

Creating Ezo: The Role of Politics and Trade in the Mapping of Japan's Northern
Frontier

Thesis

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Evan Robert Dicken

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Ohio State University

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Master's Committee:

Phillip Brown, Advisor

James Bartholomew

Alan Beyerchen

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Abstract

This thesis explores the various factors leading to the adaptation of western style scientific cartography by Japanese mapmakers in the employ of the Tokugawa government in the late eighteenth and early nineteenth centuries. It situates Japan not as a passive recipient of European cartographic techniques, but rather an active producer of geographic information in an exchange that began in the late 16th century. It focuses on the conflict over Ezo (modern day Hokkaido, Sakhalin, and the Kuril islands) between Russia and Japan as a catalyst for the Tokugawa Shogunate's early 19th century mapping programs.

Beginning with an analysis of the development of mapmaking in Europe, I examine the political, military, and economic character of the broader exchange as well as its effect on the mapping of Ezo itself. I conclude that the Tokugawa government actively employed both native and foreign cartographic techniques to solidify its hold over both Ezo and represent Japan as a unified whole. Through continuing cartographic exchange western-style Japanese maps were transmitted to Europe, helping to formalize European representations of Japan.

Vita

June 1999.....Boardman High School

June 2004.....B.A. Psychology, Ohio University

June 2004.....B.A. History, Ohio University

June 2008.....Certification, Inter-University Center
for Japanese Language Studies

2005 to Present.....Graduate Teaching Associate, Department
of History, The Ohio State University

Fields of Study

Major Field: History

Specialization: Japanese History

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Introduction

On August seventeenth, 2006 a Russian Coastguard cutter encountered the Japanese fishing boat *Kisshin Maru* near the island of Tanfilyev/Suishō in the Kuril archipelago northeast of Hokkaido. This was not an uncommon occurrence, as Japanese fishing vessels had been routinely violating Russian claims of sovereignty in this area for over sixty years. When the *Kisshin Maru* was ordered to stand down it attempted to flee back to Japanese waters. The chase ended after several hours when the cutter fired upon the *Kisshin* killing sailor Mitsujiro Morita. The incident brought waves of protest from the Japanese government, which demanded that the guilty parties be punished. The Russian government claimed that the crew of the cutter had acted well within its rights to repel poachers.¹ It sparked a tense diplomatic standoff that would briefly bring the matter of ownership of the Kurils international attention. The attack on the *Kisshin Maru* is only the most recent in a long history of conflict centered on Ezo (The Kuril Islands, Sakhalin, and Hokkaido) that has seen the various islands violently change hands numerous times, and prevented both nations from signing a peace treaty ending World War II. Both Japan and Russia drew on maps of the area stretching back to the nineteenth century as objective proof of their claims without acknowledging the fact that the maps were themselves influenced by the interests of their makers. In this paper I will examine the

¹ Alexander Zheglov. "Poachers Ignite Dispute with Japan," *Kommersant* (2006), http://www.kommersant.com/p698232/r_1/Poachers_Ignite_Dispute_with_Japan/ (accessed, February 3, 2009).

roots of the conflict by analyzing how representations of Ezo were shaped by the interests of the mapmakers, their patrons, and the broader historical context in which they were created.

Japan provides an excellent case study of a country that was able to successfully adapt European methods while maintaining links to earlier modes of representation. Traditionally treatments of European contact with foreign places highlight how native mapping practices were undermined and replaced by European ones. Where other countries and populations' ties to their land were weakened by western modes of representation, the Japanese were not only able to maintain cartographic control of their country but to also lay claim to foreign spaces themselves. The root of this success lies in Japan's strong early modern mapping tradition, the adaptation of western-style scientific cartography, and the political traditions of the Tokugawa Shogunate.²

Central to the Japanese cartographic endeavor was political, economic, and military contention with Imperial Russia concerning the ownership of Ezo. Fear of Russian encroachment into Sakhalin and the northern half of the Kuril Archipelago in the mid to late eighteenth century prompted Hayashi Shihei, a prominent scholar of western learning, to pen numerous tracts and maps highlighting the threat posed to Japan by an expansionist, Christian, Russia. The various islands of Ezo were rich in both mineral and natural resources, and were an avenue of trade between the Japan and the continent

² The term "scientific cartography" deserves a bit of explanation. The definition used in this paper refers to what many would consider the practice "modern" mapmaking. More specifically, the creation of maps focused on achieving the highest level of accuracy possible through the use of instrumentation, mathematical surveys, and cartographic projections. Scientific cartography has its roots in the European Enlightenment, which emphasized the role of objectivity in the production of maps and draws heavily on the work of seventeenth and eighteenth century European mapmakers like Gerardus Mercator, Jean Picard, Jean Dominique Cassini, William Roy, and Willebrord Snell.

facilitated by Ezo's native inhabitants, the Ainu. The economic potential of the islands was not lost on Hayashi, or his teacher Kudō Heisuke who advocated the opening of direct trade with Russia. Hayashi and Kudō's arguments were further reinforced by increased Russian attempts to open trade with Japan from 1783 to 1807, an Ainu revolt in 1789, and the warnings of the Dutch (who had no intention of sharing their trade monopoly with Russia).

These concerns prompted the Bakufu to search for methods of cartographic representation that would provide accurate geographic knowledge of Ezo (which had heretofore been a relatively mysterious place), lay claim to the area, create a discrete northern border with Russia, and assimilate the Ainu more fully into the Japanese sphere of control. To accomplish these goals the Shogunate employed explorers and mapmakers who synthesized western survey and map making techniques with native Japanese representational traditions to create maps that were both accurate enough to be copied and transcribed by Dutch, French, English, and Russian cartographers, and distinctly Japanese in character.

Although the mapping of Ezo occurred from roughly 1789 to 1811, the transformation it engendered in Japanese mapmaking should not be seen as a break from native mapping practices but rather as the end result of a gradual trend towards cartographic synthesis. Over 200 years of cartographic exchange with the west provided the Bakufu scholars with a wide range of European maps, geographic treatises, globes, charts, journals, and descriptions to draw from. The Japanese began by copying the rutters of Dutch and Portuguese sailors and the Jesuit missionaries who followed them. By the early seventeenth century they were producing their own maps of East Asia and

the World, actively incorporating information and techniques gleaned from western maps.³

The Japanese adaptation of European cartographic techniques was not the result of a one-way relationship, but rather a mutual exchange of information. Throughout the Edo period Western and Japanese mapmakers frequently shared geographic information, affecting maps made in both areas. Again, the exploration and mapping of Ezo figured prominently in this narrative of cartographic cross-pollination. Rumors of islands of silver and gold drew Dutch, Spanish, Portuguese, and Japanese explorers to the region in the seventeenth century, spurring the trade in maps and travel reports. Economic motives would also launch later missions. As the European voyagers searched for potential colonies, trade ports, and sources of natural wealth they came to rely heavily on information supplied to them by Ezo natives as well as Japanese and Chinese maps of the region which were often more accurate than their own.

That this exchange was able to influence Western maps of the region was due primarily to the relatively unsettled nature of the cartography in the West. The development of cartography as a science owes largely to the ideas of the Italian Renaissance, Spanish and Portuguese Atlantic exploration, Italian and Ottoman maps of the Mediterranean in the fifteenth century, and the work of early cartographers such as Gerardus Mercator, Abraham Ortelius, Jean Fernel and Edward Wright in the sixteenth century.⁴ The maps of medieval cartographers were gradually discarded in favor of carefully measured, mathematically determined depictions of territory. However, old

³ Hugh Cortazzi, Isles of Gold: Antique Maps of Japan (New York: Weatherhill, 1983) 17-18.

⁴ John Noble Wilford, The Mapmakers. (New York: Vintage Books, 2000) 70, 87.

modes of representation continued to persist throughout Europe until the eighteenth century. The survey representational techniques varied from place to place, as did the relative accuracy and subject matter of the maps themselves. Maps produced by countries such as the Netherlands, Spain, Portugal, and later Britain tended to focus more on ocean and sea trade, while those drafted in France and Russia were primarily of the land. The center of the mapmaking trade shifted from Florence, to Lisbon, to Antwerp, to Paris, to London its movements guided by a tangled weave of wealth, necessity, patronage, and military and political relationships both in Europe and abroad.

Within this complex representational interplay Japan is located not as an object or consumer of scientific cartography, but as a co-producer of geographic information. France, the first European country to begin a national mapping project, was not fully surveyed until 1793. The Ordnance Survey undertaken by the British army was not finished until 1795.⁵ Neither Imperial Russia nor the Holy Roman Empire was ever able to fully map their lands (Germany would not be fully mapped until well after its unification in 1871, and Russia after the 1917 revolution). Japan on the other hand began its first scientific coastal survey in 1801, finishing in 1822. The resulting map not only became the official Shogunal map of Japan for over 40 years and served as the basis for later surveys in the early Meiji period, but was accepted as authoritative by the first British hydrographic survey team sent to map the Japanese coasts in 1861.⁶

⁵ Wilford, 146.

⁶ Akira Watanabe, Cartography in Japan, Past and Present (Tokyo, Japan: International Cartographic Information Center, 1980) 17.

At the confluence of all these historical issues lies the story of the mapping of Ezo, a story that consists of three interlocking historical narratives, Japanese, Russian, and Western European (specifically Dutch, French, and British). The representation (or lack thereof) of Ezo on maps reflects the interests of the mapmakers themselves as well as the context of the time. I shall use these maps to provide insight into the geopolitical and cartographic relationships of Europe, Japan, and Russia in the late eighteenth and early nineteenth centuries. Focusing on Ezo as an imagined space I will examine the interplay of definitions employed by the various mapmakers and how they were affected by the political realities of the situation. Conversely, although direct links between maps and policy are often difficult to ascertain, wherever possible I will also examine how maps reflected economic or diplomatic policy. Using Ezo and Japan as a case study I will explore the extent to which European and Japanese representational techniques influenced one another. The focus of the paper is not on Ezo as peripheral area, but as a central region where the scientific, economic, and colonial desires of five countries would play out against a backdrop of cartographic conflict and interdependence.

Maps and Cartographic Theory

Before examining the maps themselves it is first necessary to establish a theoretical framework for analysis. On the most fundamental level maps are cross-sections of space filtered through a prism of symbols and signs meant to represent geographical objects of interest to the map producer and the map reader. Maps communicate information.⁷ This information, however, is filtered through the interest of the map's author. Interest is discernable in the signs, symbols, generalizations, and selections made by the author or patron. In the case of political maps this is inevitably some sort of government organ. J.B. Harley qualifies this interest as *external* or context specific. In sum even the most scientifically rigorous map cannot help but be influenced by the external religious, cultural, social, and political context in which it is created.⁸ Jeremy Black offers a more specific treatment of external power and political cartography in *Maps and Politics*, arguing that "Politics stands as the metaphor for social processes that provide the context for cartography and mold much of its content and reception."⁹ Conversely, the analysis of maps through the prism of external interest provided insight into the historical context in which they were created.

Moreover, maps also possess *internal* power derived from their ability to affect the perceptions of the map reader, in essence, to construct reality through the use of

⁷ Denis Wood, The Power of Maps. (The Guilford Press: New York 1992.) 18-20.

⁸ Harley, J.B. "Power and Legitimation in the English Geographical Atlases of the Eighteenth Century" The New Nature of Maps: Essays in the History of Cartography. ed. Paul Laxton (Baltimore: Johns Hopkins University Press, 2001) 112.

⁹Jeremy Black. Maps and Politics (Chicago: University of Chicago Press, 1997), 28.

codes.¹⁰ By their very nature maps are reductive simplifications of reality, a map is not the geographic area it represents. Through the manipulation orientation, color, hierarchy, symbolism, size, language, typography, representation, scale, and focus the author can shape the view of the world that the map depicts.¹¹ Mary Elizabeth Berry groups these various representational codes into three broad categories which she terms *iconic*, *linguistic*, and *presentational*.¹² As I will use Berry's categories as an implicit framework for my analysis, a short explanation is required.

Iconic codes are those generic signs used by the mapmaker to represent the environment. They include icons, colors, borders, hatchures, elevational or topographical lines, etc. Iconic codes simplify, group and categorize, and can represent both tangible (trees, mountains, roads, cities, etc) and intangible (borders, ownership, class affiliation, etc) phenomenon.¹³ Linguistic codes describe the environment of the map. They provide names, descriptions, legends, categories, and values for the iconic and presentational codes found in the map. Linguistic codes, specifically proper nouns, reflect the culture, value, and politics of the society that created them.¹⁴ In the context of colonization, trade, and imperial expansion linguistic codes were often used to make foreign lands recognizable to the home country.¹⁵ Presentational codes form the broad framework of the map itself. They include the delineation of center and periphery, orientation, scale, size, dominant elements, color scheme, level of detail, and the hierarchy of linguistic and

¹⁰ Harley, 113.

¹¹ Mark Monmonier, How to Lie with Maps (University of Chicago Press. 1996) 16.

¹² Berry, Mary Elizabeth. Japan in Print: Information and Nation in the Early Modern Period (Berkeley: University of California Press, 2006) 63.

¹³ Berry, 64.

¹⁴ Ibid.

¹⁵ David Hooson, Geography and National Identity. (Cambridge: Blackwell Publishers, 1994), 113.

iconic signs. By controlling the presentational aspects of a map the mapmaker can focus on particular aspects while undermining or even eliding others.¹⁶ How these codes are used within the context of the political map are the result of the conscious and unconscious affects of external interest upon the mapmaker and the patron.

Map producers consciously and unconsciously shape their maps to reinforce their interests. Governmental maps are working artifacts; they are produced by someone for someone.¹⁷ In *Mapping Early Modern Japan* Marcia Yonemoto provides a useful term for this idea, *workability*. Yonemoto argues that a map's value derives from its ability to achieve the goals of its maker and user, whether they are the delineation of property lines, the discovery of the quickest route to a destination, or the maritime defense of an island nation.¹⁸ A map's workability is determined not only by the goals of its creator(s), but also the interests of the map reader(s) and the historical context in which it is made. Without workability a map holds value only as an object of art. This concept applies to all maps no matter where, when, and by whom they were created.

Berry's various codes and Yonemoto's workability will provide the implicit framework for my map analysis. In the case of each map I have attempted to isolate the primary interest(s) present as they relate to the analysis itself. That is not to say that other interests are not at work within each mapmaker's particular representation as it is the result of a complex interplay between person, patron, and context. It is the case that Yonemoto's concept of workability can be applied to my own readings of the various maps included in this paper. As map readers ourselves we bring differing experiences and

¹⁶ Berry, 65.

¹⁷ Wood, 43-4.

¹⁸ Yonemoto, Marcia. Mapping Early Modern Japan: Space, Place, and Culture in the Tokugawa Period. (Berkeley: University of California Press, 2003) 56.

expectations to the table. Consequently, to show how the representational choices made by each cartographer reflected the historical context of the time, his interests, and the interests of his patron (when one exists) I will pair each map with reports, travelogues, journals, and histories of subject region.

Traditional European and Japanese Cartographic Practices

To establish a case for the cross-pollination of geographic information and representational techniques it is first necessary to examine the traditional mapping practices in both Europe and Japan. The primary purpose of this comparison is to provide an understanding of how, specifically, Japanese and European representational techniques and geographic knowledge differed from one another before their initial contact. This will create the foundation for a much more thorough analysis of later Japanese synthesis as well as European reliance on Japanese map information. Additionally, it will establish the historical relationship between mapping and governments as well as make a case for both European and Japanese governments' use of maps as instruments of state policy.

In the case of Japan I will also argue that a long history of borrowing from Chinese and Korean tools, maps, and representational techniques created a culture of selective synthesis with regards to foreign ideas. By the time the first Portuguese sailors landed at Tanegashima in 1543 the Japanese had already been copying and adapting foreign maps to fit within their own historical, geographic, and cultural context for over seven-hundred years. This experience allowed them to engage first in active borrowing, and then participate in an exchange of cartographic information that would inform European representations of Japan until the early twentieth century. The Tokugawa

government in particular became expert at creating and patronizing maps that tapped into previous Imperial precedents and strengthened its hold over the Japanese state.

In addition to laying historical groundwork for those European cartographic traditions that influenced (and were influenced by) Japanese modes of representation I will also make a case for the relative fluidity over time of the European representational techniques themselves. The development of scientific mapmaking was not a single monumental endeavor undertaken by the whole of Western Europe but rather the result of complex interactions between the economic, political, and religious contexts of the various European countries, and the various interests of the monarchs, explorers, and mapmakers themselves. This section will explore the Ptolemaic and monastic roots of the European mapping tradition and how they were shaped by interests of various emerging states, focusing specifically on those countries that would interact most directly with Japan in the seventeenth and eighteenth centuries (Portugal, the Netherlands, and Russia).

Early European Cartography

Modern European cartographic practices have their roots in the rediscovery of the Ptolemaic tradition in the early Renaissance. The Ptolemaic tradition has its roots in the observation and inquiry based systems of measurement developed by Greek philosophers and mathematicians such as Pythagoras and Aristotle around the Sixth century BCE. These principles were applied to the measurement of the earth's surface by Eratosthenes,

chief of the Library of Alexandria, around 235 BCE.¹⁹ These ideas were systematized in Ptolemy's monumental 2nd century work *Geography*. Although it perpetrated a number of errors (most notably the geocentric view of the universe, and a rejection of Eratosthenes' measurements) it advanced concepts such as coordinate systems, longitude and latitude, degree based measurements, and graphical projection.²⁰ In *Geography* Ptolemy had created a theoretical method of dividing up the Earth's surface into quantifiable sections. Although he misjudged both the size and shape of the Earth (a mistake that would influence European representations of the world until the late eighteenth century) Ptolemy's measurements nonetheless form the foundation of modern cartography.²¹

Fourteenth and Fifteenth Century Italian, Spanish, and Portuguese Portolani

Ptolemy's methods were first adapted for the production of portolan charts by Italian mapmakers around the turn of the fourteenth century. Long used to sailing along the coasts of the Mediterranean navigators from the various city-states in the north of Italy began creating coastal maps by using a compass to take directional bearings at various points throughout a voyage. The sailors would then throw a rope knotted along regular intervals into the water and measure the distance traveled according to the number of knots that passed through their hands during a set period of time as determined

¹⁹ Wilford, 22-3.

²⁰ Wilford, 30-7.

²¹ Roderick M. Barron, "European Maps and Mapmakers," in Japan: A Cartographic Vision, European Printed Maps from the Early Sixteenth to the Nineteenth Century. Ed. Lutz Walter (New York: Prestel, 1994) 12.

by an hourglass.²² With enough readings the navigator could trace by what distance and degree a particular coast diverged from magnetic north.²³ It was not an extremely precise method of measuring direction or distance, but nonetheless represented a major break from medieval nautical mapping practices.

Portolan charts represented these measurements in terms of straight lines radiating from various points throughout the map. The roses (points) and rhumb lines (lines) allowed for straight line navigation throughout the whole of the Mediterranean, and, as European explorers ventured farther abroad, were used in maps from the Baltic to the Caribbean seas.²⁴ Distances are drawn roughly to scale, but no attempt is made to include parallels, meridians, or a projection. The charts themselves were oriented north, owing largely to the use of the compass in their creation. In most Italian and Portuguese maps important settlements are represented pictorially while bodies of water are colored green or blue (when they are colored at all) except for the Red Sea which is rendered in eponymous crimson. In keeping with their nautical nature, inland areas are very rarely represented with any degree of detail.²⁵

The charts themselves reflected the religious and secular context in which they were created, often including depictions of various Saints, religious figures such as Jesus and Prester John, as well as royal and noble coats of arms, national and regional flags, and likenesses of the rulers themselves.²⁶ The inclusion of such artistic flourishes would

²² Barron, 16.

²³ Wilford, 64.

²⁴ Ibid.

²⁵ Wilford, 60-2.

²⁶ Donald Wigal, Historic Maritime Maps, 1290-1699. (New York: Parkstone Press, 2000) 49.

become a common practice in European maps throughout the early modern period, one that would be replicated later by private if not governmental mapmakers in Japan. Later portolani would see a marked divergence in ornamentation as Catholic countries such as Portugal, Italy, France, and Spain continued to include more ecclesiastical illuminations while largely Protestant countries such as England and the Netherlands incorporated more politically oriented flourishes (Although neither would entirely refrain from including a particular type of ornamentation).

The art of making portolani spread to Lisbon and Barcelona in the late fifteenth century, producing several new schools of representation as Spanish and Portuguese mapmakers bent the navigational advantages the charts offered them to the service of their own colonial ambitions. In the sixteenth century the Portuguese adapted the Arabic astrolabe and the cross staff (or Jacob's staff) for nautical measuring. This allowed them to take measurements of astral bodies whose positions were known in order to determine latitude. Those celestial objects most commonly used were the North (or Pole) star and the noonday sun.²⁷ Longitude was measured by comparing the time at the current position with that at a designated prime meridian. Since the hourglass or water clock remained the only ways to tell time with any degree of accuracy and they were of limited use on the rolling deck of a ship navigators and mapmakers often employed a large degree of guesswork in fixing their geographic positions, with widely differing results.²⁸

The Portuguese mapmaking endeavor benefited not only from new technologies, but from royal and papal patronage, wider access to Arabic works on navigation, political

²⁷ Barron, 13.

²⁸ Barron, 13-14.

unity, and the riches of the new world.²⁹ Prince Henry, inspired by the works of Marco Polo, invested much of his nation's fortune in exploration and colonization.³⁰ The age of discovery initiated by Henry and his successors lead to the spread of the Christian faith, the establishment of Portuguese and Spanish colonies in North and South America, Asia, and Africa, the flow of riches into Europe, and the production of new and more accurate maps. Gutenberg's invention of the printing press in 1440, and the technique of copperplate engraving meant that maps could be produced and distributed in heretofore unimaginable numbers. It is during this period in the late fifteenth century that explorers such as Vasco De Gama sailed around Africa to reach India, Bartholomeo Dias rounded the Cape of Good Hope, and Christopher Columbus landed in the Caribbean islands, and famous mapmakers like Joao Teixeira, Fernao Vaz Dorado, and Diogo Homen drafted maps that supported their patron's territorial gains, all under the patronage of Iberian monarchs like Henry.³¹

The late fifteenth and early sixteenth century also saw the emergence of a practice that would characterize scientific mapmaking the world over, that of cartographic secrecy. While Henry was the first European monarch to establish the position of Royal Geographer, he was also first to implement the *Politie do Sigilo* or "policy of silence," in the practice of map making.³² The increased accuracy of maps meant that the information they possessed could be used to undermine or even harm their patron country should they

²⁹ The Arabic texts were brought to Portugal primarily due to the work of Spanish Moorish and Almoravid scholars and traders that was seized during the Reconquista, and to a smaller extent during the early Crusades.

³⁰ Maria Fernanda Allegria, et al., "Portuguese Cartography in the Renaissance," in David Woodward and J.B. Harley, History of Cartography, Vol 3 (Chicago: University of Chicago Press, 2007), 975.

³¹ Wilford, 68-70.

³² Carl Moreland and David Bannister, Antique Maps. (Oxford, England: Phaidon, 1989) 227.

fall into the hands of their enemies. In order to protect their monopoly on information with regards to their colonial possessions and home countries the Iberian monarchs began a policy of cartographic secrecy. Mapmakers were required to submit their maps to royal authorities, and were forbidden from disseminating any information they acquired on their voyages. Documents and accounts were hidden, suppressed, and even falsified in some cases.³³ The Casa da India in Lisbon and the Casa de Contracion in Seville became the repositories of Portuguese and Spanish geographic knowledge, for a time preventing the spread of maps and mapmaking techniques to the rest of Europe.³⁴

Sixteenth Century Dutch Maps and their Effect on European Mapmaking

It was not until the Dutch takeover of the Portuguese overseas empire in South Asia and the disruption of the Iberian trade monopoly in East Asia during the Eighty Years' War (1568-1648) that new maritime and cartographic innovations once again appeared in Europe.³⁵ In 1602 the Dutch East India Company (VOC) was awarded a monopoly on trade in Asia, and in 1619 it was given the exclusive right to survey and publish maps of territory in that region. This resulted in an increased level of standardization in Dutch maps, the *Rijnlandse Roede* "Rhineland Rod" measuring 377.7cm was used as the basis of measurement. Chains measuring 5.5 rods in length were

³³ Allegria, et al., 989.

³⁴ Moreland, Bannister, 229.

³⁵ Donald F. Lach and Edwin J. Van Kley, Asia in the Making of Europe. Vol 3, Book 1 (Chicago: University of Chicago Press, 1993), 40-1.

the most common distance measuring equipment used by the VOC.³⁶ Dutch cartographers also consistently measured water depth and topographical relief around their colonies and fortifications. As the VOC gradually expanded to control the former Portuguese territories in the Pacific they seized numerous charts and maps, on which they based many of their own representations. Scouting missions and information supplied by local natives also served to supplement their geographic knowledge.³⁷

VOC maps were influenced not only by the economic interests of their makers, but desires of the company's patrons, and the political context in which they were created. Although the company itself began by keeping its maps a secret, the desires of individual investors for interesting and artful representations of the territory conquered by the VOC required the gradual dissemination of information into the private sphere. This desire on the part of investors for showpieces necessitated a blending of aesthetics and math in the production of VOC maps, resulting in some of the most beautiful maps to be made in Europe during this period.³⁸ Additionally, when faced with the difficult prospect of mapping unfamiliar territory the Dutch surveyors fell back upon ancient precedents. When surveying for new settlements the VOC employed the Roman grid system, as it allowed for quick measurement and relatively uniform division of land.³⁹

The public nature of the VOC's cartographic information led to the emergence of a strong and prolific private mapping enterprise in the Netherlands that paved the way for

³⁶ Kees Zandvliet, "Mapping the Dutch World Overseas in the 17th Century," in David Woodward and J.B. Harley, History of Cartography, Vol 4 (Chicago: University of Chicago Press, 2007), 1434-5.

³⁷ Zandvliet, 1444-5.

³⁸ Zandvliet, 1459.

³⁹ Zandvliet, 1447.

advances in scientific measurement and representation throughout Europe. Atlantic maps drafted by Marten and Harman Janz were among the first to code individual territories and kingdoms by color, so that sailors could more easily distinguish between them.⁴⁰ In 1569 Gerardus Mercator published the first atlas to feature his eponymous projection of the world, thought by many scholars to be the greatest cartographic advance since Ptolemy.⁴¹ Just one year later Abraham Ortelius of Antwerp published the famous "Theatrum Orbis Terrarum," (Theater of the World) including numerous projection maps of Europe and the world. Ortelius' maps incorporated information from VOC cartographers, Jesuit mapmakers, Spanish and Portuguese sea charts, as well as the work of local mapmakers in areas such as China and Japan.⁴² The addition of projection and graticule to Dutch maps initially confused navigators, who found them much too difficult to use. It was not until Edward Wright's 1599 work "Certaine Errors in Navigation," detailed the mathematical framework of the projection that Mercator and Ortelius' maps came into common use.⁴³

Seventeenth and Eighteenth Century Inventions and Their Affect on French and English Mapmaking

The invention and rediscovery of more precise measuring instruments across Europe in the seventeenth and eighteenth centuries allowed for the production of more

⁴⁰ Wigal, 107-8.

⁴¹ Moreland and Bannister, 34. and Wilford, 87-88.

⁴² Wilford, 91, 103.

⁴³ Moreland and Bannister, 34.

accurate maps than ever before. Starting in the late seventeenth century European mapmakers used an old Roman invention, the plane table, to plot distant objects and establish angles. In 1525 Jean Fernel of Paris attempted to measure the length of a degree of latitude using only a crude quadrant (a variant of the Arabic astrolabe used for measuring angles between the horizon and celestial bodies), a plumb bob (a weight on the end of a string or chain used for leveling a measuring tool with the ground), and an odometer made from a carriage wheel, achieving a result that was only 1/10th of a percent larger than the true value. The Arabic astrolabe, first adapted to nautical travel by the Portuguese, was further modified to measure both horizontal and vertical angles by Leonard Diggs of London in 1555, allowing it to be used to on terrestrial as well as celestial



Eighteenth Century Theodolite

objects. However, Diggs' "theodolite" would not come into widespread use until 1720 when Jonathan Sisson added a telescope for sighting on distance objects. Modified versions of the theodolite, odometer, and plane table are still in use today.

The invention of the odometer, spirit and barometric leveling (leveling by use of an air bubble trapped in a glass tube, a technique which

is still used today), and surveyor's chain further increased the degree of accuracy to which distances could be measured, but the invention that made the largest contribution to the science of European mapmaking was the mathematical process of triangulation. Based in Pythagorean geometry, triangulation allowed European surveyors to use one side (a measured base line) and two angles (measured by sighting on a distant object with a theodolite from both ends of the base line) of a triangle to determine the remaining sides and angles. This allowed surveyors to accurately measure the distance and position of far away objects such as mountains, church spires, and even the moon without ever having to travel to them.⁴⁴ Once the sides of the original triangle are determined they can be used as the base lines for further triangles, requiring only the measurement of the first base line. This allowed for unprecedented accuracy in western maps, and set the stage for the first national scientific mapping project in Europe.⁴⁵

The French mapping project of the seventeenth and eighteenth centuries is emblematic of the emergence of scientific mapping in early modern Europe, lying at the conflux of science, technology, royal and private patronage, and the will of the individual mapmakers themselves. Early seventeenth century French maps borrowed heavily from Dutch sources, but as Dutch control over maritime trade weakened, Paris came to replace Antwerp and Amsterdam as a center of cartographic production.⁴⁶ This transition is due primarily to King Louis XIV and his minister Jean Baptiste Colbert, who worked to link the scientific authority provided by modern cartography to the French state, enhancing its

⁴⁴ Wilford, 114.

⁴⁵ Wilford, 115.

