Shipbuilding at the VOC Wharf in Rembang (1677-1750) A History about Ship and Empire-building on a Colonial Wharf

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A History about Ship and Empire-building on a Colonial Wharf

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Introduction

On April 15, 1718, the sloop *Rembang* anchored on the roadstead of Batavia. It had returned from a diplomatic mission to the kingdom of Siam. The vessel delivered 25,585 guilders worth of gifts for the King of Siam.[1] Historians have recognised that these smaller vessels were paramount in the creation of the Dutch East India Company's (VOC) empire in Southeast Asia.[2] They patrolled the coasts, shipped goods in the intra-Asian trade market, and, as shown in the example of the *Rembang*, were used for diplomatic missions.

However, what makes the *Rembang* an interesting vessel is that it was named after the place where it was constructed. The VOC did not just build its ships at the wharfs in the Dutch Republic but also in its overseas colonies. One of the more prominent colonial shipyards was situated in Rembang on Java. The *Rembang* was one of five sloops produced at this wharf in 1714. They each had a length of 55 to 80 feet and a width of 15 to 22 feet, but the height varied between 6 and 9.5 feet. In addition to these sloops, the wharf also built a brigantine named *de Hoop* in 1714*,* which had a length of 74 feet, a width of 23 feet, and a height of 10 feet.[3] Remarkably, at the time of the construction of these ships, there were only 46 European VOC officials working in Rembang.[4] This would suggest that the VOC also needed to employ Javanese shipwrights to construct its vessels.

The role of locally constructed vessels in a European maritime empire only recently started to receive attention from historians. To add to the understanding of colonial shipbuilding, this thesis argues that the VOC relied on local resources, labour, and designs for the construction of ships. These vessels would prove to be of paramount importance to the consolidation of the VOC empire.

Historiography

Shipbuilding is relevant to the study of European empire-building because ships enabled European empires to transmit its military power to regions around the globe. This enabled

[1] *Generale Missiven,* VII, 359.
[2] Matthias van Rossum, *Werkers van de Wereld* (Hilversum, 2014).
[3] *Generale Missiven,* VII, 58.
[4] Ibidem, 359.

them to exert more control over resources and local populations. The VOC used a wide variety of ships both in Europe-Asia trade and in intra-Asian trade. In the former case, the VOC used larger ships called Indiamen. Smaller vessels, such as the fluyt and the yacht, were often employed in the latter case.

Since ships were essential for the creation of European empires, states invested in its domestic shipbuilding. Historians have seen this in their research of European shipyards.[5] Richard Unger studied the private wharfs and shipbuilding guilds in the Dutch Republic, focussing on the technological developments in the Dutch shipbuilding industry. According to his research, major improvements in Dutch shipbuilding ceased to happen from 1630 onwards. Unger also shows that shipbuilding in the Republic, the leader in this field during the sixteenth and seventeenth centuries, lost ground to competition from France and Great Britain.[6] Another historian who focusses on shipbuilding in the Netherlands, Pepijn Brandon, described the supply, labour relations, and production of ships in shipyards in the Netherlands. Unlike Unger, he does not focus on the shipbuilding guilds. He shows that from the second half of the seventeenth century until the end of the eighteenth century, the shipyards of the VOC produced double the number of ships vis-à-vis the second-largest shipyard, the Amsterdam Admiralty shipyard.[7] The VOC shipyard of the chamber of Amsterdam was located on the nearby islands of Kattenburg, Wittenburg, and Oostenburg, while other VOC shipyards were in Middelburg, Rotterdam, Delftshaven, Hoorn, and Enkhuizen.[8] Yet another scholar, Johan de Jonge, researched the accumulation of materials, knowhow, and labour there, explaining how the VOC shipyard in Amsterdam was able to organise and how it acquired the materials and resources to construct its ships.[9]

This is relevant to this study because shipyards generated a huge demand for supplies and resources. The resources necessary for the construction of early modern European ships, however, were not present in the Dutch Republic. Therefore, the Dutch

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[5] Ralph Davis, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries* (Newfoundland, 2012).
[6] Richard Unger, *Dutch Shipbuilding before 1800: Ships and Guilds* (Assen, 1978).
[7] Pepijn Brandon, *War, Capital, and the Dutch State (1588-1795)* (Leiden, 2013), 166.
[8] Erik Odegard, 'Timmeren te Cochin. Scheepsbouw op de voc-scheepswerf in Cochin', *Tijdschrift voor Zeegeschiedenis* 36:2 (2017) 22-39, 25.
[9] Johan de Jonge, 'Drawings, Ships and Spices: Accumulation at the Dutch East India Company' in L. Roberts, *Centres and Cycles of Accumulation in and around the Netherlands during the Early Modern Period* (Zurich, 2011) 179-205, 185.

shipbuilders relied on timber from the Baltic region. Other raw materials and manufactured goods also came from abroad, such as iron, hemp, and pitch. The VOC shipyard at Oostenburg, for example, used iron nails from Sweden.[10] Another necessity for shipbuilding was the presence of a specialised and general labour force. These labourers mainly came from Western European regions other than the Dutch Republic. The VOC shipyard at Amsterdam employed 1,200 skilled and unskilled labourers.[11] The structure and complexity of these Dutch shipyards have been thoroughly researched by historians.[12] However, as shown in the case of the *Rembang,* European trading companies such as the VOC also constructed ships outside of Europe. European shipbuilding outside of the continent, although relevant for the understanding of the European fleet, has only recently gained attention from historians.

Shipbuilding encompasses any activity focussed on the construction and maintenance of ships, including repairs. Most ships sailing in the Dutch-Asian trade market carried materials such as pitch, tar, nails, and timber for short-term repairs and often employed a shipwright in their crew to repair the ships during voyages. Long-term repairs were often done in the port of arrival.[13] It was therefore necessary for European empires to have a shipbuilding centre in its colonies. Dutch ships always required maintenance after arriving in Batavia. However, it was not just ships partaking in the Dutch-Asia trade market which required maintenance. For ships sailing in intra-Asian trade, repairs were also necessary to keep the VOC fleet flexible and mobile. Ships could develop several defects, for instance rust of iron nails below the surface. This would lead to a loose hull, which meant that the ship could be vulnerable to leakage. Another part of the ship that was prone to decay is the wooden hull, which was often intensified because of worms eating through the

[10] De Jonge, 'Drawings, Ships and Spices', 186.
[11] Ibidem, 188.
[12] Brandon, *War, Capital, and the Dutch State*.
[13] Cátia Antunes, 'Special Issue: European Shipbuilding and Ship Repairs Outside of Europe: Problems, Questions and some Hypotheses', *International Journal of Maritime History* 31:3 (2019) 456–464, 457.

wood.[14] This was exceptionally relevant for the ships sailing in intra-Asian trade because the climate in the Southeast Asian seas increased the decay of the timber.[15]

Historian K. S. Mathew researched the shipbuilding centres of the Portuguese empire in the Indian Ocean. One of the more important ones was the wharf at Cochin. There, the Portuguese constructed the *Santa Catarina do Monte Sinai* in 1512, which was the largest European ship ever built at the time.[16] Mathew has argued that the Portuguese could not acquire the timber they needed from Europe. To succeed in its maritime ambitions, they relied on South Asia. This was done for several reasons. First, the people living on the coasts of South Asia had a long history of building seaworthy ships, which is why the Portuguese used local shipwrights and carpenters for the construction of ships.[17] Another reason was the availability of teak forests. Teak timber was used for the construction of ships in the Indian Ocean. In contrast to the timber used in Europe, this teak timber proved to be more durable in the hot climate. A Dutch official stated in 1672 that ships constructed from teak timber were at least twice as durable as the European ships constructed from oak wood.[18] Already in the sixteenth century, the Portuguese constructed ships from teak. In short, the presence of these resources and the experience of local shipbuilders led the Portuguese empire to establish multiple shipbuilding centres during the sixteenth century.

The Portuguese, however, were not the only European empire which constructed and repaired ships in Asia. In a special issue of *The International Journal of Maritime History*, the Dutch case of overseas shipbuilding was explored.[19] The introductory article in this issue, written by Cátia Antunes, focusses on the importance of shipbuilding for European empire-building. She offers a hypothesis in which she states that the study of overseas shipbuilding would suggest that empire-building happened regionally instead of globally.[20] According to Antunes, historians need to re-evaluate the importance of global shipbuilding. She states

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[14] Hendrik Nicolaas Kamer, *Het VOC-retourschip: een panorama van de 17de- en 18de-eeuwse Nederlandse Scheepsbouw* (Amsterdam, 1995), 221.
[15] K.S. Mathew, *Shipbuilding, Navigation and the Portuguese in Pre-modern India,* (London, 2017), 108.
[16] Antunes, 'European Shipbuilding and Ship Repairs Outside of Europe', 457.
[17] Mathew, *Shipbuildig, Navigation and the Portuguese,* 104.
[18] W. Zwart, 'Uit de boschgeschiedenis van Java en Madoera, III: Over de scheepsbouw en scheepsbouwhout ten tijde van de Compagnie.', *Tectona* 31 (1938) 78-98, 82.
[19] *International Journal of Maritime History* 31:3 (2019).
[20] Antunes, 'European Shipbuilding and Ship Repairs Outside of Europe', 460.

that shipbuilding worldwide had an important impact on shaping overseas empires. The ability to build and maintain ships resulted in decentralisation of European empire-building in several areas.[21]

The overseas construction of ships led to economic decentralization. The revenues collected on shipbuilding funded the overseas fleet. This relieved the pressure of domestic taxation for the maintenance of a fleet. Antunes also mentions the influence of outsourcing shipbuilding caused the binding of European and non-European spaces. For example, the flag of the VOC waved on top of the constructed vessels, showing Dutch dominance and becoming a symbol of political ascendency.[22] In addition, the ability to repair and construct ships in foreign regions created a decentralisation of the empire. This made it possible to sustain a flexible fleet outside and independent from the motherland. Not only were these ships a necessity in the functioning of a trading empire, but they were also a symbol of European naval and political ascendency.[23]

Antunes also discusses the creation of a large social group, local shipwrights and carpenters, who received income through the production of European ships. This group ironically depended on European colonial success to accumulate their wealth. The decentralisation, which the creation of this social group entailed, was often frowned upon by officials in the Dutch Republic. As shown by Karwan Fatah-Black and Martijn Heijink, the Dutch West Indian Company (WIC) did not pursue efforts to establish any shipbuilding centres in the Atlantic and even forbade the construction of ships in its colonies.[24] The VOC also preferred its ships to be constructed in the Dutch Republic, because this would bolster the domestic shipbuilding industries. However, due to the duration of the voyage from Europe to Asia and the necessity of smaller vessels for intra-Asian trade, the VOC needed to resort to alternatives.

The VOC employed a variety of ships as regards intra-Asian trade. Larger ships constructed in the Netherlands, the Indiamen mentioned earlier, were left in Asia after they

[21] Antunes, 'European Shipbuilding and Ship Repairs Outside of Europe' 460.
[22] Idem.
[23] Idem.
[24] Karwan Fatah-Black, 'Shipbuilding and Repair in Eighteenth-Century Suriname', *International Journal of Maritime History* 31:3 (2019) 521-538; Martijn Heijink, ''Yet this comes in useful for building ships' Shipbuilding and Repairs in New Netherland', *International Journal of Maritime History* 31:3 (2019) 495-507.

became unable to sail between the Dutch Republic and Batavia. Since the VOC was no stranger to war and conquest, they often captured and employed enemy ships. Other ships used in Asia were the 'afbreekboten'. These were shipped over from the Dutch Republic and constructed in Asia.[25] These smaller vessels were broken down for the voyage and reconstructed in Asia. In other cases, the VOC approached local shipbuilders and ordered ships themselves. On Northeast Java, there was already a shipbuilding industry when the Dutch arrived there. Before the VOC constructed its shipyard there, it used the local shipbuilders for smaller vessels.[26]

Matthias van Rossum explored the infrastructure which the VOC established in Asia for the construction and maintenance of its fleet. One of the more prominent colonial shipyards was the wharf on the island of Onrust, located close to the coast of Batavia.[27] This wharf was mainly used for maintenance of the Indiamen from the Dutch Republic. In terms of the labour force, Van Rossum shows that the VOC mobilised labourers to work not only in these wharfs but also in the processing of raw materials. These workers could be free or unfree, and whilst Europeans were higher in the hierarchy, it was not uncommon for them to work alongside indigenous peoples.[28]

As stated before, the shipyards generated a huge demand for resources like hemp, iron, sails, and pitch, which is why Van Rossum focusses on the accumulation of resources and technological knowhow as a result of that wharf. In his exploration of this infrastructure, Van Rossum finds that the VOC did not just establish shipyards and wharfs but also ropewalks and a sailcloth weaving mill.[29] Nonetheless, since the most important resource for the construction of ships is timber, Peter Boomgaard researched the construction of Dutch wind and water mills in its Asian empire. He found that the VOC constructed several sawmills on Java. One of these was located in the region of Rembang, where the sloop *Rembang* was

