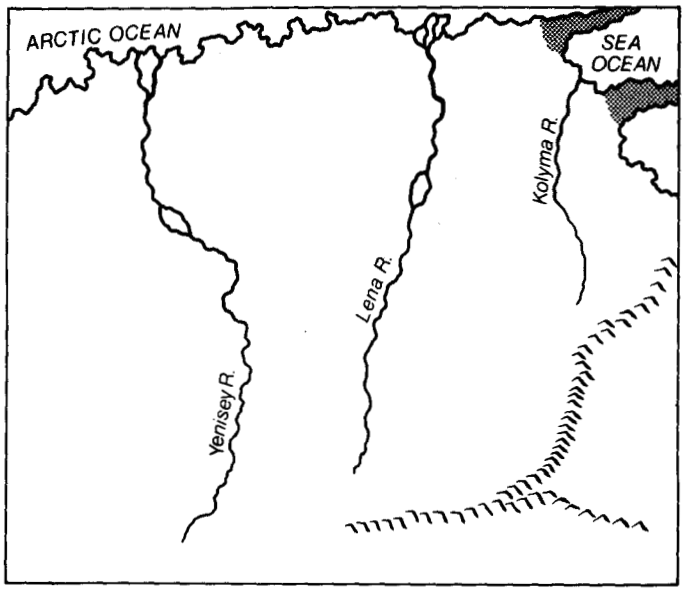

FIG. 8. Vinius's map of Siberia, 1678-1683 (detail) (Yefimov, 1964: no.46).

A ninth map, the Map of Siberia of 1687 (Fig. 9), heretofore incorrectly dated 1684-85 and of unknown authorship, presents a different picture. Siberia is still rectangular in shape, but rounded at the corner. The Lena empties into the ocean there, and capes east of it are placed on the Pacific coast. Three or four peninsulas, all inscribed completely within the borders of the map, are shown between the rivers. These poorly portrayed features alone do not justify attention to this map, but on it, near the capes, is an inscription reading' "The journey by sea along the land to the mountain (*kamen'*) when the ice permits is one summer, and when it does not permit, three summers". This statement, one may reasonably assume, refers to Dezhnev's summer voyage of 1648 to account for the one-summer journey, and to a 1646 voyage by one Isay Ignat'yev from the Kolyma to Chaun Bay, together with another voyage by Dezhnev in 1647, aborted because of ice, to explain the additional two years when ice was present (Bagrow, 1947:facing 70; Belov, 1955:facing 116; Yefimov, 1964: 32-33, no. 34; Fisher, 1981:260). If this assumption is correct, then the depiction of a clear passage between the Arctic and Pacific points to knowledge of the information in Dezhnev's reports. In other words, this map had some basis in fact.

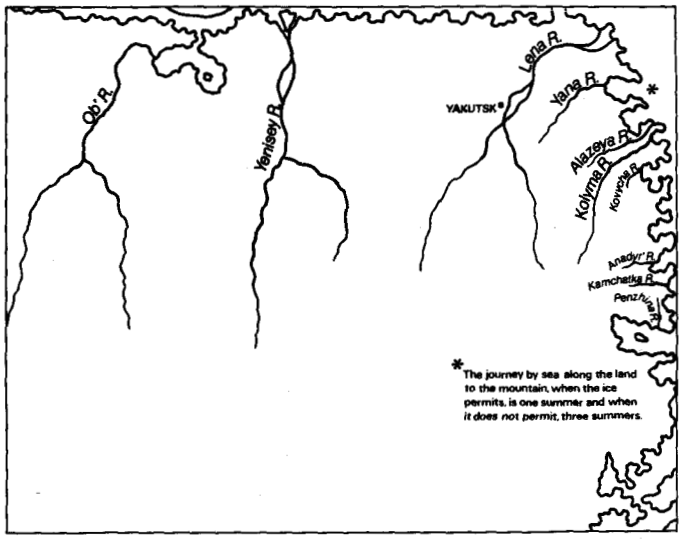

FIG. 9. Map of Siberia, 1687 (incorrectly dated 1684-85) (detail) (Yefimov, 1964: no. 34).

In the first two decades of the eighteenth century Siberian cartography became more accurate in its portrayal of the Bering Strait region. First the peninsula at the northeast corner took on a configuration recognizable as the Chuktoskiy Peninsula. The narrow, elongated form gave way to a large, wide, broad-faced peninsula. Second, the peninsula is more accurately positioned, east of the Kolyma River and bordered on the south by the Gulf of Anadyr'. Third, a large island appears opposite the peninsula, as well as a few small islands. Their appearance may have been a long-delayed response to Dezhnev's report of two islands opposite the great rocky promontory. It is just as likely, however, that it reflects information obtained by Vladimir Atlasov at Anadyrsk, from which outpost he staged his conquest of Kamchatka in 1697-99, and the report of Petr Popov, who was sent from Anadyrsk to the peninsula in 1711 to obtain information about the Chukchi and to convince them to submit to the payment of tribute. It was difficult for the Russians to gain firsthand information about the Chukotskiy Peninsula because the Chukchi there successfully resisted Russian domination until well into the eighteenth century. Popov returned with information about an island one day's voyage by *baydar* from the peninsula, an island which the natives called "the big land", some of whose inhabitants were captives of the Chukchi and with whom he talked (Arkheograficheskaya kommissiya, 1882-85:v.1:456-459; Fisher, 1981:112-114). This information was corroborated seven years later by Petr Tatarinov, commandant at Anadyrsk, who learned of the big land from Chukchi who visited the outpost (Grekov, 1960:340; Fisher, 1977:84). It may be added that in this period Kamchatka came into its own on maps as a major peninsula, correctly positioned with reference to the Chukotskiy Peninsula.

One of the first of these eighteenth-century maps is that of

Siberia east of the Kolyma, drafted by Remezov in 1701 with information provided by Atlasov (Fig. 10) (Yefimov, 1964:31, no. 47; Polevoy, 1965:96, 98-99; Fisher, 1977:42-43). It is an unusual map in that it appears to be oriented with north to the right and east at the bottom. Kamchatka is shown as the largest peninsula. The next largest, to the north, but south of the Gulf of Anadyr', is a widely-flaring promontory connected with the mainland by a short narrow isthmus (Cape Olyutorskiy?) with the legend that the Chukchi and Koryaks nomadized there. A third peninsula, placed between the Kolyma and Anadyr' rivers, which should make it the Chukotskiy Peninsula, is without a name, but it is referred to as the Icy Cape in an inscription next to it, a name borne out by Atlasov's description of it elsewhere (Fisher, 1977:43). Of particular interest is the fact that the whole northeast corner is washed by the sea; no land barrier to an Arctic-Pacific passage appears.

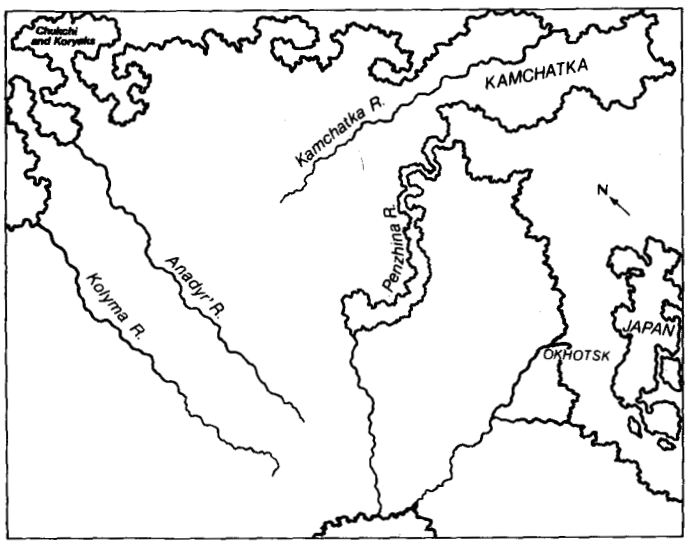

FIG. 10. Remezov's map of Kamchatka, 1701 (Yefimov, 1964: no.47).

A second map, also drafted by Remezov in 1712-14, is the map of Kamchatka (Fig. 11) (Yefimov, 1964:no. 48). It is particularly important because for the first time the Chukotskiy Peninsula and Bering Strait are realistically presented. It is also one of the first Siberian maps to be oriented with north at the top. Though the peninsula is not named, an inscription informs us that Chukchi live there. It is big, wide, and broad-faced. A minor deviation is the depiction of a large cape at each corner, marked *chukoch'ya korga* or "Chukchi rookery", reflecting information obtained in 1660 when a Russian expedition sailed from the Anadyr' past "a big bay" (Kresta Bay) to Cape Chukotskiy in search of walrus ivory reported to be found there (Orlova, 1951:405-406; Fisher, 1981:182-183). The big bay is shown in the proper place, as is Provideniya Bay near Cape Chukotskiy at the southeast corner. Neither bay is named. Opposite the peninsula, separated from it by a narrow strait, is a long finger-shaped island, or peninsula, coming in from the east with the legend "recently reported land". There is no reason to doubt that this is the "big land" of Popov's report, nor is there reason not to believe that America was its basis. Here, presumably, is the Bering Strait. The major departure from reality is the presence of a large, blunt, unnamed peninsula northwest of the Chukotskiy Peninsula, pointing northeastward with islands opposite its tip. It corresponds to Dezhnev's great rocky promontory (far into the sea, big, between north and northeast, islands opposite it). Here is the same error — mistaking the mythical Shalatskiy promontory for Dezhnev's promontory — that Müller later was to make. This fantasy aside, on this map there were pulled together more completely than ever before the several items of information furnished by individuals who had visited the Chukotskiy Peninsula. As a result, we see for the first time a map resembling in several features what we know the Bering Strait region to be like. It remained, however, a manuscript map, kept in the archives and made public only in the middle of this century.