⁴⁶ Christine M. Petto, *When France was King of Cartography: The Patronage and Production of Maps in Early Modern France* (Plymouth, UK: Lexington Books, 2007) 14.

prestige, providing for national defense, and increasing royal knowledge of geography both at home and abroad. The map project itself was undertaken by the Cassini's, a singular family of Italian mapmakers that, over the course of a century, would survey the entire length and breadth of France.⁴⁷

To map France the Cassinis employed a wide variety of techniques. After measuring a central meridian stretching north and south of Paris, Jean Dominique Cassini (formerly Giovanni Domenico) began the mapping of the French coastline in 1673. Having Fernel's measure of latitude in hand Cassini employed a method first proposed by Galileo earlier that century. The Jovian method (thus named because it focused on the moons of Jupiter) allowed for time to be fixed at different locations by tracking the emergence and disappearance of planetary bodies. Although incredibly time consuming (measurements could only be taken on clear nights when one or more of the moons of Jupiter was visible to telescopes) the Jovian method allowed for the accurate measure of time and thus the fixing of longitudinal coordinates.⁴⁸ By 1733 Cassini (now Jean's son Jacques) had produced an accurate outline map of France, charts of the Atlantic coast, and fixed the latitude and longitude of all major French cities. Cassini then began a triangulation survey to fill in the roads, rivers, villages, and other topography of the countryside. It would not be finished until 1793 nine years after the death of the third-generation Cassini, Cesar Francois Cassini de Thury.⁴⁹

⁴⁷ Petto, 6-7.

⁴⁸ Wilford, 135.

⁴⁹ Wilford, 138-9.

When finished, the map consisted of 182 sheets on a 1:86,400 scale and depicted the French coast, cities, and countryside with an unprecedented level of accuracy. Roads, settlements, and rivers were divided into several dozen different categories. Although cities and towns are represented obliquely, villages are depicted pictorially (often with the drawing of a church steeple), although their names are included they are graduated depending on the size of the settlement. Forests and fields are likewise represented by shading and tree symbols. Elevation proved troublesome as European mapmakers had yet to develop a way of representing three-dimensions. The map includes both tiny pictures of hills and mountains, as well as hachures (patterns of crossing lines whose closeness indicates relative height). However, as neither method could accurately render absolute elevation the Cassini map remained wholly two dimensional.⁵⁰ Nonetheless, the Cassini survey map represented a final shift to scientific methods of survey and representation that would characterize western mapmaking to the modern day.

Although the methods used by the Cassinis worked for land surveys, they encountered numerous problems at sea. The seventeenth and eighteenth century saw England and France expand their overseas dominions and launch new voyages of scientific exploration. This necessitated the production of nautical and survey maps. Although various iterations of the astrolabe (quadrant, sextant, octant, etc.) allowed for a navigator to fix his vessel's latitude there yet remained no effective way of measuring longitude from the rolling deck of a ship (the Jovian method was not possible due to the constant motion of the ship). Many ships were lost for lack of accurate east-west

⁵⁰ Wilford, 146-7. and John K. Wright, Early Topographical Maps: Their Geographic and Historical Value as Illustrated by the Maps of the Harrison Collection of the American Geographical Society. American Geographical Society Library Series No.3 (New York: American Geographical Society, 1924) 33.

measurements and navigation suffered greatly. The problem became so large that in 1708 the British Parliament offered a £20,000 prize for the invention of a method of determining longitude at sea within one-half of a degree.⁵¹ Although many methods were tried an effective solution did not appear until John Harrison's invention of the portable timepiece in 1735. An ancestor of the modern marine chronometer, Harrison's clock was finally accepted by the British parliament after 38 years and five iterations, and saw its first official use in Captain Cook's 1776 voyage around the world.⁵² Harrison's invention allowed for explorers to fix islands, sea routes, and coastlines with a heretofore unknown degree of accuracy.

Russian Cartography in the Sixteenth and Seventeenth Centuries

Prior to the rule of Peter the Great (1682-1725) governmental maps of Russia were primarily patterned after the indigenous Muscovite *chertezhi* (land sketches). *Chertezhi* were usually small and brightly colored, and ranged in scope of depiction from individual estates, to towns, to whole provinces. They often contained mixed perspectives, representing churches, houses, fields, forests, mountains, and rivers both pictorially (from the side) and obliquely (as if looking down from above). Some are oriented east, towards the rising sun (which is occasionally itself depicted), although most contain multiple orientations.⁵³ The highly stratified, agriculturally based nature of Russian society at the time meant that not only the nobility, but also the peasants and clergy drew their social

⁵¹ Wilford, 152-3.

⁵² Wilford, 158-62.

⁵³ Valerie Kivelson, Cartographies of Tsardom (Ithaca: Cornell University Press, 2006) 2-3.

position and livelihood through their connection to a particular piece of land.

Consequently, *chertezhi* became exceedingly important for representing control and ownership and were replicated on a much larger scale by the early Russian state.⁵⁴

Maps commissioned by the Muscovite government in the early seventeenth century showed much larger areas, focusing on those lands directly controlled by the Tsars, but also including border states, tributaries, and recently conquered lands. Commissioned by the ministry of defense for consumption by the Tsarist Regime the maps are primarily military in nature, representing political borders, supply routes, fortifications, lines of communication, resupply depots, wells, rivers, towns, and other areas of strategic importance.⁵⁵ The maps themselves were drawn by the local administrations and then sent to Moscow for compilation. Although they replicated the eastern orientation and mixed perspective of the *chertezhi* these early governmental maps included distances between towns as well as limited descriptions of topographical relief around areas of particular military interest such as fortresses and prominent settlements.⁵⁶

At roughly the same time the exploration of Siberia served as a catalyst for an increase in mapmaking on the part of the Tsarist Regime. The Siberian Office was created in 1637, and given the power to dispatch explorers, collect *yasak* (tribute) from indigenous tribes, tax fur trappers and traders, and collect information for the compilation of maps of the region. The first map of Siberia was drafted in 1667 by Peter Ivanovich Gudanov. Although the original is no longer extant, foreign copies of the map show that

⁵⁴ Kivelson, 9.

⁵⁵ Kivelson, 5-6.

⁵⁶ L.A. Goldberg, *Russian Cartography to 1700*. in David Woodward and J.B. Harley, *History of Cartography*, Vol 4 (Chicago: University of Chicago Press, 2007), 1870-1.

it was oriented south, and contained information on distances between settlements, the migratory patterns of nomadic tribes, the direction of major rivers, and tribes which had capitulated to Russian rule. The map also displays the Ural mountain range, however Siberia is represented as a rough square, with the Kamchatka, Taimyr, and Chukchi peninsulas not in evidence.⁵⁷ Based largely on explorer's reports and the descriptions of locals these first maps of Siberia provided the Tsars with their first look at the newly conquered territory, and served as the basis for future maps of the region. Notably absent on copies of the map are indications of the amount of tribute collected from the various tribes and trade posts, an absence made particularly salient since one of the main functions of the Siberian Office was the collection of tribute.

Later that century Peter the Great would become a powerful patron for scientific cartography in Russia. In 1687 Peter engaged the historian Semyon Remezov to compile the first map of the Russian Empire. Remezov began by gathering river maps compiled by previous cartographers and using them as a representational framework, giving his maps a hydrographic focus. Oriented north, Remezov's map does not employ any projection or graticule, Although distances (mostly river and road) are marked on the map itself. Remezov provides numerous artistic representations for various phenomenon ranging from "unknown berries," to ice floes, to bones, to stone idols, each labeled in almost indecipherable cyrillic shorthand. Areas are differentiated by type (steppe, wasteland, desert, tundra, etc.) although no political or administrative boundaries are shown.⁵⁸ Signs for game (particularly fur bearing mammals), forests, portages, land and

⁵⁷ Goldberg, 1875-77.

⁵⁸ Goldberg, 1885.

river routes, local products, trade routes, mineral deposits, and potential land uses indicate the economic potential of different regions, giving the map a strong economic bent.⁵⁹ The Remezov map represented a transitional period between the *chertezi* tradition and the implementation of western European (specifically French) cartographic techniques.

To support his sweeping political, military, and economic reforms Peter engaged numerous advisors from western Europe. He began by paying Dutch publishers in Amsterdam to print maps of Russia based on information compiled by Remezov, but eventually established a private printing house in Moscow under Vasily Kiprianov. Like Louis XIV Peter desired a comprehensive survey of his domain, ordering a geographer from the State Chancellery Ivan Kyrilov to put together a survey corps and map the entirety of Russia. Peter envisioned a three volume atlas of 300-400 maps, but the undertaking proved too much for Kyrilov alone and so the Tsar looked to France, employing Joseph Nicolas and Louis Delisle in 1724 to establish a school of astronomy in Moscow and help train Russian surveyors.⁶⁰ They feuded with Kyrilov, eventually producing their own separate map of Russia. Neither atlas was as comprehensive as Peter envisioned (Kyrilov's 1734 atlas consisting of only 14 maps and Nicolas and Delise's 1745 only 19 maps) but they did serve to open a cartographic dialogue between Russia and the rest of Europe, serving as a framework for exchange in the centuries to come.⁶¹

⁵⁹ Golberg, 1886-8.

⁶⁰ Moreland and Bannister, 239-240.

⁶¹ Moreland and Bannister, 240.

Scientific Mapmaking and the Early Modern State

As the preceding review suggests, the development of scientific cartography in Russia and Western Europe was heavily influenced by the interests of various governmental patrons as well as the needs of the mapmakers themselves. The early modern cartographic movement got underway just as European monarchs were moving towards centralization and expansion. Rulers from Henry the Navigator, to Louis XIV, to Peter the Great sought to enhance their power through association with and patronage of scientific cartography. They benefited both politically and economically not only from the increase in geographic knowledge afforded them by more accurate maps and the cadastral, military, and administrative benefits it provided, but also from the image of territorial sovereignty and centralized rule that the maps created.⁶² As in the case of the Dutch East India Company, private enterprise could also profit from increased representational accuracy as it cartographically projected company or personal ownership onto foreign soil.

Scientific cartography in turn grew under the patronage of monarchs, nobles, merchants, and other private investors becoming relatively institutionalized within the emerging European states by the early seventeenth century. Mapmaking endeavors also benefited from the invention and rediscovery of surveying techniques and methods of representation such as the theodolite, triangulation, and projection, allowing for mapmakers to better cater to the hunger for geographic knowledge on the part of their patrons. Although increased representational accuracy resulted in a desire for secrecy on

⁶² Richard L. Kagan and Benjamin Schmidt, "Maps and the Early Modern State," in David Woodward, History of Cartography, Vol 3 Part 1 (Chicago: University of Chicago Press, 2007), 661-3.

the part of the central government, the seventeenth century Dutch map trade shows that there was no lack of patronage for private mapping endeavors. Additionally, from the flow of geographic information between countries it is apparent that cartographic espionage mitigated at least some representational secrecy and allowed for the limited movement of even governmental maps.

The adoption of scientific cartography in Italy, Portugal, the Netherlands, France, and Russia was not simultaneous, nor did it homogenize mapmaking in Europe. In each context both internal and external political, military, economic, cultural, and religious factors affected how scientific cartography was implemented and to what purpose it was used. There was no single accepted cartographic schema in early modern Europe but rather an ongoing representational dialogue to which each country contributed. Scientific mapmakers and their patrons shared, among others, a fundamental desire for increased representational accuracy and precision. However, the attention they paid to accuracy as well as the means by which they achieved it varied due to their particular needs and historical experiences. When the foundation for Japan's own cartographic tradition is established these cases will provide fruitful comparison with the Japanese adoption of scientific cartography in the late eighteenth century.

Traditional Chinese and Japanese Mapping Practices

Japan's native mapping tradition stretches back hundreds of years prior to European contact, and itself represents a blending of Chinese and Japanese techniques. During the Yayoi period (500BCE-300CE) Korean immigrants brought with them Chinese methods of measurement and representation. There is textual and pictorial evidence in Japanese sources that the *ju* (carpenter's square), *mizubakari* (water level), *suminawa* (inked cord used mark straight lines), magnetic compass, and *sumitsubo* (inked pad with a plumb bob) were used to survey and draft plans for roads, temples, irrigation, and cities from about the Eighth century onward.⁶³ Both paddy fields and cities were mapped along grid composed of North-South and East-West lines, similar to Chinese practices of the time. In the case of cities however the grid and orientation drew primarily on Chinese art of *feng shui* that also spread to Japan around this time.⁶⁴ Maps from as early as the Eastern Zhou (770-256BCE) show that the Chinese understood scale, with later texts on mapping from the Han (202BCE-220CE) displaying knowledge of the properties of both triangles and circles, and the beginnings of a systematization of representational methods.⁶⁵ Cartography was standardized to the extent that the Wei scholar Pei Xiu (231-271 BCE) could codify six principles of mapmaking: the use of proportional measures, a standard orientation, road measurement (distance), the leveling

⁶³ Katazuka Unno, "Cartography in Japan," in David Woodward and J.B. Harley, History of Cartography, Vol 2, Book 2 (Chicago: University of Chicago Press, 2007), 357-8.

⁶⁴ Unno, 359.

⁶⁵ Cordell D.K. Yee, "Reinterpreting Traditional Chinese Geographical Maps," in History of Cartography: Cartography in Traditional East and Southeast Asian Societies. Vol. 2 Book 2, Ed. J.B. Harley and David Woodward (Chicago: University of Chicago Press, 1994) 53-4.

or lowering of heights (slope), the determination of diagonal distance, and the straightening of curves.⁶⁶ Pei's work as well as that of other Chinese cartographers was not only read, but applied by Japanese elites.

Along with techniques the Japanese also adopted Chinese precedents linking maps with political power. The connection between maps and politics in China also has its roots in the Eastern Zhou. The *Shu Jing* ("The Book of Documents," compiled in the late Eighth century BCE) describes the mapping and orientation of the Zhou capital at Luoyi (near today's Luoyang) by the Duke of Zhou, including knowledge of cartography as a part of statecraft.⁶⁷ Maps were also used for military purposes. The *Sunzi* (Sun Tsu's Art of War, written around the 5th century BCE) contains an entire chapter on topography. The legalist philosopher Han Feizi (280-233BCE) described the offering up of a state map from one of the Qin dynasty's defeated foes as part of its surrender, showing the extent to which maps were considered vital to state security.⁶⁸ When Liu Bang (founder of the Han dynasty) sacked the Qin capital at Xianyang he first searched the palace for all maps and ordinances before setting it alight. Drawing on Zhou precedents the Han drafted regional and imperial maps using information gathered from foreign tributaries, local government officials, and subordinate states. Although no examples of these maps remain today contemporary sources tell that they included representations of mountains and streams, the location and distance between cities, towns, and military settlements,

⁶⁶ Cordell D.K. Yee, "Taking the World's Measure: Chinese Maps between Observation and Text," in History of Cartography: Cartography in Traditional East and Southeast Asian Societies, Vol. 2 Book 2, Ed. J.B. Harley and David Woodward (Chicago: University of Chicago Press, 1994) 110.

⁶⁷ Cordell D.K. Yee, "Chinese Maps in Political Culture," in History of Cartography: Cartography in Traditional East and Southeast Asian Societies, Vol. 2 Book 2, Ed. J.B. Harley and David Woodward (Chicago: University of Chicago Press, 1994) 72.

⁶⁸ Yee, "Chinese Maps in Political Culture," 73.

road lengths, political and administrative boundary lines, and notes on regional tax and population.⁶⁹

The earliest mention of governmental mapping in Japan can be found in the *Nihongi*, which describes orders issued in 713 by the Imperial court at Nara for the various provincial administrators to compile maps on the topography and borders of their lands. Whether these maps were actually made or not is still a subject of much contention among scholars. In *Isles of Gold* Sir Hugh Cortazzi argues that due to the weak control the Nara (710-94) and Heian (794-1185) governments exerted over the provinces orders to compile maps would have probably been ignored. However, Muroga Nobuo posits in *The Development of Cartography in Japan* that the common use of Chinese cadastral survey techniques during the time would have meant that even local government offices had access to cartographers of reasonable skill, and thus could easily produce reliable maps even on the provincial scale.

The first extant maps of the main Japanese islands are based on the work of the monk Gyōgi (688-749) who is said to have traveled throughout Japan preaching Buddhism and sketching coastlines, major roads, and provincial boundaries. Although no map exists that was drafted by Gyōgi himself maps based on his work were produced in Japan until the late eighteenth century.⁷⁰ Although Gyōgi-style maps detail the rough outlines of Honshu, Kyushu, Shikoku, and the surrounding islands they do not show Ezo. From the *Nihongi* and the absence of Ezo on early Japanese maps it is clear that the Imperial government's concept of what constituted "Japan" ended at the northern

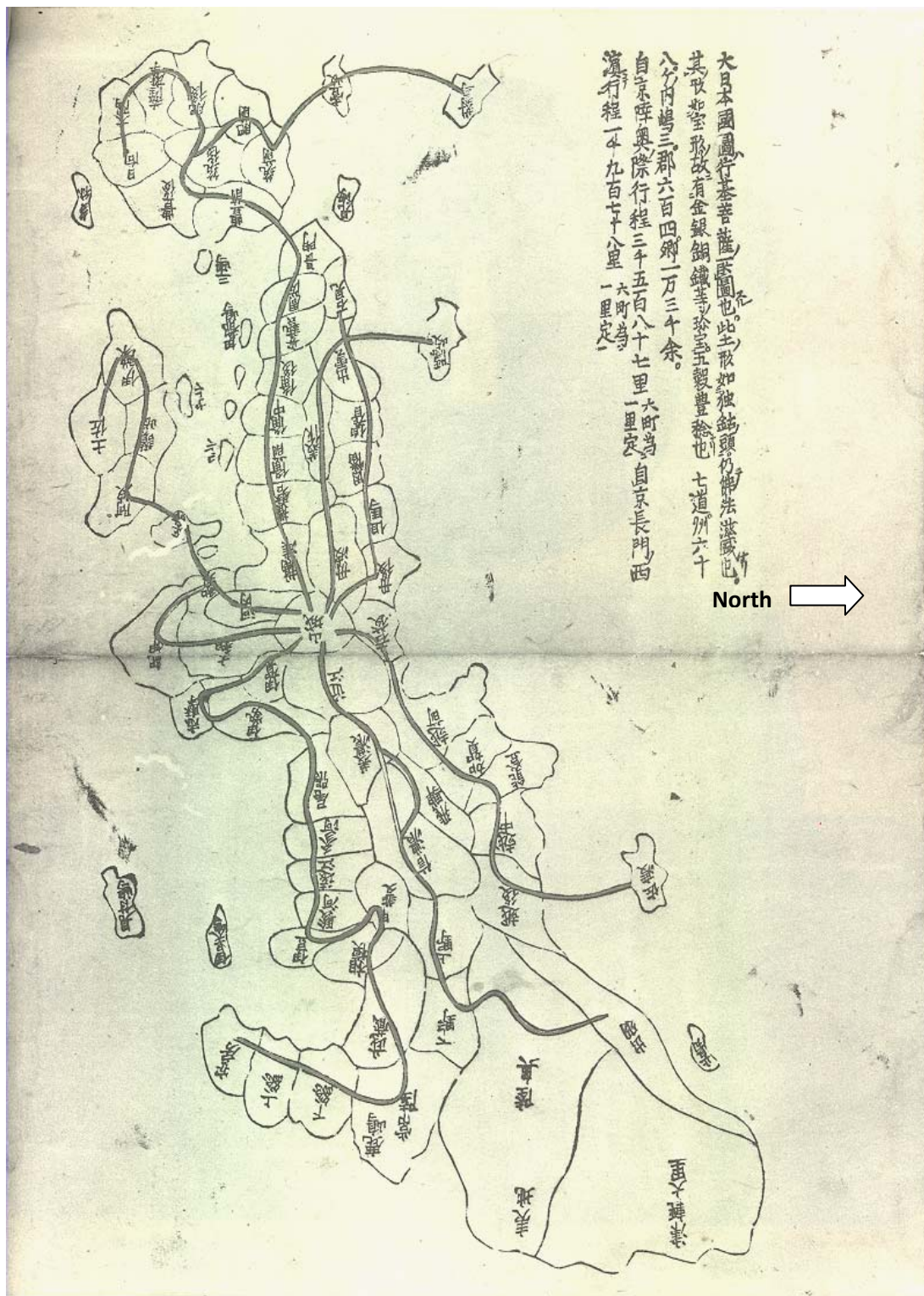
⁶⁹ Yee, *Chinese Maps in Political Culture*, 75-77.

⁷⁰ Cortazzi, 4-5.

extreme of Honshu. Most often Gyōgi maps depict only Japan, although they do occasionally show China and Korea intermixed with various imaginary islands such as *Rasetsukoku* (the island of women), and the Land of the Dwarves.⁷¹

Gyōgi-style maps display a number of characteristics that will become common in later Japanese maps, specifically in their focus and orientation. Although the magnetic compass had been introduced from China several hundred years earlier, Japanese maps, unlike their European counterparts, were not exclusively oriented north. An example of this can be seen in map #1 on page 34 (a Gyōgi style map of unknown authorship dated from around 1291) which is oriented east. In addition, textual orientation tended to radiate from the center point of the map rather than be oriented towards the bottom. Again, the varying textual orientation is shown on the 1291 map above. Most Gyōgi-style maps show the spatial relationship between the various imperial provinces and their ties to the capital (Kyōto). The map above is a prime example of this, displaying numerous sea and land routes spreading out from Kyōto, which is located just above and to the left of the map center. There was no attempt to depict scale,

⁷¹ Cortazzi, 6.



Map 1: Author Unknown (Tōkyō, 1291).

although later versions do attempt to record distances on land and sea routes.⁷² Finally, Gyōgi-style maps fixed the shape of the Japanese coastline, an image that would be copied with only minor alterations throughout the Edo period. Gyōgi style representations of Japan can also be seen in post-contact European maps of Asia, several examples of which will be covered the next section.

Japanese governmental mapmaking truly flourished under the Tokugawa Shogunate. From its inception the Bakufu used surveys and mapmaking to reinforce its primacy among the various Japanese domainal lords. The Shogunate drew on the long established tradition of cadastral surveying to provide the framework for national mapping endeavors. In the course of the five national mapping projects undertaken in 1605, 1633, 1644, 1697, and 1835 the Bakufu relied on the various Daimyo, as well as temple and village leaders to map their own domains.⁷³ The Bakufu maps displayed prominent roadways, provincial boundaries, coastal trade routes, and major cities, and were centered on the old imperial capital of Kyōto. This method of representation drew on historical precedents stretching back to the Gyōgi maps of early Heian period.

By focusing on Kyōto rather than Edo and employing a provincial rather than feudal method of division the maps added legitimacy to the Bakufu by highlighting Imperial authority. As fiefs were not represented the Shogunate could transplant Daimyo as well as divide, create, combine, and rename fiefs without altering the map at all.⁷⁴ Finally, provincial divisions also had the added benefit of obscuring contested land and

⁷² Cortazzi, 5-6.

⁷³ Yonemoto, Marcia. Mapping Early Modern Japan: Space, Place, and Culture in the Tokugawa Period. (Berkeley: University of California Press, 2003) 3-4.

⁷⁴ Berry, 87-8.

not offending any powerful Daimyo. As the provinces drew on both historical and Imperial precedent no one could challenge them without calling into question the authority of the Emperor himself. The Daimyo themselves, who had long ago become accustomed to thinking on both a domainal and provincial level, would not have been overly threatened by such borders.

Throughout the course of these mapmaking ventures Shogunal control over the process steadily increased. Over time vague provincial boundaries and district rice production quotas were replaced with extensive regulations specifying the scale, subject, structure, and content of the maps. The production of these maps required the Daimyo to provide the Shogun with not only the layout and surrounding topography of their castles but also rough production figures for each of their client villages and the overall agricultural output of their domain as a whole. Although surveying practices were still quite rough at this time, the maps represented a breach of the Daimyo's cartographic sovereignty by Tokugawa oversight.⁷⁵

Also like the Gyōgi-style maps of the Imperial Court Tokugawa governmental maps displayed Japan as a united whole (see the 1291 map on page 33), divided according to the will of the Emperor and centered upon the seat of his power. The provincial divisions would remain until the Diet implemented the current prefecture system in the late Meiji period. Japanese maps would continue to be centered on Kyōto until the Meiji Emperor moved the Imperial residence to Tōkyō in 1868, at which time it was generally regarded as the capital of Japan. The inclusion of prominent land and

⁷⁵ Berry, 86-7

coastal routes further cemented this image, tying Japan together through a system of travel and trade.

Unlike Europe, the spread of mapmaking techniques in East Asia originated at a single source, China. Prior to contact with the west the practice of Japanese mapmaking was largely based on Chinese precedents. Nonetheless, Japanese cartographers adapted these tools and methods to their own political, economic, and cultural context, producing maps that differed substantially from those in China. The Gyōgi tradition is but one prime example of this phenomenon, modifying Chinese representational techniques (such as provincial divisions) and tools to give cartographic primacy to the Emperor. Early Tokugawa mapmaking continued this trend, using techniques borrowed from China to create maps that drew not only on Japanese historical precedents such as the Gyōgi and Imperial Heian maps, but were also shaped by the relationship between Shogun and the individual domains, and privileged Japanese sources of power and political legitimacy by focusing on the Imperial capital at Kyōto.

Pre-Eighteenth Century Maps of Ezo

The mapping of Ezo serves as an excellent case study for an analysis of the extent and character of the cartographic exchange between Japan and Europe, the effect of political, economic, religious, and cultural interests on representational choices of the mapmakers and their patrons, and the relatively unsettled nature of “scientific” cartography in Europe. In this section I will use the examination of pre-eighteenth century Japanese, Portuguese, Jesuit, Russian, and Dutch exploration and mapping of Ezo as a window on these larger issues.

The Appearance of Ezo on Japanese Maps

The earliest mention of Ezo in Japanese sources is found in the *Nihongi*, compiled in the early Eighth century, which makes mention of military campaigns against the Hokkaidō Ainu, referring to them as *mojin* or “hairy men.”⁷⁶ The *Nihongi* also describes map of Japan but makes no mention of Ezo. Later Gyōgi-style maps detail the rough outlines of Honshu, Kyushu, Shikoku, and the surrounding islands however they do not show Ezo. From the *Nihongi* and the absence of Ezo on early Japanese maps it is clear that the Imperial government’s concept of what constituted “Japan” ended at the northern extreme of Honshu. It was not until the beginning of the Kamakura Shogunate (1192-1333) that Ezogajima (Hokkaidō) came to be regarded as the northern border of Japan.

⁷⁶ Unno, 149.

In the late twelfth century Minamoto Yoritomo installed the Andō family as Ezo Kanrei (governor). From their capital at Toshimichi on the Tsugaru peninsula the Andō conducted extensive trade with the Ainu of southern Hokkaidō with absolutely no supervision on the part of the Kamakura.⁷⁷ It is clear however that rather than a periphery, Toshimichi served as a center in its own right, acting as a locus for sea trade between Japan and Northeast Asia. The Andō lords saw themselves as a separate government from the Kamakura, frequently adopted such titles as "Shogun of Hinomoto," and even sending ambassadors to Korea on a few occasions.⁷⁸ Whether or not the Andō mapped their territory (which stretched only to the southernmost tip of Hokkaidō) is unknown as no maps or references to northern mapmaking projects survive from this period.

The Andō were not brought fully into the Japanese sphere of influence until the late sixteenth century when Oda Nobunaga forged strong ties with them in his bid to unify Japan. Oda's successor Toyotomi Hideyoshi removed the Andō from power and placed one of their vassals, the Kakizaki, in control of the land. Hideyoshi (who undoubtedly had access to the widest breath of cartographic information available to anyone in Japan at the time) considered Hokkaido was to be connected to Asia, and so sought to shore up Kakizaki rule as both a buffer against Jurchen unification and as a potential northern invasion route to Korea. After unifying Japan in the late sixteenth century, Hideyoshi began a mapping project that would span all of Honshu, Kyushu, and Shikoku. As part of this effort he sent numerous surveyors to map the north of Japan. It is

⁷⁷ Brett L. Walker, Conquest of Ainu Lands: Ecology and Culture in Japanese Expansion, 1590-1800 (University of California Press: Los Angeles, 2001), 21-6.

⁷⁸David Howell, Capitalism from Within: Economy, Society, and the State in a Japanese Fishery (Berkeley: University of California Press, 1995), 17-18.

unclear as to whether they were successful or not as Hideyoshi's map is no longer extant.⁷⁹

The first map of Japan compiled by the Tokugawa government begun in the Keichō period (1596-1614) and not finished until the Kan'ei (1624-42). In the Keichō era map Ezo is not represented at all, giving the impression that the Shogun did not consider Ezo to be a part of his domain. This would be in keeping with the Bakufu's desire to tap into Imperial modes of representation as Ezo did not appear on Gyōgi maps. The Kakizaki, who changed their han name to Matsumae in 1603 to show their loyalty to the new regime, were not asked to submit maps of their domain. At the time Matsumae control included only the southern tip of Hokkaido, although their client traders traveled as far as Sōya bay at Hokkaidō's northern extreme.⁸⁰ It is from the route maps of these traders and explorers that a general knowledge of Ezo began to spread to Japanese mapmakers. Private maps in the early seventeenth century, especially those drafted in the north of Honshu began to include depictions of Ezo, although they were often no more than a single circular island or the hint of another landmass at the northernmost extreme of the map. The characters for "Ezo," "Emishi" (A Japanese name for the Ainu) or "Matsumae" were used interchangeably to name the island.