[25] Matthias van Rossum, 'Sampans, hout en slaven. De overzeese infrastructuur voor scheepsbouw en –onderhoud van de Verenigde Oost-Indische Compagnie in Zuid- en Zuidoost Azië', *Tijdschrift voor Zeegeschiedenis* 36:2 (2017) 3-21, 6.
[26] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 81.
[27] Van Rossum, 'Sampans, hout en slaven', 8.
[28] Ibidem, 18.
[29] Ibidem, 16.

constructed. Alongside sawmills, the VOC also constructed gunpowder mills to arm its vessels. During the eighteenth century, there were seven such mills in Batavia.[30]

Whilst Van Rossum explored the overall infrastructure of the VOC shipbuilding in Asia, Erik Odegard focusses on the specific VOC wharf at Cochin. As shown by Mathew, Cochin had a long Indian history of building ships for the high seas. After the VOC conquered Cochin in 1663, it inherited the Portuguese shipyard there. The VOC initially used this wharf to stock ships with supplies and perform necessary maintenance. However, unlike the wharf in Onrust, the shipyard at Cochin constructed smaller vessels and even some larger vessels like the *Standvastigheid*, a sloop with a length of 115 feet.[31] Odegard also presents an overview of the ships constructed at Cochin between 1728 and 1742, including the costs and number of ships produced by the Cochin wharf. This provides an opportunity to compare different shipbuilding spaces in the VOC empire.[32] Odegard shows the significance of shipbuilding at Cochin for intra-Asian trade. Cochin fulfilled a supporting role in the region for the VOC by providing ships with the necessary maintenance. It also constructed smaller vessels which sailed in the intra-Asian trade market.[33]

One of the misconceptions addressed in this earlier mentioned issue of *The International Journal of Maritime History* is the dominance of European designs, methods, and practises in shipbuilding.[34] According to Unger, the European empires first sent prefabricated boats to its colonies. However, the uncertainty about local shipbuilding changed during the seventeenth and eighteenth centuries, except for Portugal, which already constructed ships in the sixteenth century.[35] The disappearance of the prefabricated ships implies that the Europeans increasingly relied on local designs and shipwrights to construct its smaller vessels. The merging of different techniques, designs, and resources was visible in the maintenance and construction of VOC ships in Asia.[36] According to Unger, the main reason for overseas shipbuilding was repairing European vessels. However, when

[30] Peter Boomgaard, 'Technologies of a trading empire: Dutch introduction of water-and windmills in early-modern Asia, 1650s-1800', *History and Technology* 24:1 (2008) 41-59, 47.
[31] Odegard, 'Timmeren te Cochin', 28.
[32] Ibidem, 33.
[33] Ibidem, 38.
[34] Richard Unger, 'Afterthoughts', *International Journal of Maritime History* 31:3 (2019) 612-623, 621.
[35] Unger, 'Afterthoughts', 621.
[36] Van Rossum, 'Sampans, hout en slaven', 13.

studying the wharf in Rembang, this does not seem to be the case because it built entirely new ships rather than repairing already existing ones.

Relevance

Antunes referenced the importance of overseas shipbuilding for the understanding of empire-building in her hypothesis. Further research into the shipyard in Rembang is relevant because the vessels which the VOC constructed there were employed in intra-Asian trade, such as the *Rembang*. Three reasons underscore this. First, by examining which ships were built there and understanding the tasks these vessels performed, this study can contribute to the debate about European empire-building as a regional process. Second, this will provide more information about the VOC fleet in non-European seas. The third and final reason to study the shipyard of Rembang is the accumulation of resources by the VOC. Except for the Maluku Islands (due to its spices), the forests of Rembang were the first resources actively exploited by the VOC. This display of colonialism contributed to the expansion of the VOC empire, further warranting an investigation of shipbuilding in Rembang.[37]

In light of these three reasons, the primary objective of this study is to analyse shipbuilding at the VOC wharf in Rembang. It attempts to answer the question of whether local shipbuilding in Rembang is an indication of decentralised VOC empire-building. By examining the infrastructure and ships constructed in Rembang, this thesis aims to illustrate the role which the wharf in Rembang played in empire-building in Asia. To do so, this study focusses on the period from 1677 to 1750 because of three reasons.

Firstly, in 1677, the VOC founded the wharf in Rembang. Therefore, it makes sense to take that year as the starting point of this thesis. According to Unger, during this period, the Europeans increasingly accepted local designs and techniques, so it is interesting to research whether this also happened at the wharf in Rembang. Researching this accumulation of knowhow at a colonial wharf can also shed light on the cross-cultural relations and networks which were of paramount importance to a European maritime empire.[38]

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[37] Pieter Emmer & Jos Gommans, *The Dutch Overseas Empire, 1600-1800* (Cambridge, 2020), 274.

[38] Unger, 'Afterthoughts', 621.

The second reason for choosing this particular time period is the changing patterns in shipbuilding in the Dutch Republic. Gaastra shows a decrease in the construction of small and medium-sized ships for the VOC in the Dutch Republic.[39] Researching this period determines whether the VOC outsourced the construction of these ships to Asia or if it stopped the construction altogether. Furthermore, due to a surplus of ships after 1750, the VOC established restrictions and for some years even forbade private shipbuilding.[40] Viewed from that perspective, studying the period before these restrictions makes sense because of the incorporation of local shipwrights.

The third and final reason for choosing this period is its overlap with the Java War of 1741–1743. During this war, the wharf in Rembang was occupied by rebel forces. Researching this period thus offers the opportunity to learn if the VOC experienced consequences after losing that wharf. In brief, the timeframe of this thesis is warranted because of the increasing acceptance of local knowhow since the foundation of the Rembang wharf, the restrictions on shipbuilding afterwards, and the Java War.

Methodology

This thesis aims to answer three questions. First to research the shipbuilding infrastructure in Rembang to determine whether the wharf relied on local or European resources. Secondly, to establish the number of ships constructed in Rembang also considering the types and capabilities of the vessels. Third and finally, to determine the tasks and rage of the locally constructed fleet.

To answer the research questions, this thesis relies on literature and secondary sources to understand the shipbuilding infrastructure in Rembang. Together, they provide examples of empire-building of the VOC, while showing how shipbuilding in Rembang was related to this. The sources used in this thesis include the *Generale Missiven van Gouverneurs-Generaal en Raden aan Heren XVII der Verenigde Oostindische Compagnie,* consisting of thirteen volumes and covering the period from 1610 to 1761. They are edited by W. Ph. Coolhaas, J. van Goor, J. E. Schooneveld-Oosterling, and H. K. Jacob and were published from 1960 to 2007. The *Generale Missiven* are a collection of annual letters sent

[39] Femme Gaastra, *De Geschiedenis van de VOC,* (Zutphen, 2002).
[40] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 86.

by the Governor-General and councils to the headquarters of the VOC in the Dutch Republic. The volumes also provide summaries of letters from colonial VOC settlements sent to the Governor-General in Batavia. These offer information about the infrastructure and accumulation of resources in Rembang as well as the ships constructed there.

However, the use of these sources entails two nuances. First, the Governor-General and the council decided which information was shared with the headquarters in the Dutch Republic. Secondly, the historians who summarised the *Generale Missiven* in the thirteen volumes also selected and documented the information they considered most valuable. This has led to several gaps in the data about ships constructed in Rembang. However, despite these gaps, the sources are still useful because they provide an extensive impression of shipbuilding in Rembang and cover the entire research period. The summarised letters offer the opportunity to research the extensive period and analyse developments and changes in shipbuilding in Rembang.

To provide a thorough overview of shipbuilding in Rembang, this study first focusses on the accumulation of resources, raw materials, and manufactured goods. Studying these supply lines presents an insight into the VOC shipbuilding infrastructure. By determining how the wharf in Rembang acquired labour and resources, this thesis intends to show that Rembang operated independently from the Dutch Republic. Another aspect for analysis in this regard is the mobilisation of labour and technological knowhow. This will demonstrate if the VOC used local knowledge and design for the construction of its vessels.

Secondly, this study examines the ships constructed in Rembang, including the types, sizes, and costs. Odegard's research provides a comparative perspective, offering an insight into the costs of local shipbuilding. [41]

Thirdly, to understand if local shipbuilding decentralised empire-building, it is necessary to understand the tasks performed with the ships constructed at these wharfs. This study, therefore, researches how these ships were put to use. It also examines the range of these vessels and whether they were employed around the VOC empire in Asia or if they remained in the Rembang region.

[41] Odegard, 'Timmeren te Cochin', 33.

Figure 1: Source: National Archive, The Hague (NL-HaNA, VEL), inv. no. 0344. Isaac de Graaff, Kaart van den Indischen Archipel, tusschen Sumatra en Nova Guinea, zoomede de Westkust van Hollandia Nova enz.

I. Shipbuilding infrastructure in Rembang

This chapter discusses the shipbuilding infrastructure of the VOC. First, it describes the rise and expansion of VOC shipbuilding in Northeast Java, examining the changing policies and the reason for the VOC's decision to establish a wharf in Rembang. Afterwards, it examines the infrastructure which the VOC founded to accumulate resources, materials, and labour. Thus, the aim of this chapter is to show that the wharf in Rembang operated independently from the Dutch Republic and relied on local resources and labour. This helps determine the extent of which VOC empire-building depended on local wharfs, which, in turn, sheds light on the main research question of decentralisation.

VOC Shipbuilding Infrastructure in Asia

The first shipyard the VOC established in Asia was the wharf on the island of Onrust in 1614. The selection of this island as its shipbuilding centre was not a surprise, according to Hans Bonke. He states that the VOC trading imperium worked from a central rendezvous point: Batavia, which could be reached via both the east and west monsoons. However, ships sailing to Batavia had trouble reaching the shores because of the shallow coast. Since deep water was necessary to careen the ship and maintain the hull, the VOC established a wharf

on an island off the coast, Onrust.[42] This wharf mainly performed maintenance of ships sailing in the fleets destined for Europe and intra-Asian trade. According to Bonke, the wharf on the island of Onrust remained completely dependent on resources and materials shipped from the Dutch Republic.[43] Another wharf in Batavia was the equipage wharf located in the town of Batavia. This wharf functioned as a warehouse for materials from the Dutch Republic. It also constructed small boats and performed onboard maintenance of Dutch ships.[44]

Java was not the only place in Asia where the VOC established shipyards. On the island of Buru in the Moluccas, the VOC had been constructing ships since 1665. However, in the case of shipbuilding on the Moluccas, it shows that the islands designated for the construction of ships continuously changed during the eighteenth century.[45] The VOC also established wharfs in the western part of its Asian empire, one of which was located on Ceylon, present-day Sri Lanka. After the conquest of the Malabar coast in 1663, the VOC occupied the wharf at Cochin.[46] Odegard researched the VOC shipbuilding practises on this wharf. According to his findings, this wharf did not produce large vessels (140+ feet) but focussed instead on the construction of average-sized ships (60 to 80 feet). Additionally, it was an important pillar for intra-Asiatic trade and provided maintenance for ships sailing in this region. [47] Odegard shows that from 1728 until 1742, seventeen seagoing vessels were built, averaging between 56 and 82 feet in length.[48] These ships were sent to different regions in the western part of the VOC's Asian empire. The rapid expansion of shipyards across the VOC colonial possessions illustrates the increasing reliance on local infrastructure to supply the VOC with ships. Moreover, it shows that the VOC began depending on local ships for the expansion and consolidation of its maritime trade empire.

The VOC built more than just wharfs in Asia. To support its increasing shipbuilding practises, it established different facilities for the manufacturing of resources and materials.

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[42] Hans Bonke, 'Het eiland Onrust. Van Scheepswerf van de VOC tot Bedreigd Historisch-archeologisch Monument'in: M. H. Bartels, E. H. P. Cordfunke and H. Sarfatij, eds., *Hollanders Uit en Thuis* (Hilversum, 2002) 45–60, 47.
[43] Bonke, 'Het eiland Onrust', 49.
[44] Idem.
[45] Van Rossum, 'Sampans, hout en slaven', 9.
[46] Odegard, 'Timmeren te Cochin', 27.
[47] Ibidem, 38.
[48] Ibidem, 33.

Some of the more prominent facilities were the wind- and water-powered sawmills constructed all over the empire.[49] Wharfs usually had their own sawmill, as can be seen in the cases of Cochin, Onrust, and Rembang. In contrast to the wind-powered sawmill on Onrust, the sawmills on Jepara and Rembang were powered by water.[50] The VOC would come to prefer the water-powered sawmills, and the wind-powered ones slowly disappeared.[51] However, the VOC did not only construct sawmills on Java. During the eighteenth century, there were at least seven gunpowder mills in Batavia.[52] However, according to the research of Boomgaard, the VOC refrained from establishing any gunpowder mills in Northeast Java. This seems odd because the shipyard in Rembang constructed vessels equipped with cannons.

