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DUTCH NAVIGATIONAL KNOWLEDGE ON JAPAN, 1608-1641

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Abstract

This article examines how a special type of information was collected, processed and disseminated in the early days of the Dutch East India Company (VOC) at the lowest organizational level of the Company. Through the case of the VOC factory in Japan I do not only examine what the Dutch navigators did know about the region in question. Of particular interest are the handling of navigational knowledge and the organizational protocols and answers of the VOC. I argue that these decades brought fundamental changes in this respect and through unpublished materials I show some details of this organizational change within the VOC.

Resumo

Este artigo examina como um tipo particular de informação foi coletado, processado e disseminado nos primeiros dias da Companhia das Índias Orientais Holandesa (VOC), ao nível mais baixo de organização da Companhia. A partir do caso da feitoria da VOC no Japão, não se examina apenas o que os navegadores holandeses sabiam sobre a região. Foi dada particular atenção ao uso dos conhecimentos sobre navegação, e aos protocolos e respostas organizacionais da VOC. No presente artigo argumenta-se que aquelas décadas trouxeram mudanças fundamentais a esse respeito e mostra-se, através de materiais não publicados, alguns detalhes dessa mudança organizacional dentro do VOC.

要旨

本稿では、オランダ東インド会社（VOC）の初期組織の最も下位レベルで、特別情報がどのように収集、処理、および発信されたかについて検証する。本研究では、日本におけるオランダ東インド会社（VOC）工場の事例を通して、オランダ人航海士が日本について知っていたことに限り分析するものではない。とりわけ興味をひくものに、航海に関する知識および組織的プロトコルの取扱いとそれに関するオランダ東インド会社（VOC）の対処法がある。　この事象の理解に関し、最近数十年で根本的な変化がもたらされたことを論じ、さらには、本稿に示す未発表の資料にあたり、オランダ東インド会社（VOC）内部での組織の変化に関して詳細に検証する。

Keywords:

Dutch East India Company (VOC), Japan, Navigational Knowledge, Unwritten Knowledge, Information Management, Information History.

Companhia das Índias Orientais (VOC), Japão, Conhecimento Marítimo, Conhecimento Não Escrito, Gestão de Informação, História da Informação.

オランダ東インド会社（VOC）、日本、航海知識、未記述知識、情報管理、情報履歴。

> "One can only wonder that our people have attended that place so long and still have not discovered the whole island."

Introduction[1]

The Dutch East India Company (hereinafter VOC or Company) appeared as a new actor in Asian markets at the beginning of the seventeenth century and this inevitably limited the Company's stock of knowledge about the region in these early years. The criticism quoted above did not specifically refer to the activities of the VOC factory in Japan but was, nevertheless, indicative of the significant changes in Dutch navigational knowledge that took place during the 1620's and the 1630's.[2]

This essay focuses on some aspects of the Dutch management of navigational knowledge. This research is limited to the Hirado years for two main reasons. The transfer of the factory to Nagasaki/Deshima in 1641 had a fundamental impact on the VOC's accessing and handling information, so a completely different picture would emerge for later years.[3] Moreover, while closely related topics have been examined thoroughly, to our best knowledge, a detailed survey of Dutch navigational knowledge concerning Japan in the Hirado period is unavailable.

Karel Davids's monograph examined general and global Dutch navigational practices in the early modern era thoroughly.[4] The VOC management of navigational knowledge in The Netherlands (the activities of the Hydrographic Office) is well known thanks to the meticulous work of Günther Schilder.[5] Kees Zandvliet also provided exciting reviews of

1 I am deeply grateful to Professors Archie Dick, István Rákóczi and László Z. Karvalics for their assistance and encouragement. I also thank Ton Harmsen for his valuable help with the translations of the sources used. I am also indebted to the Japan Foundation for the financial help that allowed me to gather the necessary source materials.

2 *Letter of Cornelis van Nijenroode from Hirado to the Governor-General*, Batavia, 17 October 1626, Afgaande brieven, 7598 8 4, 57. I accessed the Hirado factory sources at the University of Tokyo, Historiographical Institute, thus references of that Institute are used throughout this paper. The same documents are available in the Nationaal Archief: Nederlandse Factorij Japan. 1.04.21. 276-278 (Ingekomen brieven) and 482-483 (Uitgaande brieven).

3 For the Hirado years, see: W.Z. Mulder n.d. General surveys of the VOC in Japan: Blusse, Remmelink and Smits 2000. Van Gulik 1986. Goodman 2002.

4 Davids 1986. For a general summary of early modern navigation in English see: Waters 1976; Tyacke 2007, 1722-1753. Though this latter essay focuses on England, it gives a good general overview of the age.

5 Schilder 1976, 61-78.

the primary Dutch hub of Batavia and the role of the mid-level centre of Taiwan.[6] On the other hand, data concerning the chosen lower level of management, Japan has proven to be somewhat less readily available. One can find only a few detailed essays on different aspects of Dutch-Japanese exchange of knowledge, and even fewer on the years when the Dutch factory operated in Hirado.[7] Finally, in the context of Japan, a few essays touch the subject about the transfer of navigational knowledge.[8]

Before any detailed examinations the term navigational knowledge should be defined. Several researchers have already touched upon this question, so a relevant and useful definition is at hand. Karel Davids gave an outline of both navigation technique (the set of methods by which seamen can find their way across the sea to reach a given destination) and seamanship (operating procedures for the ship and the manoeuvres that must be performed to arrive safely). Following his definitions, this essay uses navigational knowledge as the set of knowledge concerning these activities and guiding ships to their destinations.[9] According to the above, navigational knowledge is a generic term covering a continuum of knowledge, so another terminological distinction must be highlighted. Navigational knowledge and cartographic knowledge are not completely the same. It is likely that cartographic knowledge is the most visible part of the overall set of knowledge in question, but matters relating to maps are still only a subset of navigational knowledge. This article is *not* a study of cartography, consequently does not focus exclusively on maps.

This essay is a case study, but it addresses a few general questions that arise by means of examining the special case of Dutch navigational knowledge regarding Japan. Conclusions will be offered on three analytic levels. The study is based on archival documents and hitherto unpublished source materials, and a description will be given of relevant events and particulars that have not been presented in detail. Such questions will be answered as: What navigational information regarding Japan was available to the VOC in the first half of the seventeenth century? How did this knowledge grow? What actions did the VOC take to improve its stock of knowledge? The answers can be of especial interest for researchers in Japanese-Dutch relations, in the VOC factory in Japan or in the exact navigational practices used in these decades.

6 Zandvliet 2002; Zandvliet 1998, 123-135.

7 An overview of Japanese-European information exchange: Massarella 1984, 1-20. For a general outline of the Dutch-Japanese relations in the Hirado period, see: Boxer 1967, 285-307; Clulow 2013; Goodman 2000, 9-17; Kanai 1976, 201-209.

8 Arima 1964, 352-379; Boxer 1950, 1-24; Jacobs 1986, 21-31; Kiss 1947, 101-119. A summary of Japanese cartography (with some mentions of European influence): Unno 1994, 346-477. These reviews do not or just barely touch the Hirado period. Several studies on Dutch navigational practices in Asia examine the first half of the 17th century – however, they do not focus on the local level of Japan. Baldwin 1981, 80-90. Davids 1990, 5-18. The most thorough description (with several details for the Hirado period, too): Vermeulen 1988, 75-106.

