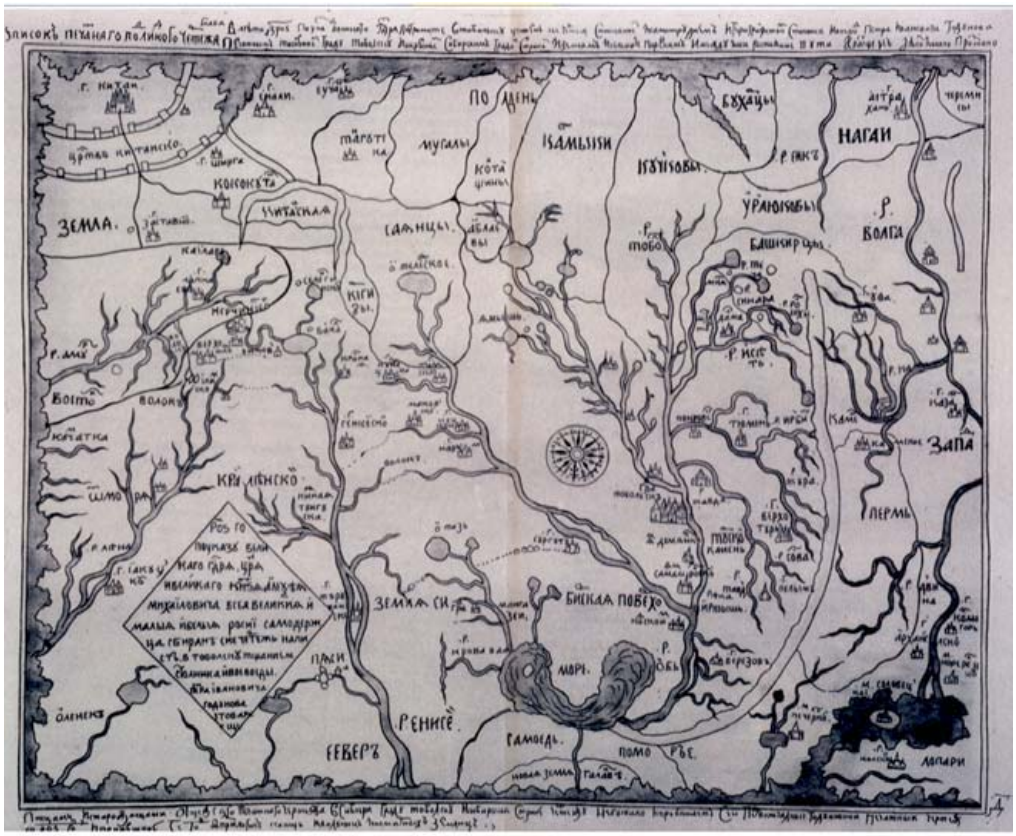

Figure 12. Drawing of Siberia

The sketch *Drawing of Siberia* dating from 1667 (Figure 12) has come to be called the "Godunov Drawing," as its legend proclaims that the map "was compiled under the oversight of *stol'nik* [one of the highest courtiers] and *voevoda* [provincial military and civilian governor] Petr Ivanovich Godunov and his subordinates." The drawing is oriented with respect to the south, like a great number of Old Russian maps, and shows a vast area east of the Volga and Pechora Rivers including Siberia and the Far East. Another drawing of Siberia by an unknown author is dated 1673 (Figure 13),[23] although F.A. Shibanov dates it 1669-70.[24] This drawing has much in common with Godunov's map but is more detailed. Both geographic documents graphically testify that the Siberian state administration paid due attention to a famous expedition under Semen Dezhnev, a Yakut Cossack (Russian Cossack serving in Yakutiya), who set out from the mouth of the Kolyma River in 1648 for the Pacific, skirting the Chukotskii Peninsula. The legend of the 1673 drawing even confirms that similar expeditions were attempted by other Russians: "they move from the Kolyma River and farther round the land...by sail to reach the Stone [the Chukotskii Peninsula - A.P.], and on crossing the Stone reach the Anadyr River and buy

23 "Chertezh vsei Sibiri do Kitaiskago Tsarstva i do Nikasskago": Rossiiskii gosudarstvennyi voenno-istoricheskii arkhiv (RGVIA), Fond Voenno-Uchenogo Arkhiva (Fond VUA), no. 20220. Drawn on paper with ink and water colors; size: 95×80 cm.

24 F.A. Shibanov, "Printsipy otbora geograficheskikh elementov v Russkoi Kartografii kontsa 16 - nachala 17 veka (po Knige Bol'shomu Chertezhu)," I*zvestiya Vsesoyuznogo geograficheskogo obshchestva* 85:2 (Leningrad, 1966), pp. 216-219.