Sawmills and gunpowder mills were not the only facilities in the shipbuilding infrastructure of the VOC. In 1662, there was already a ropewalk and a sailcloth mill in Batavia. These facilities were supplied with hemp from the Bengals. Around 1700, the ropewalk was moved to the island of Edam.[53] The presence of these facilities in Batavia seems to contradict Bonke's statement about the necessity of imported resources and materials from Europe.[54] Outside of Java, there was a ropewalk in Houghly, which was located in the Bengals and on Ceylon.[55] For the construction of nails, the VOC needed to possess forges, which seem to have been present at the wharfs themselves. In the case of Rembang, one was constructed at the VOC wharf. At the wharf of Onrust, a smithy was present on the island.[56] This shows that the VOC established an extensive shipbuilding infrastructure in its Asian empire.

The VOC's Asian shipbuilding practises were heavily regulated by the Heren XVII, the board of Directors of the VOC. Fearing that the local Javanese would become competent in shipbuilding, the board issued a ban on the construction of ships in colonial waters in 1650.[57] However, this ban seems to have been largely ignored by the VOC officials in Asia. This is

[49] Boomgaard, 'Techonologies of a trading empire'.
[50] Ibidem, 48.
[51] Ibidem, 49.
[52] Ibidem, 47.
[53] Van Rossum, 'Sampans, hout en slaven', 16.
[54] Bonke, 'Het eiland Onrust', 49.
[55] Van Rossum, 'Sampans, hout en slaven', 16.
[56] Bonke, 'Het eiland Onrust', 49.
[57] Van Rossum, 'Sampans, hout en slaven', 10.

evident in the fact that the Heren XVII introduced a new ban in 1692 and 1714. According to this ban, it was no longer permitted to construct vessels with a length of 60 feet or more.[58] The main reason for this was to protect the shipbuilding industry in the Dutch Republic, because there was an existing fear that the outsourcing of shipbuilding would cause problems for the wharfs there. The VOC in Asia did not construct any vessels which paralleled the size of the ships built in the Dutch Republic. The largest of the ships constructed at the wharfs in the Dutch Republic could be up to 160 feet in length. Despite this, the ban does not seem to have been exceptionally effective as evidenced by several cases of constructions of ships longer than 60 feet. In 1693, the wharf in Rembang constructed a chialoup with a length of 70 feet.[59] Another example was the brigantine *de Hoop,* which was constructed in 1714 and had a length of 74 feet.[60] Afraid to lose income generated by shipbuilding in the Dutch Republic, the Heren XVII repeated this ban in 1714.[61] However, after the reissued ban, it was still not uncommon to find ships over 60 feet constructed at the wharfs in Asia. The ban was largely ineffective.

However, it was not only the VOC shipbuilding that was heavily regulated. After the treaty of 1677 (which will be discussed in further detail later), the VOC acquired large coastal possessions in Northeast Java and started to regulate the local private shipbuilding in this region. In 1713, the VOC banned the sale and maintenance of ships destined for Chinese or Christian people living on Ambon, Banda, Ternate, Makassar, Melaka, and Timor. With Christians, the VOC prevented the sale of ships to Europeans who could be working for rival empires. This ban was especially aimed at the private shipbuilding industry in Northeast Java, because they traditionally provided ships which sailed in the South China Sea. Governors and residents had to send an annual list to Batavia registering all private chialoups and other sailing crafts. They also had to register the charter and age of the ships sailing for their governments or residencies.[62]

In the second half of the eighteenth century, the pressure on the private shipbuilding industry increased. Afraid to lose control, the VOC instilled heavy regulations and forbade

[58] *Generale Missiven,* V, 601.
[59] Ibidem, 576.
[60] *Generale missiven*, VII, 58.
[61] Ibidem, 198.
[62] J.A. van der Chijs, *Nederlandsch-Indisch plakaatboek, 1602-1811, vierde deel 1709-1743,* (1885-1900) 33.

the sale of private ships to any foreign actors. In 1762, the VOC banned private shipbuilding in general.[63] After this ban, local shipbuilders, who were often Chinese, had to request permission from the VOC to construct vessels in its residencies.[64]

The ban on private shipbuilding would frequently be repeated during the eighteenth century. These regulations were motivated by two factors. Firstly, the deforestation of the region became severe during that century. To protect its shipbuilding industry in Rembang, the VOC would temporarily ban shipbuilding practises to preserve the suitable teak logs for its wharf. The second reason was the fear that sea marauders would steal the high-quality teak proas which were often constructed on the beaches.[65] By banning the construction on these beaches the VOC hoped to prevent piracy.

The Establishment of the VOC Wharf in Rembang

The VOC started investing in shipbuilding in Rembang during the second half of the seventeenth century. As stated, the region of Northeast Java had a tradition of building seaworthy ships. This included junks with a tonnage between 350 and 500 tonnes. These vessels could have up to four masts and a bowsprit.[66] The sandy beaches of Rembang made it possible to construct these ships, and the region is also rich in teak forests. Ships sailing in the warm climate were often subjected to rot and shipworms, and teak timber proved to be more durable against this than European timber such as oak.[67]

The first ships which the VOC bought on the northeast coast of Java were the yachts *Cabeljau* and *Schelvis.* These ships were acquired from Chinese private shipbuilders in 1653. According to the *Generale Missiven* the private shipbuilding industry was mainly in the hands of Chinese traders.[68] The VOC ordered ships at different places along the northeast coast, such as Semarang. However, VOC officials stated that the ships ordered from Rembang were of a higher quality than those from other places.[69] The ships ordered were not just for local

[63] Van Rossum, 'Sampans, hout en slaven', 11.
[64] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 87.
[65] Ibidem, 85.
[66] Manguin, 'Trading Ships of the South China Sea', 267.
[67] Mathew, *Shipbuildig, Navigation and the Portuguese,* 126.
[68] *Generale Missiven,* II, 665.
[69] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 81.

use but were also destined for other regions in the VOC empire. In 1668, the VOC ordered two hulls, which were put to use in the region of Coromandel.[70]

That local shipbuilding in Rembang caught the interest of high-ranking VOC officials is evident in the annual report of 1672, which the Governor-General, Joan Maetsuycker, delivered to the Heren XVII. He stated that ships constructed from teak timber were twice as durable as those built with oak timber in the Dutch Republic. Maetsuycker also stated that two or three European shipwrights established a wharf in Rembang and supervised Javanese shipwrights who could be hired for a small loan.[71] These European shipbuilders were 'free burghers'. After they finished their contracts with the VOC, they obtained the privilege to get a job in the private sector. Several of these free burghers even established private shipyards. One of these was Daniel Dupré, who entered into a partnership with a local Chinese shipwright in 1675. Together, they constructed ships for Europeans in Asia.[72] Another private European shipbuilder who was frequently employed by the VOC and situated in Rembang was Juriaan Abrahamszoon.[73]

The VOC had several small trading posts along the coast of Northeast Java. However, this changed after the Trunajaya uprising. Around the year 1671, a rebel named Trunajaya defied the Susuhunan of Mataram, Amangkurat I. In 1676, Trunajaya occupied Surabaya and created a large-scale uprising against the Java state of Mataram. During the autumn of 1676, most coastal regencies had joined the rebellion of Trunajaya, except for Jepara and Tegal.[74] Both parties approached the VOC in an effort to gain its support. The Susuhunan of Mataram stated that the Governor-General was the last person he could turn to. He also promised economic benefits and authority in the region. Trunajaya's request was different. His situation was less dire than that of the Susuhunan, and after stating his recent military victories, he requested a loan for artillery and ammunition.[75] Whilst the VOC at this time was not interested in Javanese affairs and did not intend to control anything more than trading posts, it did send a military force to the region because a quick end to the war would ensure

[70] *Generale Missiven,* III, 648.
[71] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 82.
[72] Luc Nagtegaal, *Riding the Dutch Tiger The Dutch East Indies Company and the Northeast Coast of Java 1680-1743,* (Leiden, 1996) 134.
[73] *Generale* Missiven, V, 341.
[74] Nagtegaal, *Riding the Dutch Tiger,* 19.
[75] Ibidem, 21.

that commodities like rice and timber, which were blocked by the fighting, would reach Batavia again.[76]

The military force was led by Cornelis Speelman, who differed from Governor-General Maetsuycker in his belief about Dutch intervention in Javanese politics. Whereas Maetsuycker argued against territorial possessions, Speelman hoped to create a state where the Javanese states were subjugated to the authority of the VOC.[77] This would ensure that the commodities found on Java were exploited for the economic benefit of the VOC. After his arrival, Speelman followed his orders to maintain neutrality and guide the peace negotiations between the Susuhunan of Mataram and Trunajaya. However, this changed when Speelman concluded that Trunajaya would give the VOC only limited economic benefits. In response to that, Speelman started negotiations with the Crown Prince of Mataram. Since the death of Susuhunan Amangkurat I in 1677, his eldest son had proclaimed himself Amangkurat II. The military force of the VOC marched with Amangkurat II to the court capital and helped him ascend to the throne and become the Susuhunan of Mataram.[78] However, it was only after the death of Maetsuycker in 1678 that the new Governor-General, Rijklof van Goens, would permit Speelman to march inland. Together with the new Susuhunan of Mataram, Amangkurat II, the VOC suppressed the rebellion and had Trunajaya executed in 1680.[79]

After the end of the Trunajaya uprising, the VOC's military force helped Amangkurat II eliminate his opposition from the Javanese elites and religious leaders. The combined armies re-established the Mataram state. The Trunajaya uprising showed a noteworthy change in VOC policies. Originally a trading empire which tried to remain absent from internal affairs, the VOC had now become a force in the Javanese political arena.[80] Already in 1677, the VOC and the state of Mataram negotiated about VOC support, culminating in a treaty concluded by VOC official Jacobus Couper and the Susuhunan of Mataram.[81] In exchange for VOC military support, the VOC was to become exempt from taxation. The treaty further stated that the VOC would be compensated for the expenses it would incur,

[76] Nagtegaal, *Riding the Dutch Tiger,* 21.
[77] Ibidem*,* 22.
[78] Ibidem*,* 25.
[79] Idem.
[80] Ibidem, 26.
[81] Peluso, *Rich Forests and Poor People*, 37.

meaning that it would claim the income of all northern ports. Another clause stated that all non-natives in the Mataram state were subjugated to the authority and jurisdiction of the VOC. It also allowed the VOC to establish fortresses and shipyards along the coast. [82]

However, the VOC did not only acquire economic benefits and coastal possessions. In the regency of Rembang, it annexed the town of Rembang and its nearby teak forests. This also meant that 36 villages within this area were subjugated to the authority of the VOC rather than the Susuhunan. The teak timber, which these villages had to provide to the VOC, for construction and shipbuilding, became one of the most important export products of the region.[83] After the signing of the treaty, the VOC established its company wharf in Rembang in 1677. While the ships in Rembang were traditionally built on the beaches, the VOC also constructed three slipways on which the ordered ships were to be constructed. Other facilities at the wharf in Rembang were a sawmill, a carpenter shed, and a smithy.[84] During the founding days of the wharf, it employed 50 Javanese shipwrights and six European overseers.[85]

Rembang would thus become an important contributor to VOC colonial shipbuilding. However, the wharf in Rembang was not the only one owned by the VOC in Asia. As Van Rossum asserts, the company also established other shipbuilding-related facilities around its Asian empire.[86]

Accumulation of Materials and Resources

The main resource for the construction of early modern vessels was timber. As stated, the residency of Rembang was home to a large number of teak forests. Mathew shows that in the sixteenth century, the Portuguese already decided to construct large vessels of teak, which proved to be more durable against rot and shipworms on the hull of the ship.[87] The VOC was aware that teak was superior to European timber for shipbuilding and construction. Indeed, there were several complaints about the logs transported from the Dutch Republic,

[82] Nagtegaal, *Riding the Dutch Tiger,* 26.
[83] Peluso, *Rich Forests and Poor People*, 37.
[84] Nagtegaal, *Riding the Dutch Tiger,* 134.
[85] Idem.
[86] Van Rossum, 'Sampans, hout en slaven'.
[87] Mathew, *Shipbuildig, Navigation and the Portuguese,* 126.

mainly pertaining to their heavy weight.[88] Teak logs from Northeast Java were shipped to Batavia and used at the wharfs as early as 1622. Before the treaty of 1677, when the VOC annexed the teak forests surrounding Rembang, the import of teak timber was expensive and tedious. The local Javanese ruler heavily taxed the logs before they were sent to Batavia.[89]

This changed after the treaty of 1677, which, as explained earlier, subjugated 36 local villages to the authority of the VOC. Each year, the government of Batavia informed the resident of Rembang of the quantity of timber required. The resident would then inform the village elder, after which the resident and the village elders would divide the quota amongst the villages.[90] The wood chopping occurred for seven months each year. Since the VOC feared that the wetness would rot the timber, it closed the industry during the northeast monsoon.[91] What happened in Rembang was that the VOC removed the middlemen for its supply of timber, which caused a sharp decrease in the costs. The company used to pay fourteen *reales* for a heavy teak log, but this was reduced to three *reales* after the treaty of 1677.[92] This meant that ships constructed in Rembang were relatively cheap.