9 Davids 1986, 32. Other authors emphasize more the skills of determining direction, keeping track of position and knowing one's target region. Watson-Verran and Turnbull 1995, 124; Bruyns 1987, 264.

Although an examination of the maps mentioned below would be helpful, unfortunately most of the maps drawn by VOC personnel in these decades are not extant any more, so it is unclear what exact data they included.[10] Due to the scarcity of available maps this essay puts stronger emphasis on the VOC managerial practices instead. It focuses more on the actions and reactions of the Dutch, and on the way they managed the gathered navigational information, and less on the exact stock of information they had. Thus, the second analytical layer focuses on the structure of the VOC. The general structure of the Company in Asia is well detailed in the secondary literature,[11] but a few special issues may require further examination. Although some information-centred research focussed on the VOC, this approach has not been very widespread.[12] This study will follow the internal logic of the information cycle (or information life-cycle) and each chapter will examine the individual phases of that cycle: the collection, the organization and the dissemination of information.[13] A few important research questions related to these activities will be examined: What institutional solutions did the Company use to handle the obvious lack of necessary knowledge when working in a mostly unfamiliar region? How effectively could the Company's organizational structure deal with unforeseen problems? What role(s) did the Japanese factory play at the lowest structural level of the Company? How did the Company's management structure shift to adapt to its changing roles and, indeed, did it actually change at all? Although the answers will be offered at a regional level, they also shed some light on the general information managing practices of the VOC in its entirety.

Data related to the Japanese VOC factory and the procedures of the Company can be interpreted within an even broader context. Several phenomena, touched upon in this essay, were not the exclusivity of the VOC but manifestations of the general information management practices of the age. The third analytic level includes such topics that surfaced often in early modern, historical or other contexts. The emerging field of information history provides a most appropriate theoretical framework for this. Although information-centred historical examinations are not at all new, information history – while putting information and its historical role in the very centre of research – tends to create

10 They probably were similar to ones examined by Tyacke 2008, 39-62. Kees Zandvliet mentioned a "set of four charts" depicting the region of Batavia, Taiwan and Japan from the early 1640s. These charts may have based upon the maps made during the expeditions mentioned below. The pictures of these four maps are included: Zandvliet 2002, 111-113.

11 Gaastra 1991, 66-81, 111-127; Steensgaard 1974, 114-154; Meilink-Roelofsz 1962, 173-269; Meilink-Roelofsz 1980, 1-43; Meilink-Roelofsz 1981, 170-190.

12 Huigen, Jong and Kolfin 2009, 64-70; Davids 2009.
Some presentations of the recent conference 'Information and Power' in Amsterdam also had a focus on the VOC: https://www.aanmelder.nl/informationpowerhistory/wiki/246805/available%20abstracts#.WNzCnizqYsY (Accessed February 6, 2019)

13 One can find several models regarding the information cycle. They segment this cycle differently, but most distinguish collection, organization, use and dissemination as separate stages. Darlington, Culley, Zhao, Austin and Tang 2008, 115-132; Hernon 1994, 143-170.
In the context of cartography David Woodward used an information cycle model as framework: Woodward 1974, 101-115.

its own conceptual foundation. This essay benefited much from this framework and from case studies that use this framework.[14] Through examining how exactly the mentioned information cycle manifested itself in the given context and how information was managed in practice, this essay also extends this theoretical framework. Such questions as "*what information was collected, used, and shared*" by profession (in this case by the personnel of a trading factory) and "*how did the use of information affect the work and lives of specific individuals or groups*" help to discover the practices of information management in the early modern (or even the modern) era.[15]

Finally, source materials should be considered. There are hardly any available sources for the years before 1623, and a greater part of the correspondence of the factory for the years before 1625 is notably absent. Most of the letters available today were written from that point onwards. Between 1629 and 1633 there was another significant nadir as a result of a temporary deterioration in Dutch–Japanese relations. From 1633 on a huge quantity of sources, including the diaries kept at the factory is available.

Political and economic background

In order to portray the role that the factory in Japan played in the management of navigational information, its place in the VOC-system, and its connection with its most important partners should be briefly reviewed. As the factory did not have only a commercial role in its first few years, we should also consider both the ongoing economic situation and relevant political relationships.

The rebellion in the Low Countries eventually led to a war of independence against Spain in the middle of the sixteenth century. After the union between Spain and Portugal, the latter entered into the fray, and the conflict spread to territories outside Europe even before the establishment of the VOC in 1602. In 1609, the Twelve Years' Truce was signed, but in Asia battles continued to be fought with the same intensity. The South China Sea was an especially important arena for all parties at war. The most important Spanish centre in Asia was located here. Manila was not only an administrative and military base, but it was also essential from an economic point of view. The Portuguese also had an important centre in the region, Macao. They took advantage of the dearth of official relations between China and Japan and acted as middlemen, turning their settlement into a commercial stronghold.[16]

14 For a bibliography of recent literature on information history, see: Weller 2010, 83-97. General overviews of information history: Black 2006, 441-473; Cortada 2016, 133-163; Z. Karvalics 2011, 98-101. For case studies see: Headrick 2010. Soll 2009.

15 Cortada's five general questions and three strategies were highly useful for this study. Cortada 2012, 119-144, especially 130-132.

16 Costa 2000, 75–95.

Japan was an important centre in this Spanish–Portuguese sphere of influence. For the Portuguese, the country was the main terminal of a highly profitable commercial route. At the beginning of the seventeenth century, it also became an increasingly significant hub for the Spanish. Commerce between Japan and Manila started to grow steadily in the 1610s.[17] The Iberians also considered Japan as a reconnaissance base for voyages into the nearest regions of the Pacific. Finally, during this period, Japan might even have played a role in the Spanish strategies that focused on protecting and supplying the galleons moving between America and the Philippines.[18]

The Dutch company also established its own centres soon after its arrival in the region: its headquarters (first in Bantam, later in Batavia), and several fortresses along with a number of factories (including the one in Japan). The first energetic (albeit rather chaotic and basically fruitless) attacks on Spanish and Portuguese ships and settlements soon followed. The VOC managed to expel the Portuguese from the Moluccas, a primary source of clove and nutmeg, but then Spanish forces operating from Manila appeared in the region so the VOC's consolidation of power over these islands took several more decades.[19]

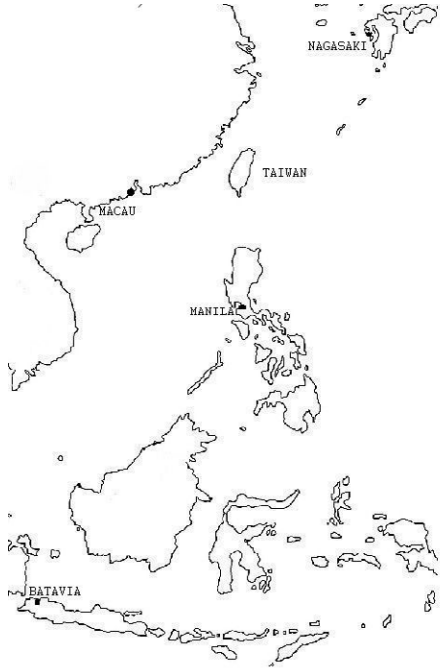

Fig.1 - The Trading World around Japan.
Credit: author.

17 Barker 2009. Flynn and Giraldez 1996, 52–68. Iaccarino 2008, 71–81; Villiers 1980, 66-80.

18 Mateo 2007, 17-37. Concerning reconnaissance, one should bear in mind especially the mythical "Silver and Gold Islands": Camino 2005, 18–21. 90; Spate 2004, 106–109.