Another map of Kamchatka, contemporaneous in composition (1713) with Remezov's, is attributed to Ivan Kozyrevskiy (Fig. 12), who was the first Russian to visit the Kuril Islands, in 1711 (Yefimov, 1964:no. 50; Polevoy, 1965b:100-101). This map distorts both Kamchatka and the Kuril Islands, but

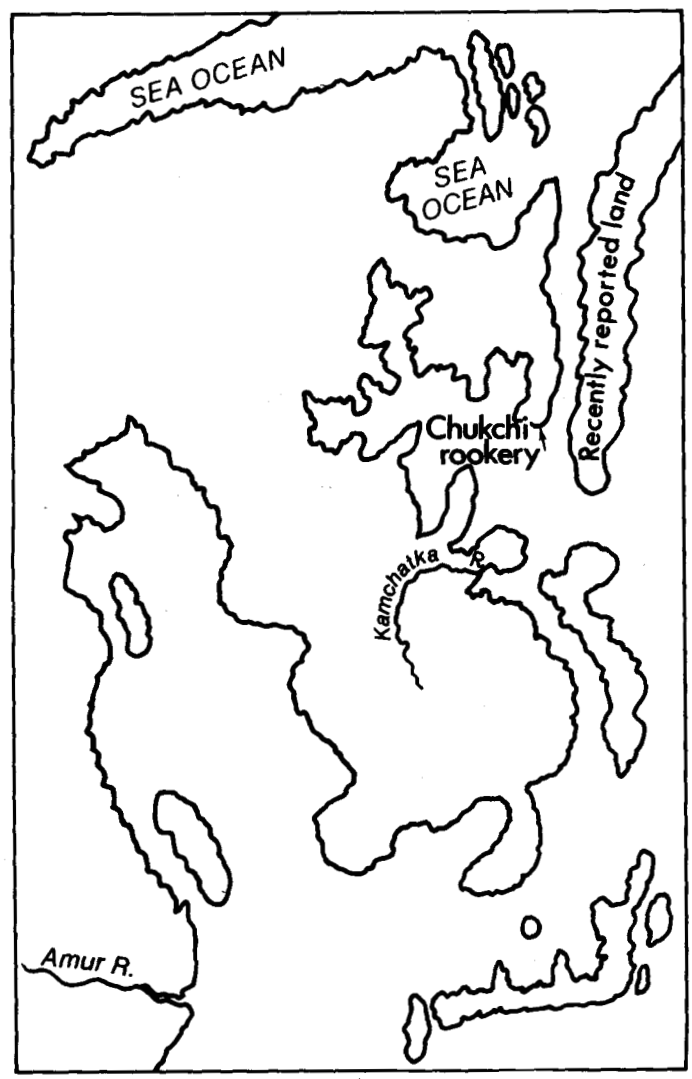

FIG. 11. Remezov's map of Kamchatka, 1712-1714 (Yefimov, 1964: no.48).

its portrayal of the Chukotskiy Peninsula is close to that on Remezov's map of 1712-14, in configuration, walrus rookeries, and the two bays. On this map it has a name, Anadyrskoy Nos or promontory. There is an island off the southeast corner — not the big land, but Karaginskiy Island, actually situated farther south offshore from middle Kamchatka. In the absence of a big land the map lacks a strait; and the Shalatskiy promontory is perpetuated west of the Anadyrskoy Nos.

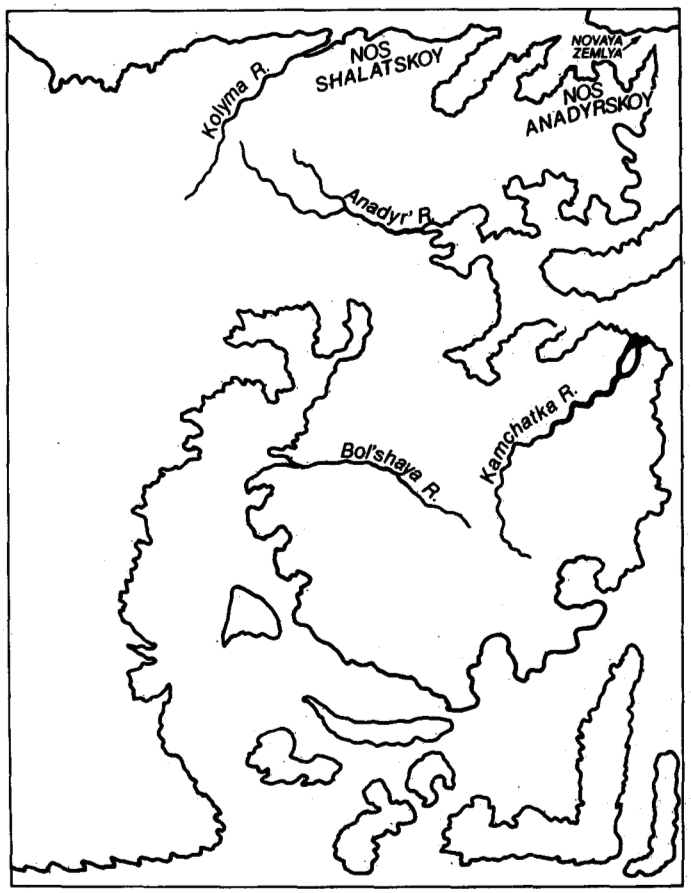

FIG. 12. Kozyrevskiy's map of Kamchatka, 1713 (Yefimov, 1964: no. 50).

Two other maps, contemporaneous with the preceding two, incorporate the idea of a strait as in Remezov's map. One of them is the Yakutsk Map of 1710-11 (Fig. 13), attributed to Fedor Beyton, an official at Selenginsk (Yefimov, 1964: 38-39, no. 54). A large promontory appears at the northeast corner, north of the Anadyr' River, labelled Shalatskoy rather than Anadyrskoy. Though without the bays and broad eastern face, it is opposed by a finger-shaped piece of land coming down from the top of the map and turning west. An inscription calls it a little land or *zemlitsa*, on which a Chukchi tribe called Kykykmeny live and foxes and sables are to be found. It suggests the big land, or America, and with the promontory forms a strait.

The second map was long attributed to one Ivan L'vov and thought to have been made in 1710, but it is now called the Anadyrskaya Map (Fig. 14) and is believed to have been made around 1700 by an unknown person (Fel', 1960:73-74; Yefimov, 1964:no. 55; Fisher, 1977:45). The Chukotskiy

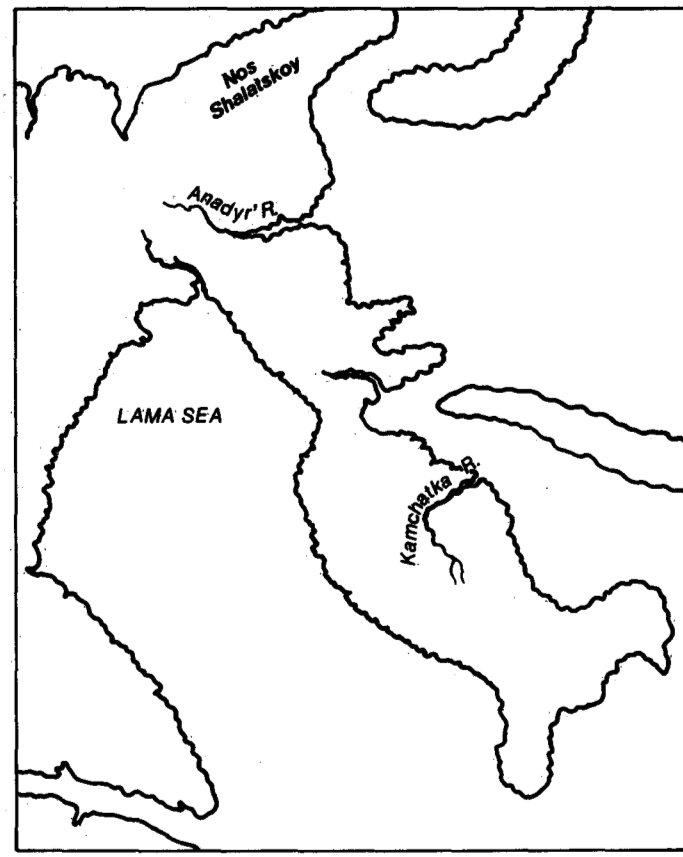

FIG. 13. Beyton's Yakutsk map of 1710-11 (Yefimov, 1964: no.54).

Peninsula is outlined much as it is on Remezov's and Kozyrevskiy's maps and is named the Anadyrskoy Nos. Two elongated islands, with inscriptions reminiscent of Dezhnev's comments on the islands of his report, lie immediately opposite the end of the promontory. One inscription states that it is a trip of two days and nights by *baydar* to them. Beyond the islands, coming down from the top edge of the map, is the now familiar finger-like piece of land, designated here "big land". This could represent America, but the map also shows a second, broad peninsula, the Shalatskiy promontory, extending due north from the Arctic coast west of the Anadyrskoy promontory. The "big land" curves downward from the west, not the east, implying that it is connected with the promontory and therefore is not part of America. Even so, the configuration of the Nos Anadyrskoy, the islands, the strait between them, and the big land are more manifestations of the realism entering Russian cartography of the north Pacific.