In 1704, the state of Mataram crowned a new Susuhunan. The VOC saw this as an opportunity to increase its influence over the teak forests in Northeast Java. According to the mandate which VOC official Herman de Wilde received, he had to suppress a rebellion in Northeast Java for the Mataram state. He also had to conclude a treaty with the new Susuhunan in which all the clauses from the treaty of 1677 still applied.[93] According to the mandate that De Wilde received, the wharf in Rembang would be supplied with teak logs from not just the Rembang forests but also from the villages of Jepara and Tegal. Already in 1705, the company forests of Northeast Java seemed to have suffered from serious deforestation. Therefore, de Wilde concluded a treaty with the new Susuhunan of Mataram which allowed the VOC to exploit the forests in the Mataram state. Any Javanese in

[88] *Generale Missiven*, IV, 645.
[89] Peluso, *Rich Forests and Poor People*, 37.
[90] Nagtegaal, *Riding the Dutch Tiger,* 194.
[91] Els Jacobs, *Koopman in Azië,* (Zutphen, 2000) 186.
[92] Nagtegaal, *Riding the Dutch Tiger,* 195.
[93] E.H.B. Brascamp, 'Het contract met den Soesoehoenan van 5 october 1705 en de houtleverantie', *Tectona* 16 (1923) 636-642, 639.

Mataram working as a woodcutter for the company was no longer subjugated to the Susuhunan but fell under the authority of the VOC.[94]

When considering the time it took woodcutters to transport the teak logs to the ports, the impact of deforestation in Northeast Java is clearly visible. In 1686, it only took the Javanese six to eight hours to transport the timber to the coast. However, the duration of the trips increased significantly, reaching twelve days in 1708 and fifteen days in 1738. The forests in other residencies also suffered from VOC exploitation.[95] In 1717, a resident of Demak stated that the large teak trees in the forests in his residency had been depleted. The condition of the forests in the Mataram state shows the severity of deforestation. In 1738, there were no trees over 30 feet in the entire state.[96] In response to the deforestation of Northeast Java, the VOC started exploiting the forests further inland. The other response was the imposition of heavy regulations on local use of teak logs and private shipbuilding, as was shown before.

A large part of the teak quota each year was reserved for the VOC wharf in Rembang. In 1733, Rembang requested 3,000 logs, of which 1,600 to 2,000 were used for the construction of ships.[97] However, the timber was not only used in Java but also on the coast of Malabar. This indicates that the forests of Rembang not only enabled local shipbuilding but also supplied construction material and ship timber for other colonial settlements.

At first, the timber for masts was imported from the Dutch Republic.[98] This was because the VOC had trouble finding suitable timber. The logs had to be the right size and strength. Since the imported masts occupied a significant amount of space on the return fleet, the VOC explored alternatives in Asia. The quality demands for masts were high, and various shiploads with masts were deemed inadequate.[99] In the case of Rembang, the constructed vessels received masts from the local teak forests. According to the *Realia,* the VOC wharf in Rembang decided that only the masts of the largest vessels were to be constructed from teak.[100] It is unknown from which timber the alternative masts were made.

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[94] Brascamp, 'Het contract met den Soesoehoenan', 642.
[95] Nagtegaal, *Riding the Dutch Tiger,* 196.
[96] Idem.
[97] Peluso, *Rich Forests and Poor People*, 41.
[98] De Jonge, 'Drawings, Ships and Spices', 180.
[99] Van Rossum, 'Sampans, hout en slaven' 15.
[100] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 93.

While timber was the most important resource for early modern shipbuilding, vessels also required other materials. The presence of a smithy in Rembang suggests that, unlike local practises, ships were constructed with the use of iron. These materials were most likely imported from Europe.[101] Until 1760, it was common that the larger ships constructed in Rembang were finished at the wharf at Onrust.[102] The presence of shipbuilding-related facilities in Batavia, such as the ropewalk and the sailcloth weaver, indicate that the other materials necessary to construct an early modern vessel came from the VOC regional infrastructure.

Accumulation of Labour

Shipyards demanded a steady supply of labourers. During the eighteenth century, the wharf on Onrust employed at least 200 European shipwrights and 500 slaves.[103] The demand for schooled European shipwrights was high. Whenever European shipwrights arrived in Batavia, they were directed to the island of Onrust, where they remained for the duration of their five-year contracts. In contrast to the wharf on Onrust, the VOC wharf in Rembang does not seem to have employed slaves or forced labourers.[104] Moreover, the demand for European shipwrights there was lower than in Batavia. One of the reasons was that there was a steady supply of Javanese shipwrights in Northeast Java, particularly in Rembang. In 1672, Maetsuycker already stated that the local shipwrights in Rembang could be hired for a small loan.[105]

As stated, the treaty of 1677 allowed the VOC to recruit local artisans for its shipyards. When the wharf in Rembang was established that same year, it employed 50 Javanese shipwrights and six European supervisors. The water-powered sawmill at the wharf was run by Chinese supervisors.[106] The exact number of labourers who worked on the

[101] Mathew, *Shipbuildig, Navigation and the Portuguese*, 115; Zwart, 'Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 83; Bonke, 'Het eiland Onrust', 49.
[102] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 83.
[103] Bonke, 'Het eiland Onrust', 53.
[104] Van Rossum, 'Sampans, hout en slaven', 17; Nagtegaal, *Riding the Dutch Tiger,* 134; E.H.B. Brascamp, 'Berichten omtrent de djatibosschen op Java van 1746', *Tectona* 10 (1917) 421-438, 423.
[105] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 82.
[106] Ibidem, 89.

shipyard during the first half of the eighteenth century seems to be absent from the records. However, when Governor-General Willem van Imhoff visited the wharf in 1746, it was employing 190 shipwrights, carpenters, and artisans. The salary varied, and the shipwrights could earn a wage between four and twelve *stuivers*.[107] This variation in wages thus reveals a labour hierarchy, not only between Europeans and Javanese but also amongst the Javanese themselves. The number of labourers in Rembang bothered the Governor-General, who hoped that a majority of them could be motivated to move to the wharf on Onrust where there was a shortage of carpenters.[108]

Necessary adequate maintenance extended beyond the wharf. To supply the shipyard with timber, the VOC first employed woodcutters from the 36 villages under its authority. As the quota increased, it the number of woodcutters also needed to be increased. It was not uncommon for the VOC to use forced labour in its exploitation of the local forests.[109] However, in the case of Rembang and its surrounding residencies such as Jepara and Demak, the VOC used the local population. Due to a lack of agricultural opportunities, these regions had a steady supply of professional woodcutters. Another difference is that the VOC directly paid the woodcutters in Rembang. In other residencies, this was often done by paying the local regent.[110] Apart from manpower, draft animals also constituted a workforce group deployed in the woodcutting industry, especially water buffalos. These animals were used for the transport of the logs to Rembang. Due to the increasing distance, the water buffalo became extremely relevant to the woodcutting industry.[111]

Concluding, what this chapter has demonstrated is that after the treaty of 1677, the VOC possessed the resources and labour to construct a shipyard in Rembang. When examining the regional shipbuilding infrastructure at the VOC wharf there, it becomes clear that the shipyard functioned largely independently of the Dutch Republic. The regional aspect of the Rembang wharf is especially noticeable in terms of the accumulation of resources. The teak forests provided the shipyard with timber. With regard to the VOC's

[107] Brascamp, 'Berichten omtrent de djatibosschen op Java van 1746', 423.
[108] Idem.
[109] Nagtegaal, *Riding the Dutch Tiger,* 197.
[110] Idem.
[111] Ibidem, 194.

shipbuilding infrastructure in Asia, the shipyards, including the wharf in Rembang, were supplied with materials manufactured in Asia. Iron-made materials such as nails were an exception to this. For the supply of these materials, the wharf depended on the Dutch Republic, whereas it relied on the local Javanese population for the accumulation of labour. As shown, the majority of the workforce consisted of locally recruited shipwrights supervised by Europeans. These Europeans were higher in the hierarchy and were responsible for the quality of the constructed vessels. For the extraction of resources, the VOC relied on local labourers such as woodcutters and water buffalos. The wharf's significant dependence on regional resources and labour bolsters Antunes's hypothesis that colonial shipbuilding points to regionalisation or localisation rather than the globalisation of the European maritime empire.

To further research whether colonial shipbuilding indicates regionalisation of the European maritime empire, this thesis researches the capabilities of this wharf, including the number of ships constructed and the charter that these ships belonged to. The charters of the ship show whether European or local designs were used at the wharf in Rembang. Furthermore, the number of ships constructed provides an insight into the relevance of the wharf in Rembang for the VOC fleet in Asia.

II. Designs and Production at the Wharf in Rembang

This chapter studies the designs and charter of the ships constructed in Rembang. By considering the technological aspects, this chapter seeks to illustrate the capabilities of these ships. The designs also provide an insight into the use of local techniques and knowhow by the Europeans, thereby revealing if the VOC adopted local ships into its fleet or if it relied exclusively on European designs. The use of local designs would also suggest an influence of Asian technologies and ships on the process of empire-building by the VOC.

In addition, this chapter describes the size of the crew and the weaponry onboard these ships. Since the VOC not only fought European competitors but also Asian sea marauders, ships had to be equipped to address these threats. The arms on-board provide an indication of the ships' uses.

To understand the importance of the wharf in Rembang for the Asian fleet of the VOC, and for empire-building more generally, it is furthermore necessary to provide an overview of the number of ships produced at the wharf. Therefore, this chapter analyses the output at the wharf in Rembang from 1677 to 1750. Research into changes in production along a timeline offers several opportunities. First, it helps determine whether political changes on Java or in any other region of the VOC empire had any influences on the ships built in Rembang. A second aspect related to empire-building, namely changes in VOC policies, can also be studied to determine if they affected the production of ships at the wharf in Rembang.

Ships of the VOC

The ships of the Dutch early modern empire have been thoroughly researched by historians.[112] Hans Haalmeijer and Dik Vuik write about VOC vessels, providing a summary of the European ships used by the VOC as well as the size and use of these vessels.[113] Both historians and archaeologists have done research into design, equipment, and crew. In her study, archaeologist Wendy van Duivenvoorde examines the wreck of the *Batavia*.[114] This case study provides significant information about the use of materials and techniques employed in Dutch shipbuilding.

Whilst the European ships of the VOC have been extensively researched and documented, the same cannot be said about its Asian vessels, which are rarely included in the historiography of VOC ships. Nonetheless, from 1680 onwards, the Asian ships comprised more than half of the VOC fleet in Asia. After several years, this would rise to two-thirds, showing the relevance of researching the ships constructed at the wharf in Rembang.[115] Gerrit Knaap studied these ships, and his work offers an overview of the

[112] Michiel de Jong, Gerrit Knaap en Henk den Heijer, *Oorlogen overzee Militaire optreden door compagnie en staat buiten Europa 1595-1814* (Amsterdam, 2015); Ron de Vos, *Nederlandse fregatschepen & barken* (Franeker, 2012); Hans Haalmeijer and Dik Vuik, *Fluiten, katten en fregatten* (Haarlem, 2002); Kamer, *Het VOC-retourschip: een panorama*; Unger, *Dutch Shipbuilding before 1800*.
[113] Hans Haalmeijer and Dik Vuik, *Fluiten, katten en fregatten*.
[114] Wendy van Duivenvoorde, *Dutch East India Company Shipbuilding* (Texas, 2015).
[115] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 221.

equipment and size of these Asian vessels.[116] His work supports this research by also describing the capabilities of the ships constructed in Rembang.

[116] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 220.

Table 1

Ships constructed at the VOC wharf in Rembang (1689-1746)

Year	**Type**	**Name**	**Size**	**Costs**	**Destination**
1689	Yacht	?	Length 95 feet	3300 reales	?
1689	Chialoup	?	Length 75 feet	2200 reales	?
1689	Pantjalang (10X)	?	?	?	?
1691	Yacht	*Schaepherder*	?	?	?
1691	Yacht	*Herderin*	?	?	?
1691	Yacht	*Andromeda*	?	?	?
1691	Pantjalang (8X)	?	?	?	?
1692	Chialoup	*Amsterdam*	Length 60 feet	?	Bengals
1692	Chialoup	?	Length 60 feet	?	?
1692	Chialoup	?	Length 60 feet	?	?
1692	Chialoup	?	Length 60 feet	?	?
1693	Chialoup	?	Length 70 feet	?	?
1693/1694	'Watercraft'	?	Length 56 feet	?	?
1693/1694	'Watercraft'	?	Length 56 feet	?	?
1697	Chialoup	*Wayer*	?	?	Northeast coast Java

1697	Chialoup	*Commer*	?	?	Northeast coast Java
1710	Chialoup	?	?	?	Replaces *De Craanvogel*

1712	Chialoup	*Buru*	Length 76 feet Wide 20 feet Draft 10 ½ feet	?	Banda Islands
1712	Chialoup	*Ceram*	?	?	Banda Islands
1712/1713	Chialoup (3X)	?	?	?	Ambon
1714	Chialoup	*Langerak*	Length 55-80 feet Wide 12-22 feet Draft 6-9 ½ feet	?	?
1714	Chialoup	*Brak*	Length 55-80 feet Wide 12-22 feet Draft 6-9 ½ feet	?	?
1714	Chialoup	*Rembang*	Length 55-80 feet Wide 12-22 feet Draft 6-9 ½ feet	?	Siam
1714	Chialoup	*Lijnbaan*	Length 55-80 feet Wide 12-22 feet Draft 6-9 ½ feet	?	?