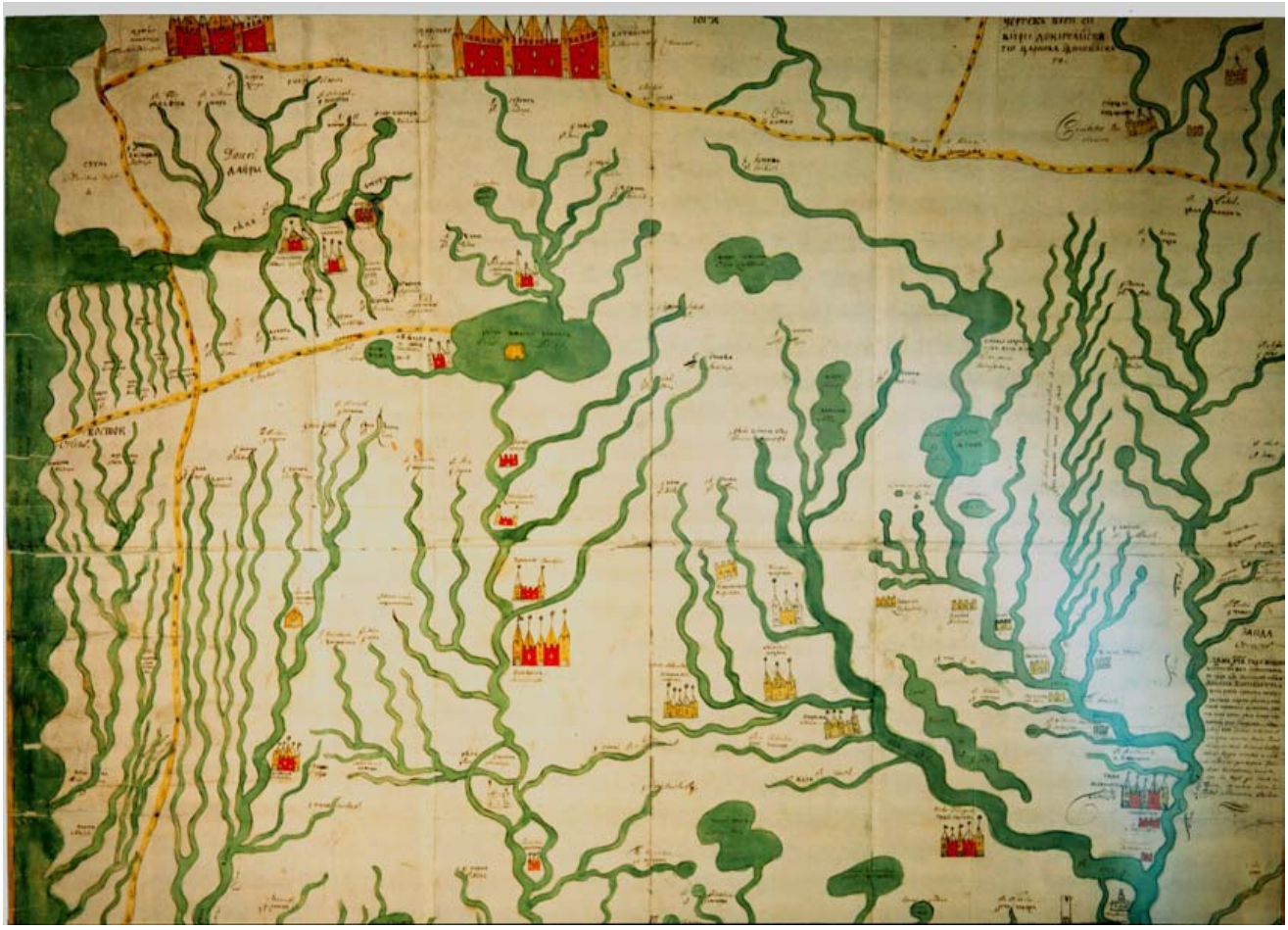

Figure 13. Drawing of All Siberia Up To China and Nikasskii

fish bone [seal's teeth] from natives; and the Stone is difficult to cross..."[25]

Consequently, these maps are conclusive proof that Russians knew of a strait between Asia and America as early as the 1670s. Note that this knowledge was based not only on information furnished by Semen Dezhnev but also on the numerous facts learned by Russian *zemleprokhodtsy* [trailblazers] from Chukchi and Eskimo peoples confirming the existence of *Bol'shaya Zemlya* [mainland] beyond the Chukotskii Peninsula.