With one or two exceptions, during the reign of Peter the Great (Fel', 1960:139; also see Fig. 19) the Russians did not publish any maps of Siberia at home or abroad. This of course, hampered the dissemination of the information contained in the maps we have examined. Nevertheless, some information did reach the West, usually in the form of copies of manuscript maps, and largely on the initiative of foreigners visiting Russia, with cooperation from Russians. It was in the West, where an open cartography prevailed, that some of this information was first published. But dependent as it was on Russian sources, it was a derivative, not an original cartography.

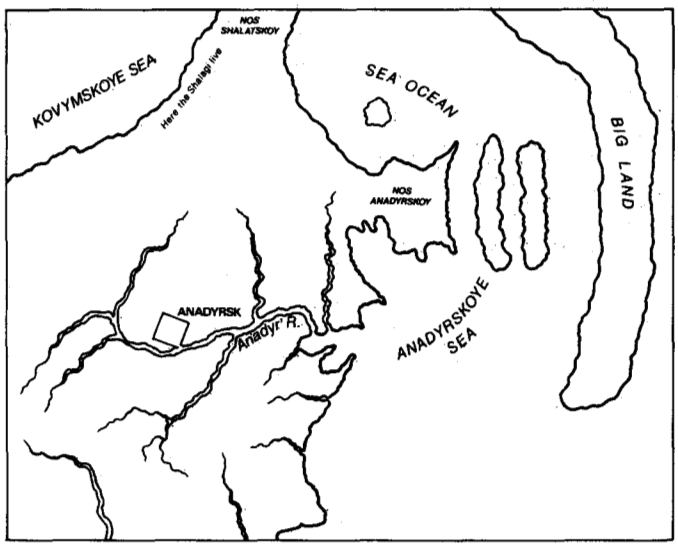

FIG. 14. Anadyrskaya map (Yefimov, 1964: no.55).

The first Western map to reflect Russian concepts of the Bering Strait region was published in 1690 by the Dutchman Nicolaas C. Witsen, several times burgomaster of Amsterdam. He had visited Russia for a few months in 1665, and there developed a lifelong interest in the country. Then and afterward he cultivated a number of informants, many in high places — as high as Peter the Great himself — from whom he obtained an amazing amount of information. Much of it he incorporated in his map of north and east Asia and Europe (Fig. 15) (Keuning, 1954:between 98 and 99; Yefimov, 1964: no. 33; Polevoy, 1973:125-126),[3] as well as in his monumental work *Noord en Oost Tartaryen*, first published in 1692 in Amsterdam. Though printed in a small number and distributed to personal acquaintances, the map and book exerted much influence on Western cartographers. An extensively revised edition was published in 1705 and republished in 1785 (Keuning, 1954:98).

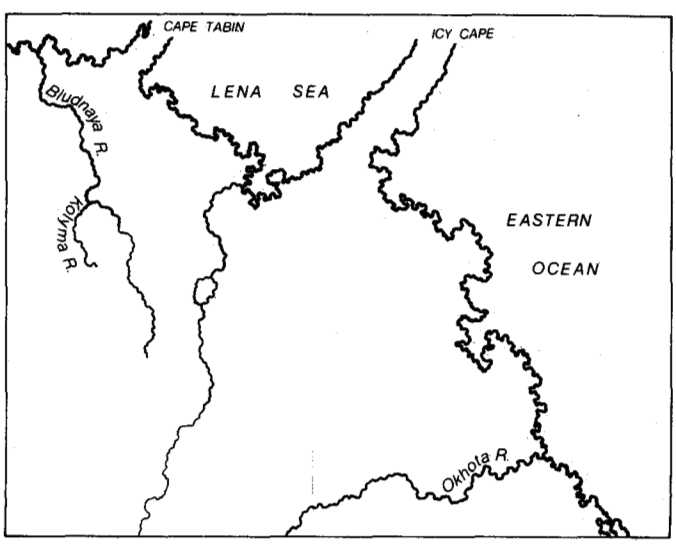

FIG. 15. Witsen's map of North and East Asia and Europe, 1687-1690 (detail) (Yefimov, 1964: no.33).

Witsen had less confidence in the accuracy of his delineation of the eastern part of Siberia (Tartary) than of the rest of it, and for that reason he outlined the coasts of eastern Siberia with a lighter line than the rest. Though he shunned the rectangular pattern for all of Siberia, that part of it east of the Lena River is relatively rectangular in form. The Arctic coast starts rising northward west of the Lena to form a broad hump reaching beyond 75°N latitude. Just east of the mouth of the Kolyma River, the coast turns southeast to an open-ended peninsula, with parallel shores extending to the northeast, which Witsen calls Cape Tabin (the Cape Shelagskiy-inspired Shalatskiy promontory). Below it the coast goes south to a bigger and longer open-ended peninsula with parallel shores, which he calls Ice Cape (Ys Caep). The coast continues southward past the Anadyr' River to the Amur. In their position, shape, and open-endedness these peninsulas resemble those on the map of Vinius, one of Witsen's sources in Russia. This uncertainty about the extent of the peninsula, or more specifically, about a possible connection with America, is expressed in his book (Keuning, 1954:102). He does not show America on his map, but in his book he remarks that navigation between Asia and America is "very difficult, if not impossible". This, however, is not the only remark he has to make about the northeast corner. Elsewhere in the book, in three separate places, he reports a voyage around the Ice Cape (Fisher, 1981:264-265). These remarks clearly indicate not only doubt about the union of Asia and America, but also knowledge, late in the seventeenth century, of Dezhnev's voyage and promontory.

Witsen's map introduced the two-peninsula concept to cartographers in the West, but some of them preferred the one-peninsula concept. One of these was John Thornton, the noted English cartographer. On his world map (Fig. 16) in volume 3 of his *Atlas Maritimus Novus* (1704?), Siberia east of the Lena is cast in the rectangular form with a short open-ended stub of a peninsula at the northeast corner, next to which is the inscription "It is not known whether this joyns to America or not". This part of his map recalls Remezov's earlier maps (Bagrow, 1952:90-91, 92).

During 1692-95 Everhard Isbrandt Ides, a merchant of Dutch or Danish birth, carried out a commercial mission to Peking for Peter the Great. Afterward he made a map of Siberia which Witsen published in Dutch in 1704 in Amsterdam (Fig. 17) (Bagrow, 1952:86, 87, 88). On it, too, Siberia is rectangular in shape. The northeast corner is formed by a cape (not a peninsula) called Sacred Cape (Heylige Caep), closed, not open-ended. Running southward, along the coast, is a series of islands. This map thus retrogresses to the early stage of Siberian cartography, which seems to bear out the assertion that Witsen assisted Ides in the making of this map by sending him a copy not of his own, but of an earlier Russian map. A copy of Ides's map was sent to Johann B. Homann, the well-known cartographer and map publisher in Nürnberg, who included it in his atlas of 1702. It reappeared in his atlas of 1710, with the addition of an open-ended peg-like peninsula extending eastward from the coast just above the Arctic Circle, with the inscription "Scopuli incerti exitus" (Bagrow, 1952:92-93). Ides's portrayal of the northeast corner is

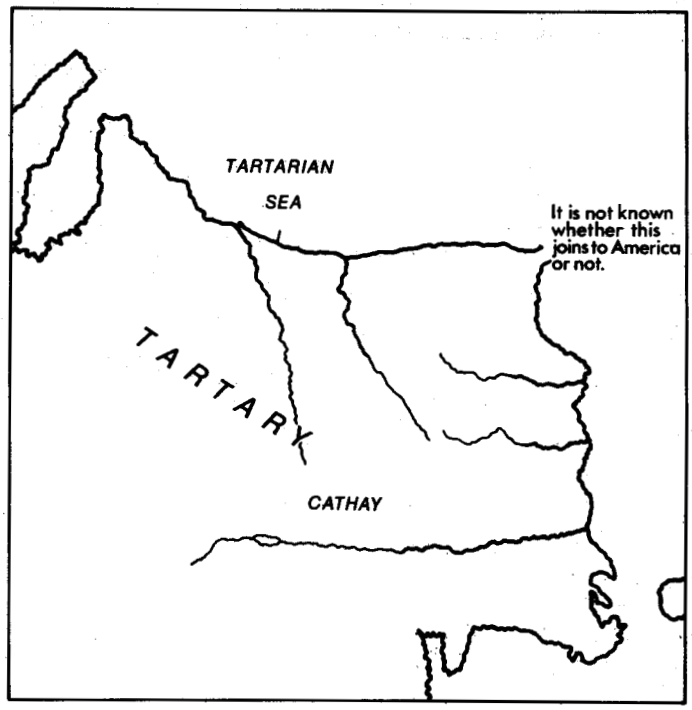

FIG. 16. Thornton's Worldmap, ca. 1700 (detail) (Bagrow, 1952:82).

displayed on the map of John Perry, the English engineer who served Peter the Great from 1698 to 1712, which appears in his account of Russia (Perry, 1716).