1714	Chialoup	*Patna*	Length 55-80 feet Wide 12-22 feet Draft 6-9 ½ feet	?	?
1714	Brigantine	*Hoop*	Length 74 feet Wide 23 feet Draft 10 feet	?	?
1714/1715	Pantjalang	?	Length 61 feet Wide 17 feet Draft 7 feet	?	?
1714/1715	Pantjalang	?	Length 61 feet Wide 17 feet Draft 7 feet	?	?
1715	Brigantine	?	Length 74 feet	?	?
1719	Pantjalang	*Kisar*	?	?	Banda Islands
1719	Pantjalang	*Intree*	?	?	Banda Islands
1719	Chialoup	?	?	?	?
1719	Pantjalang	?	?	?	?
1721	Chialoup	?	Length 60 feet	?	?
1722	Pantjalang (3X)	?	?	?	East coast Java
1722	Chialoup	?	?	?	?

1723	Chialoup	?	?	?	Ternate
1723	Barque	?	?	?	Siam
1724	'Losboot' Barque	*Tinnegieter*	?	?	Siam
1724/1725	'Losboot' Barque	?	?	?	Siam
1726	Pantjalang (2X)	?	?	?	Banda Islands
1726	Pantjalang	?	Length 60 feet	?	West coast?
1728/1729	Chialoup	?	?	?	Coromandel
1730/1731	Chialoup	?	?	?	Replaces *de Komkommer*
1731	Pantjalang (3X)	?	?	?	East coast Java
1731	Chialoup	?	?	?	East coast Java
1731	Chialoup	*Charlatan*	Length 65 feet	12,507 guilders	Padang
1731	Pantjalang	?	?	?	Malakka
1731	Pantjalang	?	?	?	Sumatra
1732	Chialoup	?	?	?	Ambon
1732	Chialoup	?	?	?	Waterschout?
1732	Pantjalang	?	?	?	?
1733	Chialoup	*Ida Anna*	?	?	?
1733	Pantjalang	*Talmerij*	?	?	?
1734	Chialoup	?	?	?	?
1734	Chialoup	?	?	?	?

1734	Pantjalang	?	?	?	Palembang
1734	Brigantine	?	?	?	?
1736	Chialoup (3X)	?	?	?	?
1739	Chialoup (4X)	?	?	?	?
1740	Chialoup	?	Two masts	?	Ternate
1740	Chialoup	?	?	?	Batavia
1740	Pantjalang	?	?	?	Replaces pantjalang *Bonerate*
1740	Pantjalang	?	?	?	Batavia
1740	Pantjalang (3X)	?	?	?	Banda Islands
1741	Chialoup	*Clara*	?	?	Ternate
1741	Pantjalang	*Kruiser*	?	?	Ternate
1741	Pantjalang (10X)	?	?	?	?
1745	Hooker	*Jonge Prinses*	?	?	?
1746	Pantjalang (6X)	?	?	?	?
1746	Barque	?	Length 80 feet	?	?

Source: *Generale Missiven*, V; *Generale Missiven*, VI; *Generale Missiven*, VII; *Generale Missiven*, VIII; *Generale Missiven*, IX; *Generale Missiven*, X; *Generale Missiven*, XI.

Equipage, Types, and Designs

Table 1 presents an overview of the ships constructed at the wharf in Rembang from 1677 until 1750, showing the types and number of ships constructed. Due to a lack of information in the sources, there were several years when data was missing on the number of ships constructed. These gaps make it impossible to reconstruct the exact total of ships constructed in Rembang. However, there is no reason to assume that shipbuilding in Rembang did not continue during these years. The information in the table remains valuable because it depicts what kinds of ships were constructed and, in the case of the documented years, the annual production. The table does not include the smaller watercraft constructed in Rembang. Ships below the length of 50 feet were not included in the table.

Table 1 also indicates the types of the constructed vessels. The most common vessels constructed in Rembang were the chialoup and the pantjalang. These ships had an Asian heritage and were built with local designs. Richard Unger states that the dominance of European designs was neither certain nor uncontested. According to him, there was a constant search for the best techniques, designs, and materials for local shipbuilding. Until the 1640s, the VOC sent prefabricated boats to its Asian empire. These ships were constructed at arrival and were then used in patrols and trade. The emergence of the pantjalang and chialoup as VOC vessels shows that the Europeans became increasingly familiar with Asian designs and modifications. The variation in size suggests that there was not one standardised design for either of these two types. Another problem is categorising the ships. Even contemporaries were not always able to distinguish between the pantjalang and the chialoup, because the ships constructed for the VOC widely believed to be larger than its counterparts sailing in the private trade.

The competitive drive of the VOC was not only visible in its search for the best type of vessels. The VOC was also continuously searching for the best materials for the construction of ships. As stated, the presence of high-quality teak forests in Rembang was the main reason for the establishment of the wharf. This timber was more durable than the oak timber used in Europe. As Van Rossum indicates, the dominance of European techniques was also not uncontested. An example of experimentation and local knowhow is visible in the adaption of the technique of 'liplappen' by the VOC.[117] This technique came from Surat

[117] Van Rossum, 'Sampans, hout en slaven', 13.

and proved to be useful against timber worms. The ships there were coated with a paste of quicklime and tree wool. The paste used by the Surat moors was compared to the one used by the Buginese. When the VOC had a lack of tar in 1744, it suggested that the wharfs in Batavia coat their smaller and medium-sized ships with this paste.[118] The European influence was noticeable in the designs of the ships constructed in Rembang. However, there is a lack of information about the techniques used for the construction of the vessels. The merge of European and local knowhow, however, can be shown by examining the ships constructed in Rembang.

A ship frequently constructed in Rembang was the chialoup. Table 1 shows that the size of this ship varied between 55 and 80 feet, and it was equipped with at least one mast. In some cases, such as the chialoup constructed for Ternate in 1740, the ship was equipped with two masts. The chialoup showed similarities in size and design with the European sloop and can be considered the successor of the earlier mentioned 'afbreekboot' used until 1640. Therefore, it was a clear combination of European and local designs and techniques. The chialoup had a lateral rudder on both sides, as was usual for ships constructed in Northeast Java. It was also equipped with a European rudder and a single deck. Just like the pantjalang, the chialoup was modified with iron nails and European cotton sails. However, unlike the pantjalang, the sails were not rectangular but fore-and-aft rigged, which meant that the sail was set alongside the keel. In some cases, a mizzenmast was added to the mast.

The VOC's constant search for the best-performing design is implied in an order from 1733. The VOC stated that any chialoup longer than 65 feet and with two masts had to be equipped with a load port.[119] Whilst the pantjalang was a transport and scouting vessel, the chialoup was used for local and interregional trade.[120] The latter type could carry an average of 40 tonnes. The crew size aboard the chialoup varied between four and 26 sailors. However, on average, the crew size would be below ten because of its purpose as a trade vessel.[121] According to the data accumulated by Van Rossum, the crews of the chialoups consisted of European sailors. This is in contrast to the mixed crews of the pantjalang.

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[118] Van Rossum, 'Sampans, hout en slaven', 13.
[119] *Generale Missiven,* IX, 454.
[120] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 217.
[121] Mathias van Rossum, Database Generale Zeemonsterrollen VOC, 1691-1791, (2014) https://dutchshipsandsailors.nl/?page_id=11

However, this information might be wrong according to Van Rossum. He states that the local use of the chialoup and pantjalang caused the crew to be accommodated under the land muster rolls. This data is missing from his database, but Van Rossum assumes that the crews of the chialoups were also a mix of European and Asian sailors.[122]

As a merchant ship carrying cargo, a chialoup had to be armed to withstand Asian marauders. However, the sources lack extensive information about the weaponry on these ships. Knaap argues that, on average, the chialoup was less armed than the pantjalang.[123] The fact that the chialoups were nevertheless armed is visible on a chialoup which sailed in the Moluccas, armed with ten cannons which were three- and four-pounders.[124] As stated, this weaponry was imported from Europe. However, Boomgaard's research on wind- and watermills shows that the VOC established a local infrastructure to supply the ships with ammunition from Asia.[125]

The pantjalang originally came from the Malaysian region, where it performed local tasks such as fishing and transport. By the sixteenth century, the shipbuilders on the northeast coast of Java adopted this type of vessel. This ship was originally constructed with fibre palms like sails and a lateral rudder but without the use of iron nails.[126] In its adoption of the pantjalang, the VOC modified it with European techniques. This is seen in the use of cotton or linen sails instead of fibre palms. Whilst some ships were equipped with a European rudder, this was not always the case. In several instances, the ship would have a lateral as well as a European rudder.[127] The data in table 1 shows that the pantjalang built by the VOC averaged around 60 feet in length. This differed from the ships in the private trade, which averaged between 40 and 60 feet long.[128] These ships often had one mast, which had a rectangular sail, and a single deck. Whilst the local Javanese used the pantjalang for a wide variety of tasks, including fishing and trading, the VOC mainly used it to perform patrols and

[122] Van Rossum, *Werkers van de Wereld,* 170.
[123] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 224.
[124] Idem.
[125] Boomgaard, 'Techonologies of a trading empire', 47.
[126] Knaap, *Shallow Waters, Rising Tide*, 34.
[127] Ibidem, 35.
[128] Ibidem, 36.

scout trade routes because of its quickness and mobility. This is reflected in their capabilities for transport, which averaged around twenty tonnes.[129]

Van Rossum also researched the crews sailing on VOC ships. In the *Database Generale Zeemonsterollen,* he documented the crews of VOC ships anchored on a roadstead during the years 1691 to 1791. The crews of the pantjalangs were only documented until 1720. After that year, they were accommodated in the land muster rolls because their tasks were mainly restricted to one region.[130] The crew size varied between eight and 24 sailors or soldiers. From 1691 until 1720, about half of the pantjalangs had a crew of soldiers and sailors of mixed ethnicities. [131] As Van Rossum indicates, it was not uncommon for the VOC to employ Asian crewmembers.

Since the tasks of the VOC pantjalang had a military origin, these crew members were armed. Along with pikes and sables, the sailors were equipped with a flintlock rifle called a 'snaphaan'. The snaphaan was imported from Europe and became a popular weapon during the eighteenth century. The pantjalang itself was equipped with cannons and swivel guns, which were also imported from Europe. Whilst the bronze cannons were favoured because they were more durable, the pantjalang were equipped with cheaper iron-casted cannons from Sweden.[132] The sources lack information about the exact amount of weaponry aboard these ships. However, Knaap states that in 1790, the pantjalangs sailing in Makassar were equipped with four three-pound cannons and two two-pound cannons.[133] Figure 1 also provides some information about the weaponry used on the pantjalangs, such as swivel guns which were often cast in bronze. Whereas the Indiamen of the VOC were equipped with one-pound swivel guns, their Asian ships probably used a smaller calibre. The swivel guns aboard the pantjalangs were most likely not larger than a quarter pound.[134] With this weaponry, the pantjalangs were able to withstand attacks from marauders and perform scout patrols.