19 Laarhoven and Wittermans 1985, 485-504; van Veen 2001, 85-105.

The establishment of the VOC factory in Hirado, South Kyushu, in 1609 and its later activities should be viewed within the described geopolitical constellation. The logistic tasks of the factory were at least as important as commercial or economic considerations. Japan was a significant support base for VOC ships operating in the triangle between Manila, Macao and the Moluccas. The sometimes severely battered Dutch vessels were able to retreat there to make the necessary repairs and to offer the crew a little rest. At the same time, the country could be used as a base for military and privateering operations.[20] For instance, in 1617 several vessels of the Dutch fleet defeated near Manila retreated to the waters near Japan where the commanders deliberated on an attack against a Portuguese carrack that was anchored in Japanese waters. Additionally, when a brief clash occurred between English and Dutch companies at the end of the 1610s, some captured English vessels were sent to Hirado. Soon after that, the joint Anglo–Dutch Fleet of Defence of ten vessels was created to blockade Manila, its base camp being again in Japan.

The factory played an equally important role in careening and repairing ships and soon became a regional centre assigned to that task. Despite all opposition from governor-general Jan Pieterszoon Coen, Japan was able to maintain its position until the end of the 1620s. Only the long shipping ban, resulting from the Nuyts-affair,[21] altered this situation.[22]

Finally, the Dutch also exported provisions and military equipment from the country. Even the English head merchant in Japan noticed this, and detailed the importance of exporting foodstuffs and manufactured guns and metal ship parts from Japan.[23] The arguments put forward by the head of Dutch factory attempting to refute the above-mentioned notions of attacking the Portuguese carrack is also telling: such an action would have compromised the rice export to the Moluccas.[24]

The situation started to change in the 1620s. The factory in Hirado slowly transformed into a fundamental element of the Dutch intra-Asian commercial system. At the same time, Japan played a smaller and smaller role as a naval base. In 1620, the shogun prohibited the export of weapons and the hire of Japanese soldiers, a severe blow to Dutch plans for the region. Another setback was the Nuyts-affair at the end of the 1620s, which made the careening of ships in Japan impossible. On the other hand, the factory became more and more economically important. By the time the Nuyts-case was resolved in 1633, Taiwan evolved into a very important commercial centre, so the volume and profitability of Dutch

20 Clulow 2006, 65-80. Kato 1991, 181-193.

21 The Nuyts-affair was a clash of Japanese and Dutch interests: the Japanese insistence on Taiwanese commerce and Dutch steps taken to repress this activity. As a result, the shogun placed an embargo on the Dutch factory and VOC-ships were not allowed to visit or leave the country between 1630 and 1633. Clulow 2006, 205-255.

22 Parthesius 2010, 104-107.

23 Cocks, 1978–1980, I, 35. 41. 53. 150.

24 Clulow 2006, 167. Yao 1995, 32-48; Sloos 1898, 14-15.

traffic from Taiwan to Japan increased fast and steadily after the re-establishment of the formerly severed contacts.[25]

The two most important areas with strong and unbroken Dutch ties to Japan were Batavia and Taiwan.[26] Batavia played a crucial role as the headquarters of the VOC-system in Asia, so products from Europe and other parts of Asia usually reached Japan through this town. Taiwan also had an important link with the factory in Japan. Several details turned the island into an essential centre of Dutch trade with Japan. A significant quantity of deer-hide could be procured on Taiwan, a product much sought after in Japan. Chinese merchants started to visit the new port almost immediately, and the merchandise they brought with them (mainly raw silk and silk wares) guaranteed huge profits in Japan. Finally, Dutch ships from Batavia often journeyed to Japan via Taiwan. As a result, Dutch traffic between the two islands rapidly grew in the 1620s. Besides these two primary Dutch centres, Siam should be mentioned as an important commercial partner throughout the entire period. Further key partners were Quinam (especially in the early years) and Tonkin (mainly at the end of the 1630s).[27]

The mentioned political and economic details are important to this essay mostly because they had a serious impact on the movement of ships. In the first years of the factory, relatively few Dutch ships visited the country, but their number gradually increased. During the first decade of the factory there were even years when no ships at all visited Japan. Regular visits became the norm by the end of the 1610s. As trade gained momentum in the 1620s, the number of vessels arriving from Batavia and Taiwan was repeatedly more than five per year. This dynamic growth was broken for a short while by the afore-mentioned Nuyts-affair, but the earlier trend re-commenced after the resolution of the conflict. In the middle of the 1630s, seven to eight Dutch ships visited Japan each year on average, and by the end of the decade this number had stabilized above ten.[28]

A problem waiting for a solution

The below paragraphs include several issues, but it must be kept in mind that those were not the VOC's exclusivity. By the time the Dutch reached Japan both the Portuguese and the Spanish had had connections with the country for decades, and the early Portuguese or Spanish experiences were similar to the general issues that will be touched upon below. The following are only a few examples, but they all have their Dutch parallels. Both Iberian powers took conscious steps to gather relevant navigational data. The Portuguese surveyed Nagasaki harbour as early as 1571, and the Spanish tried

25 Blussé 1996, 51-76.

26 Laver 2008. Suzuki 2012.

27 Tuan 2007, 61-70.

28 Mulder nd, 263-299.

to chart part of the eastern coastline of Japan. In this latter case the English William Adams's warning the Shogun brought political and power relations into the picture, which finally made such expeditions impossible.[29] Portuguese navigators often travelled on Japanese vessels, thus they could accumulate relevant and local knowledge[30] over the years. Given these contacts, the Portuguese were a much more important source of navigational information than the Dutch. Although there are a few instances that Dutch navigational knowledge found its way to Japanese experts, the most important source was the Portuguese. The most conspicuous examples are the Japanese portolan maps based on Portuguese patterns and the famous navigation manual written by Ikeda Kouun, which was based on Portuguese knowledge (and the birth of which is another great example of learning by doing).[31] The Japanese-Dutch information transfer was much less efficient in the examined period.[32]

Another important general detail is the difference between oceanic and coastal navigation. This more or less corresponds to the duality of *general* (in this case: non-local) and *local* navigational knowledge.[33] In the former, charts were especially useful, but in the latter i.e. after reaching the coasts of the destination territory, other aids and stock of information had to be used. Then, rutters (written sailing directions, *leeskaarten*), notes on landmarks, depth data and a description of the sea bottom were used. Experience played an especially important part. Relevant sources touch almost exclusively upon local navigational knowledge, and it seems that the Japanese factory played a greater role in managing this type of knowledge.

Unfortunately, a lack of source materials does not allow a thorough examination of the Dutch navigational knowledge concerning Japan in the very first years of the seventeenth century. Only very fragmentary references are available, mostly on written navigational aids. The maps of the *Liefde* (the first Dutch vessel that reached Japan) were identified in the 1930s.[34] There is a mention of a "*chart of the whole world*" that William Adams, the ship's navigator used to explain some geographic details to the shogun. There are further references to a terrestrial globe in Adams's possession.[35] Linschoten's often cited work also contained several rutters describing the voyage to and from Japan.[36]

29 Barker 1980, 496-497.

30 It is hardly surprising that the Japanese had more extensive and accurate knowledge of the local and the regional waters than the Europeans. Baldwin 1980, 486-487.