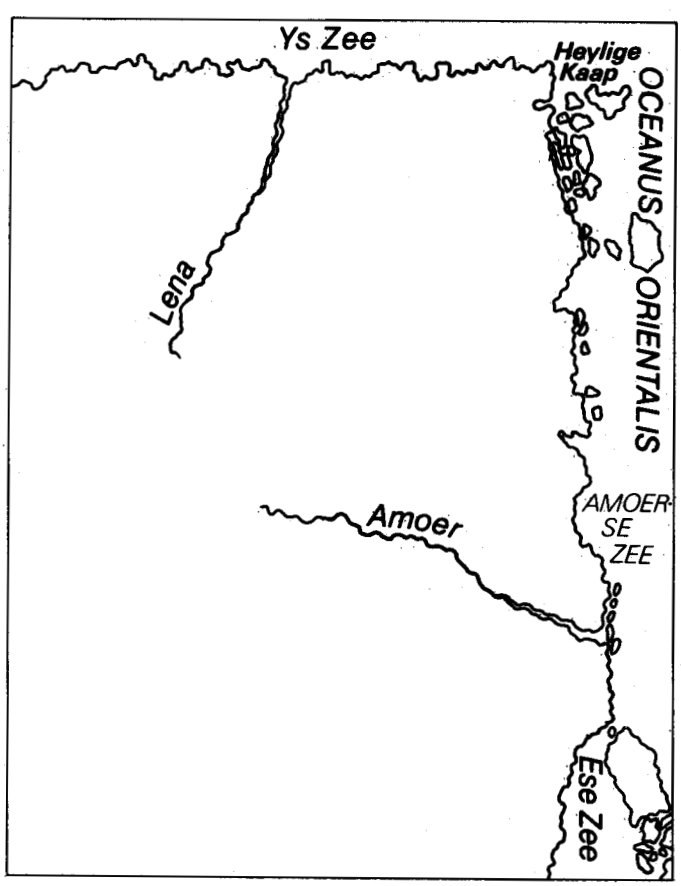

FIG. 17. Ides's map of Siberia, 1704 (detail) (Bagrow, 1952:87).

Another cartographer who showed only one peninsula was Guillaume Delisle, first royal geographer of France. He included in his atlas of 1706 a Map of Tartary (Fig. 18), in the making of which, he states, he was indebted to Witsen. The debt is evident in the configuration of northeastern Siberia and in the placement of the peninsula, which resembles Witsen's Ice Cape in shape and open-endedness, as well as in the legend expressing uncertainty about its juncture with another continent (Bagrow, 1952:89, 90, 91). This map in turn appears to have been the model for the cartographer who made the map that appears in Friedrich C. Weber's English-language account of Russia (1727), except that the legend alongside the open-ended peninsula states that "it is joined to what is believed to be the continent of America" (Weber, 1727:v.1:facing 1), thereby writing off any intercontinenal strait.

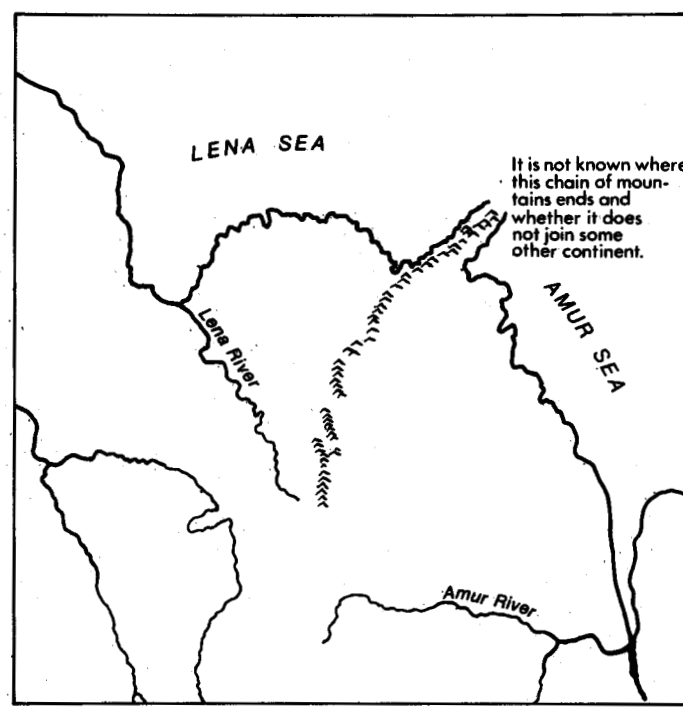

FIG. 18. G. Delisle's map of Tartary (Siberia), 1706 (detail) (Bagrow, 1953:89).

From these maps it can be seen that Western cartographers in the late seventeenth and early eighteenth centuries — even Witsen — were not fully aware of the Russian cartography of northeastern Siberia. There are, however, two maps published in the West which did incorporate some of the more up-to-date concepts of the Bering Strait region. The first of these is the map of Kamchatka published in the great atlas of Homann (1725; Fig. 19). For a long time the origins of this map were not known; it was sometimes attributed to Homann himself. But recently Soviet scholars have established that it was made in Russia around 1720 by a person or persons unknown and sent by Peter's order to Homann for publication (Varep, 1959: 290-298, 1963:308-311; Polevoy, 1970:101-103; Fisher, 1977:64-66). It was accompanied by a map of the Caspian Sea, with which it was paired in the atlas (Yefimov, 1964:no. 58). The map embraced more than Kamchatka itself; it in-

cluded the area east of the Kolyma as well, though considerably compressed. Two peninsulas appear at the northeast corner. One faces east, it is wide and broad-faced with a sharply pointed cape at each corner; and a large bay indents it on the south side above the Anadyr' Bay and River. Two islands lie opposite its face, and beyond them the now familiar finger of land hangs down from the north. None of these features carries a name, but here are the Chukotskiy Peninsula, Diomede Islands, and strait. Between the peninsula and the Kolyma is a broad-based tapering promontory extending to the north, also unnamed; in other words, a greatly oversized Cape Shelagskiy, the Shalatskiy promontory.[4] This representation of northeastern Siberia was incorporated into the map of Asia appearing in the same atlas (Bagrow, 1952:facing 92). It is

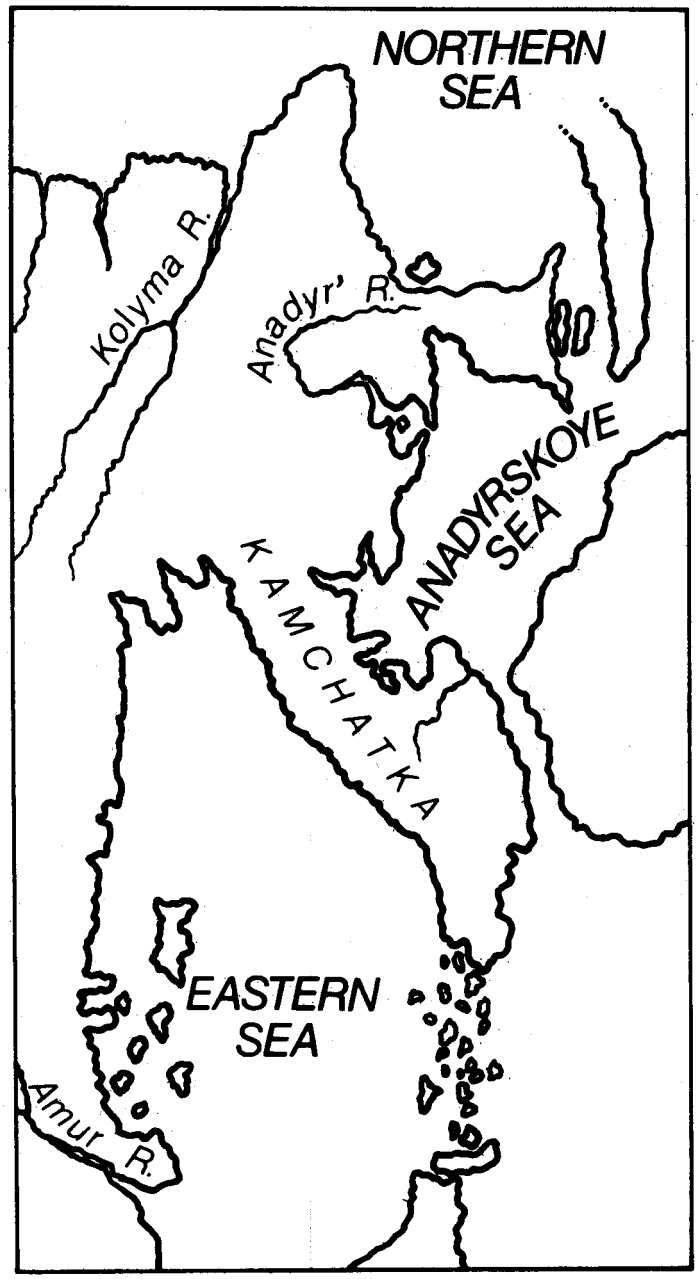

FIG. 19. Homann's map of Kamchatka, 1725 (Yefimov, 1964: no. 58).

thought that the upper half of the map, the two big promontories, was modelled on the Anadyrskaya map; and the bottom, Kamchatka and the unnamed land, on the map of the Swede Strahlenberg, who thought so himself on first seeing it (Strahlenberg, 1737:ix, 10-11; Novlyanskaya, 1966:65; Fisher, 1977:66-67).