Table 1 depicts the disappearance of the yacht and the rise of the pantjalang. This rise can be attributed to the problem of sea marauders and the consolidation of the VOC

[129] Van Rossum, *Werkers van de Wereld,* 130.
[130] Ibidem, 131.
[131] Ibidem, 169.
[132] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 224.
[133] Idem.
[134] Knaap, *Shallow Waters, Rising Tide*, 40.

empire. As stated, the pantjalang excelled as a scouting and patrol vessel and thus became popular in other VOC colonies. It was also better equipped than the chialoup. According to Knaap, the policies of the VOC were mainly focussed on consolidating the empire. After Governor-General Speelman died in 1685, the VOC tried to stop its own military expansion. While the protection of trade routes inevitably led to various military conflicts, the goal of the VOC was to solidify the existing empire.[135] The VOC empire mainly consisted of coastal possession connected by sea, meaning that it depended on its maritime superiority. The pantjalang was effective in patrolling the trade routes and scouting enemy vessels. The increase of the pantjalang happened during a period in which the VOC invested in consolidating its empire. The pantjalang helped achieve that goal by patrolling and scouting. These ships were deployed all around the VOC empire. In 1719, the pantjalangs *Kisar* and *Intree* were both constructed for the Banda Islands, reflecting the spread of their use.[136]

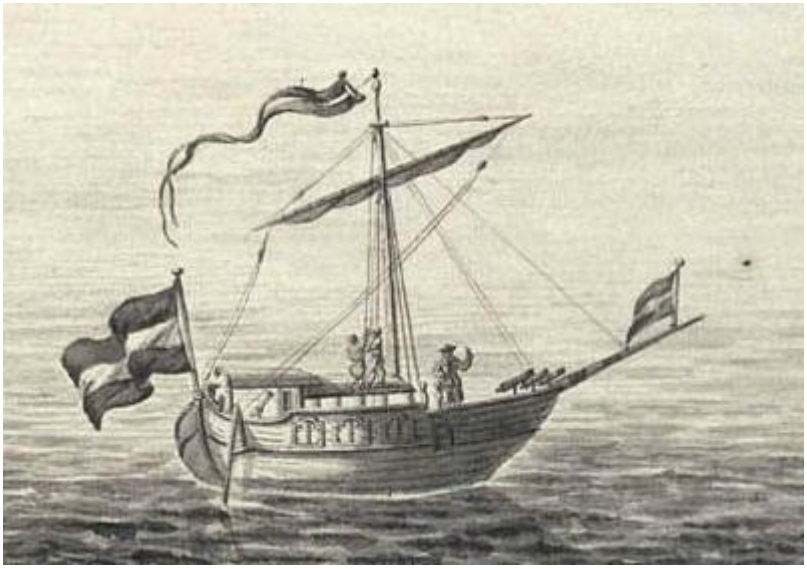

Figure 2: Source: National Library of Indonesia (I-NaLi), inv. nr. BW 66 and BG 11. Johannes Rach, *View of the fort at Rembang, seen from the road.*

The largest ship types constructed at the wharf in Rembang were the brigantine and the barque. Knaap argues that both fall under the same type of ship.[137] The categorising of ship types is contested in various the sources, and Van Rossum treats these ship types as different categories. In the *Generale Missiven*, which were used to construct the table, the

[135] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 123.
[136] *Generale Missiven,* VII, 381.
[137] Knaap, *Shallow Waters, Rising Tide*, 36.

barque was in some cases categorised as a vessel used for unloading ships ('losboot').[138] However, the presence of at least three masts suggests the European barque was not used for unloading but rather for intra-Asian trade. Therefore, it is unclear how frequently these European designs were constructed in Rembang.

One of the brigantines offering an insight into its size and tasks was the ship *de Hoop,* built in 1714 with a length of 74 feet.[139] The brigantine had two square-rigged masts, a topsail, and a gaff sail strung from the first mast. The *Hoop* had an extensive career and was last mentioned in 1738.[140] In a time when the average lifespan of a ship was fifteen years, this was exceptional. Knaap states that in 1775, the average length of the barques/brigantines constructed in Rembang was between 70 and 100 feet.[141] The size of the brigantines shows that the ban issued by the VOC on the construction of ships above 60 feet was not heavily enforced. The *Hoop* was mainly used for interregional trade. However, this was not the only task performed by these ship types. In 1746, the wharf produced a barque with a length of 80 feet which was used against Asian marauders.[142]

The average cargo space of brigantines like the *Hoop* is contested. According to Van Rossum, the average brigantine had space for 160 tonnes.[143] This seems to be somewhat high, and that is probably because the brigantines built in Europe were included. The European brigantines were larger than those constructed in Asia. According to Knaap, the average cargo space of brigantines in 1774 was 92 tonnes.[144] The cargo size that Knaap suggests seems to be more in line with the size of the *de Hoop*.

The crew of the *Hoop* is also shown in Van Rossum's database. Like other ships, its crew size varies, but on average, fifteen sailors were employed on this ship. In contrast to the mixed crews of the pantjalangs and, to a lesser extent, the chialoups, the *de Hoop* had a crew which was entirely European.[145] Depending on their tasks, these ships had to be armed. According to Knaap, these vessels were reasonably well-equipped with weaponry. A

[138] *Generale Missiven,* VII, 719-722.
[139] Ibidem, 58.
[140] *Generale missiven*, X, 171.
[141] Knaap, *Shallow Waters, Rising Tide*, 36.
[142] Brascamp, 'Berichten omtrent de djatibosschen op Java van 1746', 423.
[143] Van Rossum, *Werkers van de Wereld,* 131.
[144] Knaap, *Shallow Waters, Rising Tide*, 36.
[145] Van Rossum, Database Generale Zeemonsterrollen.

brigantine sailing in Malakka in 1790 was armed with 24 cannons, some of which were four-pounders.[146] The average brigantine sailing along the northeast coast of Java in 1774 was armed with eight cannons.[147] This reflects their tasks as both trade vessels and military ships.

The wharf in Rembang also produced a large number of smaller boats, often used for the unloading of goods and inland transport and trade. In 1732, the wharf master received a new design for unloading boats from the colonial government in Batavia.[148] The most common type of these small boats was what the VOC named 'schouwen'.[149] They were often flat and specifically designed to serve in the roadstead of the colonial harbours. For example, the roadstead of Rembang and Batavia was dangerous for larger ships since the shallow waters could damage their hull.[150] Rembang supplied these boats to different regions in Asia.

Another frequently built vessel was the tan(d)jungpuras.[151] However, the literature and sources used in this thesis pay little attention to this type of ship. The *Generale Missiven* documented the size of only two tan(d)jungpuras. These ships were 58 feet in length and 18 feet wide. It is unclear for what task the VOC built these vessels. The only indications point to the task of unloading ships. Since these ships had a draft of six feet, they were also suitable for inland river sailing.[152]

Another type of large vessel constructed at the wharf in Rembang was the yacht. These ships were primarily built during the early years of the wharf before the ban on ships larger than 60 feet.[153] Before the construction of the wharf in Rembang, the VOC had already ordered yachts on the northeast coast of Java. For example, the yachts *Cabeljau* and *Schelvis* were built by Chinese shipwrights in 1653.[154] In 1689, the VOC built a yacht with a length of 95 feet which cost 3,300 *reales*.[155] This is one of the few ships of which the costs of construction are documented in the *Generale Missiven*. The last yachts were constructed in

[146] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 224.
[147] Knaap, *Shallow Waters, Rising Tide*, 40.
[148] *Generale Missiven,* IX, 427.
[149] Ibidem, 695.
[150] Knaap, *Shallow Waters, Rising Tide*, 21.
[151] *Generale Missiven,* IX, 558; Ibidem, 280; Ibidem, 219.
[152] *Generale Missiven,* VII, 125.
[153] *Generale Missiven,* V, 424.
[154] *Generale Missiven*, II, 665.
[155] *Generale Missiven*, V, 341.

1691. There were two reasons for this. First, the yachts constructed in Rembang were deemed inadequate for the task of scouting and defending Indiamen sailing between Mauritius and the Cape of Good Hope.[156] The second reason was the ban on the construction of ships larger than 60 feet. From 1691, the yachts were gradually replaced with the pantjalang, which excelled in scouting and patrolling.

Production, Costs and Labour at the Wharf in Rembang

After the treaty with Susuhunan Amangkurat in 1677, the VOC established an infrastructure which supported its shipbuilding centre in Rembang. As stated, the wharf employed 40 Javanese shipwrights and European supervisors at the time of its founding. Table 1 shows that the first ships documented in the *Generale Missiven* were a yacht and a chialoup built in 1689. However, this does not mean that the wharf did not produce any ships before that. In 1684, the VOC built ten sampans, which were smaller boats used for local fishing and transport.[157] Another indication of early production was the shipwright strike in 1686, when Javanese shipwrights demanded more pay.[158]

During the seventeenth century, the VOC wharf in Rembang was not the only Dutch wharf in the region. Free burghers Daniel Dupré and Juriaan Abrahamszoon both established a wharf in the area of Rembang. Abrahamszoon worked quite closely with the VOC and constructed vessels for the company until 1701. Dupré was also involved in the construction of VOC ships. However, both wharfs seemingly only briefly existed as they are not mentioned in the *Generale Missiven* after 1701. In the case of Dupré, it is documented that he closed his yard due to a shortage of capable European shipwrights.[159]

By 1689, the VOC wharf had already produced ships for other regions in its colonial empire.[160] In 1690, the VOC called for the construction of yachts for defensive tasks, but, as stated, the locally constructed yachts were deemed inadequate.[161] Three years later, the VOC banned all construction of vessels over 60 feet, but, as shown in table 1, this restriction was largely ignored.

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[156] *Generale Missiven*, V, 385.
[157] *Generale Missiven*, IV, 745.
[158] *Generale Missiven*, V, 64.
[159] Ibidem, 68.
[160] Idem.
[161] Ibidem, 385.

One of the better documented years in the *Generale Missiven* is 1714, when the VOC constructed five chialoups and one brigantine. The construction of six medium-sized vessels in one year shows that the wharf in Rembang was capable of fulfilling large orders by the VOC. Another well-documented year is 1731, during which the wharf built five pantjalangs, two chialoups, four tan(d)jangpuras, and ten smaller boats, reaching the top of its capacities.[162] However, there were complaints that the wharf failed to supply the necessary amount of smaller ships.[163] In 1735, the wharf in Rembang failed to construct enough ships. To build more, the VOC ordered two ships which were planned in Rembang to be built in its colony in Bengal.[164] In the case of empire-building this shows that the VOC had multiple local wharfs which it could use to construct ships.

One of the few ships for which the price was documented was the chialoup *Charlatan*. This ship of 65 feet cost 12,507 guilders and was constructed in 1731.[165] The *Generale Missiven* do not provide any other information about the costs of constructed ships. However, Odegard's research into the VOC wharf in Cochin offers some comparison. The sloop *Zeelands Welvaren,* which had a length of 80 feet and was constructed in 1733, cost 14,224 guilders.[166] This means that shipbuilding at Cochin was relatively cheaper than in Rembang. There are reasons, however, to question whether this comparison is representative of the actual costs. For instance, the costs of the *Charlatan* might not be representative of the average costs of ships constructed in Rembang. Furthermore, the VOC officials praised shipbuilding in Rembang for its relative cheapness and its solid quality.[167]

Tensions between the VOC and the local populations were always present. In 1740, several Javanese and Chinese groups rebelled against both the urban elites and the VOC. After a raid of a Chinese gang near Batavia, the Europeans in Batavia responded with a pogrom on the Chinese population. This escalated into the Java War, which lasted until 1743.[168] Despite the support of the Mataram state, the northeast coast of Java was overrun by rebels and in 1741, the Chinese rebels occupied the wharf in Rembang. This war lasted

[162] *Generale Missiven,* IX, 280.
[163] Ibidem, 287.
[164] Ibidem, 612.
[165] Ibidem, 236.
[166] Odegard, 'Timmeren te Cochin', 33.
[167] Zwart, 'Uit de boschgeschiedenis van Java en Madoera', 82.
[168] Nagtegaal, *Riding the Dutch Tiger,* 220.

until the VOC defeated the rebel armies in 1743 and claimed more authority over Java.[169] Due to the Java War, there was a shortage of patrol vessels due to the occupation of the wharf in Rembang.[170] This indicates that the wharf played an important role in the process of empire-building.

Table 1 reflects the lack of data on construction after the war. However, in 1745, the wharf reported that it was producing at pre-war capacity and that it expected the shortage of patrol vessels to be resolved the following year.[171] The next year, Governor-General Van Imhoff visited the wharf and stated that 190 shipwrights were working there.[172] Between these years, the VOC planned to relocate the wharf to the island of De Nesse near Japara. This island would be more suitable to construct vessels.[173] However, this plan failed, and the wharf on the island De Nesse was closed in 1751. In the second half of the eighteenth century, the wharf in Rembang increased its production and was also involved in the construction of larger vessels. In 1762, for example, the wharf constructed a frigate of 100 feet, two chialoups of 70 feet, three chialoups of 60 feet, four pantjalangs, and 30 smaller boats.[174]

The designs of the ships constructed in Rembang show the influence of local techniques and knowhow. The pantjalang and the chialoup embody the cross-cultural aspect of these ships and also reinforce Unger's statement that European designs were neither dominant nor uncontested. The disappearance of the yacht in favour of the pantjalang is a clear example of that.

The ships built in Rembang were used in a variety of ways depending on their type. Whilst the chialoup was primarily used for interregional trade, the pantjalang was a military scouting and patrolling vessel. Both tasks were crucial for the construction of a maritime empire.

The production at the wharf of Rembang was subject to the needs of the VOC. Due to the challenges posed by sea marauders, there was a large demand for vessels suitable for patrols. This is visible in the decline of yachts and the rise of pantjalangs in the eighteenth

[169] Nagtegaal, *Riding the Dutch Tiger,* 225.
[170] *Generale Missiven,* X, 1023.
[171] *Generale Missiven,* XI, 316.
[172] Brascamp, 'Berichten omtrent de djatibosschen', 423.
[173] Ibidem, 431.
[174] *Generale Missiven,* XIV, 281.

century. Another example of changing needs and trust is the rise of the chialoup in the late seventeenth century and the disappearance of the prefabricated boats from the Dutch Republic. The important role that this wharf played in the construction and consolidation of the VOC maritime empire was further emphasised during the Java War of 1741. Due to the occupation of the wharf, the VOC suffered a shortage of patrol vessels, implying that locally constructed ships were necessary for empire-building. To further research the importance and relevance of the ships constructed in Rembang, the following chapter examines the careers of several vessels and their roles in the intra-Asian trade market.