European geographers and cartographers were not so confident in their interpretation of the geography of North-East Asia. This is illustrated to by many foreign cartographic representations of Siberia mainly based on Russian evidence and maps. These foreign maps of Siberia have been studied by a Russian émigré historian, Leo Bagrow [Lev Semenovich Bagrov].[26] During my fellowship at the Dunlap Smith Center for the History of Cartography (1990-91) I discovered another map of this kind. This was *Carte General de la Siberie et de la Grande Tartarie...*, in an excellent manuscript atlas called the "Carte Marines"

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25 Cited by Postnikov, *Razvitie krupnomasshtabnoi...*, p. 23.

26 L. Bagrow, "Sparwenfeld's Map of Siberia," *Imago Mundi* 4 (1965), pp. 65-70; Idem, "The First Russian Maps of Siberia and Their Influence on the West-European Cartography of N.E. Asia," *Imago Mundi* 9 (1967), pp. 83-93.

Figure 14. Carte Generale de la Siberie et de la Grande Tartarie

stored in the Ayer Collection of Newberry Library (Figure 14). This is an exceptionally rare and, possibly, unique copy of a Russian map from the late 1670s and the early 1680s. The utilization of a Russian source in its compilation is confirmed by the following facts: (1) all the toponyms plotted on it are French transliterations of seventeenth century Russian geographic names of Siberia; (2) the map also bears other ancient geographic names such as *Zolotaya Orda* [the Golden Horde], the Tatar-Mongol Dominion. The presence of such antiquated names was very common on general maps in seventeenth-century Russia, since Russians preferred to follow the tradition of representing historical elements on their maps; and (3) the "Amur River" (known by this name only in Russian sources) and other elements, such as towns and rivers, appear to be similar to the corresponding elements in Semen Remezov's maps.

The map (or its source) would seem to have been compiled not later than 1689, the year of the conclusion of the Nerchinsk Treaty between Russia and the Ching Empire, since thereafter geographic and territorial determinations included in the treaty were registered on all Russian maps. On the other hand, the compilation cannot date back earlier than the 1670s.

This map also has features distinguishing it from Russian drawings of Siberia in the seventeenth century. First of all, this is manifest in the map's orientation with respect to the north, which was standard for West European cartography. Second, the map's representation of the North-Eastern extremity of Asia

is unclear: as is shown in Figure 14, the coastline of the Chukotskii Peninsula is interrupted by the map's title which is inscribed in the place where the Bering Strait should be located. Thus, the anonymous author expressed his distrust of Russian information about a strait between Asia and America.[27]

By the sixteenth and seventeenth centuries, Russian geographic drawings had acquired standardized features. Notwithstanding the functional and semantic diversity of cartographic patterns in these times, their legends remained largely similar and explanatory notes were widely used. Borders, rivers, roads, foundations of defense structures were shown in maps. Populated areas, forests, and mountains were depicted in the form of semi-perspective sketches, whereas plane and frontal depiction of walls and architectural structures were used on the maps of fortresses and towns. In this period, some general requirements for the contents of maps appeared (for example, instructions to travelers), as well as for several methodological aspects of surveying and drafting (for example, methods of land surveying were described in the so-called books of *sokha* assessment),[28] but we do not know of any official cartographic or topographic guidance of the time. This, however, did not prevent cartographers from following more or less common legends with only minor deviations from tradition. Probably this can be explained by the "professionalization" of cartographers since the late seventeenth century. Virtually all drawings were compiled by draftsmen who progressed from the milieu of craftsmen-painters. Skilled draftsmen, many of them icon painters, were employed for compiling maps of different scales and applications.

To all appearances, Russians in this period were aware of the usefulness of combining different types of drawings into map collections largely following the pattern of atlases (drawing books). They provided a general idea of one or another major region as a whole, and at the same time gave more detailed data on their different parts (maps of individual districts, routes, and towns). Although the drawing of maps, as an sphere of the arts, won popularity in seventeenth-century Russia, the advantages of cartography over textual data were not yet self-evident.

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27 These Siberian drawings and their foreign copies are not the only surviving Russian cartographic materials that testify to the broad geographic scope and thematic diversity of mapmaking in Russia during this period. The following small-scale drawings are also known and have been studied: *Drawing of Ukraine and Cherkassk Towns from Moscow to the Crimea* (circa 1670, kept in the Swedish State Archives); *Drawing of Russian and Swedish Towns* (c. 1656) which covers the North-Western part of the Russian State and the Baltic Sea (kept in the RGADA in Moscow); and a large road map of the southern part of European Russia (approximately to the south of the parallel on which Moscow is located) (c. 1685, stored in the French Navy Archives).