The second map with some of the more up-to-date concepts, the last one before the new cartography was made possible by Bering's 1728 voyage through the strait, is the Map of Great Tartary (Fig. 20) by the Swedish officer Philipp Tabbert von Strahlenberg. Captured at the battle of Poltava, he spent nearly 11 years (1711-22) in captivity in Tobol'sk. There he gained access to a great deal of information about Siberia from Russian informants, including Remezov, travellers, and other Swedish prisoners-of-war; and he spent the last two years there as an assistant to Daniel G. Messerschmidt, who was commissioned by Peter to make a survey of western and central Siberia. During his captivity he made three maps of the northern and eastern parts of Europe and Asia. The first (1715) was stolen; the second (1718) was confiscated; and the third, more carefully prepared and made in secret concurrently with the second, he was forced to sell before leaving Russia in 1723. It came into the hands of Petr Meller, a merchant of Dutch ancestry and a student of geography, who was close to Peter. After his return to Sweden, Strahlenberg was persuaded to redraft the map, correcting and revising it (Novlyanskaya, 1966:30-31, 44-45). The result was a map the equal of Witsen's in scale, comprehensiveness, and detail (Strahlenberg, 1730; Yefimov, 1964:no. 74; see Fig. 20), which he published in Stockholm in 1730 (*Nova descriptio geographica Tartariae magnae...*). As far as the northeastern part of Siberia is concerned, this version is more advanced than those of Witsen and the others. It shows a long east-trending peninsula labelled Noss Anadirskoy. It is not as wide as the one on the Remezov, Anadyrskaya, and Homann maps, but neither is it as narrow as Witsen's Ice Cape. An island is situated north of it, and a long finger of land stands opposite it, forming a strait. To the west, not far east of the Kolyma, a long narrow peninsula marked Noss Tszalatskoy extrudes from the north coast. From these conceptions and misconceptions it is obvious that Strahlenberg had access to Russian sources.

In 1726 in Leiden a work was published titled *Histoire généalogique des Tartars*, anonymously translated into French from a Jagataic manuscript originally acquired by Strahlenberg in Tobol'sk from a Bukharan merchant (Strahlenberg, 1738:127-128; Novlyanskaya, 1966:32). With it was published a map, also anonymous, called "Carte nouvelle de l'Asie septentrionale dressée sur des observations authentiques et toutes nouvelles". Both were published without Strahlenberg's knowledge. Upon seeing the map he became convinced that its greater accuracy was due to the use of his own maps of 1715 and 1718 (Strahlenberg, 1738:10). This map portrays northeastern Siberia somewhat differently and in some respects more realistically than does Strahlenberg in his map of 1730. There is no Noss Tszalatskoy, nor is there a finger of land opposite the Noss Anadirskoy, which is more plump with fewer coastal irregularities. The differences are due to changes

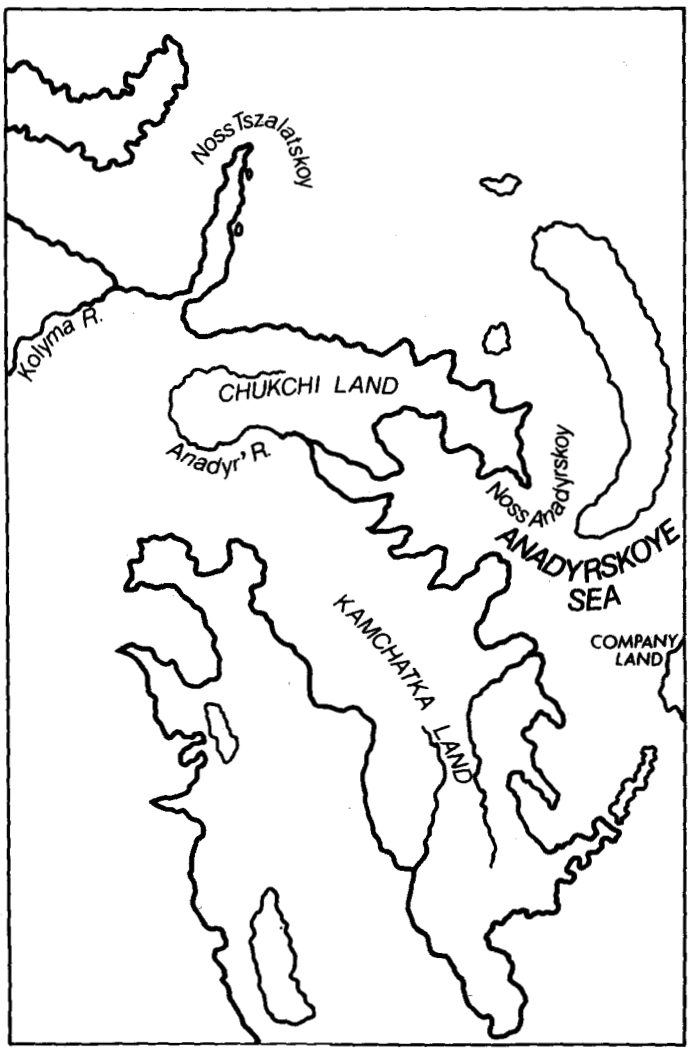

FIG. 20. Strahlenberg's map of Great Tartary, 1730 (detail) (Yefimov, 1964: no. 74).

both by those publishing the map and by Strahlenberg (1738:11). On the other hand, the offshore islands and a clear passage between the Arctic and Pacific were affirmed.

In the more than 60 years from Godunov to Strahlenberg the Russian cartography of northeastern Siberia made considerable progress toward an accurate representation of that area, limited as it was in its sources to orally circulated reports of Dezhnev's voyage and to information obtained from the Chukchi. As far as the Bering Strait was concerned, the weakest part of that representation was the eastern or American side; but then, Westerners had done no better. The 1728 voyage of Vitus J. Bering was to provide firsthand information that made possible a much more accurate depiction of the western side of the strait.

Contrary to the long-held view, Bering was not sent by Peter the Great to ascertain whether a strait separated Asia and America. Peter was already persuaded of the separation of the two continents in the far north.[5] He wanted Bering to find the route to America. But given the ambiguity of Peter's instructions, Bering was led to believe that he could fulfill them by following the coast north of Kamchatka to an isthmus which he believed joined Asia and America. The existence of such an isthmus seemed to be supported by the notion of the Shalatskiy promontory. Accordingly, he followed the Asiatic coast all the way to the northeast corner of the Chukotskiy Peninsula and continued on out of sight of land to 67°24'N latitude (Sopotsko, 1978:160) before concluding that there was no isthmus that would lead him to America.[6] So he turned back. In 1729 one of his junior officers, Midshipman Petr A. Chaplin, drew up a map (Fig. 21) of the areas through which the expedition, often referred to as the First Kamchatka expedition, had passed (Berg, 1946:facing 88; Grekov, 1960:39, 41; Yefimov, 1964:nos. 63, 64). It was the basic map from which many copies with several variations were made. The depiction of the area from Kamchatka to the Arctic Ocean is the part of the map that is of interest to us. Northeastern Siberia is shown in simple outline on a Mercator projection with few notations. The coastline from Kamchatka to the northeast corner of the Chukotskiy Peninsula is quite accurately indicated, for the delineation was based on sightings taken during the voyage. Cook was later to commend their accuracy. Only the Anadyr' River is poorly placed, too far south. Bering and his men passed the entrance to the bay into which it empties, unaware of its connection with the river (Grekov, 1960:30, 33; Kushnarev, 1976:27). The delineation of the Arctic coast east of the Kolyma River is, however, another matter. Here, in an area not visited by the expedition, the Shalatskiy promontory is again perpetuated. At the northeast corner of the Chukotskiy Peninsula the coast turns abruptly west, then follows a sweeping curve northwest, then north and northeast to about 73°N latitude. It then turns 180° to the southwest and follows a straight line to the Kolyma, forming, as it were, a bull's horn.[7] Neither this feature nor the Chukotskiy Peninsula is named. St. Lawrence Island and Big Diomede Island, seen on the voyage, are shown, but not Little Diomede Island or America, which were not seen because of fog.

Once word of the voyage got out — it was publicized almost immediately after Bering's return to St. Petersburg on 1 March 1730[8] — there was great curiosity about his discoveries. The expedition's map was not published, but many copies of it were made both in Russia and abroad; the original has not survived though a copy of it has (Yefimov, 1950:160, 1964: 44-45; Grekov, 1960:41; Andreyev, 1965:51). The first published map showing northeastern Siberia as the expedition's map presented it was the general map of the Russian empire prepared and published in 1733-34 by Ivan Kirilov, senior secretary of the Administrative Senate and responsible for much of the mapping of Russia under Peter (Novlyanskaya, 1964:55-62; Yefimov, 1964:no. 71). The Chukotskiy Peninsula and the idiosyncratic bull's horn form the northeast corner. Though printed in a small number of copies, the map appears to have had a disproportionate influence, serving as a source for maps published in Western atlases. But equally or more influential in disseminating the expedition's portrayal of the Asiatic side of the Bering Strait region was the version of its map that was appended to Jean du Halde's (1735:4:facing 452) description and history of China, published in Paris in 1735 and soon translated into English (du Halde, 1736).[9] This