31 Nakamura 1964, 24-44. Yamada 2016.

32 The Dutch turned into an important source of navigational information from the 1670s. Takeshi Mizutani 1998.

33 Tyacke, 1735-1737.

34 van Nouhuys 1931, 843-847.

35 Farrington 1991, 54; Boxer 1950, 2-3. Some expeditions sent out by Dutch pre-companies had the most up-to-date navigational equipment. Schilder 1988, 17.

36 Warnsinck 1939, 193-265. Concerning Linschoten, see: Davids 1986, 99-100; Saldanha 2011, 149–177.

Finally, the Directors of the VOC sent some maps to Asia in 1618 to be used between Bantam and Japan. References to written aids appear extensively only in the mid-1630s in the sources on the Japanese factory. This does not necessarily mean that such aids were not used; it may suggest that only few difficulties or questions arose with regard to them.

On the other hand, experience or unwritten knowledge is often referenced to when the number of available sources starts to grow in the second half of the 1620s. The phrase "experienced pilot" (*bedreven / ervaaren*) appears many times; usually in a context describing how desperately such experts were needed. The authors of these letters used the word experience to represent a kind of tangible knowledge relating to a more or less definable geographical region and to specific details of the area in question. Experience was mentioned several times in various sources, meaning acquaintance with concrete situations and issues "around here" (*hier ontrent*) or in a given territory. The phrase "persons with experience in these seas" (*op dit vaerwater ervaerne persoonen*) was often used as a characterization of the navigators.[37]

The importance of having such experience available is exampled well by the decision of the Hirado factory council. The decision-makers decided to transfer a navigator on the ship *Oudewater* over to the Taiwan-bound vessel *Venloo*, and justified their decision by the fact that the navigator aboard the *Venloo* was not experienced enough (*niet bedreven*) with Chinese waters.[38] The tricky procedure of anchoring in Hirado also required experience. The port itself was situated within a bay, which had at its entrance a huge rock "the size of two ships" making entering the bay a complicated business. Its biggest part was hidden underwater, so the reef could be very dangerous. Nevertheless, experienced pilots were aware of its existence and knew how to avoid it, circumventing it without any problem.[39]

The question of experience, however, often appeared in sources in the reverse sense; i.e. as references to inexperience and the difficulties that resulted. Gaining experience was difficult. Learning always required being there on the spot (i.e. learning by doing/ watching). This kind of knowledge was strongly connected to the individuals present, and its transfer required personal interaction. Navigators could acquire experience only if they had travelled the route personally. If another navigator already experienced with the same route helped with this learning, then both had to be present on board the ship.[40] On the other hand, the number of Dutch vessels visiting Japan did not start

37 As Davids explains in detail, "having experience" meant that such navigators were familiar with (for instance) depth information, currents, landscapes in a given region. Concerning the role and exact "content" of experience, and such related methods and terms such as "guessing", see: Davids 1986, 60-65, 126-127, 288-292, 368-369.

38 *Resolution of the Council of Hirado Factory*, 4 November 1633, Papieren en boeken, Resolutien boek, Anno 1620–1641, 7598 5, 37

39 *Letter of Cornelis van Nijenroode from Hirado to the Governor-General, Batavia*, 24 October 1626, Afgaande brieven, 7598 8 4, 71.

40 Another related term is "tradition" – a stock of "collective experience" accumulated by the members of the group. Davids 1986, 288.

to increase significantly until the mid-1620s. This meant that acquiring knowledge was difficult because too few navigators had the opportunity to visit Japanese waters, and could accumulate experience. However, the lack of local knowledge did not result in real problems, as the Dutch used Japanese experts as guides to find their way.[41]

In the mid-1620s two changes affected this equilibrium. The number of VOC-ships coming to Japan suddenly started to grow steadily. Certainly, this was happy news from a commercial point of view, but these ships had to be manned with expert navigators who possessed the necessary knowledge to conduct these voyages; i.e. who had been to Japan before. However, for the reasons mentioned, the VOC had not enough such professionals at this time. Just as this trend started to emerge, an edict of the Shogun prohibited local barges from meeting the Dutch ships at Japanese coasts, thus made impossible to get help from local guides. The reliance on local guides had made the systematic collection of local navigational information unnecessary. This unforeseen event found the Dutch company completely unprepared, and did not allow any time to adapt to the new situation. The exact location of the destination or other safe havens had to be found on the often unfamiliar coastline; potentially dangerous shoals or currents had to be avoided and so on. However, Japanese guides were no longer available, so if the pilot of a ship had not visited Japan before and/or was not acquainted with the region, the result could easily have been a series of lesser or greater accidents.[42]

From the mid-1620s there is a sudden increase in the number of references to difficulties originating from the lack of proper navigational knowledge. Sometimes even reaching Japan itself was a serious challenge. In 1626 for instance, the *Wapen van Zeeland* and the *Wapen van Enkhuizen* had to return to Taiwan. The causes mentioned were not only weather-related ones and lost cables and anchors, but the absence of information (the "*lack of good knowledge of havens*") as well. While the Portuguese (the main enemy and a constant point of reference) were well aware of the appropriate shelters that could be used under unfavourable weather conditions, the Dutch had considerable difficulties: "*our people do not know roads as much as the open sea*".[43]

Another incident occurred in 1633 (right after the Japanese shipping ban was lifted). The yacht[44] *Venloo* was unable to use Japanese bays for shelter, since her pilot did not know the coastline. In 1634 the navigators of the *Venloo* and the *Schaagen*, who had not been to

41 Not only the Dutch turned to this solution: for instance the first English ship visiting Japan also asked Japanese local guides for help with finding Hirado ("*For 30 Royalls of 8*"). Otsuka 1941, 143-144.

42 The head merchant did not only highlight this edict, but also emphasized the great risk resulting from the inexperience of Dutch navigators and pilots. *Letter of Cornelis van Nijenroode from Hirado to the Governor-General, Batavia*, 5 February 1627. Afgaande brieven, 7598 8 4, 113.

43 *Letter of Cornelis van Nijenroode from Hirado to the Governor-General, Batavia*, 5 February 1627. Afgaande brieven, 7598 8 4, 113.

44 A yacht was a medium- or small-sized vessel type used by the Dutch, and should not be confused with modern yachts. See: Parthesius 2010, 76-80.

Japan earlier either, thought that they arrived at Hirado. However, their ships were at the coast of Satsuma, a province more than 100 km far from their intended destination.[45]

After reaching Hirado, docking in the port could still be quite a challenge. Both the mentioned underwater reef and a strong current in the bay made this a difficult manoeuvre. The same current had placed the *Woerden* into serious jeopardy in 1627. The ship drifted away and ran aground on some rocks – witnesses being surprised when she did not sink. The writer of the letter describing the incident considered it important to highlight that neither the commander of the ship nor the navigator had previously visited Japan and had no knowledge of the place.[46]

Possible solutions

The mentioned examples show that the VOC had not enough local knowledge in the first half of the 1620s. Due to this lack of experience, lesser or greater emergencies occurred on a regular basis, a situation that had to be dealt with urgently. Dutch decision-makers were also aware of these incidents. They considered the many ways in which the situation could be improved. The most important problem to be solved was the transfer of local knowledge, especially the transfer of personal experience and unwritten and tacit knowledge. The managers also had to find a way for storing this type of knowledge.[47]

Teaching specialists presented itself as an obvious solution. Most of the time this required direct personal contact or presence, and very often included inter-cultural transfers or exchanges.[48] For instance, in 1625 the head merchant in Japan sent an experienced pilot to Taiwan aboard a Japanese ship. Although the primary aim of this mission was not to acquire knowledge, the voyage presented a good opportunity for doing so. According to information available to the Dutch, the Japanese ships travelled between Pehou and Taiwan, which was believed to be a much safer passage. Accordingly, the head

45 *Letter of Nicolaes Couckebacker from Hirado to Hendrik Brouwer, Batavia*, 15 February 1634. Afgaande brieven, 7598 8 11, 48; *Letter of Nicolaes Couckebacker from Hirado to Hans Putman, Taiwan,* 15 February 1635, Afgaande brieven, 7598 8 12, 18. The difference was more than 1 degree of latitude, which shows that these navigators probably were not especially good at determining latitude either.