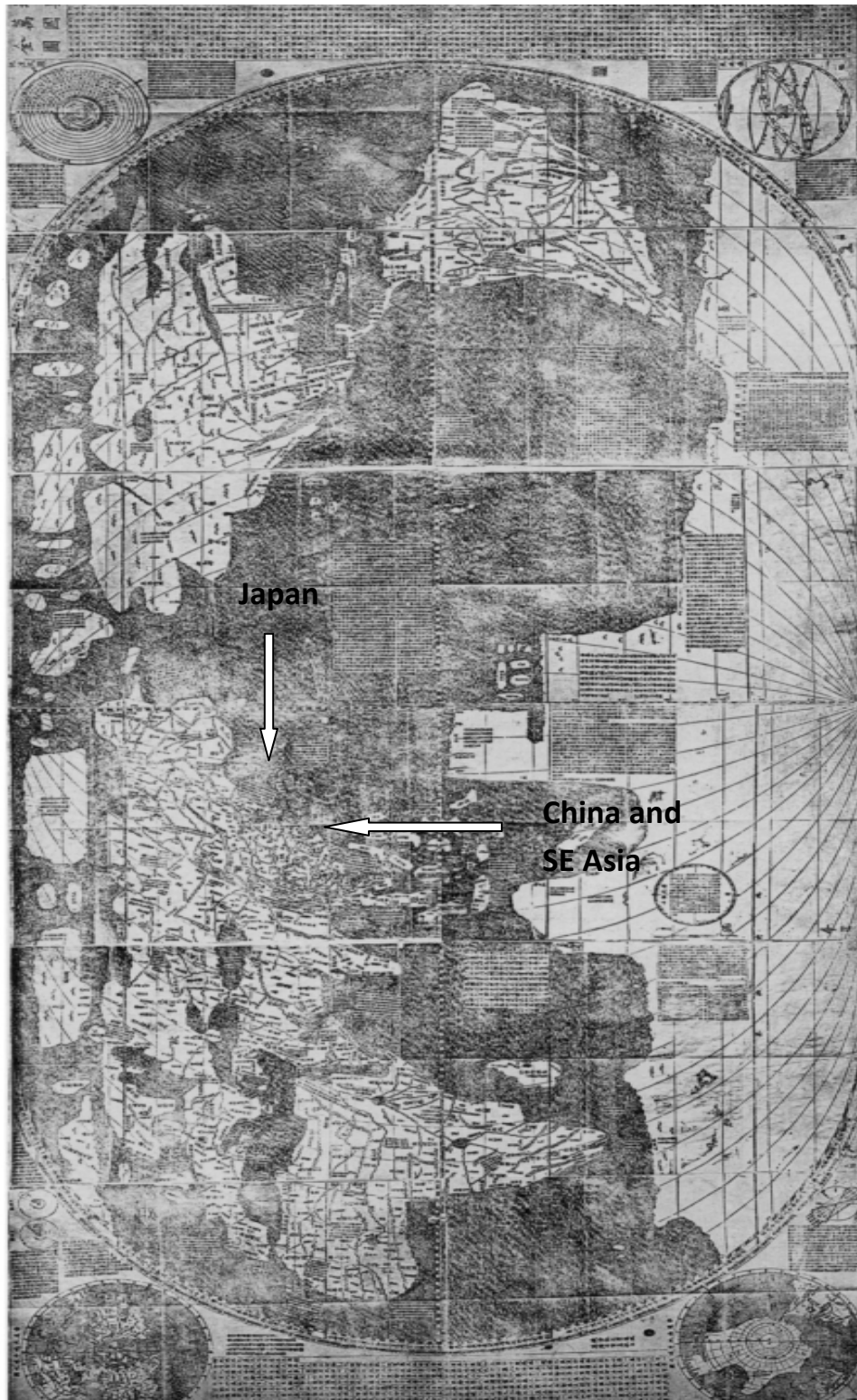
As they were based primarily on Japanese sources, this confusion is also evident in contemporary European maps, the one exception being Matteo Ricci's 1584 map of the world (Map #2, pg 41). Ricci was a Jesuit missionary attached to the Ming court. His world map, based on Ortelius' *Theatrum* depicted the entire world, but drew on native

⁷⁹ Walker, 33-6

⁸⁰ Walker 38-9.

Chinese maps for its depiction of Asia. Consequently his depiction of China's eastern coast, Korea, and Japan was relatively accurate. Ricci's original map is no longer extant. However, he made several revisions during his stay in China. The map shown on the right is his 1602 revision. Although the Ming considered the Sakhalin Ainu to be a tributary people they had long since abandoned their outposts along the Amur River and as such had very little geographic information on the region. Copies of Ricci's map were carried to Japan by Chinese traders, and presented to Hideyoshi himself by Jesuit missionaries. It is this map that most probably contributed to Hideyoshi's mistaken apprehension of Ezo's connection to the mainland. Many copies of this work were made throughout the Tokugawa period. Japanese recognition of Hokkaido can be seen through its inclusion in later copies such as the *Bankoku Sōzu*, although Sakhalin and the Kuril Archipelago do not appear. Copies of Ricci's map also traveled to Italy and from there to the rest of Europe. The map's description of Japan as a land that produces silver, iron, and excellent lacquer ware and where little value is attached to precious stones undoubtedly contributed further to European economic interest in the country.⁸¹

⁸¹ Lionel Giles, Translations from the Chinese World Map of Father Ricci. The Geographical Journal, Vol. 53, No. 1 (Jan., 1919), 20.



Map 2: Matteo Ricci (Beijing, 1602)

Early European Maps of Japan

Europeans were first made aware of Japan through Marco Polo's (1254-1324) "Il Milione" in which he made reference to the island of Cipangu or Zipang as a land abounding in gold, pearls, precious stones and other riches. Though western explorers had yet to actually land on the island it did not prevent them from depicting it on their maps. Early European images show Japan as a single large island of varying shapes and sizes, often included as part of a cluster or chain of much smaller islands occupying a variety of geographic positions ranging from the Indian Ocean to the Sea of Okhotsk. As Polo made no mention of Ezo, or even the number of islands comprising the Japanese archipelago, early European world maps are understandably silent on the subject.⁸² Ezo would not appear on European maps until well after the arrival of the Portuguese in Japan in 1543.

Spurred by a desire for wealth these early Portuguese traders were often illiterate, their navigators dependent on portolan charts and rutters to guide their ships to Japan. It is these portolani that would form the foundation of early Japanese-Portuguese cartographic exchange. The Japanese, long interested in itinerary mapping, were quick to exchange geographic and route information with their Portuguese counterparts.⁸³ From this trade developed what Historian Peter Shapinsky describes as a "hybrid-cosmopolitan naval culture" which adapted representational techniques and sampled geographic

⁸² Hugh Cortazzi, *Isles of Gold: Antique Maps of Japan*. (New York: Weatherhill, 1983) 23-4.

⁸³ Peter Shapinsky, "Polyvocal Portolans: Nautical Charts and Hybrid Maritime Cultures in Early Modern East Asia," in *Early Modern Japan: An Interdisciplinary Journal* v. 14 (2006), 15.

information from a wide spectrum of mapping traditions.⁸⁴ Consequently, this early exchange saw a blending of Japanese and Portuguese mapmaking practices, which in turn drew heavily on Chinese and Arabic precedents respectively. Because the early Portuguese traders were often not closely associated with the King or Court, and Japan itself was a land of feuding Daimyo, it would be some time before the results of this trade spread to governmental mapmaking. However, copies of Japanese Gyōgi-style maps began to spread to Europe through Portuguese and later British and Dutch traders. This representational change is shown in the following sixteenth and seventeenth century European maps.

The first three maps were drawn without Japanese information. Based largely on speculation and hearsay they do not represent east Asia with any degree of accuracy. Map # 3 (pg 47) is Abraham Ortelius' *Tartariae Sive Magni Cham Regni Typus* published in 1570. Note the Spanish and Portuguese names applied to the Southern Japanese Islands (shown in light blue). This map displays both longitude and latitude lines in an inaccurate attempt to fix the position of Japan. Also note the inaccuracies in the geographic relationship between China, Japan, and North America, as well as the lack of Korea, Ezo, Kamchatka, Alaska, and the majority of Siberia. It is evident from these mistakes that Ortelius' map was drawn based on only limited information provided by Portuguese and Dutch sailors and that he did not have access to any Japanese maps. Map # 4 (pg 48) is a 1568 map of Asia by the Portuguese cartographer Fernao Vaz Dourado also includes Japan. Note the inclusion of rhumb lines for navigational purposes, illustrating the economic purpose of the map. Drawn two years earlier Vaz Dourado's map differs

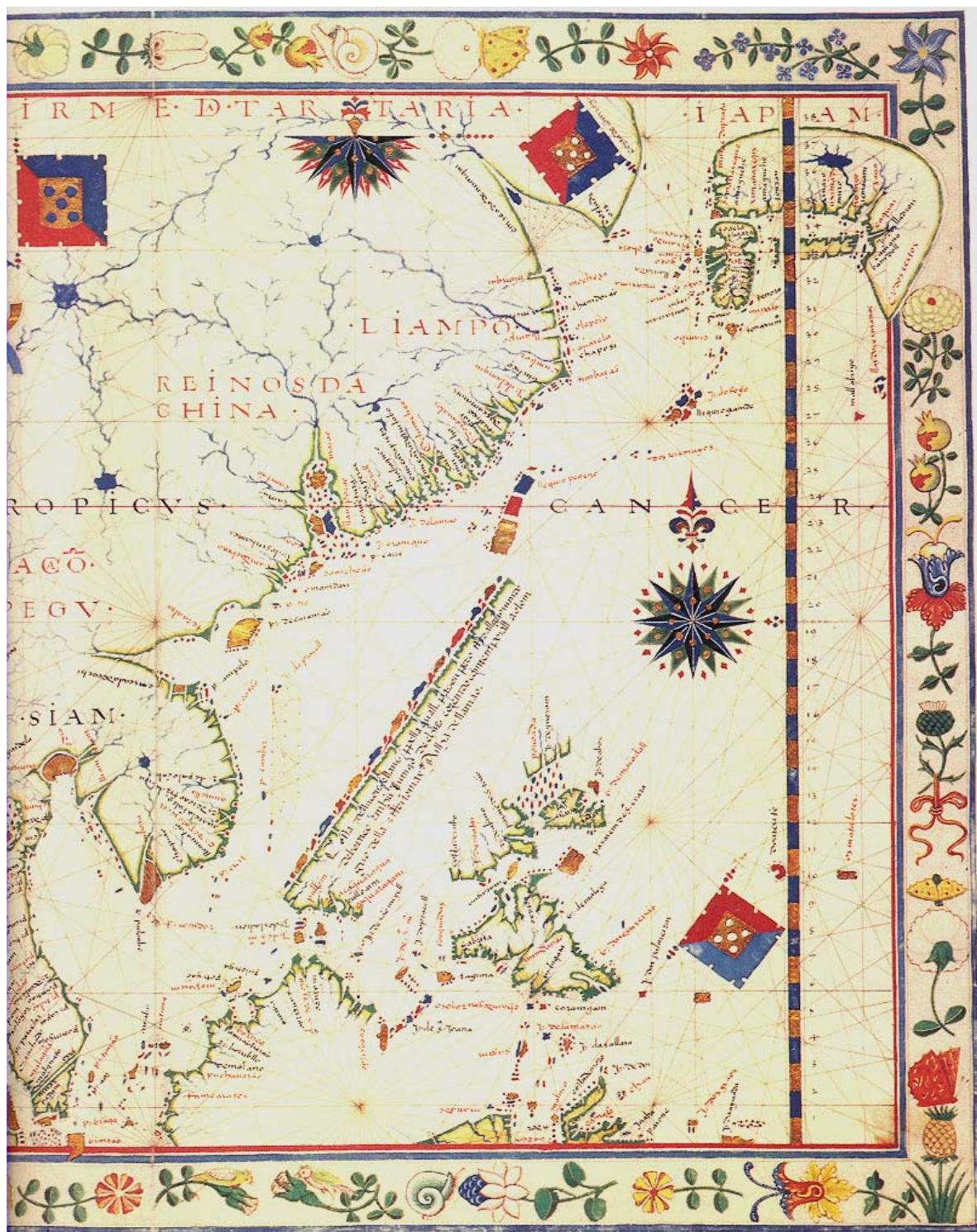
⁸⁴ Shapinsky, 4.

significantly from Ortelius' it clearly benefits from (or was copied from) information supplied by portolani drafted by Portuguese traders. Although the coastline of Japan is inaccurately represented the geographic relationships between the various islands in the archipelago are relatively accurate as is Korea, the Southern coast of China, Southeast Asia, and Northern Oceana. Another example of an early European Map of Japan is the Dutch mapmaker Arnoldus van Langren's 1596 map (Map #5, pg 49) of Asia showing Japan. Note the similarities to the previous map, although the orientation has changed from North to West the outline of Japan and the position of the islands remains fundamentally the same. By this time the Dutch had annexed many Portuguese colonies and trade posts in the Pacific, seizing much in the way of maps, rutters, logbooks, and other repositories of cartographic information.

By the late 16th century Portuguese, Dutch, and British traders carried Japanese Gyōgi-style maps back to Europe, sparking a change in European representation of Japan. Luís Teixeira's 1595 map of Korea and Japan (Map #6, pg 50) is based on Matteo Ricci's 1574 map of China and East Asia and several Gyōgi-style maps brought to Portugal by traders and the 1582 Japanese mission to Rome organized by Date Masamune and Alessandro Valignano. As in the Ricci map Korea is depicted as an island. Note the similarities between Japan's coastline between this map and the previous Gyōgi-style map (Map #1, pg 35). The 1626 English map by John Speed (Map #7, pg 51) is an excellent example of the representational shift that took place in Europe post-contact. Speed's cartographic representation draws heavily from Teixeira's map. The various embellishments, comparing a Chinese and European ship, depicting the dress of Chinese

and Japanese natives, and showing the graphic execution of a Christian at the hands of the Japanese all serve to render Asia both barbaric and foreign.





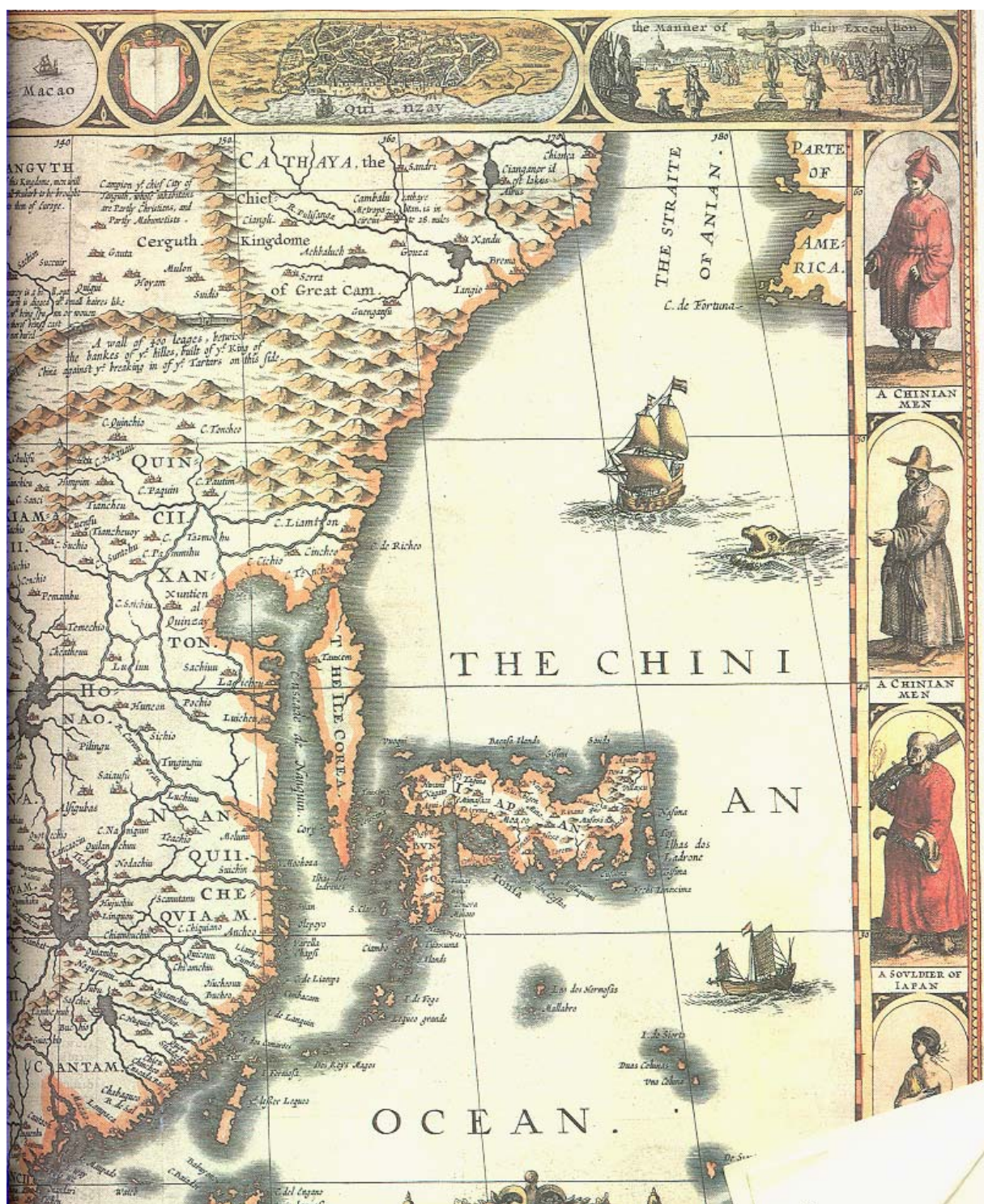
Map 4: Fernao Vaz Dourado (Lisbon, 1568).



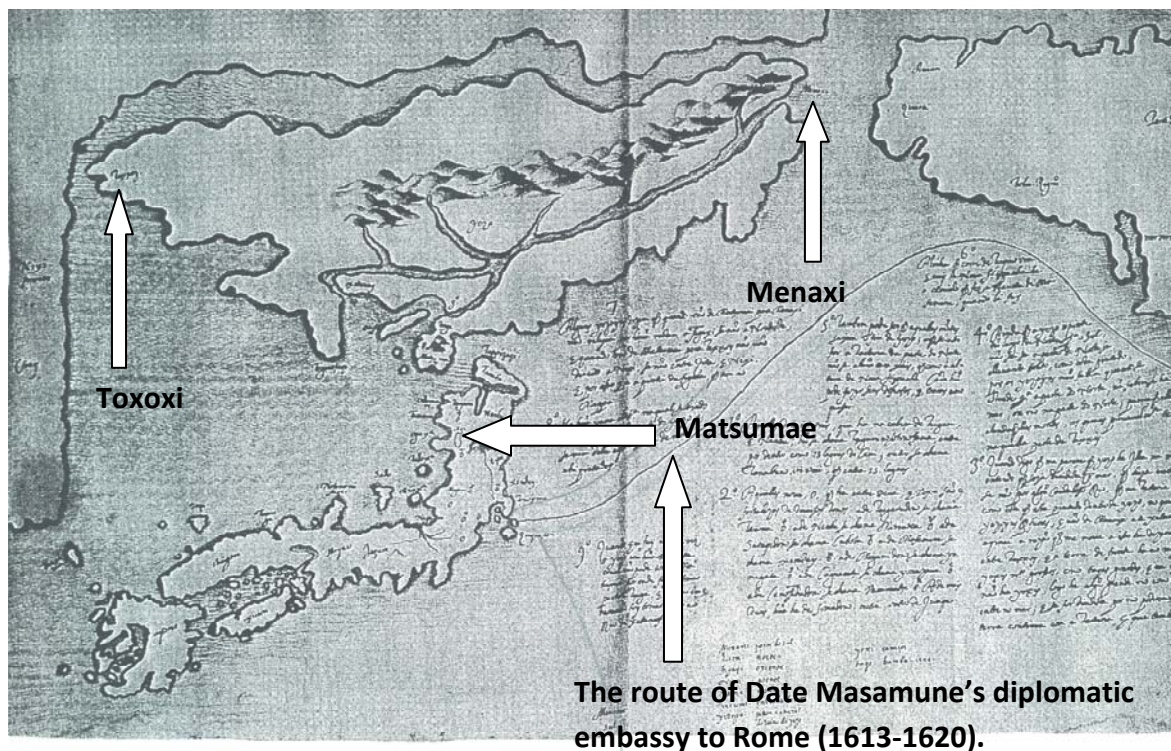
Map 5: Arnoldus Langren (Antwerp, 1596).



Map 6: Luis Teixeira (Lisbon, 1595).



The earliest European map of Ezo was the work of the Jesuit missionary Geronimo Angelis, who visited Matsumae in 1618 and 1622. He based his depiction of Japan on the Ricci map, and blended information gleaned from an expedition dispatched to northern Hokkaido by Date Masamune⁸⁵ in 1615, Ricci's map, a 1612 map by the Frenchman Pierre Briet (based upon a Gyōgi representation) and descriptions provided by local traders.⁸⁶



Map 8: Jeronimo Angelis (Tōkyō, 1626).

⁸⁵ The Lord of Sendai (a large domain in northeastern Honshu) in the late sixteenth and early seventeenth centuries. although not a Christian himself Date Masamune actively encouraged visits to his domain by both foreign traders and Jesuit missionaries. A proponent of foreign technology and ideas Masamune built the first western-style sailing ship in Japan (The *Date Maru* or *San Juan Batista*) and funded a diplomatic embassy to meet with the Pope in Rome. The member of this embassy were also the first Japanese to successfully travel around the world visiting Mexico, Portugal, Italy, and China before returning to Japan.

⁸⁶ Kay Kitagawa, "The Map of Hokkaido of G. de Angelis," ca 1621, *Imago Mundi* 7(1950): 110-114, 112.

The enormous shape of the island and the misplacement of Matsumae were due to a misapprehension on the part of Angelis. When local merchants informed him that the distance by boat from Matsumae (southern Hokkaido) to the eastern and western extremes of the island took 80 and 70 days respectively he imagined that Hokkaido must be an enormous island. However, he failed to take into account the irregularity of the coastline and the harsh conditions of travel and so drew Hokkaido much larger than it actually is. The map itself is labeled in Italian approximations of Japanese and Ainu, most notably the words *toxoxi* and *menaxi* (the Ainu words for west and east) on the two extremes of the island and *Matmae* in the south. He makes no attempt to delineate between Japanese and Ainu lands, although no settlements are shown outside of Matsumae territory.⁸⁷ Sakhalin and the Kuril archipelago are not shown, and Hokkaido is depicted as being separated from Alaska and Siberia by only a very small channel although no distances are recorded.

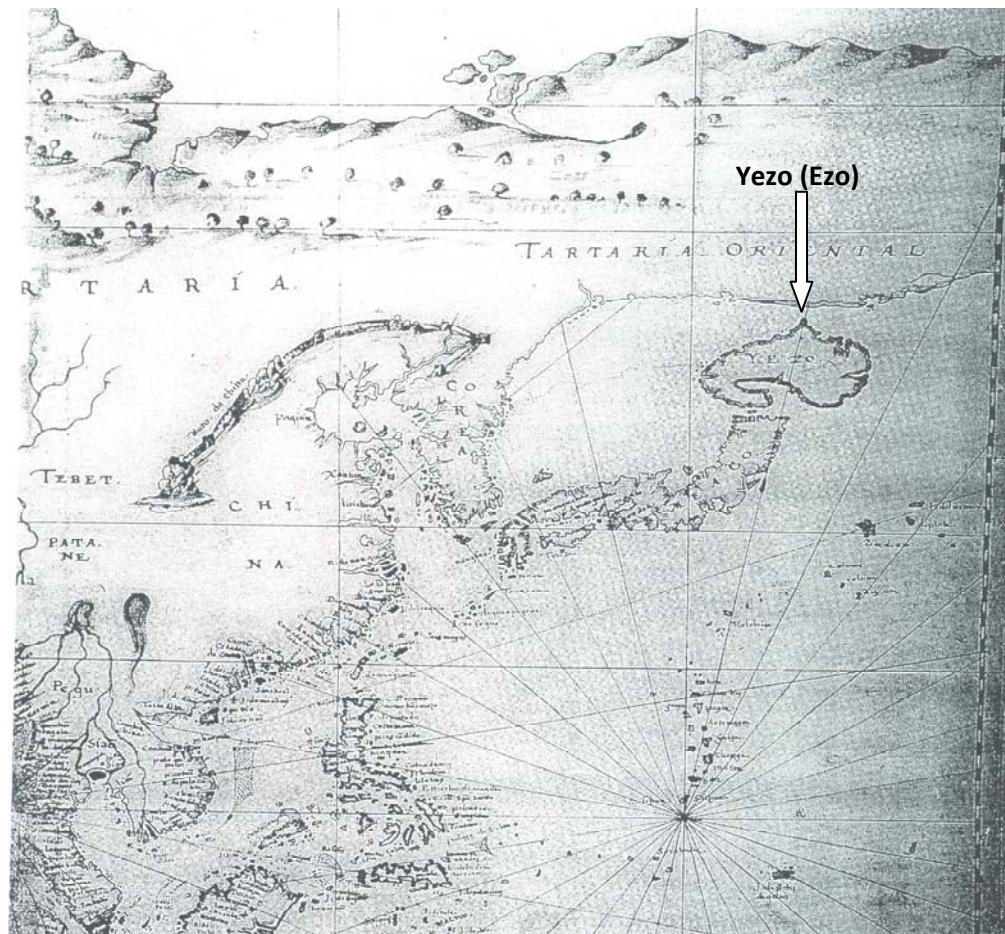
The attempt to translate rather than replace foreign names is a trademark of the Jesuits, who sought to win converts to Christianity by embracing foreign cultures rather than seeking to supplant them. The primary interest of the Jesuit order in Asia was to spread western knowledge along with the Catholic faith and bring back information to Europe. Missionaries such as Ricci, Angelis, and Francis Xavier were instrumental in introducing western style astronomy and geography to China and Japan. They translated Chinese and Japanese works into Latin, and drew on local knowledge to draft maps of

⁸⁷ Kazutaka Unno. Chizu ni Miru Nihon: Wakoku Jipangu Dai Nippon. (Tokyo: Taishukan Shoten, 1999) 157.

Asia and Oceana. Angelis' map is an excellent example of this specific Jesuit interest, specifically the collection and transmission of foreign knowledge to Europe.

Although similar in many ways to its contemporary the 1630 map drafted by the Portuguese cartographer Joao Albernaz Teixeira (Map #9, pg 52) is a study in contrasts. Based on navigational charts compiled by the Englishman William Adams, as well as Japanese and Portuguese sailors Teixeira's map betrays a much different interest than the Angelis map.⁸⁸

⁸⁸The first Englishman to visit Japan William Adams (1564-1620) served as a pilot in the Dutch trade fleet on an ill fated expedition into the Pacific. Of the three ships that set sail in 1598 only Adams' ship (the *Liefde*) reached Japan in 1600. After landing in Oita in northeastern Kyushu Adams was captured by Tokugawa Ieyasu and made to direct the future Shogun's maritime affairs. Adams eventually rose to prominence in Ieyasu's service, making voyages to the Ryukyu Islands, Thailand, and Vietnam, and helping to negotiate trade contracts for both the British and Dutch East India Companies. Katazuka Unno posits that Adams' charts provided the primary basis for Teixeira's map. However, in his capacity as royal cartographer Teixeira undoubtedly had access to Portuguese rutters and charts compiled prior to their expulsion from Japan in 1638. As Adams' papers and logs were not released by the Japanese until 1850 it seems much more likely that Teixeira's map is based on Portuguese sources rather than Dutch or English. Unno, 159.



Map 9: Joao Albernaz Teixeira, 1630

Rhumb lines crisscrossing Portuguese possessions in the south Pacific and the addition of latitudinal marks along the side of the map clearly betray the map's purpose as a guide for trade. The main island of Honshu is labeled *meaco* which is a Portuguese translation for the Japanese word *miyako* meaning "capital," a word referring to the city of Kyōto which remained the capital of Japan until 1868. The major ports and trade cities

of Nagasaki and Edo are clearly marked, further revealing the economic interests at work in Teixeira's map. Like Angelis, Teixeira represents Ezo as an enormous island.

Hokkaido's southern coast is carefully depicted even down to Uchiura Bay. This is due to Japanese maps, as Portuguese sailors had yet to visit Hokkaido proper. However, the northern portions of the map remain nothing more than fanciful representations.

Hokkaido is positioned close to Manchuria and Siberia (*Tartaria Orientalis*) while Sakhalin and the Kuril archipelago are again not depicted. The lack of any place names or navigational lines on "Yezo" clearly located Portuguese attention on the island of Kyushu in southern Japan, specifically the major ports and cities therein. The inclusion of the Portuguese trade possessions in Oceania, East Asia, and Southeast Asia are the primary focus of the map, with Ezo, Manchuria, and Siberia added as a cartographic afterthought.

Russian awareness of Japan can be traced back to a translation of Gerhardus Mercator's 1637 world map. Although the mid to late seventeenth century saw vigorous Russian expansion into Siberia and northern Manchuria early maps of the area depicted neither Japan nor Ezo. Early knowledge of Japan's northern periphery came to Russia through a translation of Vries' 1643 map of Ezo and the scattered reports of Cossacks trading along the upper reaches of the Amur River as early as 1632.⁸⁹ Unsurprisingly, the second hand accounts provided by Cossack explorers did little to dispel the gross misrepresentation of Ezo in the Vries map.