III. Local and Transregional Uses of the Rembang-built Fleet

This chapter discusses the use and deployment of the vessels constructed in Rembang. It will do so by looking at the careers of different types of ships. First it will look at the yachts constructed by the VOC in Rembang. Secondly, the careers of the brigantine the *Hoop* will be examined. Thirdly, the rise and tasks of the pantjalangs are researched. Finally, the tasks and careers of various chialoups will be discussed.

For a number of these ships, the name is known, allowing a further study of the careers of some of these vessels and, in turn, the changing needs and roles of the VOC. This chapter also examines the roles and relevance of Asian ships in the VOC fleet and, by extension, in the process of empire-building. This helps answer the question of whether the VOC's empire-building occurred globally or, as Antunes suggests, locally.

Yacht

The first recorded yachts purchased by the VOC were the *Cabeljau* and the *Schelvis* in 1653.[175] These vessels were constructed by private Chinese shipbuilders. According to the *Generale Missiven,* they proved to be strong and durable. The last documented voyage of the *Schelvis* was in 1676. This ship was primarily used in intra-Asian trade but also made at least one voyage to Angola.[176] This is representative in that most ships built in Rembang

[175] *Generale Missiven,* II, 665.
[176] *Generale Missiven,* III, 208.

were used and situated in Asia, while some yachts were used to protect trade routes to Africa.

In 1689, Juriaan Abrahamszoon constructed a yacht of 95 feet.[177] This yacht was supposed to scout and escort Indiamen between Batavia and the VOC colony on the Cape of Good Hope. However, the construction of yachts in Rembang was short-lived. Already in 1690, the VOC stated that those built in Rembang were poorly constructed and lacked the strength to sail on these routes.[178]

The last documented yachts were constructed in 1691, when Juriaan Abrahamszoon built the *Schaepherder,* the *Herderin,* and the *Andromeda*.[179] In contrast to the message of 1690 about the inadequate conditions of the yachts constructed in Rembang, these were described as strong and durable. Except for the *Schaepherder,* the careers of these yachts have been fairly well documented. The career of the *Herderin* shows that it was primarily a trading vessel. Whilst it did not fulfil a defensive task, it did sail to the Cape of Good Hope carrying spices from Ceylon.[180] After sailing in trade between Ceylon and the Cape of Good Hope, it sailed to the island of Mindanao. In addition, it was used for the transport of 51 soldiers from Ternate to Surabaya in 1707.[181] The *Andromeda* was also used for intra-Asian trade and the transport of soldiers, and its last documented voyage was in 1711.[182] During the start of its twenty-year career, the vessel sailed between Batavia and Northeast Java, where it played a role in the spice trade.[183] The ship also sailed to Siam and Banda, which usually happened within a larger fleet. Its first military action was in 1706, when it transported 75 Ternate soldiers to Semarang to suppress disturbances in the region.[184] These disturbances came from the First Javanese Succession War. During this war, the VOC sided with Pakubuwana I against Amangkurat III.[185] After this, the *Andromeda* spent its last years sailing in the spice trade between Palembang and Batavia. Interestingly, the ship was not only used to sail on oceans waters but also on rivers. However, according to the

[177] *Generale Missiven*, V, 341.
[178] Ibidem, 385.
[179] Ibidem, 424.
[180] Ibidem, 477.
[181] *Generale Missiven,* VI, 479.
[182] Ibidem, 742.
[183] *Generale Missiven,* V, 753.
[184] *Generale Missiven,* VI, 421.
[185] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 128.

Generale Missiven, this did not always go well. On the Djambi River, for example, the *Andromeda* sailed onto a shoal and had to unload all cargo before it was able to sail away.[186]

The original intentions of the VOC officials were to build defensive yachts in Rembang. However, due to the better quality of Dutch-built yachts and probably also to a lack of trust in local craftsmanship, the yachts were only used for intra-Asian trade purposes before eventually being replaced by the chialoup and the pantjalang.

Brigantine

Another large type of vessel built by the VOC was the brigantine. Although there were only three documented cases of brigantines built in Rembang, their careers deserve some attention. As stated, the brigantine was the most heavily armed vessel which the VOC built in Asia. The career of the brigantine *de Hoop* has been fairly well documented. It was one of the two brigantines constructed in 1714 and 1715.[187] The first documented voyage was between Padang, which is on Sumatra's west coast, and Batavia, where it transported spices, gold and styrax (a kind of resin).[188] In 1732, the captain of the *de Hoop* was accused of participating in the private slave trade in Baros on Sumatra. This was forbidden by the VOC, and the captain and ship were sent back to Batavia.[189] The future of the captain is unclear, but before the end of the year, the *de Hoop* was already sailing again in the trade between West Sumatra and Batavia.

The career of the *Hoop* can be tracked through the database of the Bookkeeper-General Batavia. When sailing from Batavia it usually carried maintenance goods for the colonial possessions of the VOC. Provisions as nails, rope, timber and medicines. According to the database of the Bookkeeper-General Batavia, the Hoop was also involved in shipping large quantities of gold. In 1731 it sailed from the west coast of Sumatra to Batavia with a cargo consisting of gold and benzoin worth 120.086 Indian guilders. The worth of this cargo and the fact that it sailed alone suggests that the Hoop was able to defend itself against the threat of sea marauders. The Bookkeeper-General Batavia furthermore shows that in 1727 it

[186] *Generale Missiven,* VI, 642.
[187] *Generale Missiven,* VII, 198.
[188] Ibidem, 480.
[189] *Generale Missiven,* IX, 303.

shipped diplomatic gifts to Padang for twelve princes. These gifts were worth 1.965 Indian guilders.[190]

Even though this type of ship was usually the most heavily armed, it was not used for any military tasks. There are two explanations for this. The most obvious is the rise of the pantjalang as a military scouting vessel to face the challenges posed by Asian sea marauders and smugglers. The marauders often sailed on a traditional Javanese ship called prahu, which were small and easily manoeuvrable. To counter this threat, the VOC armed pantjalangs to scout and patrol the risky trade routes. Another explanation is the expansion of the VOC empire. As a large and costly vessel, the construction of a brigantine required resources and time. The rapid expansion of the VOC empire increased the need for patrol vessels. In short, the selection of the pantjalang as the preferred vessel to deal with the current threats was emphasised by its cost-efficiency. To understand how and where the pantjalangs were used, it is important to consider several of their careers.

Pantjalang

Table 1 shows that there were two documented orders of, respectively, eight and ten pantjalangs before 1700. From 1714 onwards, there was a rise in the construction of pantjalangs in Rembang. The primary reason for this was the need to patrol trade routes because of smugglers and sea marauders. Furthermore, as a result of the increased involvement of European competitors, the VOC had to protect its monopoly. To achieve this goal, the pantjalang was used to patrol trade routes. Since Rembang was occupied during the Java War of 1741, this led to a shortage of patrol vessels across the VOC empire in Asia. This would suggest that the relevance of shipbuilding in Rembang for the construction of the VOC empire was significant.

The versatility of the pantjalang also made it suitable as a trading vessel. As a military vessel, it was used against not only sea marauders and local competitors but also European rivals. In 1710, for instance, a pantjalang was sent to scout for British and Portuguese ships lying in Macao and Manilla.[191] These scouting missions were common, and the pantjalang developed a reputation as the eyes of the company.

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[190] Huygens ING, Bookkeeper-General Batavia, (2013) https://bgb.huygens.knaw.nl/bgb/search

[191] *Generale Missiven,* VI, 659.

As a patrol vessel against smuggling, the pantjalang was widely used. In 1716, the VOC dispatched multiple pantjalangs to prevent smuggling by the deposed King of Makassar in the region of South-Celebes.[192] Another reason why the VOC sent ships to this region was the uprising of the Wajoq against the Boné. The Boné became the hegemony of South-Celebes after the VOC interfered in 1670.[193] During the rule of the Boné, most principalities remained in check. However, at the start of the eighteenth century, Prince Arung Singkang of Wajoq established himself as the sultanate of Pasir. He actively fought the Boné and posed a maritime threat to the VOC. In 1735, he came from Borneo to South-Celebes with 35 ships and attacked VOC possessions as well as its Boné allies. While South-Celebes was not of great economic importance itself, it was strategically important in terms of the trade routes to the Maluku Islands.[194] The VOC used pantjalangs to patrol the sea around South-Celebes against smugglers, sea marauders and rebels.

Another example involved the Solor Islands just east of Flores. In 1717, VOC officials decided that these islands had to be patrolled all year and that a pantjalang would be equipped for that task.[195] These anti-smuggling operations reflect the changing policies of the VOC in Asia. Former Governor-Generals such as Joan Maetsuycker focussed on establishing trade posts in regions. However, after the Trunajaya uprising in 1677 and the concessions made to the VOC, it became clear that the company was intensifying its empire-building across the seas. The monopolising of trade in its colonial possessions forced the VOC to patrol its trade routes, and, as the aforementioned examples show, pantjalangs were crucial in this regard.

The efficiency and versatility of the pantjalang were illustrated by the voyage of the *Casuaris* and the *Golconda*. In 1717, this ship was ordered to patrol the area of Mandar, West-Celebes, against smuggling. Although it did not find any smugglers, it did discover 150 runaway slaves, whom the crew tracked down on an island. When it patrolled the waters around Solor and Flores later that year, it sunk a ship of sea marauders.[196] The career of the *Golconda* shows how the VOC could modify these ships to better suit its needs. After the

[192] *Generale Missiven,* VII, 216.
[193] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 137.
[194] Idem.
[195] *Generale Missiven,* VII, 280.
[196] Ibidem, 337.

construction in 1734, this ship was sent to patrol against the tin smugglers in Palembang.[197] Following various violent encounters, this ship was modified and better equipped to deal with enemy vessels in 1746. This was necessary because frequent firing with the swivel guns caused ships to suffer hull damage.[198] Apart from these military purposes, the pantjalangs could also transport cargo.[199] Therefore, it was not uncommon for pantjalangs to participate in intra-Asian trade. The *Golconda,* for instance, had a varied career, and its last documented voyage was in 1764.[200]

Other pantjalangs with a military career were the *Intree* and the *Kisar*. These ships were among those sent to the Banda Islands in 1719, as shown in table 1.[201] The conquest of the Banda Islands in 1635 meant that the VOC gained a monopoly of the indigenous spices nutmeg and mace.[202] This monopoly was a key factor in the VOC's economic policies. Therefore, several pantjalangs were constructed to defend and secure these islands. The *Intree* transported cannons and other weaponry to Surabaya.[203] In 1720, both the *Intree* and the *Kisar* were tasked with patrolling the south-eastern and south-western islands near Banda. On this trip, the *Kisar* encountered sea marauders sailing in three small vessels. The first ship was easily mastered, and three marauders were taken captive. The boarding crew on the second vessel was less fortunate, because two of the *Kisar's* crew members died. However, from the opposing crew, there were six casualties, while the remaining three marauders surrendered. Unfortunately for the *Kisar*, the third ship escaped.[204] The *Intree* and the *Kisar* primarily served in Banda. Until 1728, the patrolling of these islands was the primary task of these ships.[205] After these years, the *Intree* was replaced on the yearly patrols and used for less intensive tasks. In 1730, it was part of the fleet tasked with the arrest of the attackers of the pantjalang *Nova Hollandia*. The last documented voyage of the *Intree* happened in 1731, when the ship was tasked with the ultimately unsuccessful search

[197] *Generale Missiven,* IX, 601.
[198] *Generale Missiven,* XI, 383.
[199] Ibidem, 520.
[200] Ibidem, 673.
[201] *Generale Missiven,* VII, 381.
[202] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 122.
[203] *Generale Missiven,* VII, 388.
[204] Ibidem, 478.
[205] *Generale Missiven,* VIII, 190.

for the soil type 'batu puang'.[206] The *Kisar* continued to patrol the islands and made its last documented patrol in 1735.[207] By performing these patrols, the pantjalangs were actively contributing to the process of empire-building.

The increasing deployment of these ships and their tasks to patrol and defend the trade routes against sea marauders and smugglers reflect the changing needs of the VOC. The monopolising of trade in its colonial possessions increased the need to patrol the trade routes. According to Knaap, empire-building by the VOC can be understood as 'reluctant imperialism'.[208] This means that the consolidation of the empire required the VOC to interfere with local conflicts to secure trade routes and profits. The pantjalangs were used in the context of this imperialism. As the cases of the *Intree*, the *Kisar,* and the *Casuaris* show, the pantjalang performed significant tasks to consolidate the VOC empire in Asia. Knaap explains that the pantjalang became increasingly popular during the first half of the 18th century. However, after 1750, its production decreased, and it was slowly replaced with the chialoup.[209]

Chialoup

The chialoup was the main type of vessel constructed in Rembang. As stated, it showed similarities with the European sloop and was mainly used in the intra-Asian trade market. The first documented voyage of the chialoup *Amsterdam* was in 1692, when it sailed to the Bengals carrying a cargo worth 62,307 guilders.[210] The *Amsterdam* is an example of the local use of the chialoup. Whilst it was not uncommon for the chialoup to sail on multiple trade routes, this was not the case with the *Amsterdam*. Likewise, when the chialoup *Wayer* was constructed in 1697, the idea was that it would only be put to use on the northeast coast of Java. However, in 1702, this ship already started sailing to Banda and later Timor.[211] Its most

[206] *Generale Missiven,* IX, 257.
[207] Ibidem, 346.
[208] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 154.
[209] Ibidem, 220.
[210] *Generale Missiven,* V, 475.
[211] *Generale Missiven,* VI, 178.

important mission was the transport of VOC resident Reynier Leers and six accompanying soldiers to Ternate.[212] In 1715, this ship was decommissioned and demolished.[213]

The two examples above illustrate the local use of the chialoup, where it transported materials and products such as spices, timber, and rice. More importantly, they show the widespread use of vessels built in Rembang. The wharf built chialoups for different regions in the VOC empire. The regional function of Rembang offers an insight into the role the wharf played in the process of empire-building. The centralisation of Rembang as the primary place where chialoups and pantjalangs were built indicates the empire-building intentions of the VOC. The need to organise a steady supply of small and medium-sized vessels grew due to territorial expansion and increased resistance from sea marauders.