46 *Letter of Cornelis van Nijenroode from Hirado [to Batavia]*. 14. January 1630, Afgaande brieven, 7598 8 6, 10.

47 Such problems are not at all new, and secondary literature touches them both in general historical and in early modern context. Although Epstein did not focus primarily on navigational knowledge, his valuable statements are useful (especially for the experience-based segment of navigational knowledge). Epstein 2013, 25-67. Epstein even mentions navigation as an example (pages 52-53), and touches on the connection between written materials and practice. He shows that the former method was not completely adequate to handle the problem of transferring this type of knowledge. Other studies of the collection also allow valuable insight into the topic of transferring tacit knowledge.
In the context of navigation Davids details how "tradition" was passed on. See: Davids 1986, 209-210.

48 Peter Shapinsky offers a very interesting argument about the nautical practice of this era being cosmopolitan, and having no "universally recognized hegemonic paradigm". Shapinsky 2006, 4-26.

merchant charged the pilot with taking good notice of every detail and, after reaching Taiwan, he had to give an account to the Governor there.[49] Another example was the case of Frans Visscher, a famous Dutch navigator of the era. Before he played an important role in charting Japanese waters in the 1630s, he had acquired experience as a navigator for the Japanese merchant family called Suminokura. Nonetheless, sources do not suggest that this kind of learning became a consistent strategy for the Dutch company (at least not in Japan). In the 1630s lending pilots was referred to as a practice to be avoided.[50]

Improvement was not only possible through the acquisition of more information, but also by bettering the distribution of available knowledge. In practice, this meant that specialists with the required expertise were stationed in some Dutch centres, visiting ships in distress and guiding them to safety if necessity required. Sending out experts from the factory to meet the ships just arriving from Batavia or Japan became a regular practice in Taiwan.[51] The factory in Hirado also had a few such experts in the 1630s. The two most famous were Frans Visscher[52] and Matthijs Quast.[53] If news arrived at the factory about a Dutch ship being in trouble nearby, their task was to avert danger as efficiently as possible. This happened both in 1634 when Quast assisted the rescue of the *Schaagen,* which arrived in Japan with a broken main mast and in 1635 when Visscher attended a ship requiring help. However, Japan (unlike Taiwan) was not a regional centre, so the VOC could not afford to maintain such personnel there on a permanent basis.[54]

These methods were imperfect from several aspects, so they were used only occasionally. No long-term strategy based on them was developed. Sending specialists on voyages explicitly to gain experience required a lot of time. Positioning experts in every Dutch factory in order to help ships was also out of the question. After accomplishing their special assignments in Japan, Visscher and Quast moved to other places, so their help was available only for a limited period. Moving experts around was very time consuming and, in any case, there were never enough of them.

49 *Letter of Cornelis van Nijenroode from Hirado*. 20 March 1625, Afgaande brieven, 7598 8 3, 82-83.

50 Vermeulen 1988, 88. This practice of transferring experts was also present in Japanese-Portuguese context: Baldwin 1981, 85; Cocks Volume 1, 25.

51 Blussé 1986, Volume 1, 35, 262.

52 Visscher gathered much experience as a navigator for the mentioned Japanese merchant family in the early 1630s. In 1633 he visited Tonkin as the employee of these entrepreneurs. (*Letter of Nicolaes Couckebacker, Hirado to Hendrik Brouwer, Batavia,* 24 November 1634, Afgaande brieven, 7598 8 11, 86.) After the period examined in this paper he returned to Europe for a short time, but in the summer of 1638 he charted the waters near the island of Hainan. (*Letter of Johan van den Burch, Taiwan to Nicolaes Couckebacker, Hirado,* 20 August 1638, Afgaande brieven, 7598 8 10, 131.) In 1640 he appeared again in Japan (*Diaries kept by the Heads of the Dutch Factory in Japan* (Tokyo, 1974), Volume 1, 264.), but in the next decade he held down his best-known job as the navigator of Tasman. Posthumus 1919.

53 Quast contributed to mapping of Taiwan later in the 1630s, but his fame originated mainly from another expedition he commanded. That was sent out in order to find the islands "rich in gold" east of Japan. (Actually, this expedition was motivated by information collected in Japan.) Verseput 1954.

54 *Diaries kept*, Volume 1, 183. *Letter of Nicolaes Couckebacker, Hirado to the commander of the ship anchoring on the northwest side of Hirado,* 22 September 1635, Afgaande brieven, 7598 8 12, 29.

Finally, a generally used method could be considered: making personal knowledge explicit and making it accessible in some physical form (usually writing it down or drawing a map). However, experience has a significant tacit dimension, which makes the transfer of the required information in writing difficult or possibly ineffective. This meant that another segment of navigational knowledge had to be used, one that could be more easily conveyed through writing down. Maps and manuals were clearly not novelties, but they were not completely widespread either. Many navigators of these decades trusted the earlier, proven methods better, and were reluctant to use such tools.[55] Changing traditional and sometimes deeply rooted practices often required administrative measures. However, in this case turning to written materials was crucial: it was necessary to improve the dissemination of knowledge significantly. This turned out to be the best remedy for the afore-mentioned problem.

Charting expeditions in Japan

Despite the fact that from the 1620s there are more and more references to maps and written aids in the records of the factory, they were not the exclusive sources of information. Tacit knowledge still played an important role. It also must be emphasized that maps were not the only written navigational aids. When preparing for voyages, a given stock of knowledge often was conveyed in several different forms. Not only were maps handed over at the start of the journey, but often a detailed, written itinerary was also given. Verbal instructions and consultations with experienced navigators also appear in the sources.[56] This practice was not only to ensure the simple survival of the tradition, but it helped to minimize problems originating from inaccuracies of the written aids (e.g. erroneous copying). Nevertheless, maps appear most often in the factory's correspondence papers.

Demands for new maps first appeared in Japan in the second half of the 1620s. This initiative is particularly conspicuous because the earlier records do not mention a need for such maps. The new situation required a quick response. Neijenroode, the head merchant realized that the shogun's aforementioned edict would seriously endanger Dutch ships as early as 1627. He also offered a solution. He suggested sending a navigator to Japan, who could survey the broader neighbourhood of Hirado (more specifically the regions where

55 Jan Pietersz Coen complained that even maps of well-known and often used routes were inaccurate. He also highlighted that pilots kept "*everything in their memory*". Letter of Jan Pieterss. Coen, Bantam to the bewindhebbers in Amsterdam, 1 January 1614. Colenbrander 1919, Volume 1. 39-40; Volume 5. 273. 275.