This confusion regarding Ezo was further reinforced by reports from Russia's envoy to China, Nikolai Spafarii, who relied on information received from Jesuit missionaries in Beijing (whose maps of Japan dated from over 50 years earlier), and

⁸⁹ Alexander Lensen, The Russian Push Towards Japan: Russo-Japanese Relations, 1697-1875 (Princeton: Princeton University Press, 1954) 23.

piecemeal reports from individual Cossack explorers such as Vasilii Poirakov. Although Poirakov explored the mouth of the Amur River his information on Sakhalin (which he must have surely seen across the channel) was based exclusively on information received from the Giliyak natives who called the region home.⁹⁰ Until the late seventeenth century Russian interests were focused primarily on northern Manchuria. The resulting conflict with the Qing forced Russia to negotiate the treaty of Nerchinsk in 1689 which delineated its southern borders and forced it to look eastward for new opportunities.⁹¹

The confusion regarding Ezo in Chinese, Japanese, Russian, Jesuit, and Portuguese maps is indicative of the omni-directional nature of cartographic exchange in the sixteenth and early seventeenth centuries. Contact with Portuguese traders in 1543 saw European-style rutters, charts, and world maps gradually spread to Japan and Japanese and Chinese maps used by European cartographers to more accurately represent Asia. Although the individual mapmakers themselves were not necessarily connected to any particular political patron, they created a framework for the exchange of geographic information and mapping techniques that would be used by later governmental cartographers. The Japanese and Chinese were aware of Ezo long before the Portuguese, Jesuits, or Russians, however, the *representation* of Ezo was undertaken almost simultaneously by all parties. Their interdependent depictions of Ezo as an island, archipelago, or peninsula result from not only the dearth of information regarding the area, but also the variety of styles, techniques, and interests meeting and interacting for the first time. The latter half of the seventeenth century would see the first exploration of

⁹⁰ Akitsuki Toshiyuki, Nichiro Kankei to Sahariin Shima (Tokyo: Chikuma Shobō, 1994) 18, 32.

⁹¹ Lensen, 21-25.

Ezo by the Dutch, Japanese, and Russians. These surveys would build on the earlier foundation of exchange to further shape governmental perceptions of Ezo.

The Exploration of Ezo

Early European exploration of Ezo was spurred by economic motives. As the area had not yet been mapped by Europeans, these earliest voyages of discovery drew heavily on Japanese maps to provide the geographic information necessary to seek out Ezo. In 1587 a group of shipwrecked Portuguese sailors returned with tales of Polo's fabled Silver and Gold Islands. Their stories of a mysterious island that possessed precious metals of such quantities that its beautiful Caucasian inhabitants used gold and silver even in the production of their cookware prompted a number of treasure seekers to journey into the north Pacific in search of riches. In 1610 King Philip III of Spain ordered Sebastián Vizcaíno to sail from Acapulco to open trade with Japan. Landing in Sunpu (modern-day Shizuoka) in 1611 Vizcaíno met with Tokugawa Ieyasu (now retired), his son Hidetada, as well as Date Masamune. Philip's orders instructed Vizcaíno to sail northeast after leaving Japan in search of "Rica de Oro," and "Rica de Plata," the Spanish names for the silver and gold islands. Using maps provided by Ieyasu and Masamune which were based on the voyages of Japanese sailors, Portuguese traders, and the charts of William Adams from two decades earlier Vizcaíno searched in vain for the isles of gold. After three attempts Vizcaíno was forced to turn back to Acapulco.⁹²

In 1635 Willem Verstegen, a commercial officer in the Dutch East India Company submitted a short missive to the Governor General Anthony van Dieman

⁹² C.J. Coen, Voyage to Cathay, Tartary, and the Islands East of Japan, 1643: The Journal of C.J. Coen Relating to the Voyage of M.G. Fries. ed. Carel Hendrik Robert (Amsterdam: Philo Press, 1974) ix-x.

calling for a mission to the northeast of Japan. In 1639 Mathys Hendricksz and Abel Janz explored the Pacific north and east of Japan but could not find the islands.⁹³ Undaunted, the managers of the Dutch East India Company drafted orders for captain Maerten Gerritsen Vries to take two ships "for the discovery of the North coast of Tartary and from there to visit once more, the gold and silver rich islands east of Japan."⁹⁴ Vries took with him two maps sketched from Japanese folding screens, which were not only based on Portuguese and Spanish maps of the area, but also included information from Japanese merchants and sailors.⁹⁵ In February of 1643 Vries left Batavia, reaching southern Kyushu (which Vries named Ongeluckich Eylant) in late May. Although the ships were separated in a storm Vries continued north up the coast of Manchuria becoming the first European to explore Ezo.⁹⁶

It is clear from Vries' notes that he was aware of the general position of Hokkaido prior to his voyage. In addition to searching for the gold and silver islands Vries' orders instructed him to thoroughly chart the coasts of every island he saw and lay claim to any "unruled" or "illegally ruled" lands he found.⁹⁷ Unfortunately, impenetrable fog and inclement weather caused Vries to combine Hokkaido with several of the Kuril Islands and Sakhalin as one large bay, extend the Asian mainland to the northern coast of Kunashir, and mistake Urup for the western coast of Alaska. Vries' inaccurate depictions plagued European maps of Ezo for decades, grossly distorting European perspectives of

⁹³Coen, x-xi.

⁹⁴Ibid.

⁹⁵ C.R. Boxer, Jan Compagnie in Japan, 1600-1850: An Essay on the Cultural, Artistic, and Scientific Influence Exercised by the Hollanders in Japan from the 17th to 19th Centuries . (The Hague: Martinus Nijhoff, 1950) 6.

⁹⁶Coen, xii.

⁹⁷Coen, 9, 11, 25.

Asia's geographic relation to both Japan and Alaska.⁹⁸ The Vries map influenced European maps of Ezo until the late eighteenth century, most notably contributing to mistakes found in Shtalenberg's 1730, Du Ald's 1735, D'anville's 1753, and La Perouse's 1797 maps of the area.⁹⁹

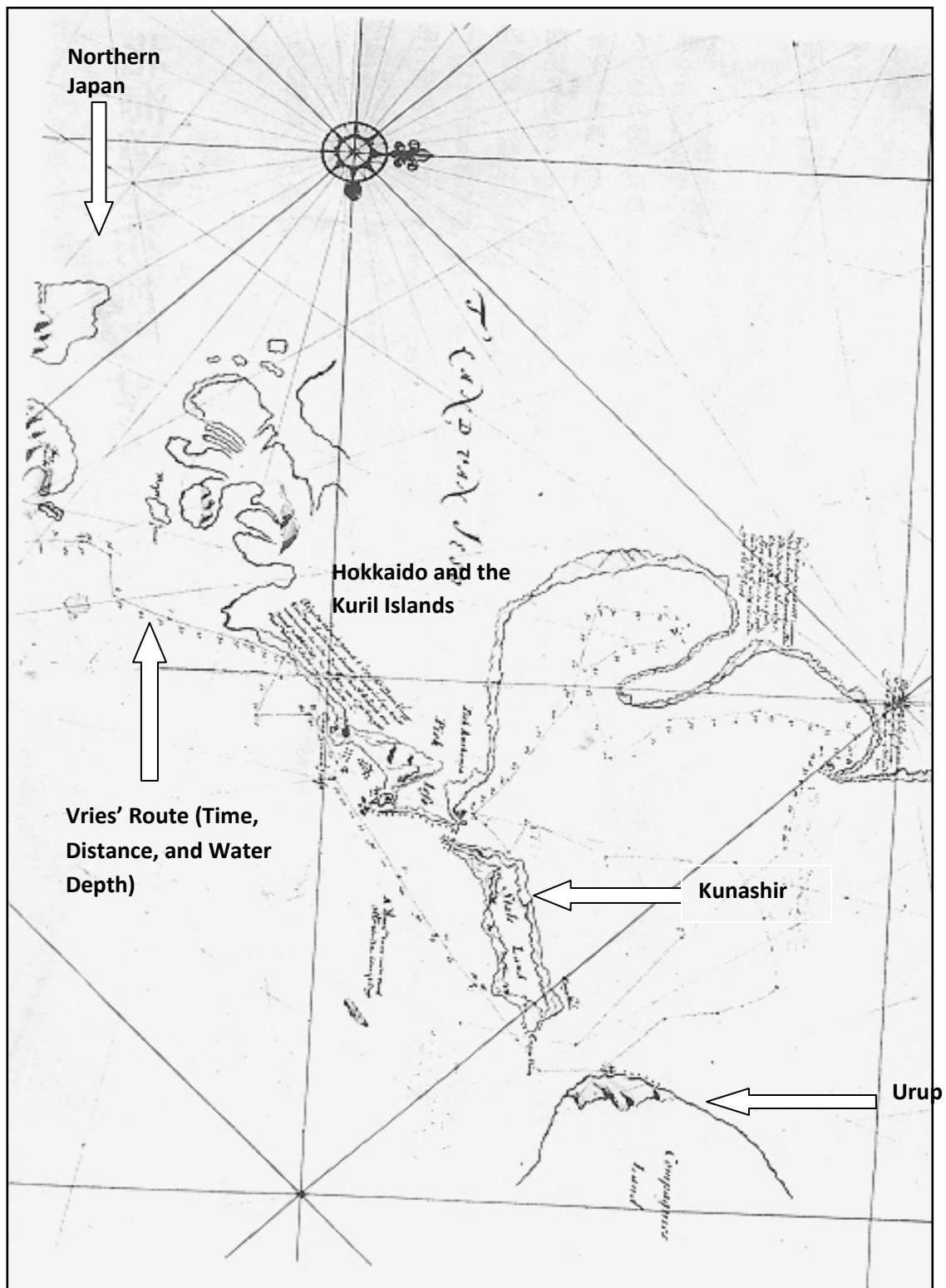
The primary focus of the Vries map (Map #10, pg 61) is on trade. In addition to native products Vries discovered Ainu with Japanese swords, Chinese robes, and bronze rings from Manchuria. In his report to the company he rightly concluded that there was ongoing trade in the region. He believed that the Dutch could capitalize not only on this local trade, but also the connection to America and argued for the dispatch of additional voyages.¹⁰⁰ The map supports Vries' arguments by laying out a clear route amidst the isles marked with all the information future missions would require to perform a more detailed exploration of the region.

Vries clearly separated Japanese territory from lands inhabited by the Ainu making a strong argument that the latter were "unruled lands," and thus open. Like many early European maps of non-European areas the Vries maps displays only limited awareness of native populations. The lack of inland topography and indigenous settlement iconography, combined with the nautical focus and western naming schema depict the explored regions as empty and unclaimed. Vries' map renders the whole of Ainu (and northern Japanese) civilization a cartographic void, ripe for Dutch exploitation.

⁹⁸Unno, 161.

⁹⁹ Unno, 161.

¹⁰⁰Coen, 258-9.



Map 10: Maerten Gerritsen Vries (The Netherlands, 1644).

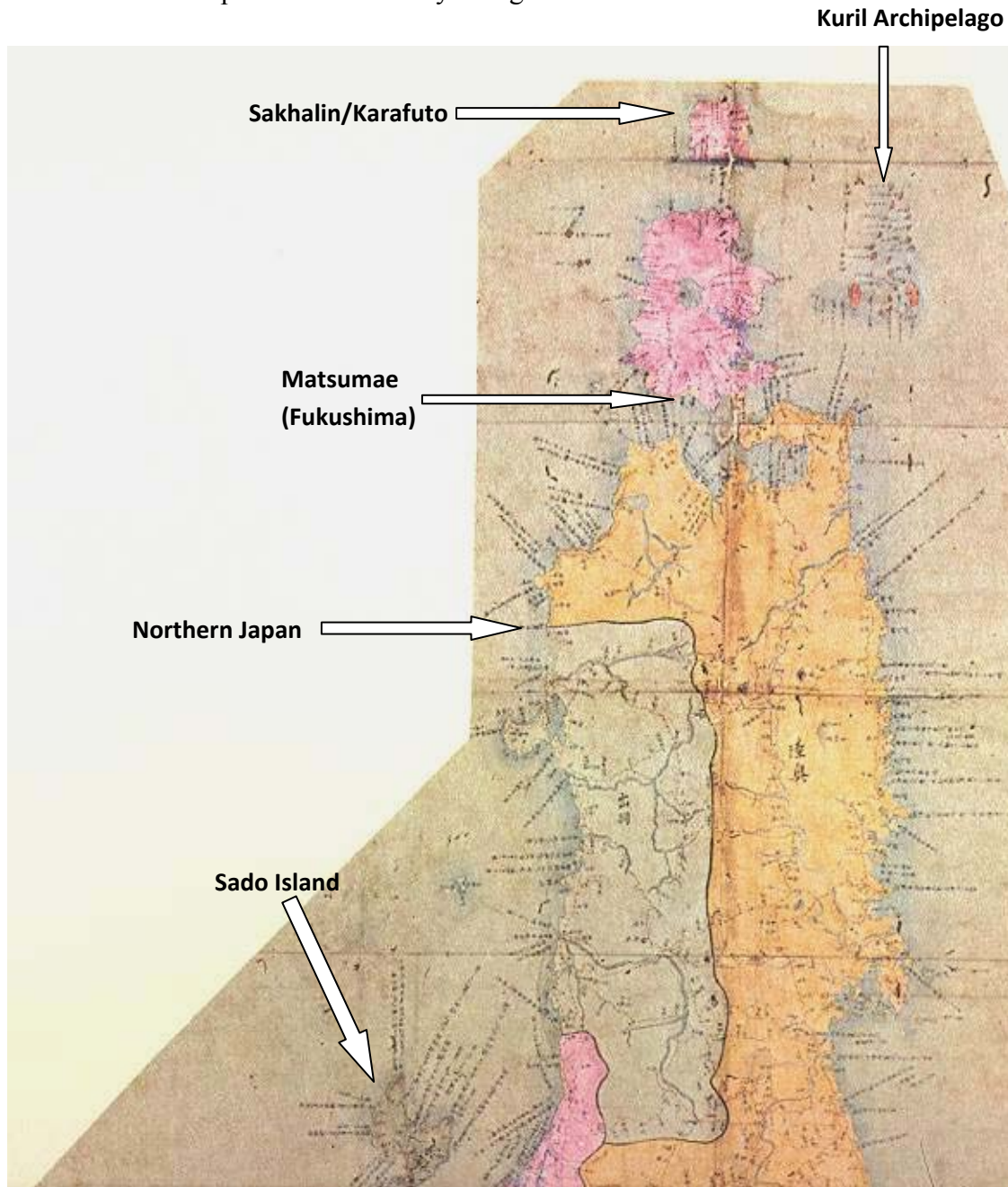
Ezo's appearance in Shogunal maps is roughly contemporary to Vries' exploration. In 1644 the Shogun issued orders to every Daimyo to survey their fief and submit the maps to Edo. Like the previous Keichō map (1614) the scale (21:600:1), iconography, and surveying conventions were set by the Shogunate. Unlike the previous survey the Matsumae han was also ordered to map their domain. This order is indicative of a growing effort by the Bakufu to assert some measure of control over even the farthest reaches of Japan. However, it also reveals the limits of Shogunal authority. The Matsumae complied but they made no attempt to adhere to any of the conventions decided on by the Bakufu.¹⁰¹ The resulting Shōhō era Map (Map #11, pg 63) reveals the extent to which the representation of Ezo was affected by the relationship between the Bakufu and its most distant vassal. The inaccuracies in the map also highlight both the limits of Matsumae control, and the economic interdependence of the Ainu and Japanese in Ezo.

Compared to the other provinces Ezo is represented as much smaller than geographic reality. Although the map includes Hokkaido, Karafuto (Sakhalin), and the Kuril Archipelago no attention is paid to their shapes, contours, or geographic positions.¹⁰² A number of the bays, capes, rivers, and inlets along the coast of Hokkaido are shown although their size and distances are misrepresented. The inclusion of these geographic features (many of which appear for the first time) means that a han official explored the island closely enough to be able to roughly position prominent topographical

¹⁰¹ Note the difference in scale between Hokkaido and the two northern provinces of Honshu (Mutsu and Dewa), and the Island of Sado in the lower right. Hokkaido is drawn roughly twice as large as Sado, when in reality it is almost one-hundred times larger (roughly 850 km² to 83,450 km²). Unno, 163.

¹⁰² Unno, 163

landmarks.¹⁰³ The map also names a number of Matsumae towns and trade outposts along the coast of Hokkaido. Again, although the distances are grossly misrepresented, the settlements are positioned correctly in regards to their relation to one another.



Map 11: Tokugawa Shogunate (Edo, 1644)

¹⁰³ Ibid.

The only town represented iconically (with a black square) is Fukuyama, the seat of Matsumae power. It is shown near the lone road which runs along the length of southern Hokkaido. Both Ainu villages and inland trading posts are not depicted.

Although in actuality a relatively clear boundary existed between land directly administered by the Matsumae (the southern portion of Hokkaido) and that still belonging to the various Ainu tribes (northern Hokkaido, all of Sakhalin and the Kurils) there is no indication of a border of any sort.¹⁰⁴ At the time there were clear physical, cultural, and status divisions between the Ainu and Japanese inhabitants of Hokkaido, however they are not represented in the map. Economically however, the Japanese were almost entirely dependent upon commercial networks that routinely crossed territorial lines.¹⁰⁵ Also politically, since the Ainu were regarded as “subject peoples,” there was recognition of the border not as the end of Matsumae rule but rather only the limit of those lands directly administered by the Han.¹⁰⁶ Consequently, as the omission of a border reflects Japanese perceptions of Ezo it probably would not have seemed odd to either Matsumae or Shogunal officials.

East of Hokkaido, the Kuril Archipelago is depicted as close to 40 islands. The names of many Raseufu (Rashowa), Shirinki, Shiyashikotan (Shashikotan), Shamuratefu (Shimshu), etc. correspond to actual islands in the chain. Others draw their names from locations on Hokkaido such as Shirotoke (shiretoke bay) and Teshioezo (Teshio cape). The majority however do not actually exist. As for Sakhalin, although several of the

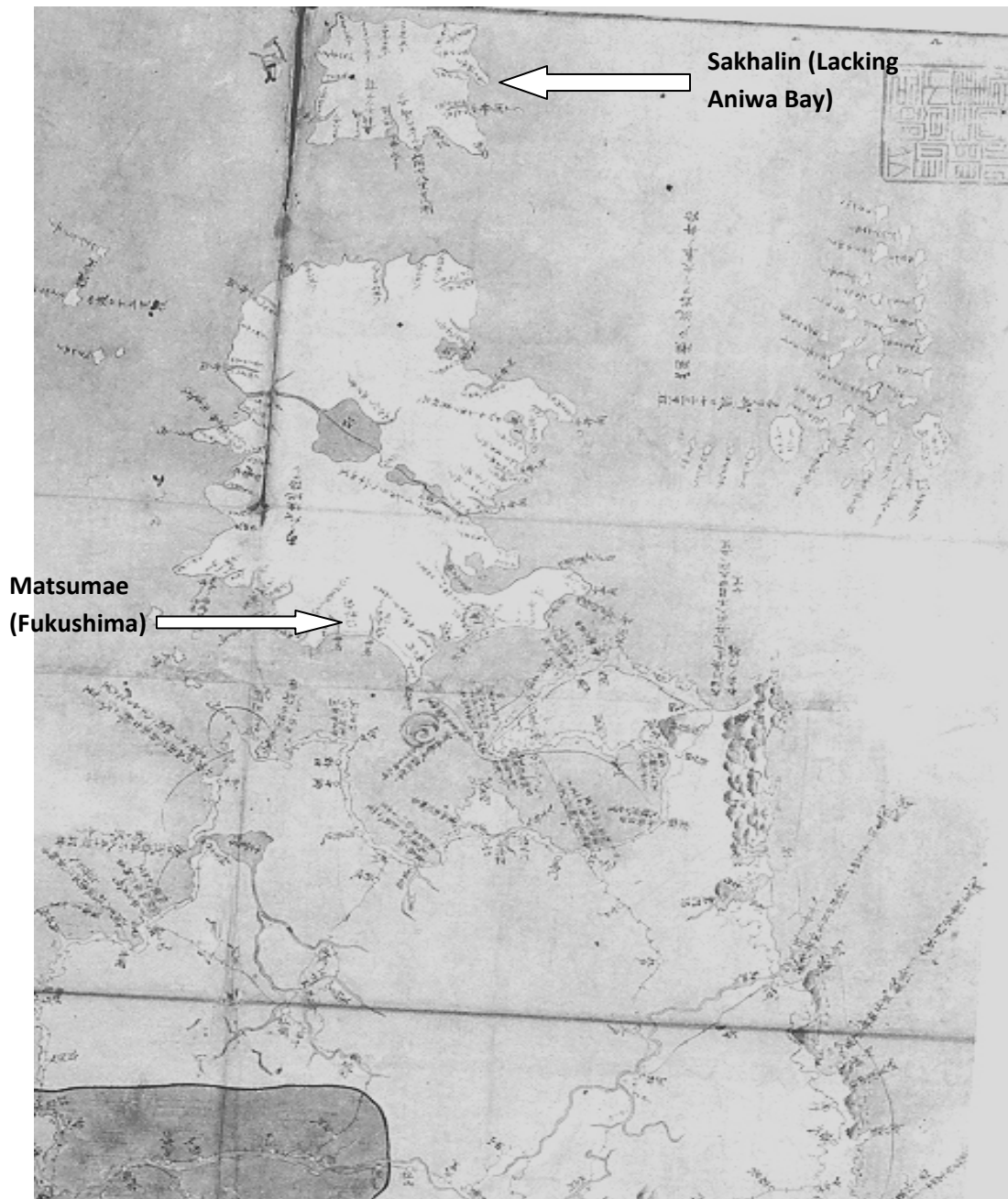
¹⁰⁴ Bruce L. Batten, To the Ends of Japan: Premodern Frontiers, Boundaries, and Interactions (Honolulu: University of Hawai'i Press, 2003), 46.

¹⁰⁵ David L. Howell, Geographies of Identity in Early Modern Japan (Berkeley: University of California Press, 2005) 3.

¹⁰⁶ Batten, 47.

places named are actually on the island, many more seem to be the work of fiction. The exclusion of Aniwa bay (obvious on any modern map of Sakhalin) on the southern coast of the island clearly reveals the limits of the Matsumae survey. Geographic information on Sakhalin and the Kurils was probably obtained from Ainu traders.¹⁰⁷

¹⁰⁷ Walker, 45.



Map #11.5: 1644 Shōhō era Map, Ezo Detail

Unlike the other domainal maps, the Matsumae made no reference to village crop yields or economic figures (trade or otherwise). This omission is due not only to the nature of the economic relationship between the Matsumae and Ainu, but also conscious

efforts by han officials to conceal the amount of revenue they were receiving.¹⁰⁸ By capitalizing on the dearth of actual geographic knowledge concerning Ezo, the Matsumae were able to represent their fief as both smaller and less valuable than it actually was. The inclusion of the grossly inaccurate map of Ezo in the larger country map speaks strongly to the vague nature of the relationship between the Matsumae and the Tokugawa. Specifically, the Matsumae were given more autonomy than other han as long as they acted within the broader mandates set forth by the Shogunate. This vagueness was compounded by the lack of accurate geographic information concerning all but the portion of Ezo under Matsumae control. When external forces did not pose a threat to the nation, the Matsumae were able to reap the economic benefits of their special position vis-à-vis the Bakufu and of the vague outer reaches of their fief. The Matsumae were able to capitalize on this until the late seventeenth century, when an increase in Russia activity drew Bakufu attention to Ezo.

In the case of Russia, the mapping of Siberia served as a catalyst for an increase in mapmaking and the exploration of Ezo on the part of the Tsarist Regime. Great political and civil unrest during the “Time of Troubles” between the death of Tsar Feodor Ivanovich in 1598 and the establishment of the Romanov dynasty in 1614 served to further increase the number of immigrants heading east in order to escape the fighting.¹⁰⁹ When Ivanovich took power the new Russian government capitalized on this eastward expansion by becoming the buyer of first resort. Not quite a monopoly, the explorer-officials sent east by Russia received fur both as tribute from the local natives and as a

¹⁰⁸ Ibid.

¹⁰⁹ Lensen, 14-16.

tax on independent fur traders. The fur trade fostered not only Russian expansion into Siberia, but a system of subjugation and exploitation of the native peoples of the region.¹¹⁰ In an effort to better control the region, the Siberian Office was created in 1637, and given the power to dispatch explorers, collect *yasak* (tribute) from indigenous tribes, tax fur trappers and traders, and collect information for the compilation of maps such as the Gudanov and Remezov maps discussed on pages 23-25.¹¹¹

The Russian exploration of Ezo in the early eighteenth century was driven first by Peter the Great's hunger for geographic knowledge, and later by the search for wealth in the form of furs. Newly established outposts in Siberia, Kamchatka, the Aleutian Islands, and Alaska required food and other supplies and Russia attempted to open trade with Japan to provide for these needs. This desire for trade characterized early Russo-Japanese interactions in Ezo and also spurred a number of unsuccessful missions to Japan.

An imperial *ukase* of 1702 indirectly propelled the Kozyrevskii- Antsiferov expeditions of 1711 and 1713 and the Evreinov-Luzhin expeditions of 1721. The limited mapping skills of the Cossack explorers, widespread corruption in the Siberian Office, and the inhospitable nature of the islands hamstrung the overall efficacy of these missions. Over the next twenty years Russian knowledge of Ezo slowly increased as a result of sporadic exploration, contact with the indigenous Ainu population, and the occasional capture of shipwrecked Japanese sailors. This period culminated with the Bering expeditions. As part of the larger mission Bering's second in command, the Danish born Martin Spanberg, named and numbered the Kuril islands as far down as Urup in 1738

¹¹⁰ Lensen, 15.

¹¹¹ Lensen, 40.

(Although he counted many more islands than actually existed), and on a second mission he traveled as far as northern Honshu where he met with boats captained by vassals of the Daimyo of Sendai and was gifted with several Japanese maps. Because he met no Japanese in the Kurils he concluded that the area was unclaimed.¹¹² Bering and Spanberg's reports spurred a frenzy of activity on the part of the Russian traders and trappers who rushed into the Kuril and Aleutian archipelagos, as well as Imperial tribute collectors who brutally subjugated the Ainu, engendering such hostility that the natives of Urup rose up in 1770 massacring a number of Russians and temporarily driving them from the island.¹¹³

In summary, although the Dutchman Maerten Gerritsen Vries was the first to explore and map Ezo, Russian and Japanese mapmakers were not far behind. Driven by primarily economic and imperial interests the Tokugawa Bakufu and Peter the Great sought to expand the bounds of their domain and increase the overall wealth of their country. In each case due to distance, lack of direct control, and attempts by local authorities to capitalize on the region's wealth, the central government could not act to directly survey the region but rather had to work through intermediaries. Both the Matsumae Han and the Siberia Office had little to gain by inviting scrutiny by the central government into their areas of control. Consequently, although they contained much in the way of information such as the location of towns, trade posts, land and sea routes, etc. the Matsumae, Gudanov, and Spanberg maps were largely silent in regards to the economic desires of their central government patrons. Only the Dutch East India

¹¹² John J. Stephan. The Kuril Islands: Russo-Japanese Frontier in the Pacific. (Oxford: Clarendon Press, 1974) 37-48.

¹¹³ Lensen, 63-70.

Company was able to directly survey the region, and the Vries map reflects this fact through its inclusion of pertinent trade information. Collectively however, the maps represent a continuation in the trend of exchange begun in the sixteenth century. To help in his voyage Vries brought along Japanese maps, which were in turn a blending of Portuguese, Spanish, and Japanese portolani from earlier in the century. The Matsumae mapped the area directly, but also drew on information supplied by local Ainu, and sixteenth and seventeenth century Jesuit maps. Peter the Great's mapping project was influenced by native mapmaking traditions, but also adopted French techniques, Qing maps, and information supplied by shipwrecked Japanese sailors. The disappearance of the Portuguese and Spanish and the appearance of the Russians and Dutch changed the tenor of the exchange somewhat, but earlier influences did not disappear entirely. Later in the eighteenth century the Dutch too would disappear from the region. Due to their contention over Ezo the Russian and Japanese governments would continue to become more interested in mapping the region, and in the broader network of cartographic exchange.

Late Eighteenth Century Maps of Ezo

Fear of foreign (specifically Russian) encroachment in the north spurred the first Shogunal attempts to map Hokkaido and Ezo that eventually resulted in a European-style focus on representational accuracy by cartographers such as Ino Tadataka, Mamiya Rinzo, and Takahashi Kageyasu in the early nineteenth century. France and England each dispatched missions to circumnavigate the world, searching for the Northwest Passage in America and to facilitate the establishment of trade ports/colonies. All three countries continued to produce maps of the region, and each continued to borrow geographic information and representational techniques from one another throughout this period.

In the late eighteenth century the Japanese and Russian positions vis-à-vis Ezo changed from cautious exploration to simmering contention while the region was drawn into larger global patterns of exploration by French and English missions. Russian activities in Ezo during this period fell largely under the control of the Russian-American Company, a joint-stock company overseen by the Tsar. The Russian American Company sought to set up small colonies on Ezo and to open trade with Japan to provide support in the form of food and supplies for Siberian and North American possessions. These overtures provoked a strong reaction from many Japanese intellectuals, and eventually from the Shogunate itself who took direct control of Ezo from the Matsumae in order to fortify Japan's northern borders and gain access to Ezo's natural resources.

The Roots of the Russo-Japanese Conflict over Ezo

The first formal contact between Russian and Japanese officials did not occur until the late eighteenth century. In 1774 the merchants Pavel Lebedev-Lastoschkin and Gregori Shelikov of the Russian-American Company were granted a monopoly over the Kuril trade by Governor Matvei Behm of Kamchatka. Their first attempt to open trade with the Japanese ended with a shipwreck off Urup, they tried again in 1778 eventually reaching Hokkaido where they were rebuffed by the Matsumae Daimyo who informed them that he did not have the authority to open trade. When they returned in 1779 they were again refused and directed to Nagasaki. Finally, in 1780, a violent earthquake shook Urup scaring all the islanders and animals off the island and destroying one of Shelikov's ships. These setbacks deflected Russian economic interests away from Ezo and towards Alaska and the Aleutians, ending attempts to open trade with Japan for over a decade. During the early 1780's Russian exploration of Ezo took a purely ancillary role to that of regions deemed more profitable.¹¹⁴

In 1785 Catherine the Great issued an *ukase* calling for a geographical expedition to the north-eastern part of Russia and the seas that separate Irkutsk and Alaska. Two years later Gavril Sarychev produced a map based on a cursory exploration of Ezo that corrected a number of Vries' mistakes, most notably separating Hokkaido from Asia, providing a more realistic depiction of the sailing distances between Japan, Russia, and Alaska, and fixing the locations of several of the Kuril Islands.¹¹⁵ According to his journal, Sarychev's primary goal was the discovery of viable North Atlantic ports and

¹¹⁴ Walter A. McDougall. Let the Sea Make a Noise (New York: Basic Books, 1993), 97-9.