28 *Knigi soshnogo pis'ma*. *Sokha* was a land unit for taxation in fifteenth- through seventeenth-century Russia.

4. Encounter with West European Cartography

In the early eighteenth century Russian national cartography experienced the innovative influence of Peter the Great's reforms. Cartographic traditions of the past entered into interaction with West European cartography. The latter's fundamentals - geographic coordinates, scale, and projection - were readily adopted in Russia. British cartography exerted the dominant influence on methods and training over the initial period. For example, from 1701, Professor A.D. Farhwarson and navigator S. Gwynn from Britain taught at the Moscow Navigational-Mathematical School. The most popular method in Britain at that time was astrolabe surveying,[29] unlike in France where the cartographers preferred to draw in the field, using plane tables. Astrolabe and chain survey were readily accepted in Russia, because Russian surveyors were experienced in surveying routes along rivers and roads with the compass, a method which formed part of traditional cartography. On the other hand, the French school of mathematical geography, with its emphasis on longitude and latitude coordinates to pinpoint the precise shape and location of nations and regions on the earth's surface, shaped small-scale cartography in Russia.

Initially, classical Dutch cartography influenced how the Russians published and presented their maps. Peter I himself took lessons in engraving from Adrian Schoenebek during his visit to Holland. Afterwards, Schoenebek was invited to Moscow, where he not only served as the tsar's first professional engraver, but also taught Russians his craft. One of his students was Aleksei Zubov, who would work at the Imperial Academy of Sciences.[30]

The first stage of an all-Russian survey was initiated by the Order of Peter I in 1720. As mentioned above, strict "standards" for map contents (quantity of information) had been formed in traditional, pre-Petrine Russian cartography. However, in the first stage of the survey conducted by Petrine geodesists, the requirements for the content of maps were not raised, but actually lowered significantly. Priority was granted to geometric accuracy of maps, based on astronomic measuring of coordinates. This was natural since the basic purpose of the survey was to obtain initial materials contributory to compiling general maps of Russia.

The development of Russian cartography in the eighteenth and nineteenth centuries was significantly influenced by the active colonial policy of the Russian Empire which grew to be the largest state on the Eurasian continent during this period. The incorporation of countries such as Finland and Poland into the

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29 A.W. Richeson, *English Land Measuring to 1800: Instruments and Practices* (Cambridge: Mass.-London, 1966), p. 214.

30 For more detail, see: J. Abbing, "Nederlandse graveurs in dienst van Peter de Grote," *Spiegel Historiael* 24:6 (1989), pp. 269-271; S.R. Potter, "Essence of Eighteenth-Century Russian Cartography," *Osaka Gakuin Daigaku Tsushin* 19:3 (1988), pp. 35-68; and P. Kokkonen, "Map Printing in Early Eighteenth-Century Russia," *Fennia* 170:1 (Helshinki, 1992), pp. 1-24.

empire with their cartographic traditions, wars with Napoleon and others, and the continuing drive to the East which eventually resulted in colonies in North America - all of these had a great impact on national cartography.

Russians' contacts with Finno-Swedish cartography, as well as the influx of Swedish maps into Russian archival stocks, had begun during the Northern War (1700-21). While the wars with Sweden continued in the following decades of the eighteenth century, Russians' acquaintance with Swedish traditions of regional mapping bore fruit, at least in Russian land-measuring (cadastral) cartography. Obviously, when the General Land Measuring (*General'noe Mezhevanie*) began in the 1760-70s (decreed in 1765), the Swedish experience in organizing the Bureau of Land Surveying was referred to. In 1775, as part of the guberniya reform, the posts of land-surveyor were established in each guberniya [province] and *uezd* [county], and special Drawing Rooms opened under the auspices of regional administrations. Thus, Russian regional administrations began to have professional land-surveyors on their staff. The duties of Russian guberniya and uezd land-surveyors would seem to be similar to those of Swedish provincial surveyor-geometers and officers of the Bureau of Land Surveying which functioned in Sweden from the early seventeenth century.