56 For instance we can find references to an "experienced" navigator who noted down his observations made during voyages to and from Japan, explicitly in order to help his colleagues who had not yet familiarized themselves with the region. *Letter of Nicolaes Couckebacker, Hirado to Hendrik Brouwer, Batavia,* 15 February 1635, Afgaande brieven, 7598 8, 8, 16. It probably was a classic "leeskaart" (rutter). This type of document, as a part of the "tradition" is detailed in: Davids, *Zeewezen en wetenschap,* 56-57; 74-128.

Dutch ships most often reached Japan: the *Goto Islands*, and the provinces of *Arima* and *Satsuma*). Neijenroode's letter also highlighted some other points that help to understand better the bureaucratic procedure of the VOC.[57] The initiative originated from the Japanese factory, that is from the lowest administrative level, not from the Asian centre, Batavia. Although the idea itself came from Neijenroode, the decision fell within the authority of Batavia. In other words, a general procedure had still to be followed and Batavia could not be circumvented or ignored. Another important point is that Neijenroode emphasised that the project did not involve heavy expenses, since only one person had to be sent to Japan. This shows that the charting of the region had not been ignored due to financial reasons, but probably due to a lack of interest.[58] Although in the 1620s charting Japanese waters became important and the decision makers in Batavia also would have supported such a project, for long years no action was taken. The Nuyts-case resulted in the complete abortion of the project and Batavian managers even in 1634 refer to the Southern Japanese waters as a region which the Dutch were not yet acquainted with.

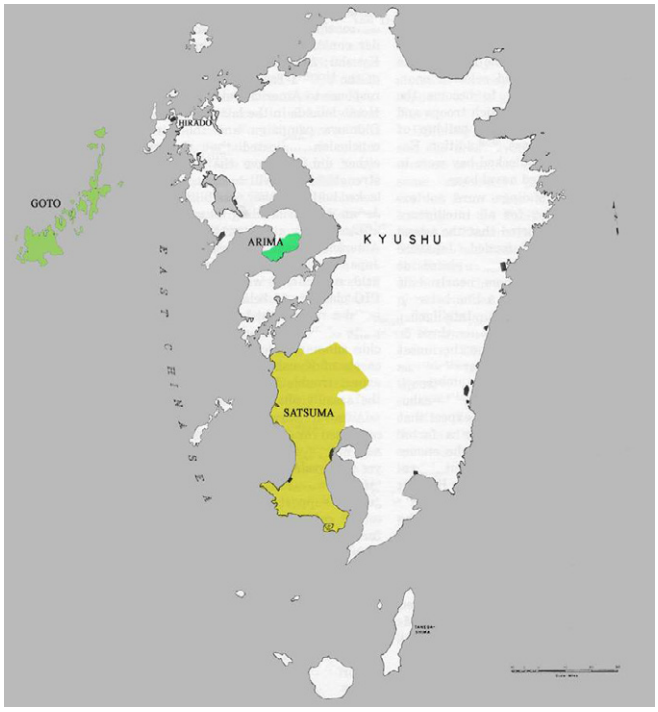

Fig. 2 - Kyushu: The Primary Objective of Dutch Charting Expeditions.
Credit: author.

57 The Japanese situation was different (for instance) from the expeditions near Taiwan, where Batavia urged a similar project. Groeneveldt 1898, Volume 1, 545.

58 *Letter of Cornelis van Nijenroode from Hirado to the Governor-General, Batavia,* 5 February 1627, Afgaande brieven, 7598 8 4, f. 113.

Mapmaking expeditions were planned again from 1633, but this time for different reasons. As part of an intention to relocate the factory at Hirado, it was decided that a different place had to be charted. Although Nagasaki seemed to be the earlier preferred location of choice, in the instructions given to Nicolaes Couckebaecker, the new head merchant arriving that year a region called *Kii no Kuni* in the vicinity of Sakai was preferred. Dutch merchants had already travelled through this region during their yearly voyages to Edo, so Sakai and its neighbourhood were not completely unknown. Conversely, they hardly had any detailed information about the region. Before a decision concerning the relocation could be made, additional data about that region was necessary. This time, drawing a map was not mentioned; the instructions prescribed only exploration. In addition, the former practice of collecting navigational data and exploring the seas around Kyushu was not even mentioned at all.[59] The carrying out of these plans did not go smoothly, and several obstacles had to be overcome. In 1634, the yearly *hofreis* to Edo presented itself as a perfect occasion to gather the required information, so the council at the Japanese factory decided that a separate expedition before then was not necessary, and postponed this charting expedition until their trip to Edo.[60]

After determining the date of departure, the first hindrance was the lack of necessary experts who had the capabilities to examine the harbour properly. Although the Dutch were able to explore the harbour during their trip, they were unable to decide whether it was suitable for bigger vessels or only for barges. So, the merchants indicated that additional data was needed and wanted to dispatch a ship to collect data concerning the depth of the water. Then a further obstacle had to be overcome: the internal administrative structure of the VOC. Any decision concerning this plan would have to be made and ratified in Batavia. This meant that the new expedition could not set out for months. Finally, the whole expedition had to be concealed from the *daimyo* of Hirado.[61] Although the next ship (which arrived in 1634) brought with her both the necessary permit and personnel for the task, by that time the Batavian council also required the charting of the *Goto* and *Arima* regions. This meant that the merchants in Japan had to choose between the two projects. In August, the council concluded that the charting of *Kii no Kuni* was of less importance, and some months later the project was completely dropped. So, the idea of a thorough exploration of the waters around Sakai was completely abandoned.[62]

59 Hirado had several disadvantageous characteristics. The English head merchant in Hirado gave the following description about the port: "*Firando is a fisher towne & a very small & badd harbour*. […] *And w'ch is worst, noe shipping can enter in or out of the harbour but they must have both tide and winde, as also 8 or 10 penisses or barks to toe them in and out, the currant runneth soe swift that otherwise they canot escape running ashore*." Farrington 1991, 793. The economic situation was not favorable either. See: Nagazumi 1972, 27. The instructions in question: *Diaries kept*, Volume 1, 326-327.

60 *Diaries kept,* Volume 1, 12.

61 *Letter of Nicolaes Couckebacker from Hirado to Hendrik Brouwer, Batavia,* 15 February 1634, Afgaande brieven, 7598 8 11, 4

62 *Diaries kept,* Volume 1, 169; 186.

After being first mentioned in 1627, the question of charting the seas of South Kyushu was raised again only in 1634, and again in Japan. Couckebaecker, the new head merchant, in the same letter that contained the details of the first trials around *Kii no Kuni*, described his plan to explore the afore-named regions and highlighted its necessity. This plan was finally realized in the summer of 1634. A pilot named Hendrik Aertsen set off in June to collect data concerning the waters near the *Goto Islands* and to make a map of the region. However, the expedition had to turn back after only a few weeks, because the Japanese officials who managed the province, after being informed about the purpose of the Dutch ship, commanded her to leave forthwith. The Dutch reluctantly returned to Hirado.[63]

Not long after this unsuccessful attempt, another message from Batavia reached Hirado. It emphasized the importance of acquiring such important data, so another voyage was organized immediately. The Dutch wanted to avoid a second confrontation so they acquired an even stronger supportive letter from the officials of Hirado. Their efforts, however, proved to be in vain. The new leader of the expedition, Visscher, who according to the journal of the factory had the best knowledge of the coastline and was the most appropriate person to carry out the task, received the same answer. The attitudes of Goto officials had not changed at all. If a foreign ship happened to flounder upon the coasts of the province, she would be provided with all possible support; therefore the mapping of the coastline and the nearby waters was completely unnecessary. In spite of these rejections, some places were charted so these enterprises were not a total failure. However, surveys around the coastline of Goto came to an abrupt end.[64]

Exploratory voyages still continued, but this time in new territories. In 1635, two Dutchmen set out again with the purpose of mapping out the territories and islands north of Hirado.[65] In 1636, the disadvantageous characteristics of Hirado's harbour acted as motivation for collecting additional data. This time steps were taken to find a new port nearby, but the idea of relocating the factory was not raised. A bay near Hirado was surveyed, and Visscher drew a large-scale map of it (again, non extant today).[66] Batavia finally left the decision on whether or not to use this harbour with the Japanese factory. They suggested the merchants there should seek out the opinions of Quast and the rest

63 *Letter of Nicolaes Couckebacker from Hirado to Hendrik Brouwer, Batavia,* 15 February 1634, Afgaande brieven, 7598 8 11, 48.