¹¹⁵ Sarychev, 57-8.

trade routes between Russia and Alaska, the lack of which he blamed on China, specifically the 1689 treaty of Nerchinsk. While sailing to Kamchatka and the Aleutian Islands Sarychev explored the Kuril Islands as an afterthought. Finding them mostly devoid of both inhabitants and resources he wasted little effort surveying them.¹¹⁶

Catherine's *ukase*, the few desultory attempts by the RAC to open trade with Japan, and the Sarychev expedition present strong evidence that during the period from 1774 to 92 the Russian government viewed Ezo primarily as a stepping stone between Siberia and North America. It is during this same time that Japanese intellectuals, officials, traders, and policy makers begin to grow suspicious of Russian designs on Ezo. This fundamental misunderstanding was due primarily to non-Russian sources, specifically, in 1771 the vague warnings of Maritius Benyovski an exiled Hungarian Duke with a grudge against Russia, the 1789 revolt by the Menashii-Kunashir Ainu, the work of a Japanese alarmist, Hayashi Shihei, and anti-Russian propaganda spread by the Dutch.

These events began the process that would lead to the adaptation of western style cartographic methods by Bakufu agents and the remapping not only of Ezo but of Japan itself. The primary motivator behind the Shogun's adoption of scientific cartography was the perception of a Russian threat. Whether real or imagined the Bakufu's perception of danger spurred it to lay direct claim Ezo in order to blunt Russian designs on the region, gain access to its abundant natural resources, and provide a buffer between the two countries. Preparation for the impending conflict necessitated the dispelling of the vagueness and confusion inherent in earlier maps of Ezo.

¹¹⁶ Gavril Sarychev. *Account of a Voyage of Discovery to the North-East of Siberia, The Frozen Ocean and the North-East Sea* (Da Capo Press, New York New York, 1969), 2-3.

The first reports of Russian traders in Sakhalin and the northern Kuril Archipelago began to trickle down to northern trading posts as early as 1758. Tales of the Russians or “Red Ainu,” were dismissed by Matsumae officials as irrelevant and not passed along to Edo.¹¹⁷ Japanese concerns over Russia were first raised by the arrival of Count Mauritius Augustus Benyovsky, a Hungarian Duke captured while trying to overthrow the Russian-installed king of Poland, Stanisław II. Benyovski and a number of other Polish prisoners escaped from a prison colony in Kamchatka on a stolen Russian warship, landing on the island of Awa off the coast of southeastern Honshu in 1771.¹¹⁸ Posing as an Austrian Benyovski claimed to be an ally of the Dutch and received supplies from local domainal officials. In gratitude Benyovski penned a number of letters to the Dutch *Oppehoofd* and the Shogun himself thanking them for their warm hospitality. Benyovski warned of an impending Russian assault from the north but while this created some consternation among Japanese intellectuals, it was largely ignored by the Bakufu councilors.¹¹⁹

Hirazawa Kyokuzan a Confucian scholar and domainal official traveled from Nagasaki to Fukuyama in southern Hokkaido where he attempted to discover whether or not Benyovski told the truth. Matsumae officials were closed lipped, dismissing Hirazawa’s warnings while providing very little information on the Russian presence in Ezo.¹²⁰ Hirazawa was unable to discover any direct evidence of a Russian threat in Ezo. However, it must be noted that Hirazawa’s investigation took place at a time when there

¹¹⁷ Stephan, *Kuril History*, 64-5.

¹¹⁸ Lensen, 76-8.

¹¹⁹ Donald Keene, *The Japanese Discovery of Europe, 1720-1830* (Donald Keene, Stanford University Press, 1969), 32-4.

¹²⁰ Keene, 34-6.

was indeed very little Russian trade taking place in Ezo (the massacre of Russian traders on Urup having occurred just one year before, and Russian being in the midst of conflict with the Ottoman Empire).

Fear of Russian encroachment in the north arose again a decade later, this time at the hands of the Dutch. Protective of their monopoly on direct trade with Japan, the Dutch East India Company worked to undermine any possibility of direct Russo-Japanese trade. In 1781 the *Oppehoofd* of the Dutch factory in Nagasaki submitted a letter to the Japanese trade authorities explaining how the Russian government captured shipwrecked Japanese sailors and forced them to teach Japanese to Russian soldiers.¹²¹ These rumors served to once again heighten Japanese interest in the north.

In 1783 a well respected Rangaku (Dutch learning) scholar Kudō Heisuke from the Sendai domain wrote a memorial titled *Akazeo Fūsetsu Kō* (An essay on the Red Ainu, the Japanese name for Russians). Addressed to Tanuma Okitsugu, the Bakufu's senior councilors (*Rōjū*) Heisuke's memorial predicted that Russian interest in Japan could only increase and that if the Bakufu did not take steps to develop Ezo Russians would soon lay claim to the region. Kudō proposed that direct trade be opened up between Japan and Russia, arguing that this would generate increased revenue for the Shogunate, strengthen the Japanese position, and expose Russia's true plans concerning the region.¹²² Drawing on information supplied by the Dutch, Kudō concluded that Russia, like China, was expansionist and sought to bring other countries under its sway by forcing them to pay tribute. Russia differed from China in that it dispatched soldiers

¹²¹ Harrison, 181.

¹²² Kudō Heisuke, *Akazeo Fūsetsu Kō*. trans. Inōue Takaaki (Tōkyo Hanbai Kyōikusha Shuppan Sābisu, 1979) 55-7.

and criminals to settle uninhabited regions in order to expand Russian dominion. Kudō was enamored with the idea of colonization and suggested that Japan begin dispatching settlers to Hokkaido immediately to strengthen the Japanese presence there.¹²³

A major consideration in Kudō's argument for colonization was the exploitation of Ezo's natural resources. In the *Akazezo Fusetsu Kō* the names of places with gold, copper, and silver deposits are extensively catalogued. Additionally, numerous rivers wherein "gold dust" could be found were also included.¹²⁴ Kudō argued that foreigners had long desired these precious metals, and should Japan open up trade with Russia they could be a major source of revenue for the Bakufu. Additionally, if the Bakufu did not wish to trade with Russia then the gold and silver could be sold to the Chinese, Koreans, and Dutch. Kudō also explained that even should the promised metals not be found Japan could still benefit by trading salt, sake, and rice to the Russians, as they had very little food and supplies.¹²⁵

In response to Kudō's memorial, Tanuma ordered the Matsumae to submit a report on the current Russian presence in the north. Predictably, the vaguely worded response revealed little information about the state of affairs in the north.¹²⁶ Unsatisfied, Tanuma dispatched a mission to the north in 1785. Preliminary findings confirmed Russian activity on Sakhalin and the southern Kuril islands, but also found that it was contained to a few tiny trade outposts and a small village of half-starved Russian convicts

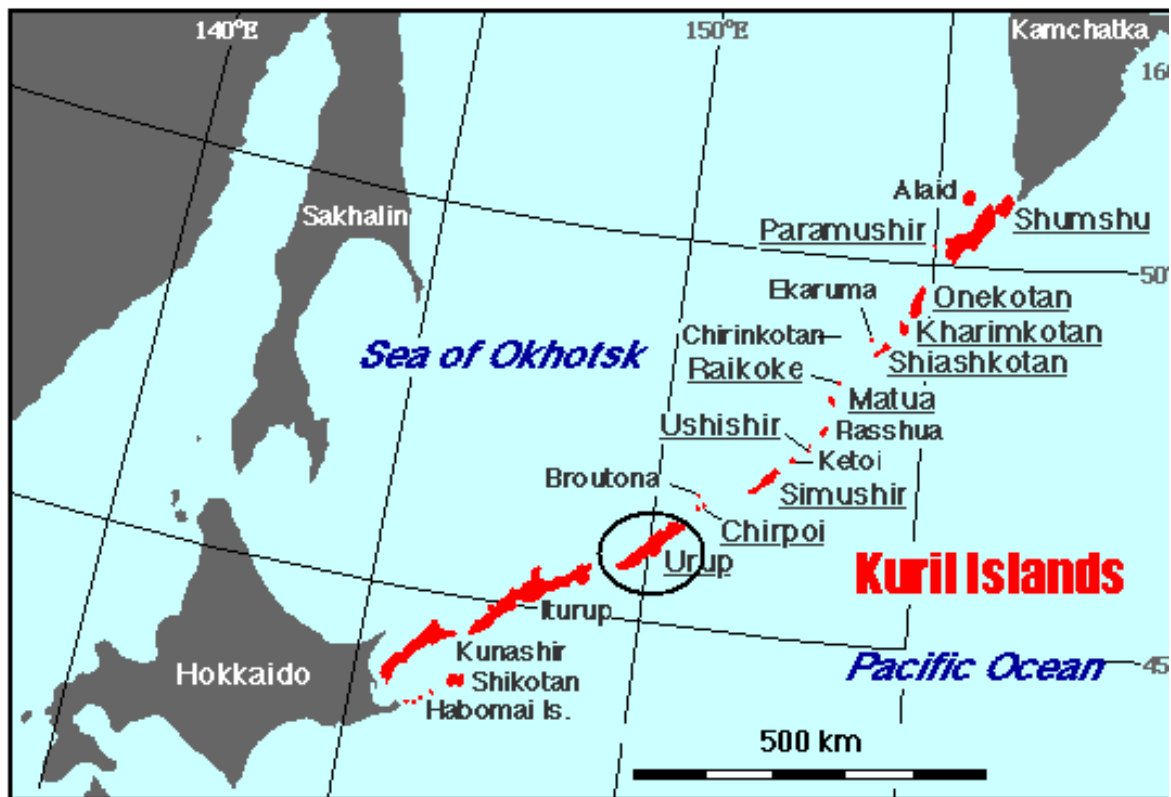
¹²³ Kudō, 63-5.

¹²⁴ Fujii Jōji, Kaneda Akihiro, Sugiyama Masaki, *Daichi no Shōzō: Ezo, Chizu ga Gataru Sekai*. (Kyoto: Kyoto Daigaku Gakujutsu Shuppankai, 2007) 185.

¹²⁵ Kudō, 59.

¹²⁶ Keene, 38.

on the island of Urup.¹²⁷ Russian traders traveled to Iturup in the Kuril archipelago to trade for seal and sea lion pelts. They also discovered that the merchant clients of the Matsumae had total monopolies over their areas of control and that the Matsumae officials had little idea of what actually occurred in the trade depots and fisheries. Conversations with Ainu headmen revealed that the inhabitants of Eastern Hokkaido, and Sakhalin traded with the Russians for silk, brocade, sugar, and medicine, acting as middlemen for trade with Matsumae.¹²⁸



Map 12: Modern Map of Ezo¹²⁹

¹²⁷ Ibid.

¹²⁸ John Whitney Hall, *Tanuma Okitsugu: Forerunner of Modern Japan* (Harvard University Press, Cambridge Mass, 1955), 104.

¹²⁹ This modern map of Hokkaido, Sakhalin, Southern Kamchatka, and the Kuril archipelago puts the true extent of the Russian “colonization” of Ezo into perspective. Since the mid seventeenth century Cossack traders had been traveling from Kamchatka along the Kurils down to Iturup and in Northern Sakhalin. The only Russian settlement outside of Kamchatka and Siberia was located on the island of Urup (circled), and consisted of 30 Siberian exiles under the command of Vasilii Zvesdochetov. After the Bakufu took control of Ezo in 1799 Commissioner Habuto Masayasu (1799-1802) fortified the island of Iturup, and forbid the

Following Kudō's advice Tanuma entered into negotiations with the *eta* headman, Danzaemon, to send 70,000 outcasts and criminals to Hokkaido. The Bakufu official, Sato Genrokuro, was dispatched to negotiate with the Matsumae to provide food, housing, and other necessities to the colonists.¹³⁰ However, both the expedition and the colonization efforts were permanently stopped when Tanuma was removed from office in late 1786. His successor Matsudaira Sadanobu had little interest in Ezo until it was once again brought to the Bakufu's attention by the work of another *Rangaku* scholar, Hayashi Shihei.

Hayashi Shihei was born in 1738, the son of a Bakufu official stationed in Edo. When his father lost his status Hayashi was adopted by his uncle, a retainer of the Sendai domain. Poor, with not much potential for employment, Hayashi traveled to Nagasaki to study western learning. There he became friends with a number of *Rangaku* scholars (Kudō Heisuke and Honda Toshiaki among them) and Dutch translators.¹³¹ It was through these acquaintances that Hayashi met with Dutch traders and from them first heard of Russia's renewed interest in Ezo. Like Kudō, Heisuke sought to increase interest in Ezo. In 1786 he wrote *Kaikoku Heidan* (On the Defense of a Maritime Nation) urging the Bakufu to develop Ezo as a buffer against the Russian threat. Hayashi deviated from Kudō's model however by not submitting his memorial directly to Matsudaira Sadanobu

local Ainu from trading with the Russians. The colony had never been prosperous and ceased to exist shortly after Zvesdochetov's death in 1803. Stephan, Kuril Islands, 72-3, and Lensen, Russian Push towards Japan, 122-3.

¹³⁰ Hall, 67.

¹³¹ Jansen, 262-3.

but rather publishing it himself in 1789 and distributing it among other scholars as well as the Daimyo of Sendai.¹³²

In *Kaikoku* Hayashi picks up Kudō's arguments regarding the profitability of Ezo in terms of natural resources. However, where Kudō argued for direct trade with Russia, Hayashi focuses on the threat posed by pandering to such a large and aggressive Empire. Hayashi called for direct Bakufu intervention in the north, arguing that only the building of fortresses and defensive works could halt Russian aggression and secure Japanese claims on the north. The increased military presence served to keep the Ainu in check and bring them more firmly in to the Japanese sphere of influence.¹³³ He warned that if the Bakufu did not quickly take steps to blunt the Russian advance all of Ezo would soon become Russian territory, serving as a bridge to the Japanese heartland.

Hayashi succeeded in raising awareness of the Russian threat among the northern Han and the Bakufu retainers, but in doing so he alienated Matsudaira and his powerful conservative faction. Matsudaira saw in *Kaikoku* an implied criticism of current Shogunal policy in Ezo. He also believed that by distributing the treatise publically rather than as a private memorial to the *Rōjū* Hayashi was attempting to stir up popular unrest in the north of Japan.¹³⁴ In response Matsudaira ordered all copied of *Kaikoku* to be confiscated and burned, Hayashi's printing press to be destroyed, and the scholar himself brought to Edo for questioning and imprisonment.¹³⁵ Hayashi would die in prison the next year.

¹³² Donald Calman, The Nature and Origins of Japanese Imperialism: A Reinterpretation of the Great Crisis of 1873. (New York: Routledge, 1992) 57-8.

¹³³ Keene, 41-3.

¹³⁴ Calman, 57-8.

¹³⁵ McDougal, 99-100.

However, he was partially vindicated by the arrival of Russian traders in northern Hokkaido in 1787 and 1788, and 1792.

To support his arguments in *Kaikoku Heidan* Hayashi Shihei drafted a map of Ezo which he titled *Ezokoku Zensetsu* (A Complete Report on the Country of Ezo, Map #12, pg 78). Much like *Kaikoku* itself Hayashi's map focuses primarily on the development and defense of Japan's northern frontier in light of the perceived Russian threat from the north. Like Kudō Hayashi also includes evidence to prove the value of Ezo as source of precious metals, natural resources such as eagle feathers, animal pelts, dried sea cucumber, fish and whale meat.

The map is centered on Hokkaido, which is portrayed as a long island running north to south. It is oriented east, and the direction of the text changes from place to place, both common characteristics in traditional Japanese maps. The southern coastline directly across the water from northern Honshu (the domain of the Matsumae) is depicted relatively precisely as are the various bays and inlets along the coast of Hokkaido. In shape Hokkaido resembles Terashima Ryōan's 1715 *Wakan Sansai Zue*, differing only in the outline of the coast which seems to be an invention of Hayashi's as it does not correspond to any extant map of the area. It follows the Shōhō and Genroku Shogunal Maps in its depictions of Chishima archipelago except for increased detail of the coastlines of Kunashiri and Etorofu islands.¹³⁶

The focus of the map is most certainly Hokkaido, with all other geographic locations (including Japan itself) relegated to the periphery. It is clearly Hayashi's intent to bring Hokkaido to his readers' attention. Hayashi locates Hokkaido not as a frontier or

¹³⁶ Unno, 175.

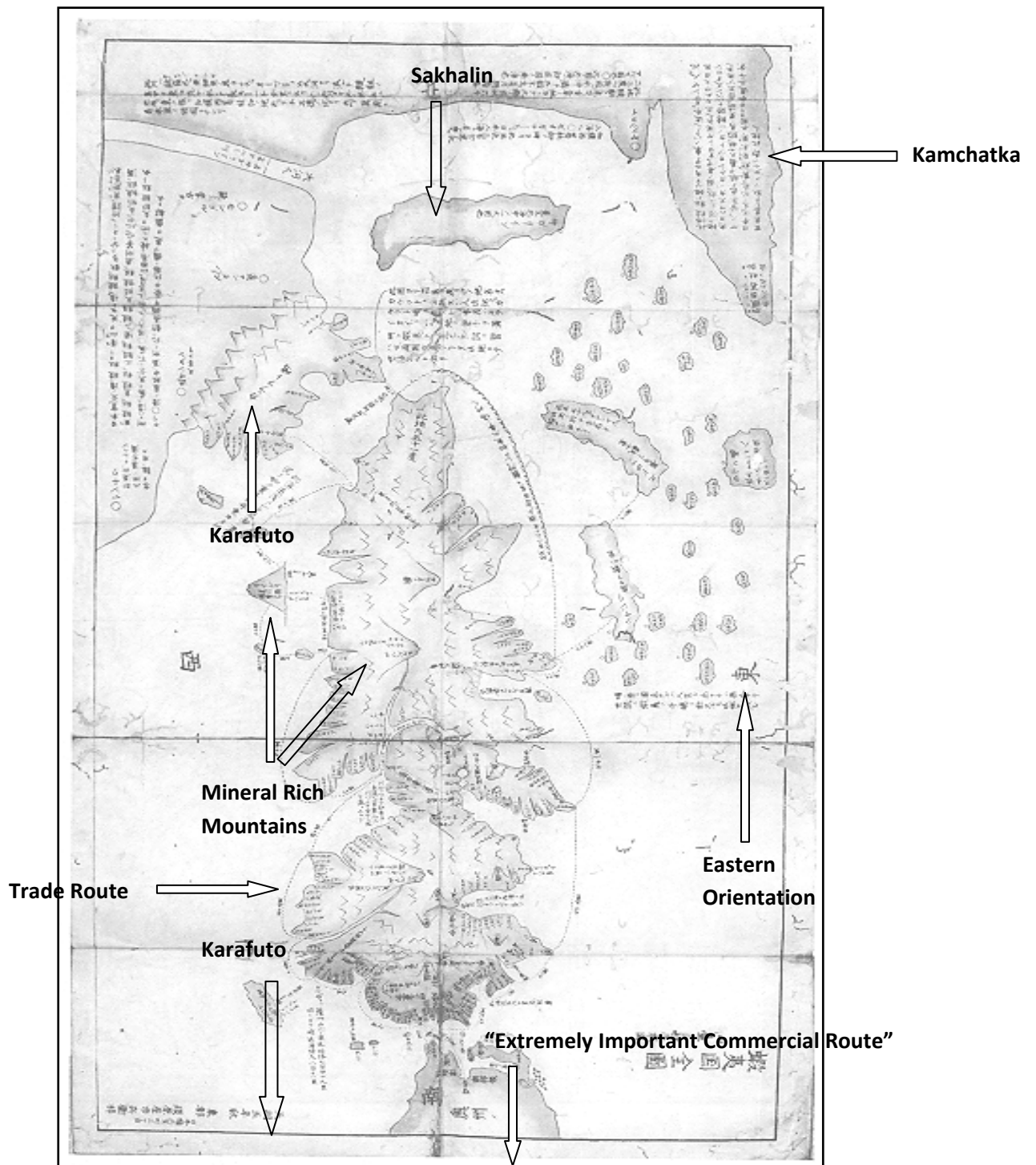
border area but as a center in its own right by emphasizing it over the surrounding regions (including Japan itself). This positioning and size geographically reinforces Hayashi's arguments for the necessity of Japanese expansion, development, and defense of Hokkaido made in *Kaikoku Heidan*. This map serves as an excellent example of the role of authorial interest in cartography. Hayashi's map works both as a geographic artifact and an exercise in propaganda.

Of particular interest is Hayashi's separation of Sakhalin (Sagariin) and Karafuto into two entirely different areas. Sakhalin is portrayed as a small island at the mouth of the Amur River (which according to the map alternately goes by the Arumi or Sagariin river) and Karafuto as a peninsula of the Asian mainland bordered in mountains.

Katazutaka Unno argues that this cartographic confusion probably resulted from Hayashi having included portions of Jean Baptiste D'anville's 1732 and 1753 atlases of Asia which were shown to him by the Dutch Opperhoofd Arend Willem Feith during one of his three visits to Nagasaki in the early 1780's.¹³⁷ In D'anville's maps of Northeast Asia Sakhalin is divided into two islands (Saghalien and Jeso). The Japanese name for Sakhalin being Karafuto Hayashi concluded that D'anville must be referencing some other island. Contact with the Dutch probably also indirectly contributed to Hayashi's understanding of the Russian threat.¹³⁸

¹³⁷ C.R. Boxer, Jan Compagnie in Japan, 1600-1850: An Essay on the Cultural, Artistic, and Scientific Influence Exercised by the Hollanders in Japan from the 1Seventh to 1Ninth Centuries. (The Hague: Martinus Nijhoff, 1950), 19.

¹³⁸ Unno, 175.



Map 13: Hayashi Shihei (Sendai, 1789)

The Russian threat is detailed both geographically and textually. The northern eastern and western extremes of the map are labeled Shiberia (Siberia) and Kamusasuka or Kamushikatsutoka (Kamchatka). Sakhalin, Karafuto, and the uninhabited Kuril islands are situated between Hokkaido and the Russian territories, appearing as nothing so much as stepping stones to the Japanese mainland. The text north of the Amur River tells that all the land has been under Muscovian (Russian) control since 1711, while text in the north east (facing north) reads:

"Kamchatka is an extension of Siberia and has been recently colonized by the Russians. Therefore the land is known as Russia and also Kamumshikatsutoka which can be contracted to Kamusasuka. According to the Ainu the Russians all wear red clothing and are therefore referred to as *Akaezo* (Red Ezo) in Japanese. The distance from Muscovia to Japan is roughly 3000 ri (7321 miles)."

Geographically Russian lands are portrayed as surrounding the northern portions of Hokkaido. The vast (although wholly inaccurate) distance between Russia and Japan described in the last sentence portray the Russian Empire as many times larger than Japan, further supporting Hayashi's arguments for the necessity of development and defense.

The arguments made by the *Ezokoku Zensetsu* do not focus wholly upon the Russian threat; Hayashi also emphasized the profitability of Ezo by calling attention to the myriad trading posts that dot the coast, the copper, gold, and silver deposits in the mountains, and the lucrative coastal and river trade routes. Dotted lines and distance markers clearly delineate the major sea routes taken by Ainu and Japanese traders. The single hachured line on the northeast coast of Hokkaido is described as "an extremely important commercial route that is difficult to navigate due to the proliferation of shallows and cliffs." Mountains with deposits of precious metals are both named and

drawn larger than the surrounding topography. Trading posts and fisheries along the rivers and coasts of Hokkaido, Karafuto, and the nearby islands are named and the distances between major areas of commerce are listed. Conversely, inland villages and the routes between them are mostly ignored. Like the 1644 Matsumae Map Fukushima is the only settlement represented iconically, also serving as the locus for a number of trade routes.

Text near the Karafuto peninsula explains that "the people of this region use this area as a place of free passage between Ezo and Manchuria, learning each others' language and carrying on free trade with one another," including Karafuto along with the Ryukyu islands and Nagasaki as sources of coveted Chinese goods and putting the local Ainu in a position similar to the Ryukyu kings, as middlemen for trade with China.

Clearly the focus of the *Ezokoku Zensetsu* is both economic and military, in *Ezokoku Zensetsu* Hayashi constructs an Ezo that is both valuable and threatened. Hayashi's emphasis on coastal development and defense in the *Kaikoku Heidan* is echoed by the weight he gives to the oceanic trade routes in the accompanying map, as is the northern threat made tangible by the location of Russian territories vis-à-vis Sakhalin, Etorofu, and the Kuril Archipelago.

Although Matsudaira himself disagreed with Hayashi's arguments, the general unpopularity of his reforms and calls for frugality combined with the public distribution of Hayashi's work required that he respond to the issues raised in *Kaikoku*.¹³⁹ Additionally rumors that a 1789 revolt by the Menashi and Kunashir Ainu in northeast

¹³⁹ Conrad D. Totman, *Politics of the Tokugawa Bakufu* (Cambridge Mass: Harvard University Press, 1967), 224.

Hokkaido was sponsored by Russian agents increased calls for Bakufu involvement in Ezo. That the revolt was in fact caused by cruel abuse of the Menashi Ainu by the Hidayama family (merchant subcontractors of the Matsumae) meant little to the Matsumae han retainers who brutally put down the rebellion and beheaded its ringleaders. However, the Matsumae did not act quickly enough and a formal investigation was launched.¹⁴⁰

In 1792 Mogami Tokunai, Wada Hyōdayū, and Kobayashi Gennosuke were dispatched to Northern Hokkaido where they met with Ainu elders from that region, Sakhalin, and the Southern Kurils. He also investigated a number of villages in Southern Sakhalin finding many of them to be deserted, their inhabitants enslaved by continental merchants to settle trade debts.¹⁴¹ Mogami also reported that Russians treated the native much better than the Japanese did and consequently those Ainu who lived in the North of Ezo were much more favorably disposed to the Russians than the Japanese.¹⁴² Although Mogami did not know, the new amicability of Russian trade was due in large part to Catherine II's 1785 *ukase* freeing the Ainu from paying *yasak* (tribute) to the crown, and a fear on the part of Russian traders of a repeat of the 1771 Urup massacre.¹⁴³ He concluded that the Matsumae were responsible for the breakdown of northern trade and that the han was too small and militarily weak to fend off a serious Russian incursion.¹⁴⁴

Mogami's conclusions were echoed and elaborated by his mentor Honda Toshiaki, Matsudaira's leading advisor on Ezo. Honda memorialized his suggestions for Ezo in the work *Keisei Hisaku* (A Secret Plan of Government) reinvigorating old arguments and

¹⁴⁰ Walker, 174-6.

¹⁴¹ Walker, 150.

¹⁴² Shinichirō Takakura, *Hokkaidō no Fudō to Rekishi* (Tōkyō: Yamakawa Shuppansha, 1977), 54.

¹⁴³ G. Patrick March, *Eastern Destiny: Russia in Asia and the North Pacific* (Westport, Connecticut: Praeger Publishers, 1996), 76.

¹⁴⁴ Takakura, 56.

inventing a few of his own. Like Kudō Heisuke Honda felt that the best way to develop Ezo would be through colonization and fortification. He also echoed Mogami Tokunai's arguments that better treatment of the Ainu would result in increased loyalty and eventual assimilation into Japanese society.¹⁴⁵ Honda believed that the colonization of Ezo would help the country recover fully from the Tenmei famine (1782-6) that resulted in the ousting of Tanuma Okitsugu. A fully developed Ezo would also provide a strong base from which to engage in trade with Russia and later, other European countries. Unfortunately, his arguments were based on a geographic misapprehension. Honda believed that areas occupying the same latitudes benefitted from the same climate. Therefore, since Hokkaido was positioned on the same latitude as Beijing and Great Britain it would be possible to develop a roughly equivalent level of agriculture.¹⁴⁶ On Honda's advice Matsudaira began planning for the opening of Ezo preparations were disrupted by the arrival of the 1792 Laxman expedition, the first Russian attempt to open trade with Japan on the pretext of returning shipwrecked sailors.

In 1787 Daikokuya Kodayu, a shipwrecked Japanese sailor, met Eric Laxman, a Finnish professor from St. Petersburg University. The next year Laxman brought Daikokuya to St. Petersburg where he instructed Russian nobles in Japanese. In 1791 Laxman presented Daikokuya and his colleagues to Empress Catherine II in an attempt to convince her that the Japanese attitude towards foreigners had become more favorable.¹⁴⁷ Obviously Catherine the Great was impressed as she immediately drafted an *ukase* to the Governor of Siberia Lieutenant General Ivan Pil calling for an mission to open trade with

¹⁴⁵Takakura, 56.

¹⁴⁶ Jansen, 236.

¹⁴⁷ Lensen, 97-98.

Japan. The expedition left Kamchatka in 1792 with Eric Laxman's son Adam in command, headed for Japan to open trade under the cover of returning Daikokuya and the other castaways.¹⁴⁸ The expedition sailed to 45° N latitude, where Martin Spanberg's map had located Hokkaido, arriving instead at Iturup in the southern Kurils. They continued south until they met with some Japanese merchants who told them to wait while they passed the expedition's request to return castaways on to the Matsumae government. In December envoys from the Matsumae han arrived and questioned the Russians extensively about their mission.