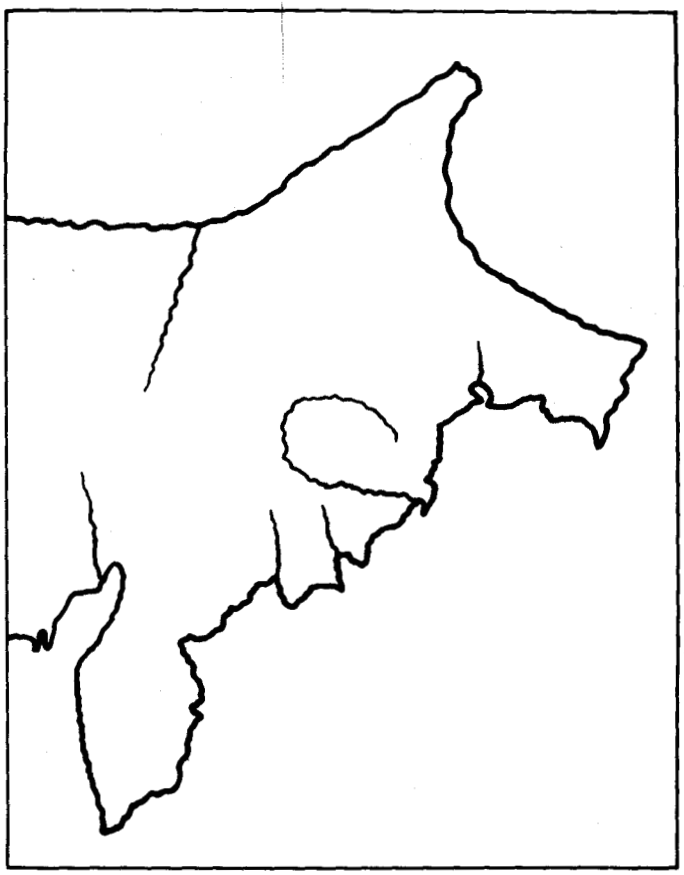

FIG. 21. Map of the First Kamchatka Expedition, 1729 (detail) (Yefimov, 1964: no.63).

was the first separate publication of the expedition's map. Du Halde states that he received a copy of the map from the King of Poland, his to do with as he pleased. Yet the suspicion persists that Joseph N. Delisle, geographer-astronomer and brother of Guillaume Delisle, employed from 1726 to 1747 by the Academy of Sciences and Admiralty College in St. Petersburg, spirited it out of Russia, as he did many other Russian maps, and that it found its way into the hands of J.B.B. d'Anville and du Halde (Wagner, 1937:v.1:156; Breitfuss, 1939:90). Meanwhile manuscript copies of the expedition's map seem to have proliferated. By 1948 Leo Bagrow (1948-49:39-40) had uncovered 14 of them, several in Sweden, and subsequently two more have come to light (Parker, 1956:10-11; Navrot, 1971:173-179).

It goes without saying that as an on-the-spot survey of the western side of the Bering Strait region northward to its entrance into the Arctic, Bering's voyage marks a watershed in the cartography of that region. The expedition's depiction would be modified and refined, but now cartographers had facts to work with. Although the same could not be said for the American side, shortly after Bering's voyage the first modest step was taken toward dispelling ignorance of that area. In 1732, as part of a project independent of the First Kamchatka Expedition, Ivan Fedorov, a navigator, and Mikhail Gvozdev, a geodesist, sailed from Kamchatka to the Chukotskiy Peninsula, thence east, to look for the Diomede Island sighted by Bering and the "big land". They found both Diomede Islands and then went off to the big land. The vessel was anchored about three miles offshore from Cape Prince of Wales, but the men did not land. They then coasted south along the land, sighted King Island, and returned to Kamchatka. The cape seen by the Russians was subsequently called Cape Gvozdev until it was renamed Cape Prince of Wales by Cook (Breitfuss, 1939:90; Divin, 1956:20-26; Grekov, 1960:49-63; Fisher, 1977:168). This discovery was not accorded the publicity and attention that followed Bering's discoveries — it did not appear on a published map of the Bering Strait region until 1754. Nevertheless, it was not ignored in Russia. Fedorov was ill on the voyage and kept inadequate records, and died within a year thereafter. Gvozdev was assigned to other duties. But in 1733 he did send the ship's journal to the authorities in Okhotsk.

Ya. Ya. Gens, who was originally assigned as navigator on the voyage, in late 1733 drafted a map of the voyage and discoveries, based on the journal. Ten years later Martin Spanberg, who had led the voyages to Japan which, like the 1741 Bering-Chirikov voyages, were a part of the Second Kamchatka Expedition, used that map and a report he obtained from Gvozdev to place the islands of the Bering Strait and Cape Gvozdev on a manuscript map of the coast from Kamchatka to the Chukotskiy Peninsula (Fig. 22) (Yefimov, 1950:183, 185, 1964:nos. 69, 70; Divin, 1956:28-29, 36-37; Fel', 1960:147). There the cape appears as an isolated small segment of the not-yet-known western coast of Alaska, correct in shape and position relative to the face of the Chukotskiy Peninsula, i.e. forming the throat of the strait. It also appears on some subsequent maps of the time. However, these and Spanberg's maps remained unpublished until after World War II.

With the possible exception of the voyage of Lieutenant Ivan Sind in 1764-67, no other voyage into the Bering Strait occurred after that of Fedorov and Gvozdev until 46 years later, when Cook took his two vessels through the strait into the Arctic Ocean. Russian maritime activity in that period was con-

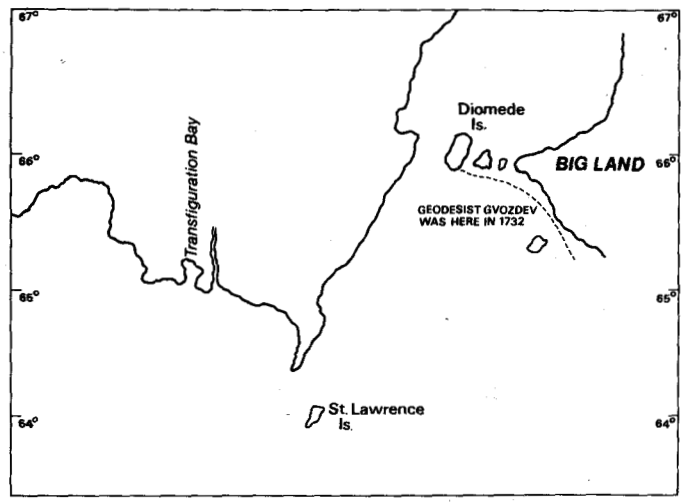

FIG. 22. Spanberg's map of the east coast of Siberia, 1743 (detail) (Yefimov, 1964: no. 70).

centrated on the Aleutian Islands to the south, a consequence of the discoveries made by Bering and Aleksey I. Chirikov on their voyages in 1741, during the course of which the panhandle of Alaska and several of the Aleutian Islands were seen. Their voyages took them nowhere near the strait, but their discoveries led to attempts to delineate the northwestern coast of North America. The first such attempts were made within naval circles, by the surviving officers of the Bering-Chirikov expedition (Belov, 1954:135-137). On their maps the American coastline of the Bering Strait region was tentatively projected. This projection is expressed most authoritatively on the map prepared in the Naval Academy in 1746 under the supervision of Chirikov (Fig. 23) (Yefimov, 1950:between 192 and 193, 1964:no. 109, working copy). The coastline followed the line of the Alaska Peninsula and Aleutian Islands to about 162°W longitude, turned north and then northeast to join the small known segment of Cape Gvozdev, continuing north from there. It formed a sausage-like peninsula. There was no knowledge then of Bristol Bay, Norton Sound, and Kotzebue Sound. The map was not published, however, until 1950. The cartography of that area remained conjectural until Cook's voyage into the Bering Sea in 1778-79.

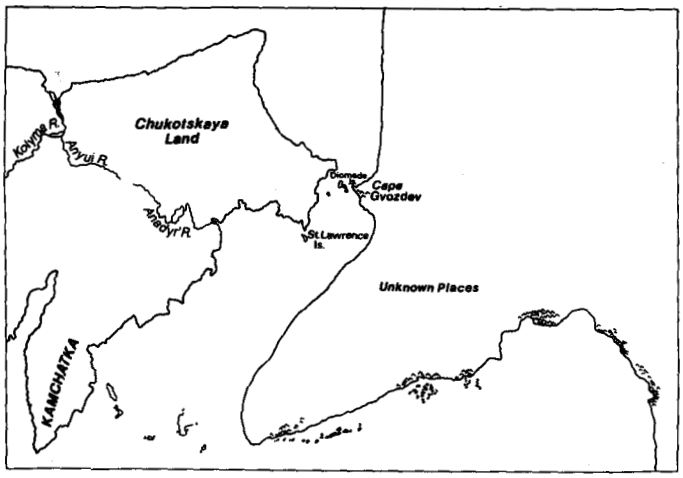

FIG. 23. Naval Academy map of 1746 (detail) (Yefimov, 1964: no. 109).

This conjectured view was first brought to public attention by Müller. In 1750, after his departure from Russia, Joseph N. Delisle presented to the Paris Academy a map of the north Pacific (Breitfuss, 1939:92, pl.)[10] and followed it two years later with an "explication" (Delisle, 1752). This map placed an elongated Isle de Bernarde on the American side of the strait and bordered that island on the east by Lac de Valasco; both, of course, were imaginary. Delisle was unaware of the results of the Bering-Chirikov expedition at the time of his departure from Russia and did not know that Bering had reached America. The Admiralty College was not confiding in him. Russian officials felt that his inaccuracies and certain false charges in the explication required a response, and Müller was selected to supply it. One part of his answer came in the form of a map of the north Pacific prepared under his supervision and drawn by one Ivan Truskott. It was printed in 1754, but revised somewhat before being published in 1758[11] (Fig. 24) (Breitfuss, 1939:94-95; Andreyev, 1959:7-8, 1965:122-125). Another part of his answer was his account of Russian voyages and discoveries in the Arctic and north Pacific, intended to accompany and explain the map (Müller, 1758a,b).