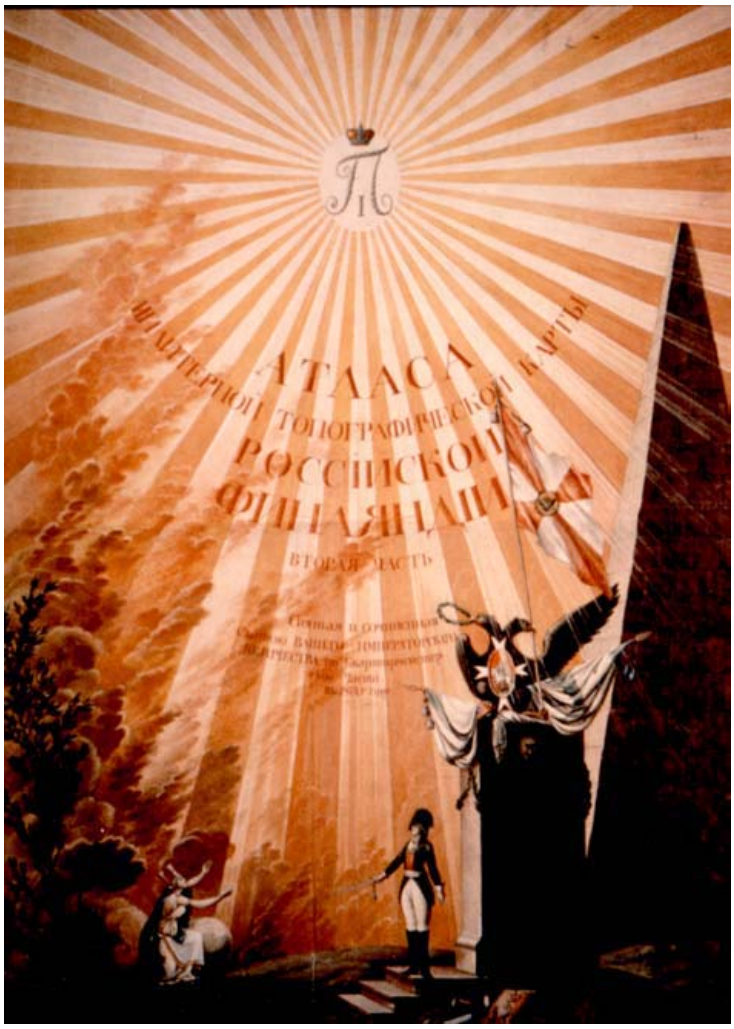

Figure 15. Cover of the Atlas "Old Finland"

The most profound exchange of ideas and methods between the Russian and Finno-Swedish schools of cartography began during the first large-scale cartographic work organized by the Russian General Staff in the Finnish territory - the survey of so-called Old Finland. This survey was made between 1798-1804, under the leadership of Colonel (later, General-Major) Baron Faddei Fedorovich Shteingel. The quality of this work was praised in 1837 by the first director of the Russian General Staff's Corps of Military Surveyors, a prominent map-maker and geodesist, Fedor Fedorovich Shubert: "Although this survey cannot answer all the requirements of our time, nevertheless, it ought to be seen as the first example of a correct and systematic survey which has

Figure 16. Fragment of a Map Contained in the Atlas "Old Finland"

educated a lot of good officers."[31]

Strange as it may seem, after this survey was completed in 1804, its materials were not published at all, although they were widely used by cartographers and map-makers in the nineteenth century. In this respect, the Survey of Old Finland was no exception to other Russian large-scale mapping works of the eighteenth-nineteenth centuries: severe security rules (censorship) and poor printing infrastructure in Russia prevented the mass publishing of topographical maps.

Materials of the Old Finland Survey survived to the present only in the form of a four-volume, manuscript collection of maps stored in the Fund of Military-Science Archives of the Russian State Military History Archives in Moscow. This is a clear and artistic atlas with maps drawn in watercolors. On the cover of the second volume of this atlas (Figure 15) one can see the "imperialistic message" in the presentation of Finland as a beautiful lady on her knees giving homage to the Russian Emperor Paul I. Homage or not, the atlas demonstrates that its maps were compiled with the active use of the professional skills of Finnish surveyors. For example, in Figure 16, which is a fragment of a map from the first volume of this atlas, one can find small fragments of territory with an archaic bird's-eye view, although the main method of its relief representation is so-called *otmyvka* [in which reliefs are described in plastic form, by shading them with light from the north-west]. It can be assumed that such an

31 F.[F.] Shubert. "Istoriya Voenno-topograficheskogo depo i geodezicheskikh rabot General'nogo shtaba," *Zapiski Voenno-topograficheskogo depo*, Chast' 1 (St. Petersburg, 1837), pp. 1-188. For details of these surveys, see: Alexei V. Postnikov, "Contact and conflict: Russian mapping of Finland and the development of Russian cartography in the 18th and early 19th centuries," *Fennia* 171:2 (Helsinki, 1993), pp. 63-98.