Adam Laxman reported that the envoys were particularly interested in geographical knowledge, borrowing and making copies of every globe and atlas the Russians had.¹⁴⁹ The next month officials from Edo arrived and continued to question Laxman's party, employing Tugulokov the Russian's translator to translate Russian place names into Japanese.¹⁵⁰ In July of 1793 Laxman and his party were allowed to sail to Matsumae where they met with two Shogunal officials and exchanged gifts. Adam Laxman's inquiries about opening trade were initially rebuffed, however after he refused to depart without some concession the officials grudgingly drafted a permit allowing a single Russian ship to travel to Nagasaki for the purposes of trade. Satisfied, Laxman returned to Russia and presented the permit to Governor Pil, who wrote a memorial to Catherine calling for another mission.¹⁵¹

Plans for an expedition to Nagasaki were put on hold by Eric Laxman's death in 1796. Although Adam Laxman made careful charts of seas around both Ezo and Japan,

¹⁴⁸ Marsh, 79.

¹⁴⁹ Lensen, 103-5

¹⁵⁰ Lensen, 106.

¹⁵¹ Lensen 113-4.

upon his return they were lost in the government archives of Kamchatka where they remained undiscovered until the late nineteenth century.¹⁵² Grigori Shelikov (the founder of the Russian American Company)'s death in 1785 and Empress Catherine's death the following year further undermined Russian interest in Japan. In 1800 Emperor Paul left all future attempts to open up trade with Japan to the Russian American Company. After Shelikov's death the Company essentially ignored Ezo in favor of the more lucrative Aleutian fur trade and Russian attempts to open Japan to languished for almost a decade.¹⁵³

To the Bakufu however, the Laxman mission made real the formerly academic concerns of Russian encroachment. Rumors emerged of a secret trade between Matsumae and Russia while investigations in the north hinted that the Menashii-Kunashir rebellion may have had Russian backing. Reports from Mogami Tokunai and Honda Toshiaki indicated that the Matsumae were ill-prepared to defend Ezo in the occurrence of a Russian assault and so in 1799 the Shogun assumed direct control of Hokkaido. On Mogami and Honda's advice the Bakufu worked to radically restructure trade in the north, repaying Ainu debts to continental traders, forbidding the Ainu to engage in unsanctioned trade with non-Japanese, setting up guard posts to forestall smuggling, implementing a bureaucracy to oversee trade, sending officials out amongst the Ainu to warn them of the perils of dealing with Russians, and sending trained geographers to survey the islands.¹⁵⁴ Bakufu control would bring Hokkaido, the southern Kurils, and southern Sakhalin further into the Japanese sphere of influence, fortifying Ezo against a perceived Russian threat.

¹⁵² John A. Harrison. "Notes on the Discovery of Yezo," *Annals of the Association of American Geographers*, Vol. 40, No. 3 (Sep., 1950): 256.

¹⁵³ Lensen, 120-4.

¹⁵⁴ Walker, 151-2.

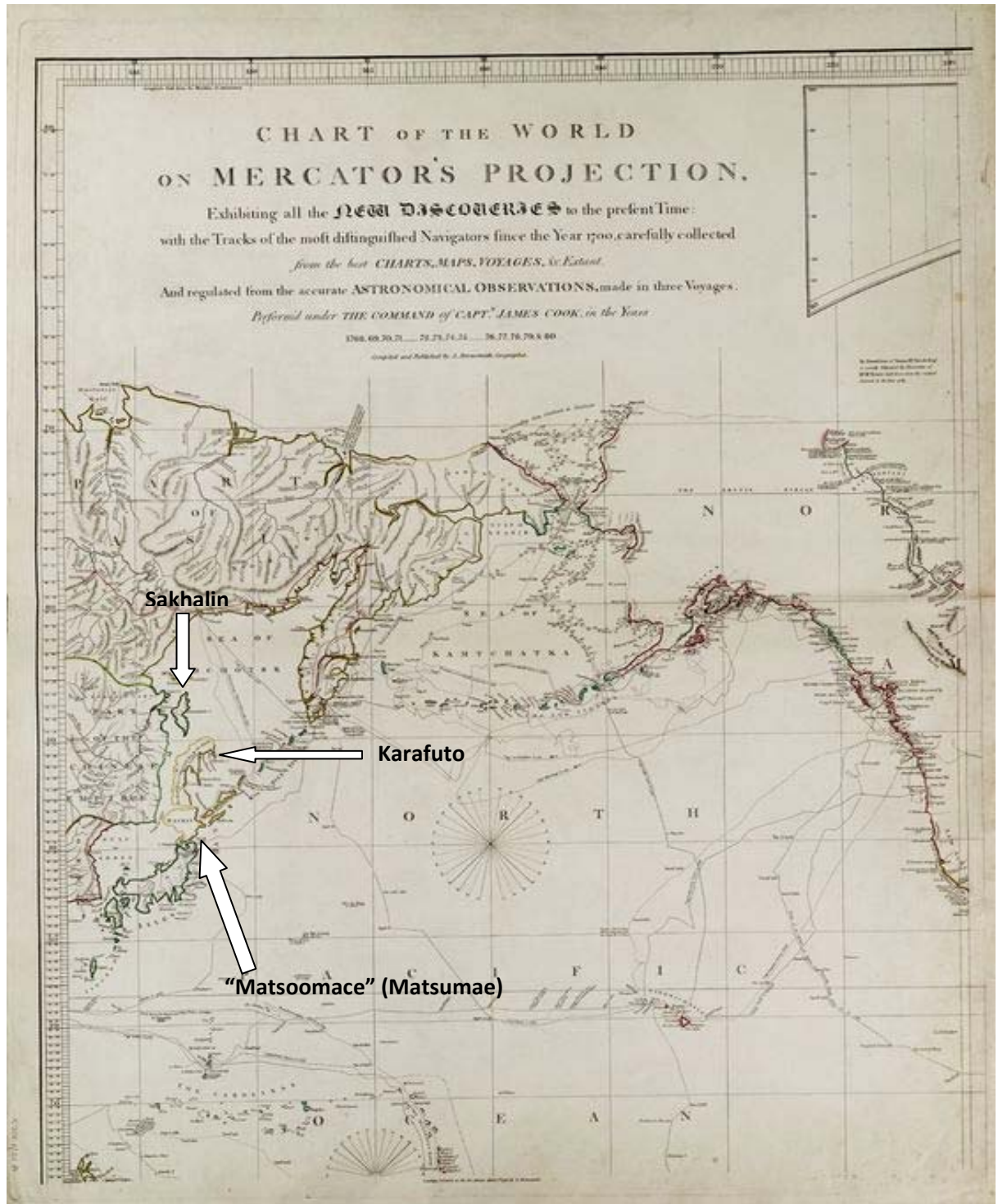
The Cook and La Perouse Missions

Russia and Japan were not the only countries to explore Ezo in the late eighteenth century, Britain and France expeditions also sought to map the region as part of a larger mission of Pacific exploration. The charts drafted by the Cook and La Perouse expeditions would help to dispel some of the cartographic confusion caused by earlier maps such as those made by Vries and Spanberg. These missions employed European tools and surveying techniques, which had improved greatly since Vries' 1643 survey. Improvements in compass design refined latitude measurements. Additionally, the Cook mission was the first to employ John Harrison's prototype Naval Chronometer, and was consequently able to fix longitude with formerly unheard of precision. Finally, triangulation techniques developed by the Cassinis in France allowed for improved coastal measurements. Although these improvements resulted in increased accuracy overall, the explorers themselves would help to perpetrate a few mistakes of their own, most notably the relationship between Sakhalin and the Siberia.

The Cook (1780) and La Perouse (1786) maps of East Asia clearly illustrate increased British and French scientific, geopolitical, and economic interest in the Pacific, and the extent to which England and France were participants in the system of cartographic exchange already in place in Europe, Asia, and the Pacific. The Seven Years War (1756-63) crippled the French and Spanish navies, opening the Pacific to the first British exploration since the middle of the seventeenth century. The acquisition of colonial possessions in India after the Battle of Plessey (1757) and the beginnings of the opium trade with China shortly after marked the start of increased British commercial

and exploratory voyages around Japan and Asia. In 1766 Captain James Cook undertook his first voyage around the world, plotting out trade future trade routes, exploring and claiming territorial possessions for the English crown, and collecting scientific data.¹⁵⁵

¹⁵⁵ Carl Waldman and Alan Wexler. *Who was Who in World Exploration* (New York: Facts on File Ltd.,1992), 172-3.



Map 14: Cook, Gore, and Clerke (London, 1784)

Cook died in Hawaii in 1779, but the expedition continued to Japan and beyond under the command of his fellow officers, Charles Clerke and John Gore.¹⁵⁶ Its representations of Japan and Ezo drew heavily on the Teixeira (1630), Vries (1643), and Spanberg (1734) maps for the shape and coastline of the islands. Positional data was gathered on several of the Kuril Islands and Western Honshu, while Hokkaido itself was bypassed entirely (being depicted on the map as a roughly circular island titled "Matoosmace," a derivation of Spanberg's "Matmai"). The ships log reports that the island possessed a sizeable garrison of soldiers and large defensive fortifications.¹⁵⁷ Undoubtedly the size and number of the Matsumae defenders were somewhat exaggerated by the Ainu traders with whom Gore spoke.

Several of the Kuril islands are shown on the map (Map 14, pg 91), but only one (Kunashir) bore an Ainu name, the others being referred to as "Zeelandia" (a Dutch name owing to Vries' map), and the Three Sisters (a name that appears nowhere else). John Gore's log shows that he was aware of several other islands such as Paramushir and Shiyashikotan, but they are not represented on the map. The log also reports that all of the Kuril islands have been under the dominion of the Russians since 1713 save for Kunachir (Kunashir), Zellany (Zeelandia), and The Three Sisters, whose tribesmen were

¹⁵⁶ After Cook's death in Hawaii in 1779 Charles Clerke took command of the third voyage and continued up the west coast of America in search of the Northwest Passage. He sailed north along the Alaskan coast all the way to the Bering Strait before concluding that no navigable Northwest Passage existed. Clerke himself died of tuberculosis the same year while sailing to Kamchatka and command of the voyage fell to John Gore. In the spring of 1780 Gore resolved to head back to England, heading southward along the Kuril islands to Japan and then through the straits of Sunda (between Java and Sumatra) to the Indian Ocean. The expedition reached England in October of that year and the logs of all three captains were compiled by James King, the ship's astronomer and published in 1784. Waldman and Wexler, 172-3.

¹⁵⁷ James Cook, Charles Clerke, John Gore, and James King. *A Voyage to the Pacific Ocean; For Making Discoveries in the Northern Hemisphere in the years 1776-1780* Vol.4 (London: British Naval Hydrographic Dept, 1784), 166-7.

independent although they traded frequently with Matsumae (not referring to the Han retainers, who did little to none of the actual trading, but rather to the Han's client merchant houses).¹⁵⁸ While sailing in the region of Vries' *Compagnies Land* (Urup) Gore noted the absence of De Gama Land (the English name for the fabled silver and gold islands). After sailing in a wide loop around the area he finally concluded that if they did exist they must be extremely small.¹⁵⁹ Like other maps of the time Karafuto (the curved island above Hokkaido) and Sakhalin (the angled island above Karafuto) are represented as being separate although they are actually the same place. This misconception appears in Japanese, Russian, and European maps from this period.

The map itself reflects not only the interests of Gore, charting his discoveries along the line of the voyage, but also the British government itself who received cartographic information on potential colonial possessions, trade routes, and hydrographic data. Cook, Clerke, and Gore successfully charted a course west from Britain, into the Pacific Ocean, to Russia, China, and finally into the Indian Ocean. The expedition's maps formed the basis for British navigation in the Pacific, allowed for the expansion of trade with China, and the exploitation and eventual settlement of Australia and New Zealand. Although not the primary focus of exploration Gore's charts also fixed the position of the Southern Kuril Islands, they did not however accurately represent their coastlines or the positions and shapes of Hokkaido and Sakhalin. Britain would not formally attempt to open trade with Japan for another twenty years; however in 1797 William Broughton used Gore's charts to aid in his expedition along the coast of Asia.

¹⁵⁸James Cook, Charles Clerke, John Gore, and James King, 176.

¹⁵⁹James Cook, Charles Clerke, John Gore, and James King, 178.

A year after the Cook expedition's findings were published in Britain King Louis XVI of France resolved to launch a similar expedition. The French had recently rebuilt their navy with the help of their Spanish allies and were once again looking to expand their colonial possession and commercial routes. Jean-Francois de Galaup Comte de La Perouse, one of France's foremost naval commanders was selected to head the expedition. La Perouse was ordered to sail into the Pacific with the intentions of exploring the coast of North West America in search of the Northwest Passage, discover new sources of fur and whales, scout areas for the eventual establishment of French colonies or trading posts, and complete the scientific exploration undertaken by Cook seven years earlier.¹⁶⁰

La Perouse spared no effort to replicate Cook's findings, even going so far as to acquire not only his charts, but also the exact timepieces used on his third voyage.¹⁶¹ For areas where Gore, Vries, and Spanberg had not explored, La Perouse used maps drafted by Jesuits, specifically Jeronimo de Angelis' 1622 map of Japan and Ezo.¹⁶² He originally assumed Sakhalin was an island, but as he sailed north he found the water gradually growing shallower and the way becoming blocked by numerous shoals and rocks.¹⁶³ Nonetheless, La Perouse concluded that Sakhalin was an island when a number of Ainu drew him a map of the region clearly showing that it was an island. One of the Ainu even went so far as to indicate the relative depth and width of the channel.¹⁶⁴ Although La Perouse's ship never reached the other side of the strait between Sakhalin and Siberia he nonetheless represented Sakhalin as an island. La Perouse's ship logs reveal a

¹⁶⁰ Waldman and Wexler, 386-7.

¹⁶¹ Jean-Francois de Galaup de la Perouse. *The Journal of Jean-Francois de Galaup de la Perouse, 1785-88*, Volume I, trans. John Dunmore, the Hakluyt Society (London: Cambridge University Press, 1995) 13.

¹⁶² La Perouse, 276.

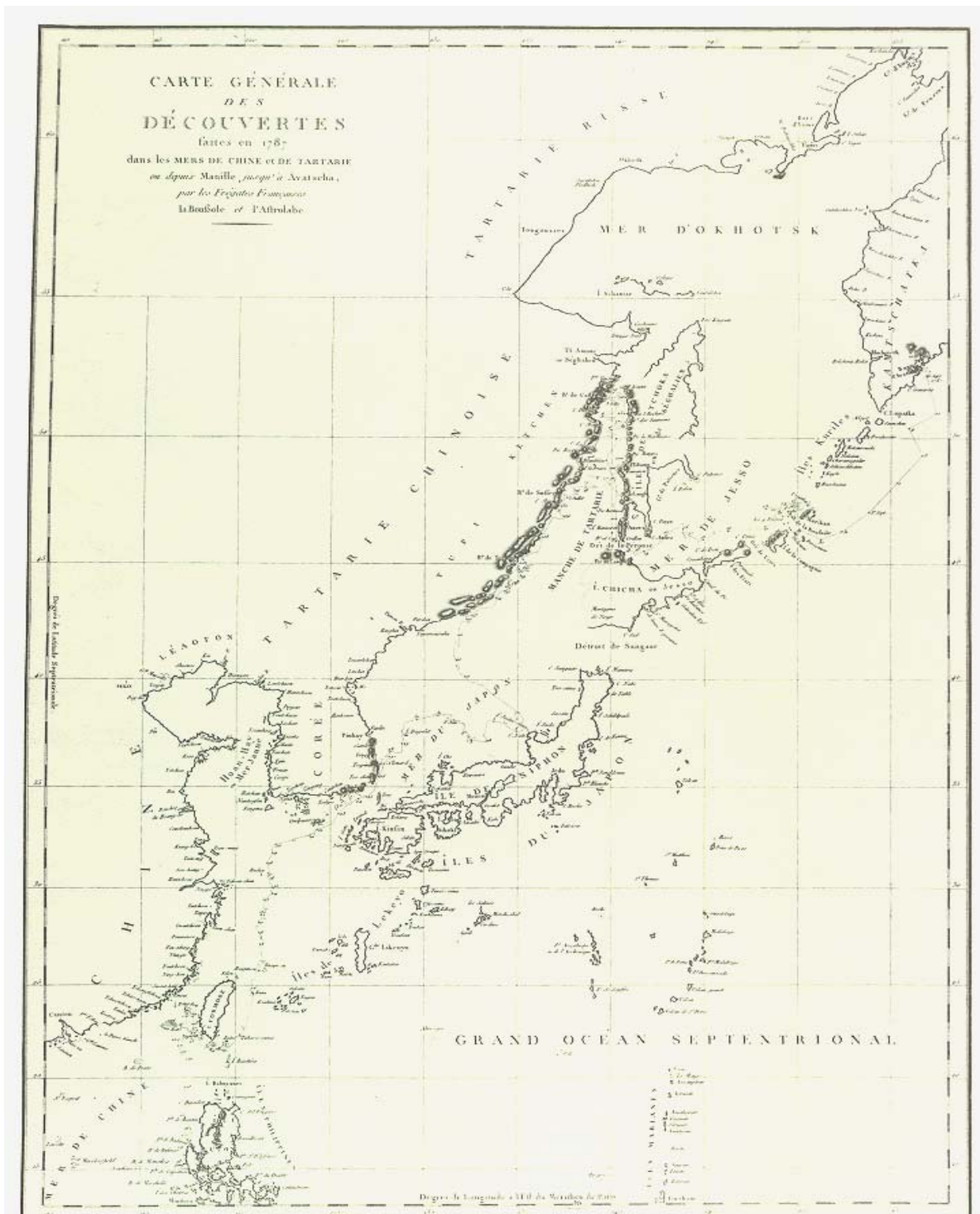
¹⁶³ La Perouse, 300-1.

¹⁶⁴ La Perouse, 291.

preoccupation with trade and geopolitics that is borne out fully in the map itself. Like Gore La Prouse charted the positions of and distance between each of the islands he visited, providing future expeditions with a detailed map of the region. La Prouse's log speaks extensively of the Japanese-Manchu-Ainu-Russian trade occurring in the region, as well as the richness of the fishing, whaling, and trapping in the region.¹⁶⁵ When combined with naval focus of the map the two sources together make a strong argument for the value of future French trade missions to Alaska.

France's political ambitions are also revealed in the linguistic codes present in the map. Although he included place names from the Vries and Cook maps, La Prouse gave French names to any topographical or navigational features he encountered. The few native place names included are swallowed up in a sea of titles such as *Cape Patience*, *Ile des Etats*, *Canal du Pit*, and the strait that still bears his name today *Det de la Prouse*. The practice of renaming geographic features, islands, villages, and even cities was widespread among European imperial powers (though not among non-government mappers like the Jesuits, or early Portuguese traders) . La Prouse does not directly claim any territory for France, however his use of French names on the map represents Ezo (specifically Sakhalin and the Southern Kurils) as a French space. The eliding of local place names cartographically robs the indigenous population of native ways of representation, stripping away that portion of their culture.

¹⁶⁵ La Prouse, 286-7, 335.



Map 15: La Perouse (Paris, 1792).

Both expeditions took place before the Russian scare fully gripped Japan and so neither encountered Bakufu or Matsumae officials during their exploration of Ezo. Dealing primarily with Ainu, both Gore and La Perouse engaged in trade for furs, feathers, Japanese goods, whale oil, and precious metals.¹⁶⁶ Gore and La Perouse also speak extensively about Russian attempts to open trade with Japan, but there is the occasional mention of their own countries attempting the same. Both logs also speculate on future missions to the region.¹⁶⁷

The outbreak of the French Revolution and the subsequent Napoleonic wars would swallow up all of Europe, quashing any immediate English or French designs on Japan and Ezo, when in the mid-nineteenth century China became the preeminent prize in Asia, relegating Japan and Ezo to the periphery. Only Russia, already having long established trade ties with China, maintained attention on Ezo, although at a lower level than before. Trade missions however, were undertaken largely under the aegis of the governor general of Kamchatka and the Russian American Company. As before, the lack of imperial oversight would result in increased antagonism between the Russians and the Japanese, eventually culminating in the Khvostov-Davidov attacks of 1806-7 and the capture and imprisonment of Vasili Golovnin in 1811.

¹⁶⁶ La Perouse 291. and Cook, Clerke, Gore, and King, 167.

¹⁶⁷ La Perouse 335-8. and Cook, Clerke, Gore, and King, 170.

Early Nineteenth Century Mapping of Ezo

Following the return of the Laxman mission over a decade elapsed before Russia once again attempted to open trade with Japan. Apart from an abortive attempt to start a colony on Urup in 1795, the Russian-American company had focused primarily on expanding trade with Alaska and Spanish California.¹⁶⁸ Peter I renewed Russian interest in establishing trade with Japan, appointing Nikolai Petrovich Rezanov of the Russian-American company ambassador to the Shogun.¹⁶⁹ Rezanov was given a script by the Ministry of Commerce (not the Ministry of Foreign Affairs, a fact that illustrates perhaps better than any other how greatly the Russians had misunderstood the permit given to Laxman) to gather information on who claimed Sakhalin, and more importantly to demand that Japan allow Russian ships to trade either at Nagasaki or Fukushima. Like the Laxman expedition the official reason for the Rezanov mission was also reported as the repatriation of Japanese castaways.¹⁷⁰

Rezanov set sail for Japan in 1803 on the *Nadezda* captained by Adam Johann (known in Russian as Ivan Fedorovich) von Krusenstern along with the *Neva* captained by Yuri Lisianski. Sailing south around Cape Horn and into the southern Pacific, the *Neva* continued on to Australia while the *Nadezda* made for Kamchatka.¹⁷¹ Krusenstern was charged with mapping Japan, Sakhalin, Hokkaido, the strait of Tartary, the Kurils and the eastern coast of Siberia, and correcting any inaccuracies evident in previous

¹⁶⁸ Lensen, 123-4.

¹⁶⁹ Lensen, 131.

¹⁷⁰ Lensen, 131-2.

¹⁷¹ Lensen, 135-6.

Russian maps. Prior to the voyage Krusenstern had purchased several timepieces as well as surveying and navigational equipment in London. He also brought along copies of Spanberg's 1738, La Perouse's 1787, Cook and Gore's 1784, and Sarychev's 1785 maps of Japan and Ezo as well as a Japanese map copied and translated by the Dutch Botanist Englebert Kaempfer in 1693.¹⁷²

After departing from Kamchatka the *Nadezda* sailed south along the coast of Siberia crossing the Sea of Japan to the northwest coast of Japan in 1804. Krusenstern and his officers took navigational readings and made astronomical observations for the purpose of creating positional surveys of western Kyushu and Southern Shikoku, although they did not approach the coasts themselves. Finding the Cook and La Perouse's charts to be full of inaccuracies Krusenstern also sought to fix the geographic position of many of the islands off the coast of southern Japan, disproving the existence of numerous islands which had been represented in the seas of Southwest Japan on British and French (although not Japanese) charts up to this point. He did not however approach Okinawa or the other Ryukyu's, stating that they were the property of the Satsuma han.¹⁷³ This information was most likely gleaned from Kaempfer's map as none of the other western charts depicted the political boundaries of the Japanese domains. Krusenstern himself

¹⁷² Adam Johann von Krusenstern, *Voyage Round the World, in the Years 1803, 1804, 1805, and 1806 By Order of His Imperial Majesty Alexander the First, On Board the Ships Nadeshda and Neva, Under the command of Captain A.J. Von Krusenstern, Or the Imperial Navy, In Two Volumes.* (Trans Richard Belgrave Hoppner, Vol.1, 1818, reprint Greg Press 1968, Ridgewood N.J.), 8-9, 15.

¹⁷³ Krusenstern, 234-6, 247.

was astonished by the poor situation of European maps' depictions of Japan, lamenting that the best he possessed was Kaempfer's copy of a Japanese original.¹⁷⁴

Rezanov and Krusenstern entered Nagasaki bay in late February 1804 and presented the 1792 Laxman writ to the port authorities. Initially the Japanese refused them entrance, but after a month of negotiation Rezanov was able to convince them to allow himself and a few of the ship's officers to go ashore. Even then the Russian ambassador and his retinue were housed in a well guarded fortress and not allowed to meet with anyone save the Shogunal officials and their translators. They were forbidden even from contacting the Dutch merchants who were also anchored at the port.¹⁷⁵

The Bakufu officials interrogated Rezanov extensively concerning the route by which they came to Japan, asking for navigational charts they made enroute as well as any maps of the larger world.¹⁷⁶ By answering questions for several days and presenting the officials with numerous gifts Rezanov managed to turn the discussion to the issue of Russo-Japanese trade, presenting the officials with a letter to the Shogun penned by the Tsar requesting the beginnings of formal trade.¹⁷⁷ The Shogunal response, delivered a month later, rebuffed the Russian overtures. The letter ordered Rezanov to leave the country and expressly forbade any direct trade between Russia and Japan. All of the Russian gifts were returned and *Nadezda* was resupplied. However, the Japanese officials warned Krusenstern and his party not to land anywhere in Japan or they would be met

¹⁷⁴ Krusenstern, 253.

¹⁷⁵ Krusenstern, 250-6.

¹⁷⁶ Krusenstern, 261, and Lensen, 147.

¹⁷⁷ Lensen 145-6.

with force. The Japanese refusal infuriated Rezanov, who was angered not only by the poor treatment he had received but also the failure of the mission.¹⁷⁸

Departing Nagasaki bay Krusenstern sailed north, returning Rezanov to Petropavlovsk before sailing southwest through the Kuril islands and on to the north of Sakhalin. Krusenstern explored the west coast of Sakhalin for three months, aggressively correcting errors in La Perouse's map, trading goods and exchanging information with the Ainu, and even engaging in commerce with a few isolated Japanese merchants in the far north.¹⁷⁹ These merchants complained to Krusenstern of Bakufu involvement in what had formerly been a free trade, and worried that they would be beheaded should news of their commerce with the Russians come out. Krusenstern also noted the establishment of a number of new trading posts in southern Sakhalin, further evidence of Bakufu efforts to extend Japanese dominion over Ezo.¹⁸⁰ Based on information received from Ainu and Japanese traders Krusenstern concluded that it would be easy to seize Sakhalin from the Japanese, musing that the Japanese fortresses could be overwhelmed by two warships and about sixty marines, and how a single weapons emplacement in Aniwa bay in southern Sakhalin would be sufficient to prevent Japanese attempts to land troops on the shore. Furthermore, from his favorable meetings with the Ainu he decided that should the Russians earn the respect of the Ainu they would become loyal subjects and help to prevent Japanese retribution.¹⁸¹

¹⁷⁸ Krusenstern, 258, and Lensen, 158.

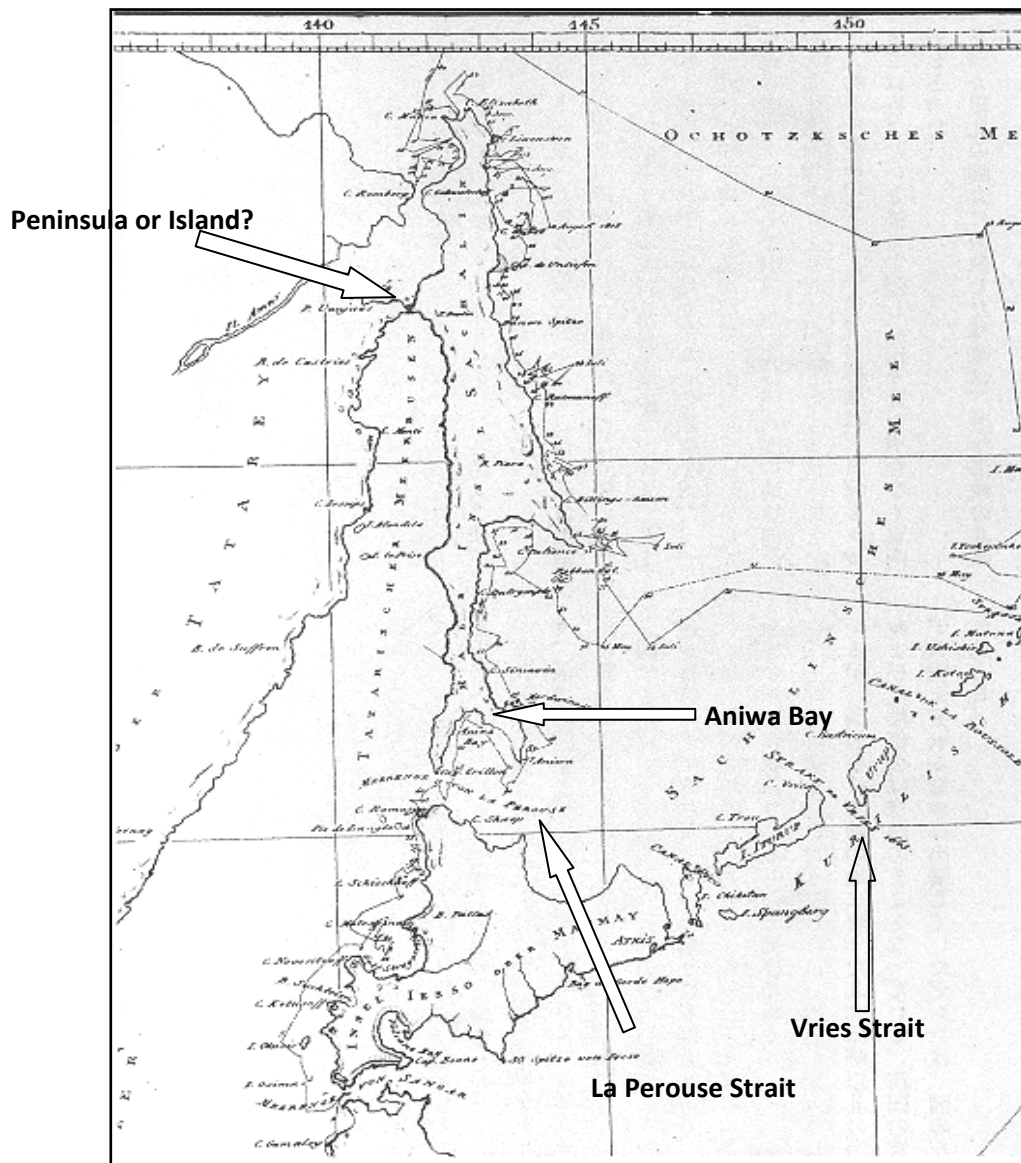
¹⁷⁹ Krusenstern vol.2, 45, 51.