64 *Diaries kept,* Volume 1. 169; *Letter of Nicolaes Couckebacker, Hirado to Hendrik Brouwer, Batavia,* 24 November 1634, Afgaande brieven, 7598 8 11, 86. Unfortunately the exact charts from these expeditions are not extant.
This incident also highlights the important influence that power relationships exercised over Dutch information-gathering practices. In this case the lack of cooperation of Japanese authorities made not only Japanese-Dutch knowledge transfer impossible, but this independent, knowledge-gathering expedition as well. The political background of the project and the state of the Japanese-Dutch relations in the 1630s is analyzed in detail by: Clulow 2013, 95-134.

65 *Diaries kept,* Volume 1. 185.

66 *Letter of Antonio van Diemen, Philips Lucasz, Aerts Gijsels and Johaan van der Burch, Batavia to Nicolaes Couckebacker, Hirado,* 2 June 1636, Afgaande brieven, 7598 8 8, 103.

of the experienced seamen. The experts finally visited the bay, "*took its depth at every point*", but the final results showed that using this new port would not be an especially advantageous move.[67] This was the last recorded Dutch charting expedition in the period under examination. The pilots who played crucial role in gathering the data, Visscher and Quast, soon left Japan and to use their experience in other regions.

Mapmaking and dissemination

Gathering data was only the first step towards solving the problem. After this, all the information had to be written down (or depicted), and had to be available to all ships visiting Japan. This conveniently leads us on to the topic of the duplication and dissemination of the available information.

For a start a number of maps had to be made by copying the original. According to a thorough description of Kees Zandvliet, in the early 1630s not only Amsterdam had its own cartographic workshop, but one was also founded in Batavia, where several experienced mapmakers worked. In the Batavian workshop, Zandvliet also makes a reference to the division of labour: "*mapmakers in Batavia were employed and paid to copy charts that had been compiled by better-paid skippers and pilots*".[68]

In the case of Japan drawing up the necessary maps required little time. The first serious data-collecting expedition took place in the summer of 1634, and the first reference to the "*newest map of the coasts of Japan*" appeared in a very short time afterwards. The map of the Goto Islands was attached to the General Letter sent to the directors in Europe as early as January 1635.[69] A copy of this new map was also sent back to Japan in the same year. It was even used during the voyage from Taiwan.[70] The next reference to such maps appeared almost exactly one year later, in a letter that the Governor sent to Japan. The wording suggests that this map was an upgraded version of the earlier one.[71] From this point onwards, maps of the Goto Islands and the region of South Kyushu continuously

67 *Letter of Nicolaes Couckebacker, Hirado to Antonio van Diemen, Batavia,* 2 November 1636, Afgaande brieven, 7598 8 12, 108-109.

68 On the Batavian workshop, see: Zandvliet 2007, 1442-1444. Schilder refers to mapmakers of other trading factories, but does not go into further details: Schilder 1988, 19; 30.

69 The Batavian managers sent several maps with this letter to Europe, which were made in Asia (but not necessarily in Batavia). The printed edition of the letter has only an extract. Coolhaas 1960, Volume 1, 490. The exact text of the letter itself is the following: "*Ende een caertien vande ontdeckinge der eijlanden Goto, daer bij onder de pampieren van Japan een journael aff is*." (*Henrick Brouwer, aan boord van de Utrecht nabij de Vlakke Hoek*. NA VOC 1.04.02. inv. 1111, 143-144.)

70 *Letter of Hans Putman, Taiwan to Nicolaes Couckebacker, Hirado*. 29 August 1635, Afgaande brieven, 7598 8 8, 89.

71 *Letter of Hans Putman and Jan vander Burch, Taiwan to Nicolaes Couckebacker, Hirado,* 15 August 1636, Afgaande brieven, 7598 8 8, 115. Zandvliet mentions that maps were upgraded continuously; he cites the practice of the workshop in Amsterdam. Zandvliet, 2007, 1437-1438.

appear in various documents and were regularly used on VOC-ships sent to Japan. None of the mentioned maps are extant today.

The sources of the Japanese factory help to add some small details to our knowledge, and refine this picture of the duplication of charts. Making copies did not only take place in the Batavia cartographic workshop, the Japanese factory also played a significant role in copying maps. The directions given to ships moving between Taiwan and Japan also prescribed duplicating maps of both Japan and Taiwan. Many references show that this was general practice in the second half of the 1630s.[72] These references also provide an interesting detail about the division of labour. As no professional mapmakers worked in Japan, this task was performed by the ships' officers, who had several free months until they departed from the country. While the first copies of the maps were originally made in Batavia or in Europe, the much more mechanical task of duplication was assigned to lower levels of the hierarchy. In practice, this meant that often all available copies of a specific map were sent from Taiwan to Japan. In Japan, copies of the original map had to be made. All copies were then distributed among ships, and the original map used as a source had to be returned back to Taiwan.[73]

Concerning the dissemination of navigational knowledge, the general practice of the VOC is reviewed thoroughly in secondary literature. However, these descriptions focus mostly on the role of the main administrative centres of Amsterdam or Batavia. As a basic rule, navigators were provided with the maps immediately before setting off on a voyage, but they were only allowed to keep the maps as long as they needed them, i.e. until the conclusion of their respective voyages.[74] The distribution patterns at the Japanese factory followed a similar theme, but some additional details can be highlighted. Firstly, Taiwan was an important hub in the network of the Japanese factory, playing a similar role to that of Batavia. Many ships arrived in Japan from, or via Taiwan, so it is of little wonder that maps depicting coastlines and the seas around China and Taiwan appeared regularly in the factory, indeed as often as those of the South Japanese islands. The practice of circulating maps became a fixture by the middle of the 1630s, and several letters give an insight into this practise. During the voyages, the maps of the destination areas were

72 *Letter of Hans Putman and Jan vander Burch, Taiwan to Nicolaes Couckebacker, Hirado,* 15 August 1636, Afgaande brieven, 7598 8 8, 115. According to this order 3-4 copies had to be made.

73 Letters sent from Taiwan often asked to receive originals back, referring to the lack or scarcity of maps. *Letter of Hans Putman, Taiwan to Nicolaes Couckebacker, Hirado,* 29 August 1635, Afgaande brieven, 7598 8 8, 89; *Letter of Johan van der Burch, Taiwan to Nicolaes Couckebacker,* 17 July 1637, Afgaande brieven, 7598 8 8, 68.