We are not certain about all of Müller's sources. He was denied access to the official records of the Bering-Chirikov expedition, but he did have the account of Sven Waxell, second in command on Bering's vessel, which was published in a Danish translation in 1747. He was also familiar with the Anadyrskaya map and the maps of Witsen, Homann, Strahlenberg, and the First Kamchatka Expedition (Belov, 1954:135-138, Andreyev, 1959: 7-8). His map became the most up-to-date and authoritative map of northeastern Siberia, the north Pacific, and northwestern America until the voyage of Cook. Müller's depiction of the Asiatic side of the Bering Strait region is essentially the same as that on the map of the First Kamchatka Expedition. The major difference was his transformation of the shape of the Shalatskiy promontory from a bull's horn to a mushroom, and naming it Shelaginskoy or Chukotskoy Nos. He too made it the easternmost point of Asia, extending it to 205°E longitude and to 75°N latitude. He gave it a tentative character by outlining the bulbous part with a broken line. That Müller drew on Dezhnev's reports in conceptualizing this promontory is clearly revealed by its extension into the sea (about 400 km), its size, its shape ("around and under"), and its northeastern direction as well as by his indication of the track of three Russian boats which sailed around it in 1648. Thus he identified this mythical peninsula as Dezhnev's great rocky promontory (Fisher, 1980:207-208).[12] The Chukotskiy Peninsula itself carries the name only of Cape Serdtse Kamen', but elsewhere Müller (1758a:52, 118) refers to it as the Anadyrskoy Nos. On the American side, the long peninsula found on the 1746 Naval Academy map takes on the configuration of a turtle's neck and head. Müller was cautious enough to indicate by lighter or broken lines those sections of the coast not actually seen by Russians. Thus Cape Gvozdev is one of the few features placed with certainty. The map was widely distributed, particularly in its English translation, and gained much attention, for its information was relevant to the question of a Northeast or Northwest Passage from the Atlantic to the Pacific. Cook studied it carefully and carried it with him on his voyage. It was not until that voyage, however, that any new information was gathered about the Bering Strait region.

Meanwhile, during this period, other maps displaying somewhat different conjectures about the region, particularly the American side, were made in Russia, but remained in manuscript form in official hands and were not published until after World War II.[13] Limitations of space preclude their consideration here.

It is worth noting that it was in the 1750s that Bering's name was first given to the strait between Cape Dezhneva and Cape Prince of Wales. In 1753 John Green published in London a new "Chart of North and South America, including the Atlantic and Pacific Oceans". The Asiatic side of the strait is that

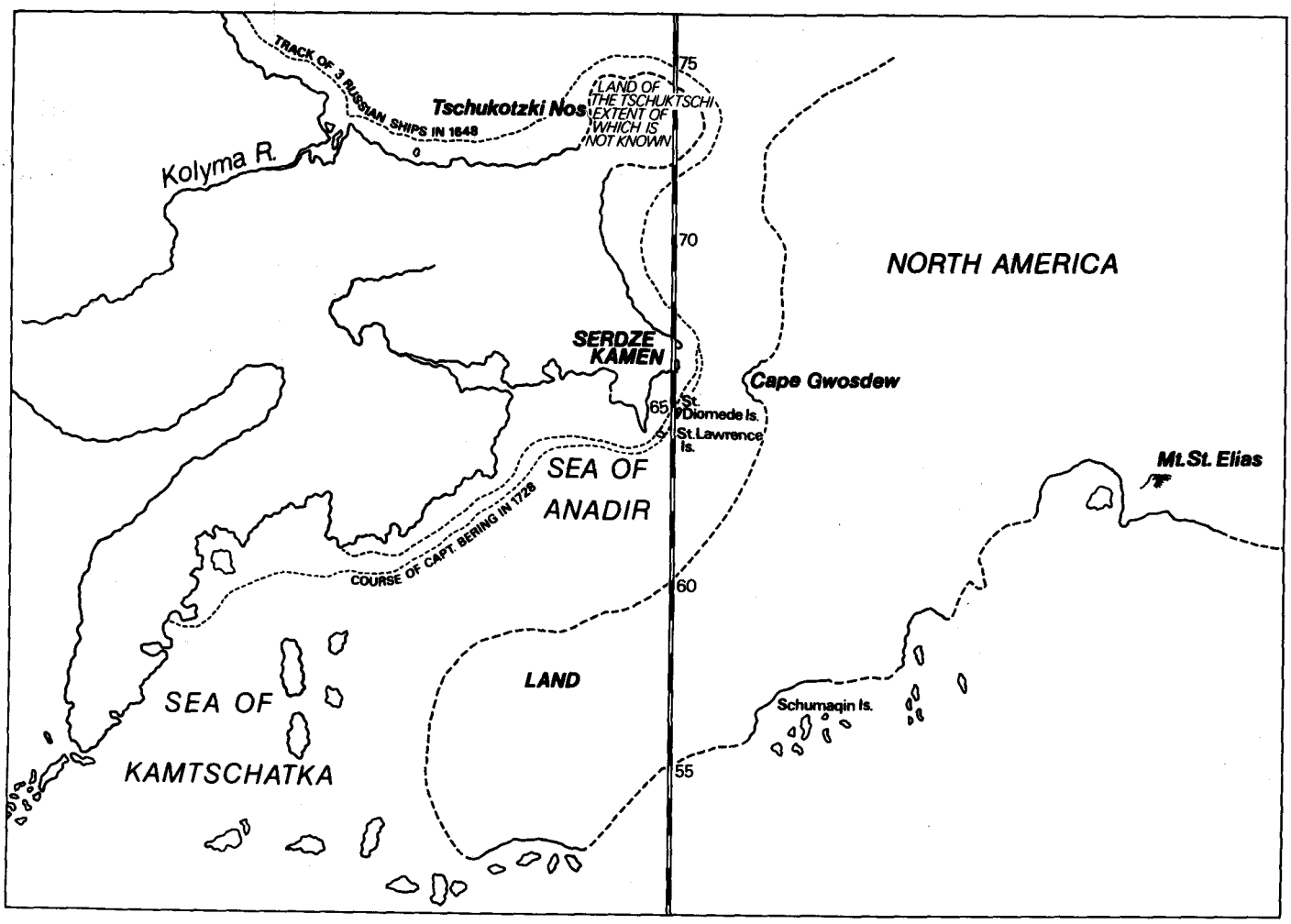

FIG. 24. Müller's Academy map of 1758 (detail) (Müller, 1761:frontispiece).

found on the First Kamchatka Expedition map. The American side has a coastline running north-south and turning abruptly eastward at about 57°N. The strait is shown wider than it really is, by about 11° of longitude (Green, 1753:25; Wroth, 1944:225-226, 262).[14] It is marked "Berhring's Straits". In 1672 the Comte de Redern published a map in Berlin titled "Hémisphère septentrionale dressé en 1754", on which he calls the strait "Détroit de Bering" (Breitfuss, 1939:87,96).

In 1773 the Russian Academy of Sciences published a revised version of Müller's map (Fig. 25) (Gnucheva, 1940:map 16, between 72 and 73) done by the Academy's secretary, Jacob Stählin von Storcksburg.[15] Stählin published it again in Stuttgart the next year, along with a rather vague explanation. This publication was picked up by Matthew Maty, secretary of the Royal Society in London, who had it translated into English and published in 1774. Cook carried a copy of the translation and map with him on his voyage, and found it even more misleading than Müller's map (Williams, 1979:74-76). The provenance of this map is something of a mystery; certainly its presentation of the Bering Strait region is. The Asiatic side is little changed from Müller's map; the lowering of the Chukotskoy Nos from 75° to 73°N latitude is the chief difference. But the American side and strait are greatly altered. The turtle-neck-and-head peninsula is gone. Instead, the coast of America runs northwest from California to Cape Gvozdev, which is not so named, and then swings back to the northeast. The Bering Strait is much widened. In its midst is placed a large island, Alaschka, closer to Asia than America. Below it is an archipelago of small islands. It is as if the peninsula had been exploded and the debris dropped into the Bering Sea. Where Cape Gvozdev should be indicated there is a notation, "Great Continent Stachtan Nitada", a reference of unknown origin. The only earlier map that bears any resemblance, in these particulars, is one made in 1767 by a midshipman, Filip Vertyuglov. Though that map shows the Chukotskiy Peninsula realistically without Müller's Chukotskoy Nos, it shows several islands in the strait and Bering Sea, and carries the notation "Big Land Stakhtan Nitada" at Cape Gvozdev (Grekov, 1960:195-196, Yefimov, 1964:no. 141). Meanwhile, coming as it did from a supposedly responsible official of the Russian Academy, Stählin's map gained much credence until the publication of the account of Cook's voyage.