¹⁸⁰ Krusenstern, vol. 2, 60-4.

¹⁸¹ Krusenstern, vol.2, 68-70.

Although he corrected many positional and representational inaccuracies in French, British, Dutch, Russian, and Japanese maps Krusenstern nonetheless drew heavily upon these sources to fill in areas he was unable to survey directly. Consequently, his depiction of Ezo suffers from a number of mistakes, most notably his representation of Sakhalin as a peninsula rather than an island.¹⁸² Additionally, in places Krusenstern's positional measurements differed from reality by several degrees. Despite these flaws, Krusenstern's map remained the most accurate map of Ezo available in Europe until 1853 when Philip Franz Von Siebold published his translation of Inō Tadataka, Mogami Tokunai, Takahashi Kageyasu, and Mamiya Rinzō's maps. The Russian government published Krusenstern's map in 1806. In 1811 an English translation was made, and in 1813 it was published as part of a bi-lingual German/Russian atlas of the north pacific. Unsurprisingly the map was kept secret from France, with whom Russian was still at war. The French would have to wait until 1822 for Von Siebold to publish the first of his atlases of Japan. Krusenstern's original survey map measured longitude from the *Pulkovo* meridian (Running through St. Petersburg, 30° 19' 42.09" E of Greenwich) while later German/Russian atlas and British translations measure from the Greenwich meridian.

¹⁸² Unno, 189.



Map 16: Adam Von Krusenstern (St. Petersburg, 1806)

Taken as a whole Krusenstern's map and its translations function as excellent pieces of propaganda. Directed at the Russian government, Krusenstern's map was

designed to convince the Tsars to take a larger interest in Ezo by depicting it as Russian territory. Despite the fact that Krusenstern had access to Kaempfer's map, which included both provincial and city names on Honshu, Shikoku, and Kyushu he chose to leave the interior of Japan a relative blank. The real focus of the map is fully on Ezo, it includes place names drawn from La Perouse, Spanberg, and Gore's surveys of the region along with various Russian names given by Krusenstern himself while eliding Japanese names. Hokkaido is referred to as "Jesso" and "Matmay," the Russian equivalents of the Japanese pronunciations, however not a single Japanese settlement or named feature is included. Ainu names are given to the individual Kuril islands, but Sakhalin is represented linguistically as already being part of the Russian Empire. The people are cartographically removed, representing the land itself as wholly Russian.

Although Krusenstern's planned annexation of Sakhalin would not materialize until long after his death, his maps were used almost immediately by Rezanov to enact revenge on the Japanese for their refusal to trade with Russia. Like Krusenstern Rezanov believed that the establishment of a fortified Russian colony on Sakhalin would compel the Bakufu to open trade with Russia by cutting off supply lines and coastal shipping.¹⁸³ Lacking the funds to establish such a colony Rezanov instead conspired with two naval captains Nikolai Khvostov and Gavriil Davidov to strike at the Japanese possessions in Ezo, capture Japanese vessels, claim territory and "liberate" the Ainu natives. Rezanov

¹⁸³ Lensen, 160-1.

believed that the attacks would demonstrate Russian military superiority and bring the Japanese to the table through force of arms.¹⁸⁴

In 1806 with Krusenstern's map and travelogue in hand Khvostov and Davidov descended on the Japanese outpost at Aniwa in Southern Sakhalin taking several guards prisoner and reading a "proclamation" to the commander demanding that the Japanese relinquish control of Sakhalin and establish trade with the Russians.¹⁸⁵ After raiding Iturup they then moved south engaging a Japanese garrison at Shana that outnumbered them almost ten to one. Urged on by Mamiya Rinzo, the Bakufu surveyor who would go on to map Sakhalin, the governor of the garrison Toda Matadayu opened fire and drove off the Russians. Khvostov and Davidov returned under cover of night, setting the stockade on fire and driving the Japanese defenders into the nearby mountains.¹⁸⁶ Mamiya himself was shot in the buttocks while fleeing, a wound that would ignite a hatred of westerners that would last his entire life.¹⁸⁷

The 1806-7 raids convinced the Shogunate that more active steps should be taken to secure Hokkaido. In response to the attacks the Daimyos of Sendai, Hirosaki, and Aizu were asked to send troops to reinforce Hokkaido, Sakhalin, and the Southern Kuril Islands. The Matsumae han was removed from Hokkaido and given a 10,000 koku fief on Honshu in recompense. A formal government (*bugyo*) was established at Hakodate and Matsumae retainers were replaced by Shogunal agents at outposts throughout Ezo.¹⁸⁸ The

¹⁸⁴ Lensen, 164-5.

¹⁸⁵ Lensen, 167.

¹⁸⁶ March, 85.

¹⁸⁷ Lensen, 170.

¹⁸⁸ Harrison, Japan's Northern Frontier, 23-4.

attacks also increased the Tokugawa desire to bring the Ainu closer to the Japanese. Policies of *buika* (benevolence and civilization) had been in place since 1802, however they only began to receive true support in the aftermath of the Khvostov and Davidov raids. In addition to helping the Ainu out of debt the Bakufu did away with trade-fief system that had characterized Matsumae rule, placing the fisheries under direct government control. This ended the exploitation of Ainu by the northern merchant houses, and standardized trade relations across Japanese Ezo.¹⁸⁹

Faced with a foreign threat for the first time since the attempted Mongol invasion of the late thirteenth century the Bakufu sought to shore up its northern defenses, assimilate the Ainu, lay claim to Ezo, and solidify the border between Russia and Japan. Although they did not bring Japan to the bargaining table as Rezanov had envisioned the Khvostov and Davidov attacks did succeed in convincing the Tokugawa Shogunate that it faced a potentially superior opponent. The Bakufu had long employed cartography as a tool of state, so it was only natural that maps play an important role in the projection of Japanese power into Ezo. However, the Russians were not Daimyo who could be cajoled, surrounded, transplanted, or bullied into submission and the Tokugawa Shogunate was forced to explore new ways of representing territorial claims. Bakufu mapping of Ezo was fundamentally different from its earlier cartographic endeavors. Maps of Ezo and of Japan were to be used for national defense rather than tax collection or land allocation. Additionally, the method employed by the Bakufu cartographers had to be one that not only the Japanese but also the Russians would recognize. These needs necessitated a shift in Tokugawa mapping practices.

¹⁸⁹ Walker, 231-2.

Just as Europeans used Japanese maps to supplement their representation of Asia, now the Shogunate drew on a long history of exchange with the West to actively promote the training and employment of Japanese familiar with European cartographic methods. The resulting maps were not simply rote applications of scientific cartography but rather a creative blending of traditional Japanese mapping practices with new western learning. In the process of redefining Ezo the Japanese also re-imagined the ways they represented space and place, creating maps that would later allow them to retain cartographic control over their own country in the face of European aggression.

The *Tenmongakubu* and the Adaptation of Scientific Cartography

The primary governmental organ responsible for the change in Japanese cartographic techniques was the Bureau of Astronomy (*Tenmongakubu*). Since the early days of navigation sailors used heavenly bodies to plot courses, gather directional data, tell time, and fix geographic positions. Cartography and Astronomy became closely linked sciences in both the western and eastern minds, and so it should not be surprising that the Bakufu turned to the Bureau of Astronomy headed by Takahashi Yoshitoki to supervise the mapping of Ezo.¹⁹⁰ Yoshitoki, a mathematician, astronomer, and strong proponent of Western Learning drew heavily on his ties with the Dutch, employing numerous linguists translate Dutch, English, and French works into Japanese. In the process Yoshitoki studied not only cartography and science, but also the histories, institutions, and military structures of the various European countries. It was Yoshitoki who organized Mogami Tokunai and Honda Toshiaki's northern expeditions in 1786 and 1792, and who was responsible for the compilation and editing of their charts and travelogues for presentation to the Bakufu.¹⁹¹ Under Yoshitoki the *Tenmongakubu* became one of the preeminent schools for the study of western learning. The Bureau of Astronomy would produce a number of skilled cartographers, three of whom, Inō

¹⁹⁰ Jansen, 264.

¹⁹¹ Jansen, 266-7.

Tadataka, Mamiya Rinzō, and Takahashi Kageyasu, would figure prominently in the mapping of Ezo and the subsequent representational shift in Bakufu maps.

This shift began in the late 1790's when Inō Tadataka and his mentor Takahashi Yoshitoki suggested that Inō produce a coastal survey map of Hokkaido.¹⁹² The Bakufu, already searching for ways to fortify Ezo against Russia quickly agreed with their proposal. Inō who had traveled to Edo to study under Takahashi in 1795 was a retired sake brewer with an interest in mathematics and cartography. Inō and Yoshitoki were particularly interested in measuring the length of a degree of latitude, and had suggested the survey of Hokkaido to gain Bakufu approval for this project. After completing his survey of Hokkaido in November of 1800 (Map #17, pg 111) Inō moved on to eastern Honshu, beginning a mapping expedition that would require the rest of his life to complete.

Inō Tadataka's Survey Methods

To reduce measurement errors Inō constantly adapted traditional Japanese cartographic tools and even invented new ones. He conducted his surveys using the traverse method, measuring at first by footsteps, then by use of a modified perambulator. The traverse method relied exclusively on distance and directional measurements to map out coastlines. By pacing off a series of lines, and getting compass readings from their respective endpoints Inō could determine how far and in what direction they differed from magnetic north, allowing him to trace the coast of Hokkaido. The traverse method

¹⁹² Cortazzi, 35.

was both labor and time intensive (as Inō or one of his students had to pace out each line and take directional measurements). However, if enough measurements were taken and the distances of the lines were precisely measured it could yield quite accurate results.¹⁹³

Impressed by the results of his early work the Bakufu assigned Inō numerous assistants and gave him the right to temporarily conscript local villagers to use as laborers. This allowed Inō to employ more precise methods of traverse, utilizing hemp rope strung between bamboo poles to mark out distances.¹⁹⁴ The rope was later replaced with chains as the latter did not contract when wet or blow in the wind.¹⁹⁵ For directional measurements Inō modified a magnetic compass with two swivel bearings for increased stability and used a magnetic theodolite to fix his position through the intersection method. The intersection method uses a technique similar to triangulation to determine the heights of hills, mountains, and coastal cliffs.¹⁹⁶ Additionally, by measuring the direction of a visible object from both ends of one of his lines, Inō was able to geometrically check the accuracy of his distance measurements by comparing the degrees of the two angles. A plumb bob and quadrant were used to take slope and measurements, which were then transformed into straight lines through the use of a *Katsuenhatsusentaishūhyō* (a triangulation chart adapted from Chinese models).¹⁹⁷

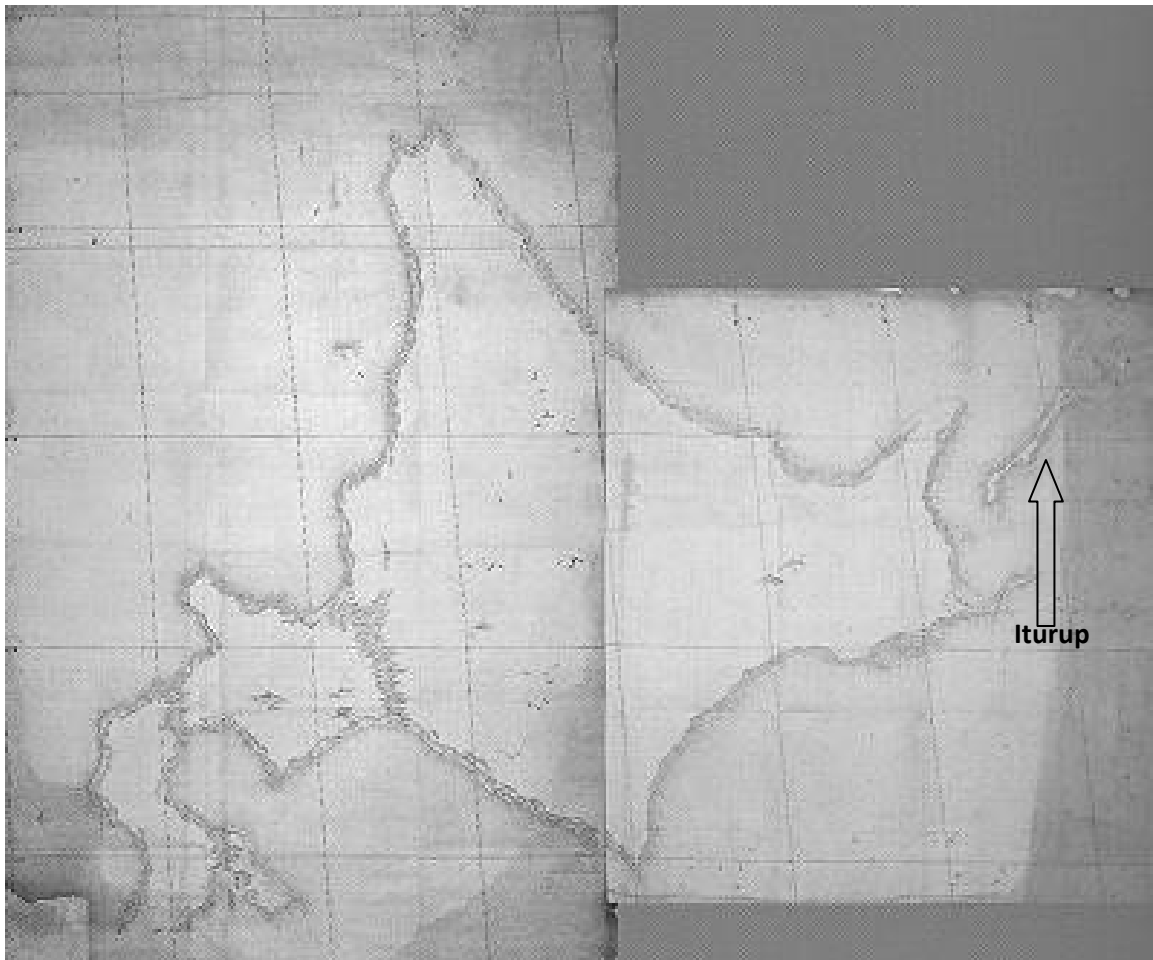
¹⁹³ Watanabe, 34.

¹⁹⁴ Watanabe, 31.

¹⁹⁵ Watanabe, 27.

¹⁹⁶ Watanabe, 29.

¹⁹⁷ Watanabe, 28.



Map 17: Two of Inō Tadataka's middle-scale maps of Hokkaido.¹⁹⁸

Although none of the methods were new to Japan, the focus on accuracy and precision marked a break from previous cartographers. Additionally, as he rechecked his work using the intersection method, Inō's results could be replicated by future

¹⁹⁸ Compare the level of detail in these maps to that shown in the next map. The surveys of Hokkaido were undertaken at the beginning of Inō's national mapping project meaning that he had yet to secure Bakufu assistance and had not perfected his surveying techniques. Nonetheless, by accurately depicting the coasts (borders) of Hokkaido the map fulfills its primary purpose.

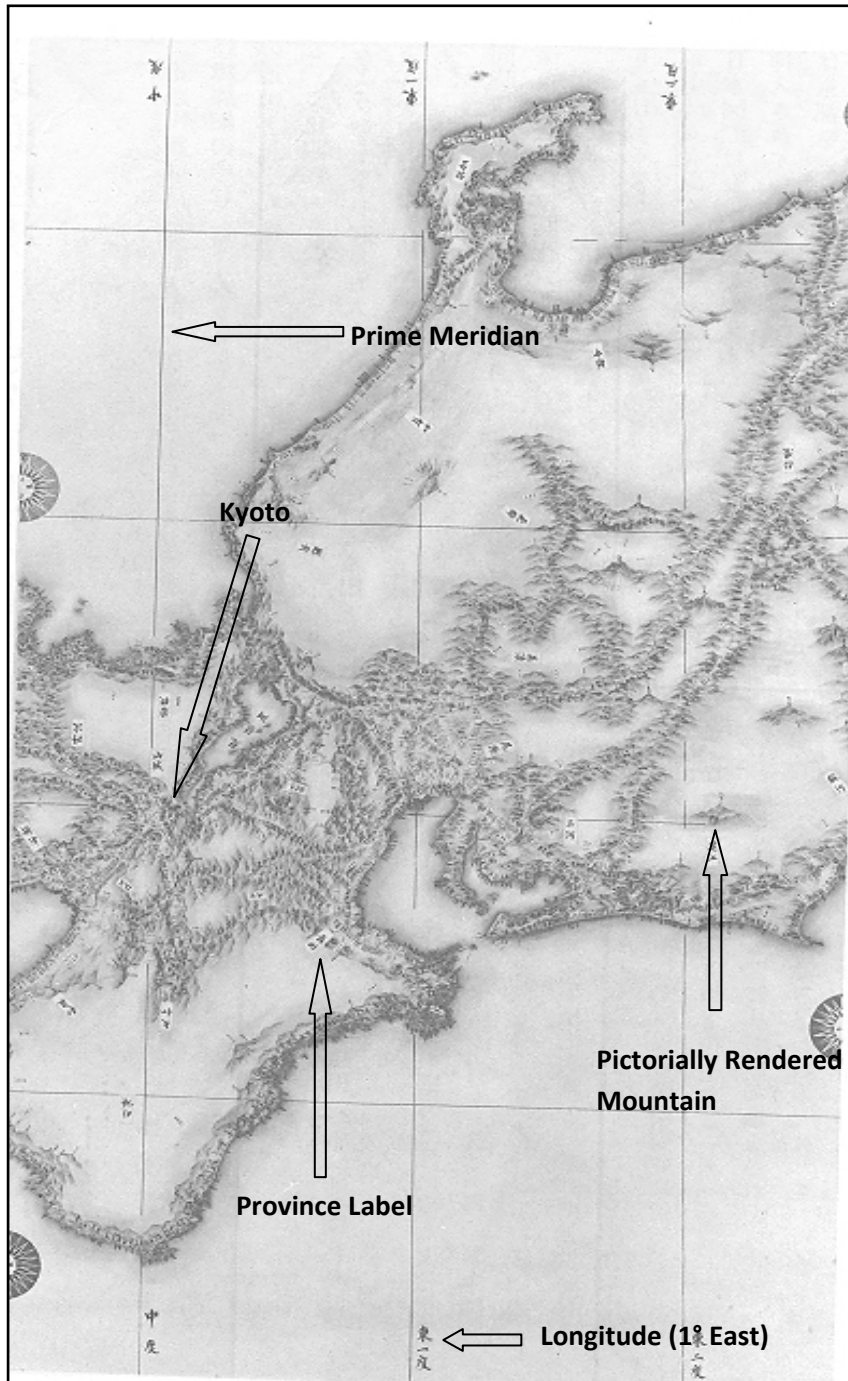
cartographers, allowing them to be reused in Japanese surveys up to the late Meiji period. This also meant that European surveyors could duplicate Inō's measurements and receive similar results, lending authority to his work. This was a large change as traditional Japanese surveying practices suffered from a lack of replicability, severely undermining their overall accuracy and authority. These aspects of Inō's work drew heavily on western cartographic ideas, forming the conceptual framework for future Japanese mapping projects.

Inō spent fifteen years surveying the coastline and major roadways of Hokkaido, Honshu, Shikoku, and Kyushu. When he finished in 1816 his survey corps consisted of several hundred assistants, pupils, bureaucrats, and scholars, a testament to the active support of the Shogunate. Inō worked to transform the survey data into maps until his death in 1818. The maps were finally completed in 1821 by his students under the direction of Takahashi Kageyasu, who had assumed the role of director of the *Tenmongakubu* after the death of his father in 1806.¹⁹⁹ Inō's survey resulted in 225 maps representing the Japanese archipelago in three different scales. Hokkaido was represented by 34 small scale (1:36,000) and one large scale (1:432,000) maps.²⁰⁰ The position of villages and major trade posts on the island were mathematically fixed and their names dutifully recorded in Japanese. The names of coastal Ainu fisheries were also included (Although in a slightly smaller font) rendered in the Japanese katakana syllabary. Prominent mountains were rendered pictorially rather than obliquely or with hachures, in keeping with traditional Japanese style of cartographic representation. Apart from these

¹⁹⁹ Cortazzi, 35.

²⁰⁰ Although the original copies of Ino's survey maps do not remain, there are a number of copies held in libraries throughout Japan.

mountains and a few rivers the interior of Hokkaido remains a conspicuous blank as it was not surveyed.



Map 18: Inō Tadataka (1822, Edo)

Inō's survey represents a national mapping project that was in some ways similar and in some ways different from those earlier projects attempted by the Bakufu. Like the previous national maps it emphasized Imperial primacy, centering the map on Kyōto. It also did away completely with the role of Daimyo in mapping their own

lands by allowing a Bakufu sponsored cartographer to survey the entire coast of the country. Even provincial borders are ignored in favor of names placed roughly in the center of each provincial area. In Ezo it represented a fundamental break from Matsumae authority for the first time. The equal area projection Inō employed distorted direction in favor of accurate distance representation with a meridian running through Kyōto. This removed geographic precedence from any single area of Japan, centering the map firmly on the historical seat of the Emperor, in whose name the Tokugawa Shoguns ruled the whole of Japan. Rather than map the entirety of country, Inō was instructed to map only the coastlines, formalizing the borders of the Tokugawa state.

Inō's map, more than any other shaped nineteenth century Japanese and European conceptions of the main Japanese islands. The confluence of cartographic exchange between Japan and the west did not end with the exclusionary edicts of the early 17th century but continued sporadically throughout the Tokugawa period. Inō's map was introduced to Europe through the work of Philip Franz Von Siebold, and became the authoritative depiction of the Japanese coast until the Meiji cartographic surveys of the 1890's (even then it was used to provide geographic coordinates and positional data for areas the survey corps could not reach).

Inō's survey did not extend to Sakhalin and the Kuril islands, leaving the Russo-Japanese border in Ezo in a state of relative confusion. Mogami Tokunai mapped the southern Kuril islands in 1792, but no Japanese cartographer had ventured into the north of Sakhalin. Russian, French, and British attempts to map the Sakhalin had failed to conclusively discover its true relationship to the continent. Japanese maps represented it

as a peninsula, island, and sometimes both. In order to create firm borders with Russia and lay claim to Sakhalin it was necessary to map the entirety of the island's coast. In 1808, just months after the departure of Khvostov and Davidov, Mamiya Rinzō and Matsuda Denjurō were dispatched to map the island.

Mamiya Rinzō's Survey of Sakhalin

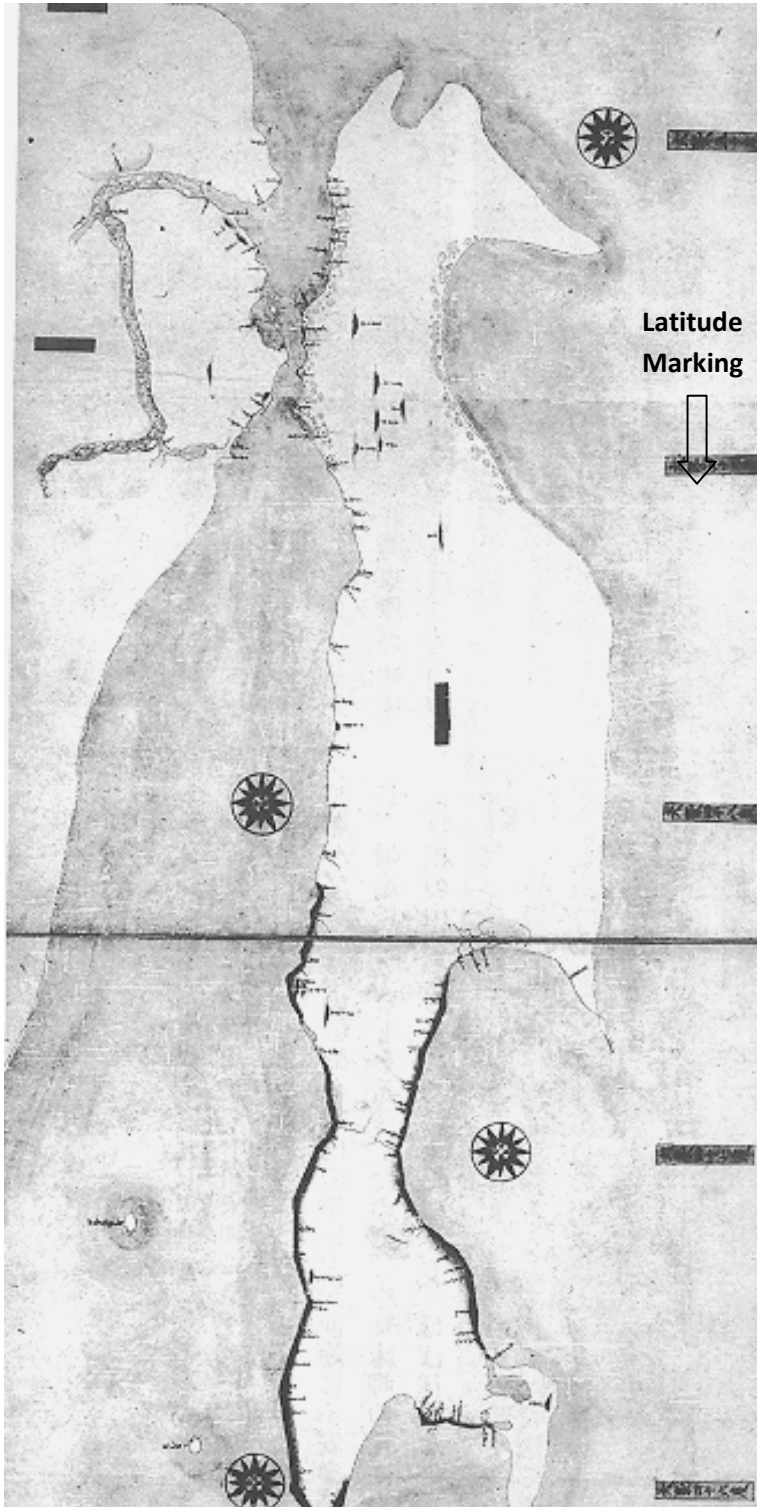
Mamiya Rinzō was a disciple of Murakami Shimanojiro, a *Tenmongakubu* trained cartographer. In late 1799 the two of them traveled to Matsumae, where they met Inō Tadataka who had just arrived and was preparing for his survey of Hokkaido. Mamiya assisted Inō with his early surveys, studying the older man's techniques and forming a lasting relationship with the surveyor. Mamiya remained in Ezo after Inō departed, acting as a minor governmental functionary at a garrison on Iturup the southern Kurils. During the Khvostov and Davidov raids Mamiya argued vehemently for stronger defenses in the north. The wound he received during the ignominious flight from Shara only served to heighten Mamiya's nationalistic fervor.²⁰¹ Impressed by his vigor Inō recommended him to Takahashi Kageyasu who lobbied the Shogun to have Mamiya appointed to the survey of Sakhalin. In 1808 Mamiya was paired with Matsuda Denjurō, a low ranking official in the new formed Hokkaido bureaucracy and instructed to explore the entirety of Sakhalin. Mamiya met Mogami Tokunai at Sōya in northern Hokkaido and swore a suitably heroic oath to die before allowing the Russians to lay claim to Sakhalin, and then set sail.²⁰²

²⁰¹ Keene, 138-9.

²⁰² Keene, 140-1.

The two reached Aniwa bay in southern Sakhalin in May of 1808. Matsuda headed west and Mamiya east, hoping to meet in the north having surveyed the entire coastline. Matsuda traveled up the coast to the Rakka promontory turning back, confident that Sakhalin was an island. Mamiya proceeded up the east coast to Shiretoko Bay (modern day Poronaysk Bay) but could not proceed any further north due to rough seas. Mamiya crossed over the peninsula, meeting up with Matsuda at Noteto (several days south of Rakka). Dissatisfied with Matsuda's report Mamiya decided to explore beyond Rakka, traveling farther north before being forced to return to Aniwa for the winter. The following year Mamiya continued up the west coast of Sakhalin, discovering that it was indeed an island. With the help of an Ainu chieftain Mamiya crossed over to the continent and was taken down the Amur River to a Qing tribute post where he got an excellent look at Chinese tribute trade system.²⁰³

²⁰³ Unno, 187.



Map 19: Mamiya Rinzō (1809, Edo).