74 The practice of giving back maps (and other documentation) after voyages and its background are well described in the secondary literature. These analyses, again, focus on higher administrative levels. For Europe see: Schilder, *Het cartografisch bedrijf*, 19; 27-30. On the European side a resolution of the Heeren Zeventien in 1628 ordered that maps should be delivered after returning home. Willem F.J. Mörzer-Bruyns 1988, 53-54. In Batavia after 1620 several orders prescribed the same: Zandvliet 1988, 1443.

especially important.[75] According to this, before setting off for Japan, navigators received maps of the Islands of Goto, Hirado and the Japanese waters in Taiwan. After successful arrival at the destinations these maps were no longer necessary, so pilots had to deliver them back to the head of the factory in Japan. The merchant then sent the maps back to Taiwan, in order to make them available for the following year's shipping.[76]

Secondly, several maps of the Chinese coast were also sent on the ships heading for Japan, but these were a separate matter. As standard practice dictated, navigators had only the maps of their current destinations with them. All other charts, apparently not used during the current voyage, travelled in a batch of general documents (letters, etc.), in the custody of a merchant. The orders given to the head merchant at Hirado, also gave no clue that pilots were carrying the maps of the Chinese waters. These instructions required the collection of maps of Japan from the navigators by the head merchant, but no such orders can be found concerning the Chinese maps. Finally, the head merchant had to make copies of all maps and then distribute the new maps of Chinese waters to the navigators of the ships heading for Taiwan.[77]

Conclusion

The examination of the VOC factory in Japan highlighted several important details. The first one, a very general point, is the effectiveness of the organizational structure of the VOC from the mid-1620s (when navigation-related problems started to appear). When an unexpected challenge had to be resolved, the Dutch could react quickly. The head of the factory quickly realized the problems, and contacted the Batavian management. Though the unfortunate Nuyts-incident had prevented problem resolution for several years, the

75 This seems to be true not only for maps, but generally for navigational knowledge. One should remember the case of the navigator sent to Taiwan, reviewed above. The head merchant justified that decision with the fact that the pilot could not be used in Hirado, but would be very helpful on board of a ship heading from Taiwan to Japan, since "*he is acquainted with this region*" (that is Japan). Unfortunately this is the only documented case, but it may refer that the practice of distributing maps explained here did not come down only to maps but may have been a more general pattern in distributing navigational knowledge. *Letter of Cornelis van Nijenroode from Hirado,* 20 March 1625, Afgaande brieven, 7598 8 3, 82-83.

76 *Letter of Hans Putman, Taiwan to Nicolaes Couckebacker, Hirado,* 29 August 1635, Afgaande brieven, 7598 8 8, 89; *Letter of Hans Putman and Jan vander Burch, Taiwan to Nicolaes Couckebacker, Hirado,* 15 August 1636, Afgaande brieven, 7598 8 8, 115; *Letter of Johan van der Burch, Taiwan to Nicolaes Couckebacker,* 17 July 1637, Afgaande brieven, 7598 8 9, 68.

77 *Letter of Hans Putman, Taiwan to Nicolaes Couckebacker, Hirado,* 29 August 1635, Afgaande brieven, 7598 8 8, 89; *Letter of Hans Putman and Jan vander Burch, Taiwan to Nicolaes Couckebacker, Hirado,* 15 August 1636, Afgaande brieven, 7598 8 8, 115; *Letter of Paulus Traudenius, Pieter Antonisz Overtwater, Johan van Lingen, Cornelis Cesaer and Jan Barentz Pels, Taiwan to Maximilliaen le Maire, Hirado,* 8 August 1640, Afgaande brieven, 7598 8 16, 56; *Letter of Nicolaes Couckebacker, Hirado to Johan van der Burch, Taiwan,* 9 February 1637, Afgaande brieven 7598 8 13, 44.; *Letter of Johan van der Burch, Taiwan to Nicolaes Couckebacker,* 17 July 1637, Afgaande brieven, 7598 8 9, 68.

case proceeded through the system quickly after the crisis was resolved. Only a few years were needed to equip the ships with freshly drawn-up maps and to provide an appropriate answer to any arising problems.

A related aspect touched upon in this essay is the role of the Japanese factory as a lowest administrative level of the VOC. These details offer some answers to the questions concerning the efficiency of the VOC and the structural role of the factory, formulated in the Introduction. It would be an over-simplification if we assumed a structure in which Batavia dispensed the orders and the factory mechanically followed them. The Japanese factory played many other important roles and proactive behaviour was not uncommon. The factory was an important point of information input when it came to navigational knowledge. The head of the factory constantly monitored the events and immediately indicated when changes were necessary. A major role was played by the factory in coordinating the expeditions. Furthermore, it had a significant decision-making authority for managing individual exploratory projects. There were other times, on the other hand, when Batavia could not be circumvented. Several examples have been given demonstrating a peculiarity that often slowed things down and made the governing system inflexible and complicated.

A more general lesson is the complexity of information gathering projects. In the examined case navigational knowledge was in the limelight, but several above details may apply to other types of information. One could think that such processes were really straightforward, but the Dutch case shows it otherwise. Several related dimensions influenced these projects. The different motivations of the projects, the presence or lack of experts, the scarcity or availability of resources, the external power situation, the administrative structure of the actor (in this case the VOC), the decision making patterns were all important factors that had no close connection with navigation, but had a huge impact on the success or the failure of a project. Highlighting this complexity may be useful for investigators of other historical settings, regardless if the case relates to navigational or other information, the examined projects took place in Japan or elsewhere, or the actors were Dutch, Portuguese or from another nation.

As a final point, a structural transformation of the VOC in the 1620s and 1630s should be mentioned. This transformation meant the rearrangement of the information patterns and the information infrastructure of the VOC. If the Company wanted to be/remain competitive, it had to create a solid, effective information background. This change can be traced in the decades examined. This transformation took place in several, information-related fields: System level decision making concerning navigational practices, bookkeeping, the management of military and political relations with local rulers or, as an alternative, the development of a consistent trade strategy in the South China Sea region.[78] Handling navigational information fit in this pattern.

78 Davids 1986, 294-301 and 344-355; Van Dyke 1997, 41–56; Camfferman and Cooke 2001, 369-382; van Veen 2001, 103; Blussé and Winius 1985, 79-80.

The Japanese situation is another part of this story. However, such data is not important only in the context of the VOC; it is connected with many general topics investigated by information history (as it was detailed in the Introduction). This essay mentions several details that could be examined with the terminology and within the framework of information history. Information behaviour within the VOC or information ecosystem changed. The management of (navigational) information altered in the 1620s and early 1630s. Information gathering became more systematic, feedback patterns improved, storage and retrieval of information became well organized, and the participants themselves tried to use written information (instead of experience or tacit knowledge) whenever it was possible. So, the change of the navigational practices of the Company was not only and – I might add – not just primarily a question of quantity, but a qualitative change. Though this article focused only on the lowest organizational levels, its various topics fit well within this broader context.

Altogether, this paper offers a case study, focusing on Japan. This means that the results (related either to navigation or general information management) should be included into a bigger picture which requires further research. Comparisons with other regions may help to show how independent or how unique the Japanese factory case was compared to other such examples; or how such expeditions were managed in different economic or political climates. Examinations of this kind may help to find out if the events and characteristics this study has highlighted are the exception or the rule.[79] A few case studies are already available. Although there is still much to explore on this subject, this essay hopefully helps to get a better understanding of how information was collected, processed and disseminated in the early days of the VOC at the shop floor level.

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79 Poruondo 2009, 65; Schilder 1981, 87-104; Floor 1982, 289-307.

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