It was Cook's voyage into the north Pacific and Arctic in 1778-79 that marked the end of the period of early cartography of the Bering Strait region. That voyage took his two vessels

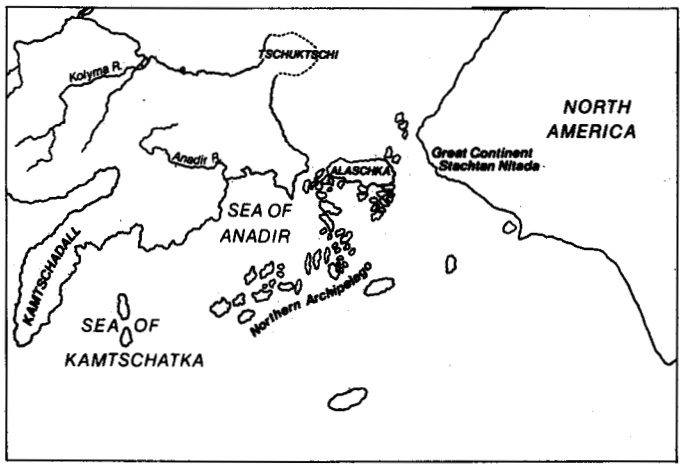

FIG. 25. Stählin's Academy map of 1773 (detail) (Gnucheva, 1940: no.16, between pp. 72 and 73).

through the Aleutian Islands into the Bering Sea and along the American coast in search of a Northwest Passage. The expedition passed through the strait into the Arctic. At the 69th parallel, the ice pack closed off any advance to the east, so Cook turned west to explore a Northeast Passage. Reaching North Cape (Cape Shmidta) on the coast of Siberia, he found further advance out of the question, so turned around and followed the coast back to the strait, then continued around the Chukotskiy Peninsula and across the Bering Sea to America. Much of the route was repeated the following summer by Captain Clerke (after Cook's death in Hawaii), but the sailing in the Arctic was confined largely to the waters north of Bering Strait. This not only was the first thorough, truly scientific survey of the Bering Strait region, but it also remained the most extensive one for some time to come. After the expedition's return to England in 1780, Cook's journal account of the voyage was completed by Captain James King, commander of the second vessel after the deaths of Cook and Clerke, and published in 1784. In this work was included a map of Norton Sound and Behring's Strait (Fig. 26) (Cook and King, 1784: v.2:between 466 and 467). It shows only that part of the American coast actually visited, so there are some gaps; but Cape Prince of Wales, the Diomede Islands and two others in the strait are shown, as is the Chukotskiy Peninsula, without Müller's mushroom appendage. Gone are the island of Alaschka and the cluster of islands south of it. The great rocky promontory described by Dezhnev, Cook and King agreed, was East Cape, the name Cook gave to the easternmost cape on the Chukotskiy Peninsula. It is now named Cape Dezhneva (Cook and King, 1784:v.3:262-267). After Cook's voyage, the task of the cartographer became that of filling in gaps in information, of checking the accuracy of maps and surveys, and of developing the kind of information put into guides for coastal navigation. By that time, perhaps, some of the challenge and fun of the earlier cartography had disappeared: now it was a matter of refining certainty rather than defining uncertainty.

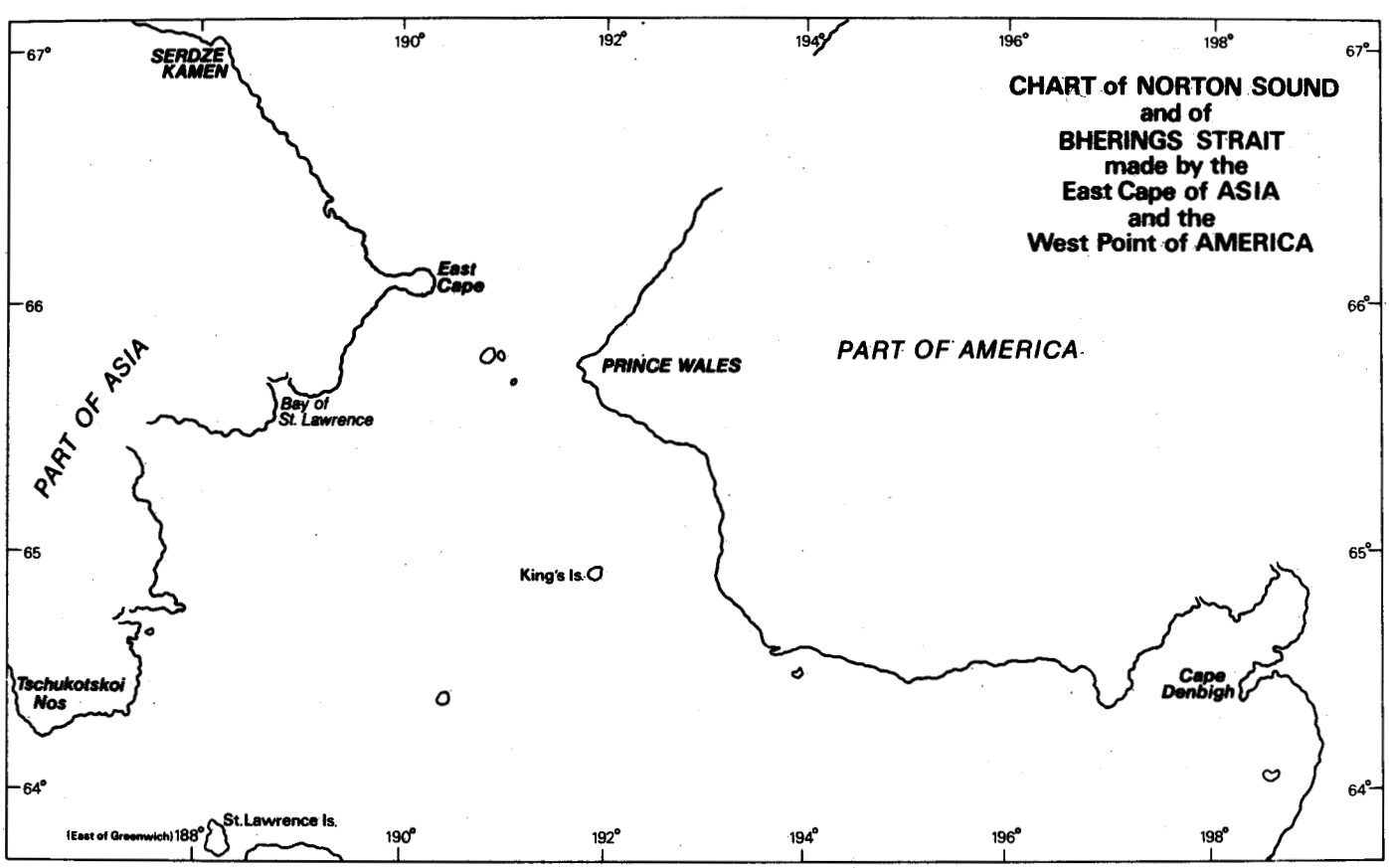

FIG. 26. Cook's chart of Norton Sound and Behring's Strait (detail) (Cook and King, 1784:v.2:between 466 and 467).

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NOTES

[1]Bagrow (1952) dates the map as 1682.

[2]Bagrow (1947:69) dates the map between 1672 and 1689.

[3]"Nieuwe landkarte van het noorder en ooster deel van Asia en Europe". The traditionally accepted year of publication is 1687, but Polevoy (1973:125-126) advances the persuasive evidence that it was 1690.

[4]In earlier conversations with F.S. Saltykov, an associate of Peter the Great, and with Peter himself in 1697, Witsen became convinced that there was no isthmus in the far north connecting Asia and America. He later developed the theory of a connection in the region of the southern Kuril Islands, an idea that Peter took seriously (Polevoy, 1975:21-22, 24). A copy of the second edition of Witsen's map was not available to me to determine the extent to which he may have modified his depiction of the northwest corner in light of Peter's information (cf. Keuning, 1954:104). Both Cape Tabin and the Ice Cape appear on the map in the 1785 edition (before page 1), though shortened.

[5]Another feature, quite new on a Russian map, is a large unnamed piece of land east of Kamchatka, separated from it by a narrow strait and running off the eastern edge of the map. This probably is Juan de Gama Land or Jeso, placed there perhaps under the influence of Witsen (Polevoy, 1975:25-26).

[6]For an explication of this interpretation of the purpose and direction of the voyage, see Fisher (1977:Ch.3-4).

[7]This part of the map was subjected to criticism after Bering's return to St. Petersburg as being based on hearsay and on other maps, not on his own observations (Sobstvennaya..., 1830:v.8:1004-1005; Grekov, 1956:110, 1960:39; Kushnarev, 1976:132-133).

[8]16 March 1730 in the *Sanktpeterburgskiya vedomosti*; in the same year in *Nye Tidend* (Copenhagen) and *The Historical Register* 15(40):291-292 (London). I am indebted to Carol Urness of the James Ford Bell Library at the University of Minnesota for calling my attention to the notice in the *Register*, heretofore overlooked.

[9]The map was made by J.B.B. d'Anville in 1732 and published later in his own atlas, *Nouvel Atlas de la Chine, de la Tartarie et du Tibet* (the Hague) (Wroth, 1944:261, no. 91).

[10]"Carte des nouvelles découvertes au nord de la mer du Sud . . . dressée sur les mémoires de M. Delisle...et Philippe Buache et presentée à l'Academie dans son assemblée publique du 8 avril 1750 par M. Delisle" (Breitfuss, 1939:92, pl.).

[11]"Nouvelle carte des découvertes faites des vaisseaux russiens aux côtes inconnues de l'Amérique septentrionale avec les païs adjacents ...". The version of the map most often reproduced is the one in English in Müller (1761:frontispiece). It is reproduced on an unbound sheet in Breitfuss (1939).

[12]Belov (1954:142) rejects this identification.

[13]For a brief discussion of some of these maps see Grekov (1960:206-213), and Yefimov (1964:82-89, 92, 93-94, nos. 122-132, 137, 139).

[14]Green's real name is said to have been Bradock Mead.

[15]Except for the date (1773), Stählin's map carries the same title as Müller's map of 1758, but Müller had nothing to do with either its revision or its publication (Andreyev, 1965:136).

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