Mamiya returned to Hokkaido later that year and drafted a map of Sakhalin and the mouth of the Amur River. The map was drawn to a 1:36,000 scale so as to match up with Inō's ongoing survey. The inclusion of compass roses and marks of latitude along the side

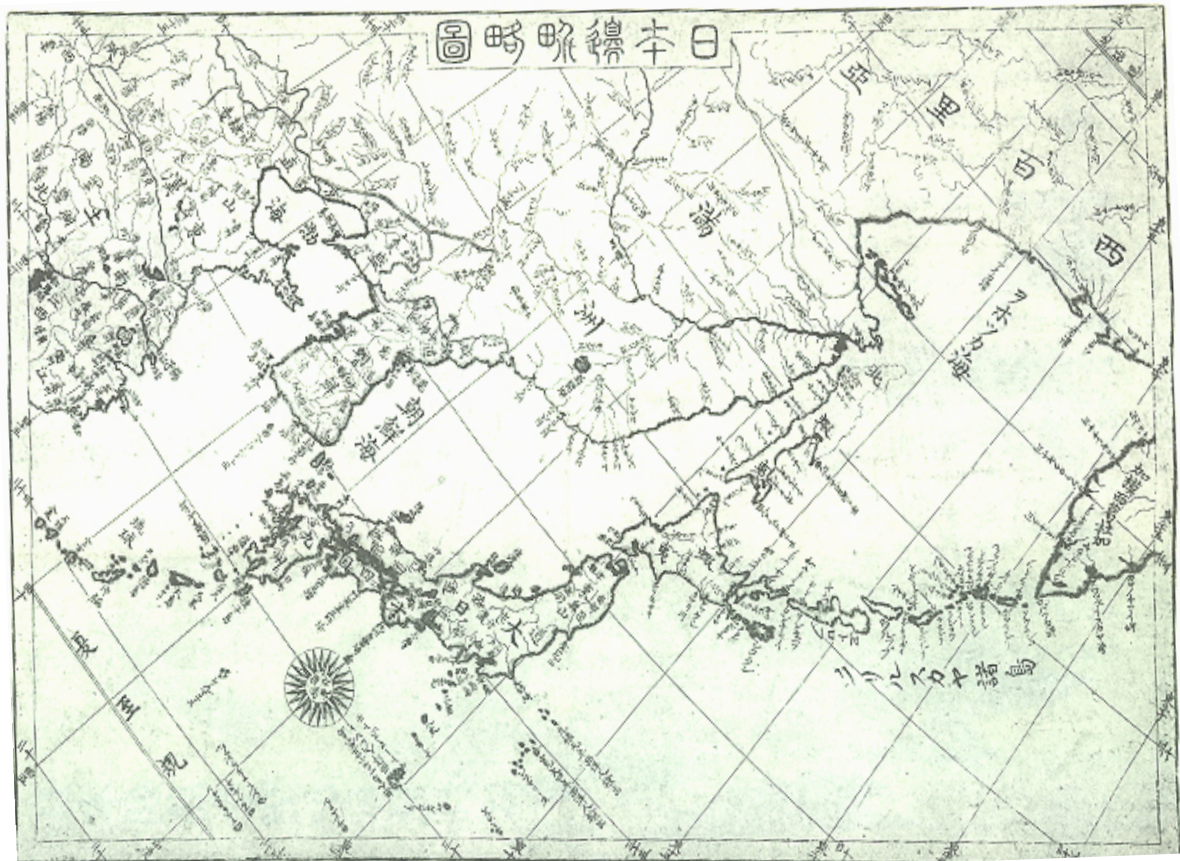
speak of Mamiya's desire to imitate the work of his mentor. Unfortunately he did not possess the same level of Shogunal backing as Inō, having no assistants and only a single bark canoe with which to

circumnavigate the island. Although the names of coastal villages and prominent lakes, rivers, and mountains are included, the northeastern half of the map is left blank as neither Mamiya nor Matsuda traveled there. The main purpose of the map being to explore the extent of the island and thereby claim it for Japan, absolutely no attention is paid to topographical details or distance measurements.

Mamiya presented his map to Takahashi Kageyasu who incorporated it into the most recent Shogunal map of Japan.²⁰⁴ In 1811 Takahashi published the *Nihon Enkai Ryakuzu* (An Abbreviated map of Japan and its Surroundings, Map 20, pg 119), which (with minor corrections) would form the basis for all of the world maps produced by the *Tenmongakubu* for the rest of the Edo period. Takahashi's map was the first Shogunal map of Asia to employ a system of latitude and longitude. Like former Bakufu maps the *Nihon Enkai Ryakuzu* was centered on Kyōto, this time by making it the locus of the prime meridian (visible on the map below, just above the compass rose). Japanese maps continued to center the Prime Meridian on Kyōto until the International Meridian Conference of 1884 fixed it on Greenwich. The map also made use of Inō Tadataka's projection (a slight variant on the Sanson-Flamsteed equal area projection, which Inō seems to have developed completely on his own, as he did not have access to any maps, atlases, or treatises wherein the projection was displayed or discussed). While the Sanson-Flamsteed projection distorted both distance and direction, it accurately

²⁰⁴ Harrison, Japan's Northern Frontier, 29.

represented area, making it a good choice for a government interested in mapping both territory and borders.²⁰⁵



Map 20: Takahashi Kageyasu (Edo, 1811)

²⁰⁵ Unno, 139.

The *Nihon Eenkai Ryakuzu* was translated into German in 1854 by Philip Franz Von Siebold, an act that got Takahashi and a number of other *Tenmongakubu* scholars imprisoned by Bakufu for sharing state secrets.²⁰⁶ Along with Inō and Mogami's maps, Mamiya's work provided the Japanese with an unparalleled level of cartographic information concerning Ezo. The Russians would not discover that Sakhalin was an island until the Nevelskoi expedition of 1849, and the rest of Europe not until 1853 with the publishing of Siebold's atlas of Japan.²⁰⁷ Meiji diplomats would later use Takahashi's versions of Mamiya's map as proof of Japanese territorial claims while negotiating with the Putiatin mission in 1854, Governor-General of Siberia Nicholas Muraviev in 1859, and the St. Petersburg conference of 1862.²⁰⁸

²⁰⁶ Unno, 89.

²⁰⁷ March, 87-8.

²⁰⁸ Harrison, 44-5, 48, 50. Although it must be noted that in 1862 the unfinished nature of the Sakhalin exploration actually hindered negotiations concerning a dividing line between Russian and Japanese possessions.

Changing Patterns of European Interest in Japan

The increased accuracy of Bakufu maps sparked fears among officials of the dangers of letting them fall into the wrong hands (specifically those of the Russians). Whereas earlier Shogunal maps were allowed into public hands, the work of Inō, Rinzō, Mogami, and Kageyasu became state secrets. This created a stoppage in the flow of cartographic information between the Japanese and the Dutch. However, as the activities of Japanese scholars of Western cartography were predicated on the openness of the exchange the translators and officials of the Astronomy Bureau worked with their Dutch associates to circumvent the Bakufu restrictions. These activities would lead to an international incident that would result in the exile of a Dutch doctor and the imprisonment, torture, and deaths of a number of prominent officials of the *Tenmongakubu*.

The Von Siebold Incident

Trade with Japan restarted shortly after the Netherlands reclaimed its independence from France after the Battle of Leipzig in 1813. Still stymied by the Bakufu's restrictions on precious metal exports the Dutch East India Company sought to create bridges with Japan by exploiting the interests of Japanese intellectuals. Interest in *Rangaku* or "Dutch Learning," had become more widespread after Shogun Yoshimune relaxed the ban on western books in 1720, and resulted in the gradual translation of many texts into Japanese. To facilitate this attempt at scientific democracy Colonial Minister

Baron Godert Alexander Gerard Philip van der Capellen dispatched the German doctor Philip Franz von Siebold to teach the Japanese about western science and medicine and gather information about Japan for use in determining potential new avenues of trade.²⁰⁹

Van der Capellan's plan was initially successful. In 1823 Siebold began teaching medicine to a number of Japanese interpreters, officials, and scholars. By the end of the year his students successfully lobbied the Shogun to grant Siebold permission to leave Deshima in order to visit patients, and in 1824 Nagasaki officials built him a clinic/school in the mountains north of the city. In lieu of payment Siebold required his students to submit plant and animal samples, essays in Dutch on Japanese law, religion, history, and society, and translations of Japanese texts on science and medicine.

The fact that it was still illegal for Japanese scholars to provide these essays and translations did little to stop Siebold or his pupils. He also corresponded frequently with important figures such as Shimazu Shigehide the daimyo of Kagoshima, Okudaira Masataka the daimyo of Nakatsu, *Rangaku* scholars like Momori Genryo, Shingu Ryotei, Ishisaka Sotetsu, Narabayashi Shoken, and the geographers Takahashi Kageyasu and Mogami Tokunai.²¹⁰ Throughout his stay in Japan Siebold sent numerous articles in German and Dutch back to Europe, and his findings were published in several prominent academic journals of the time.²¹¹

Under their trade agreement with the Shogun, the leaders of the Dutch factory at Nagasaki were required to visit Edo once every five years. In the past this trip had given

²⁰⁹Herbert Plutschow, Philipp Franz Von Siebold and the Opening of Japan: A Re-Evaluation. (Kent, Folkestone: Global Oriental Ltd., 2007), 4-5.

²¹⁰Plutschow, 6-9.

²¹¹Ann Janetta, The Vaccinators: Smallpox, Medical Knowledge, and the "Opening of Japan," (California: Stanford University Press, 2007).

the Dutch with numerous opportunities to gather observations about Japan and the Japanese. Dutch captains routinely presented the Shogun with charts and maps detailing Europe and the Americas, as well as world maps and globes. They also answered questions posed to them by Shogunal officials concerning the countries and peoples displayed on the maps. This monopoly on foreign contact provided the Bakufu with a level of geopolitical knowledge unequaled anywhere else in Japan.

To assist in his observations Siebold brought with him a barometer, thermometer, altimeter, Harrison chronometer, sextant, and several microscopes. During the trip he was able to gather numerous climatic, topographical, and oceanic measurements, even going so far to name several of the geographic phenomena he encountered. Most notably the straits between Kyushu and Honshu which he named after his patron Baron Van der Capellan, a name that they would keep until the 1864 bombardment of Shimonoseki in the Chōshū domain by combined British, Dutch, and American naval squadrons.²¹²

In Edo Siebold met with numerous Japanese scholars, most notably Mogami Tokunai (then 72 years old) and Takahashi Kageyasu. Tokunai met several times with Siebold, speaking extensively about Hokkaido, Sakhalin, and the Southern Kuril Islands. During these meetings Siebold later reported that Tokunai gave him five maps of Ezo and one of Sakhalin, after making him promise to keep them a secret. Later Siebold spoke with Takahashi (called "Globius" by the Dutch), giving him copies of La Perouse, Golovnin, and Krusenstern's maps of Russia, Ezo, and Japan, and telling him about the American war of Independence and the Napoleonic wars.²¹³

²¹² Plutschow, 10-11.

²¹³ Plutschow, 12.

Weeks later Siebold would send Takahashi maps of St. Petersburg, Holland, nine maps of Dutch colonies in the East Indies, as well as a map of Siberia (most likely Gavril Sarychev's 1792 map of the Siberian coast) so that Takahashi could determine the actual distance of Russian possessions from those of Japan. When Siebold requested maps of Japan Takahashi provided him with Mamiya Rinzo's map of Sakhalin and an unfinished copy of Inō Tadataka's map of Japan's coasts and major roadways. He also provided Siebold with copies of Rinzo's travelogues from which Siebold could glean information about Ainu culture and society. The articles and papers Siebold wrote using the information from this journey earned him admittance to the Royal Asiatic Society as well as letters of recommendation from the Swedish naturalist Carl Thunberg and the famous German poet and translator August Wilhelm von Schlegel.²¹⁴

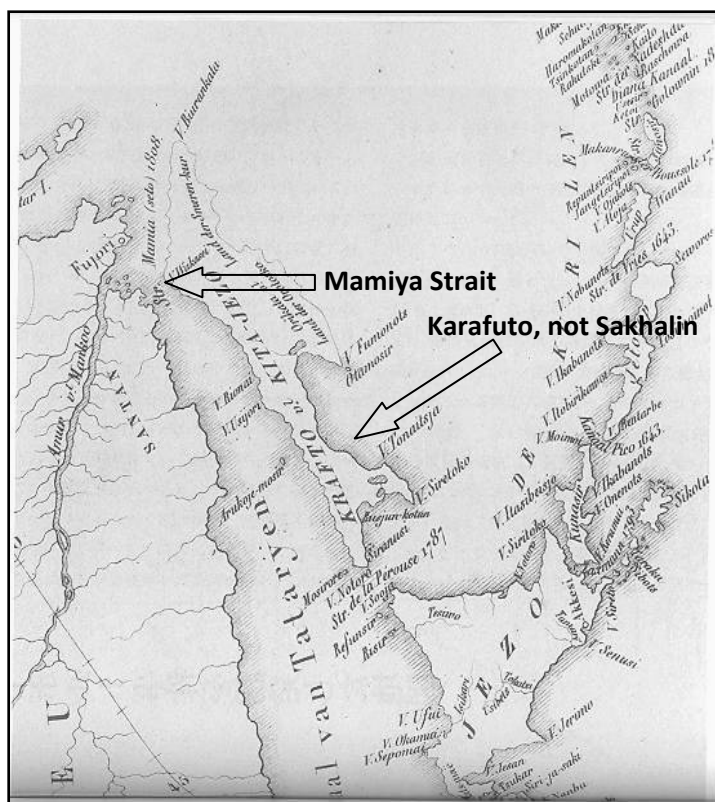
Impressed by Mamiya's work in northern Ezo Siebold attempted to contact him by having a letter passed and several small gifts delivered to him through Inabe Ichigoro (the translator who had facilitated Siebold and Takahashi's correspondence).

Unfortunately for Siebold, Mamiya's nationalism and dislike of foreigners had not diminished over time. Immediately upon receiving foreign communications letter Mamiya turned it and the gifts over to the Shogunal authorities, launching an investigation into Dutch-*Tenmongakubu* involvement.²¹⁵ When the investigators discovered that Siebold was Prussian rather than Dutch they believed that he was a Russian spy sent to steal Japanese maps. Their beliefs were further confirmed after they intercepted a map of Korea that Takahashi sent to Siebold, as well as a number of letters

²¹⁴ Philipp Franz von Siebold. Manners and Customs of the Japanese in the Nineteenth Century. (Rutland, Vermont: Charles E. Tuttle Company, 1981) 167-8.

²¹⁵ Plutschow, 17.

mentioning the Krusenstern and Golovnin missions.²¹⁶ Siebold, Takahashi, Inabe, and a number of Takahashi's associates from the *Tenmogakubu* were placed under arrest. The most recent of Siebold's maps were confiscated (the earlier ones already having been packed away and shipped back to the Netherlands) and he was thoroughly questioned over the course of several weeks. Believing that he was protecting his associates Siebold did not reveal the names of any of his collaborators other than Takahashi (as he was already named in the correspondences). Although Takahashi and Inabe were tortured they too refused to give up any names, or even admit responsibility for their actions.²¹⁷



Map 21: Phillip Franz Von Seibold (Leiden, 1832)

The Dutch government petitioned the Bakufu for the release of Siebold. Due to lack of evidence the Shogunal committee eventually reached a verdict that Siebold was an overly curious scientist rather than a Russian spy. Nonetheless they resolved to banish him from Japan. Siebold's Japanese compatriots fared somewhat less well.

²¹⁶ Plutschow, 16. This assumption was due primarily to the phonetic similarities between the names “Prussia,” and “Russia,” “Poroshia,” and “Roshia,” when rendered in Japanese.

²¹⁷ Plutschow, 18.

Takahashi died in prison, Inabe received a sentence of life imprisonment, and several others took their own lives. The majority of the *Tenmongakubu* officials and Nagasaki translators implied in the conspiracy received sentences of 50-100 days imprisonment, lost their jobs, and were banished from Nagasaki and Ezo for the remainder of their lives.²¹⁸

Siebold returned to Holland via Batavia in 1830, where he immediately began to translate and annotate the various maps he had received during his tenure with the East India Company. Wanting to give the west an idea of Japanese surveying and mapmaking ability in 1852 Siebold published annotated translations of Rinzo and Mogami's maps of Ezo as part of his massive atlas *Nippon*. In order to protect Takahashi and his other co-conspirators Siebold based his representations of Japan on Krusenstern's map, waiting to publish his translation of Takahashi's map until decades later.²¹⁹ The inset map on the next page is a detail of Ezo from Siebold's 1832 map of Asia. Although his translation is far from perfect, Siebold took great pains to correctly represent Japanese place names, including western titles only where none were shown on the Japanese maps. In Ezo he omitted the names of a number of settlements, choosing to focus only on the largest trade sites such as Akkesi (Akkeshi) in eastern Hokkaido, Sooja (Souya) in northern Hokkaido, Siranusi (Shiranushi) in southern Sakhalin, and Mats-mae (Matsumae) in Southern Hokkaido. Apart from rivers and lakes no other topography is included. The size of straits, bays, and rivers were enlarged, speaking to the current European preoccupation with navigation and trade rather than any particular interest of Siebold's. The strait

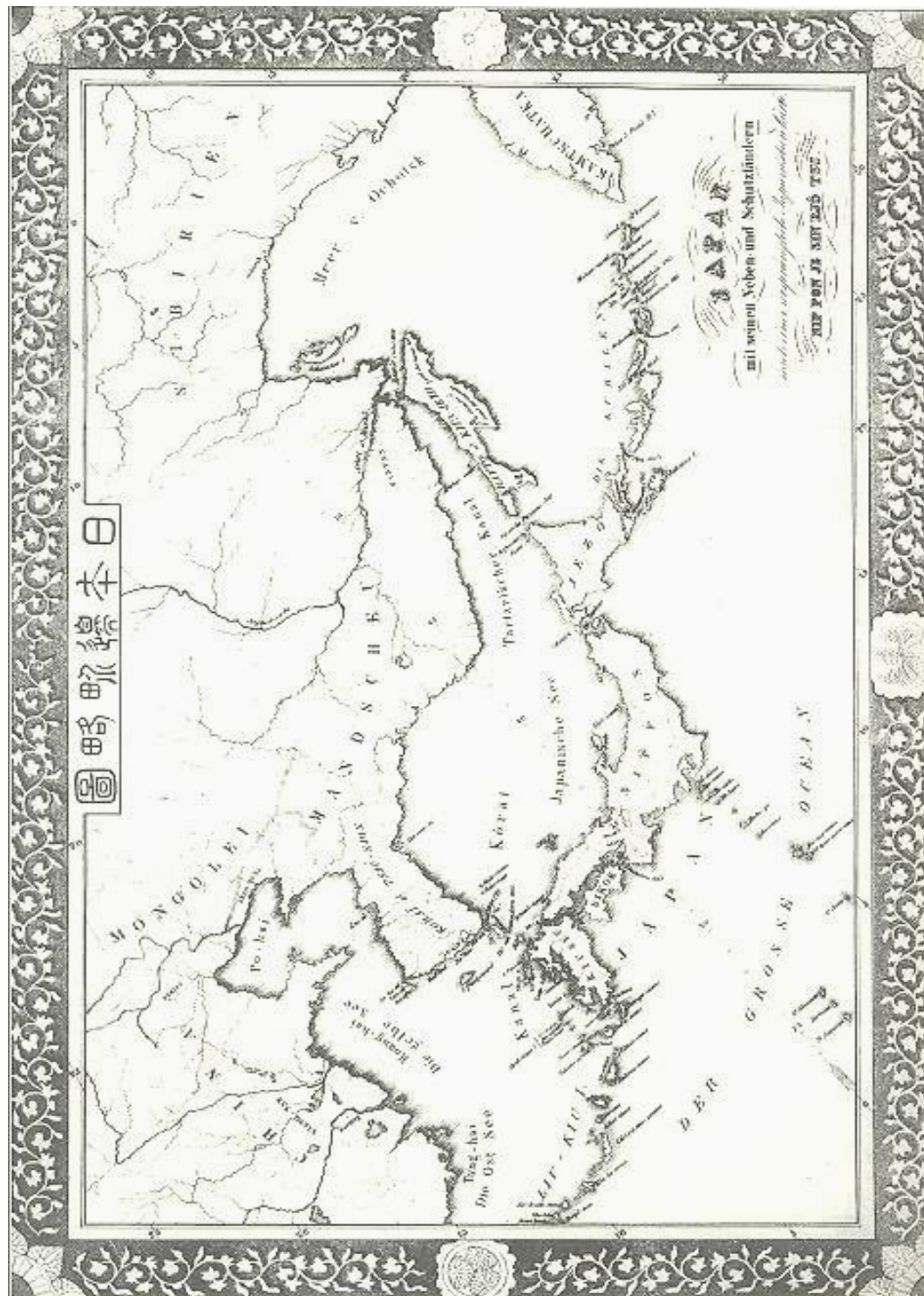
²¹⁸ Plutschow, 20.

²¹⁹ Unno, 191.

between Sakhalin and the continent is labeled “Str. Mamiya (seto) 1808,” “seto,” being a Japanese word for strait. As no Japanese map (not even Mamiya’s) gave this title to the strait one can only imagine that the inclusion of this name was either a mistake on Siebold’s part or perhaps an exact revenge on Mamiya by implicating him in the conspiracy.²²⁰ Siebold’s work was published in German in 1832, translated into Dutch in 1835, and then French (published in five installments from 1838-40). In addition to the maps of Japan and Ezo *Nippon* included numerous essays from Siebold’s Japanese students as well as his own observations on Japanese culture, history, flora, and science.²²¹

²²⁰ Unno, 191. Siebold’s own notes mention nothing of the motives behind the naming of the strait, however they do reveal that he was aware of Mamiya’s role in the turning him over to the Shogunal authorities.

²²¹ Plustschow, 26-8.



Map 22: Phillip Franz Von Siebold (Leiden, 1852)

In 1852 Siebold published a direct translation of Takahashi Kageyasu's *Nihon Enkai Ryakuzu* (Map #18, pg 115) along with a book detailing the history of Japanese discoveries in Ezo. The book drew on information from Siebold's own experiences, the work of his Japanese students, as well as materials from the East India Company archives. The map would be translated from German into Dutch, English, French, and Russian. The map represented Japan as a unified country, including both Ezo and the Ryūkyū within the Japanese sphere of influence. Again, Siebold's true motives remain mysterious but he may have drafted the map in an attempt to solidify Japanese borders in the mind of Europeans.²²² Whatever Siebold's goal, it cannot be denied that the map effectively displayed Japanese territorial claims. It was used in negotiating the treaty of Shimoda (1855) that divided up Sakhalin and the Kurils between Japan and Russia, again at the treaty of St. Petersburg (1875) which gave all of Sakhalin to Russia and the Kurils to Japan, and is still used today by the Japanese government as proof of their nation's claim on those Kuril islands currently under Russian control.²²³

The Golovnin Incident

In 1811 the Russian-American company resolved to dispatch a mission to explore the southern Kuril islands in order to search for resources and increase Russian knowledge concerning the archipelago. Company officials informed Captain Vasily Mikhailovich Golovnin of Khvostov and Davidov's raids and warned him to avoid

²²² Plutschow, 29-30.

²²³ Plutschow, 30. and March, 89-90.

contact with the Japanese.²²⁴ Nonetheless, only one month into the voyage Golovnin and a few of his crew attempted to parlay with the garrison of a Japanese fort on Urup and were captured.²²⁵ Golovnin's first mate Rikord managed to sail the ship away before the Japanese could board it, sailing north to Iturup where they captured a Takadaya Kahei, the captain of a Japanese merchant vessel in hopes of exchanging him for Golovnin.²²⁶

Golovnin was moved to Hakodate a few weeks later where he was questioned by various officials (including Mamiya Rinzō) concerning the Russian military plans regarding Ezo as well as the extent of their geographic knowledge of the area. Golovnin managed to smuggle a note to Rikord via a freed sailor telling him of his plight. Rikord immediately sailed south to Hakodate. Takadaya, who had befriended Rikord during the interval, was able to secure Golovnin's release in exchange for an official memorial denying that the Russian government had sanctioned the Khvostov and Davidov attacks and the return of any of plunder stolen by the two. Sailing back to Kamchatka, Rikord received both the official note and a number of rich gifts for the Bakufu officials. The note mollified the Japanese, who released Golovnin and the other captured sailors.²²⁷

The Golovnin mission would mark the end of Russian involvement in Ezo for over 40 years. Krusenstern's report that Sakhalin was a peninsula and that the Amur estuary was un-navigable contributed to the Russian-American Company becoming more involved in Alaska and the Aleutian archipelago.²²⁸ After the Russian withdrawal Shogunal interest in Ezo began to wane, and it was returned to Matsumae control in

²²⁴Stephan, The Kuril Islands, 78-9.

²²⁵ Lensen, 205-6.

²²⁶ Lensen, 226.

²²⁷ Lensen, 247.

²²⁸ Stephan, The Kuril Islands, 80. and Lensen, 262.

1821.²²⁹ Hostilities between Japan and Russia were forestalled for the moment, but the fate of Ezo had yet to be conclusively decided.

The Von Siebold and Golovnin incidents represent a continuation of Japan's relationship with Russia and Europe, but take on a very different tone due to contention over Ezo and the Bakufu's new position with regards to national maps. The fact that Von Siebold continued correspondence with many prominent Japanese scholars and officials throughout his stay, was allowed to leave Deshima, set up a private practice in Nagasaki, and even train pupils despite Shogunal strictures to the contrary is a strong indication that the flow of information between Europe and Japan is not just a late sixteenth and early seventeenth century phenomenon. That Takahashi Kageyasu passed maps that were considered "state secrets" to Von Siebold without any apparent fear of Shogunal censure is further evidence of the open secret of this exchange. The later torture and imprisonment of *Tenmongakubu* scholars occurred as a result of Bakufu fears of Russian encroachment in Ezo. Despite the fact that the Golovnin incident ended aggressive foreign threats to Japan for almost half a century, contention over Ezo left the many Bakufu officials with a shell-and-repel attitude towards foreigners and a strong concern for national safety. When concerns were raised over the "theft" of Takahashi's accurate, authoritative, and defensively minded maps the Bakufu reacted to just as it had to previous Russian threats, by investigating the issue and taking steps to protect the country.

²²⁹ Walker, 227.

Conclusion

The maps created by cartographers and explorers such as Von Siebold, La Perouse, Krusenstern, Inō, Takahashi, and Mamiya did not represent so much as create many disparate Ezos. Their depictions both shaped and were shaped by their own interests as well as by those of their governmental patrons and were at the root of the political and economic conflict over the space itself. Each map fashioned a different image of Ezo, one that would render the area comprehensible and thus accessible as a colony, buffer state, trade hub, danger zone, or source of untapped potential. Despite their differing goals the maps themselves should not be seen as wholly separate objects, but rather part of an ongoing discussion propagated by the long history of cartographic exchange between Japan, Europe, and Russia.

The Japanese adoption of scientific cartography in the early nineteenth century can be viewed similarly. It was not a break from the past but rather a representational paradigm shift spurred by the changing political climate. The Bakufu had long used maps as tools of state, and the conflict with Russia over Ezo reinforced rather than undermined the use of maps as working artifacts. Inō Tadataka, regarded by many as the founder of modern Japanese cartography, did not employ survey methods that his predecessors would have found strange. His techniques were improved and his measurements more thorough, but they were all based on ideas that had been around in Japan for decades if not centuries. Rather, it was Inō's focus on accuracy on a national scale that would characterize the shift towards scientific cartography in Japan. The Bakufu supported Inō

in his endeavors because his maps worked within the context of the move towards Western-style cartography that the Shogunate had begun years earlier through its support of the *Tenmongakubu*.

This new focus on accuracy and replicability produced maps that changed the way the Japanese thought about Ezo, Japan, and their relationship with other countries. For the first time Japan had solid borders (specifically northern borders) that could be violated by other nations and thus must be defended. Rather than existing on the periphery the Ainu were now encapsulated fully within the bounds of Japanese territory, a move that necessitated policies aimed at concretely defining their relationship to the country and government. Maps that contained accurate geographic information could provide advantages to Japan's foes if they fell into the wrong hands, and therefore must be kept as state secrets.

Finally, the maps represented space in a way that was comprehensible to a Western audience. By tapping into the European representational vocabulary the Bakufu preempted attempts by western mapmakers to iconically and linguistically redefine and rename Japanese territory. Through his translation of Takahashi's work Siebold (consciously or unconsciously) lodged the Japanese representation of Japan as an intact territory firmly in the western geographic consciousness, something that would benefit Japan greatly in the next several decades as it sought to modernize and free itself from unequal treaties. Additionally, Siebold's maps, just as those of Hayashi Shihei forty years before, clearly display the role that individual interests play in the creation (and translation) of maps.

The mapping dialogue between Japan and the west began almost from the moment of contact, and affected both European and Russian depictions of Japan, and Japanese depictions of the rest of the world. Through active copying and translation western maps were reproduced in Japan throughout the Tokugawa period, allowing the Japanese to increase their understanding of other countries. Meanwhile, European explorers relied on Japanese and Ainu representations of Ezo and Japan to supplement and rectify their own geographic knowledge of the region. Ezo itself serves as an excellent case study of this exchange, opening the door for questions concerning the extent to which the “science” of European cartography was influenced by the indigenous mapping practices of the regions they surveyed.

This paper ends where it began, with the Russo-Japanese conflict over Ezo, a conflict which has served throughout history to shape not only the region itself but both countries’ relations with each other. In early maps of the region Ezo appears as an unknown, whether a source of limitless gold and silver, or of furs, fish, and game this richness propelled no small number of Russian and Japanese explorers into the region. This desire to own the (real or imagined) wealth of Ezo combined with Japanese fear of Russian expansionism fueled and continues to fuel political and military contention between Russia and Japan. The idea that yielding even a single island to the Russians opens the door for a renewed invasion is still prominent in the minds of many conservative Japanese politicians. On the Russian side the government continues to enact programs to increase immigration and provide infrastructure to Sakhalin and the Kurils, in order to strengthen its own claim on the region. Talks between the two countries continue to produce little result, for the idea of Ezo as a contested space is deeply

ingrained in both the Russian and Japanese political mindset. Centuries of bloodshed, territorial confusion, and conflicting claims play out in a thousand differing depictions of the same space, smothering attempts at redefinition under the weight of historical inertia. However, within the myriad depictions also runs an economic thread, for while Ezo can serve as an avenue of attack it can also be one of trade. Historically, Ezo has occupied both of these positions, at most times simultaneously. Whether Russia and Japan can agree to another cartographic redefinition of the region remains to be seen, but if our exploration of maps has shown us anything it is that they are certainly up to the task.

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