The two chialoups named before were mainly used in local trade or between Batavia and their respective ports. Beyond these tasks, some chialoups sailed in interregional trade and fulfilled diplomatic missions. One of these ships was the chialoup *Buru*. With a length of 75 feet, *Buru* was a large chialoup, and it was destined for the Banda Islands.[214] The *Buru* also made several trade voyages to Makassar and Malacca.[215] It also performed diplomatic tasks. In 1726, for example, the *Buru* was assigned with the rescue of the King of Tabundung, Salay Patar. After fleeing from an angry mob, the King found himself stuck on the Turtle Islands above Banda. The *Buru* extracted the King and his officials and escorted them to Makassar.[216] After a decade of service, the ship required significant maintenance and sailed to Ambon.[217]

In 1714, five chialoups between 55 and 80 feet in length were constructed in Rembang. One of these vessels was the *Langerak*. This ship was involved in interregional trade, and it already sailed to Makassar, Sumatra, and Timor before 1718.[218] It also shipped letters from Timor and timber from Palembang.[219] Like the *Buru,* the *Langerak* was used for diplomatic missions. In 1727, for instance, the ship transported Jacob Schouw to Jambi to

[212] *Generale Missiven,* VI, 838.
[213] *Generale Missiven,* VII, 149.
[214] *Generale Missiven,* VI, 836.
[215] Ibidem, 583; Ibidem, 590.
[216] *Generale Missiven,* VIII, 69.
[217] *Generale Missiven,* VI, 596.
[218] *Generale Missiven,* VII, 298; Ibidem, 300; Ibidem, 340.
[219] *Generale Missiven,* VIII, 100.

replace Gouin as resident.[220] Gouin was accused of mismanagement of the colony, and after his arrest, the *Langerak* transported him to Batavia.[221] This was not the only time the *Langerak* transported VOC officials. In 1730, it escorted resigned resident Anthony Hurt.[222] The most interesting part of its long career, however, was the way it ended. In 1735, the officers aboard the ship were accused of smuggling and committing fraud with the goods. The crew deserted, and the cargo went missing in Manilla. The VOC had to send a fleet of five ships to arrest the 27 crewmen. During its investigation on Manilla, the fleet found only eighteen crew members.[223] According to the Bookkeeper-General Batavia, the Langerak also served in the intra-Asian trade. It sailed between Batavia and, Cheribon and Timor. Just as the *Hoop* it shipped provisions to the VOC possessions. Interestingly, the Langerak also carried weaponry including artillery to these regions. Through which they helped with the strengthening of VOC authority. The cargo shipped from Cheribon to Batavia usually consisted of coffee beans which could be worth 11.488 Indian guilders. This shows the function of Batavia as a staple market. From Timor, it shipped small quantities of gold, usually worth around 2.000 Indian guilders. However, it mainly shipped local resources as was and sandeltimber. On average, it was capable to ship cargo worth 15.000 Indian guilders.[224]

Another vessel constructed in 1714 was the aptly named *Rembang,* which sailed to Siam. There, it fulfilled various diplomatic tasks, transported VOC officials, and delivered gifts to several local rulers. During a voyage from Cheribon to Batavia, it shipped pepper, rice and yarn worth 10.414 Indian guilders. After the Rembang was assigned for the trade with Siam it shipped tin and ivory to Batavia.[225] This and the voyages of the Langerak show the role these ships had in the intra-Asian trade. They supplied the VOC possessions with provisions and materials, and in return they shipped local resources to Batavia. Its career would be short-lived, and in 1722, it perished.[226]

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[220] *Generale Missiven,* IX, 126.
[221] *Generale Missiven,* VIII, 156.
[222] *Generale Missiven,* IX, 151.
[223] Ibidem, 688.
[224] Huygens ING, Bookkeeper-General Batavia.
[225] Idem.
[226] *Generale Missiven,* VII, 608.

As the careers of the chialoups above show, the ships were mainly used to transport cargo, letters, and personnel. The relevance compared to the Dutch-built vessels is difficult to measure, and any attempts to do this result in difficulty with the sources. However, given their often local functions and diplomatic contributions, the chialoups fulfilled an interesting role in the VOC empire.

Relevance of the Asian-Built VOC Fleet

The vessels built in Rembang performed a variety of tasks. There was a constant production in Rembang, reaching an average annual production of five medium-sized vessels. However, it is difficult to estimate the actual share of the Rembang-built fleet within the VOC's intra-Asian fleet. Several historians have tried to determine the number of Asian-built ships employed by the VOC. However, any estimation entails problems.

According to Knaap, Asian-built vessels rose visibly after 1676. This coincides with the founding of the wharf in Rembang in 1677. In 1680, there were 87 European-built vessels compared to 92 Asian-built vessels sailing in the VOC Asia fleet. The number of the former dropped while the number of the latter grew. In 1733, there were 53 European-built vessels in service of the VOC compared to 123 Asian-built ones.[227] There are, however, several problems with these numbers. First, whilst Rembang had the most prominent wharf where ships were constructed, it was not the only shipbuilding centre of the VOC in Asia. This makes it difficult to estimate the exact share of the fleet built in Rembang. Another problem is that these numbers do not state anything about the size of the ships. The larger-built ships from the Dutch Republic could transport substantially more cargo and soldiers than the ships built in Asia. Viewed from that perspective, a smaller number of Dutch-built ships were able to transport more than a larger number of Asian-built ones.

The problem of the difference in cargo capacity is also visible in the research by Van Rossum. The muster rolls of the chialoups and pantjalangs were only documented until 1720. From 1695 to 1720, the pantjalangs and chialoups comprised at least a quarter of the VOC fleet.[228] However, comparing the average cargo spaces show that there were significant differences. The average cargo capacity of a chialoup was around 40 tonnes.[229] In contrast,

[227] De Jong, Knaap and Den Heijer, *Oorlogen overzee,* 221.
[228] Idem.
[229] Knaap, *Shallow Waters, Rising Tide*, 36.

from 1711 until 1720, the VOC employed fluyts, which had an average cargo space of 543 tonnes. Another frequently used vessel in intra-Asian trade was the East Indiamen, which were no longer capable of making the voyage from Europe to Asia. These ships had an average cargo space of 716 tonnes.[230]

Nonetheless, it is not just these numerical nuances that make it difficult to determine the extent to which the fleet built in Rembang was relevant in intra-Asian trade. Another problem is estimating exactly how many of the VOC ships built in Asia were constructed in Rembang. As table 1 shows, there are significant gaps in several years. Furthermore, data about the ships constructed in Rembang is not present in the *Generale Missiven*. The numbers do not give a clear insight into the percentage of Asian-built vessels in the VOC fleet.

However, as the examples of the brigantines, chialoups, yachts, and pantjalangs demonstrate, the VOC was encouraged to build vessels in Asia. The examples of the pantjalangs indicate that the VOC relied on local shipbuilding to patrol its trade routes and coastal possessions. In short, the vessels were used to consolidate the VOC empire in Asia. According to Antunes's hypothesis, colonial shipbuilding proves that empire-building happened regionally instead of globally. While the use of local designs suggests that this was indeed the case with the VOC, there are several nuances. For instance, the share of locally built ships in the fleet that patrolled trade routes and enforced VOC authority across the empire is unknown. Additionally, there are no sources that mention the use of locally built ships for expansionist purposes. This raises the question of whether the locally built ships really reflect the localization or regionalization of empire-building. However, this does not undermine Antunes's hypothesis. That is because she states that, apart from constructing ships themselves, overseas shipyards and wharfs also played a vital role in the maintenance of the European-built fleet and were, therefore, crucial for the expansion of the European maritime empires.

[230] Van Rossum, *Werkers van de Wereld*, 131.

Conclusion

The main objective of this thesis was to understand the importance of shipbuilding in Rembang for VOC empire-building. According to Antunes, colonial shipbuilding suggests that empire-building happened regionally instead of globally. To confirm this hypothesis, this thesis aimed to answer three questions. First, it researched the shipbuilding infrastructure in Rembang to determine whether the wharf relied on local or European resources. Secondly, it attempted to establish the number of ships constructed in Rembang. In this regard, it also considered the types of vessels and their capabilities. Lastly, this research analysed the use of these ships and the ways in which they were employed to determine whether the vessels constructed in Rembang were relevant for VOC empire-building.

In terms of the first question the construction of ships demanded the accumulation of resources, materials, labour, and design. In the case of the wharf in Rembang, it is clear that the main resource for the construction of ships—timber—came from the surrounding forests of Rembang. The VOC also developed an infrastructure with ropewalks and sailcloth mills in Batavia. However, not all the resources and materials came from the region. The wharf in Rembang had to rely on its connection with Europe to fulfil the demand for iron, which was processed at the nail-manufacturing smithy in Rembang. The shipwrights were mainly recruited from the local populations. However, the supervisors of the wharf came from Europe. This shows that the hierarchy at the workplace was dominated by Europeans. The designs of the ships constructed during the studied time period changed. At first, the demand was to construct European-type ships such as yachts. This changed when the VOC empire expanded, which increased the demand for smaller vessels like the chialoup and the pantjalang. This strengthens Unger's claim that trust in local design increased over time. When summarising the shipbuilding infrastructure in Rembang, it becomes clear that it mainly relied on local and regional resources, labour, and designs. It also shows that the wharf in Rembang was able to operate largely independently and did not have to rely on Europe to supply them.

With regard to the second question, this research failed to establish the complete number of ships constructed in Rembang due to a lack of data. However, the available data show that during the documented years, there was an average annual production of 6 ships. At the same time, there is no reason to assume that the production ceased during the

undocumented years. Other research confirming the importance of locally constructed vessels is the work by Knaap, which shows that a significant part of the VOC fleet in Asia was built there. The fact that the VOC established shipbuilding centres and constructed a significant number of vessels in its colonies reinforces Antunes's hypothesis. The outsourcing of shipbuilding of small and medium-sized ships to the colonies suggests that empire-building did not just happen from a European metropole. Instead, regional overseas infrastructure played an important role in the establishing of the European empire. Rembang fits within this narrative as a colonial possession with surrounding high-quality teak forests and an experienced labour force.

As regards to the third and final question. The importance of the ships constructed in Rembang for the VOC's expansionist policies is exemplified by the careers of several vessels. In particular, the pantjalangs were used to patrol trade routes and hunt down sea marauders. By performing these tasks, these vessels proved to be paramount in the consolidation of the VOC empire. During the Java War, the wharf in Rembang was occupied by rebel forces. At the same time, the VOC suffered from a shortage of patrol vessels. This reliance at the wharf in Rembang also bolsters Antunes's hypothesis. The increased importance of locally built ships to patrol the VOC empire contributed to the regionalisation of empire-building. Interestingly, while these ships were frequently used for the tasks of enforcement and consolidation, there is no evidence that they participated in imperial expansion. European powers increasingly relied on local designs and shipbuilding for intra-Asian trade and patrols. However, the geographical expansion and defence of the overseas empire was still a task for European ships.

The *International Journal of Maritime History* gave the first impression of shipbuilding in the European colonies. This journal showed the connections between European empire-building and colonial shipbuilding. However, the findings were mainly focussed on maintenance and the regional infrastructure. This case study of Rembang suggests that the VOC appropriated resources and labour to construct vessels used across the VOC empire. The VOC's dependence on locally constructed ships to consolidate its empire shows the regionalisation of empire-building. This again strengthens Antunes's hypothesis that empire-building was a regional rather than a global process.

Study Limitations and Suggestions for Further Research

The lack of data prevented a clear estimation of the production in Rembang and, in turn, the determination of which share of the Asian-built VOC fleet was constructed there. Whilst several ships had a career in the outlying regions of the VOC empire, it remains impossible to verify the number which Rembang constructed for these areas. Several sources mention the importance of the patrol vessels built in Rembang, but without the exact number, this remains an assumption. Although this has created gaps in the research, the available sources still depict the importance of the wharf in Rembang.

Further research should consider the colonial shipbuilding of other European empires. Historians such as Matthew have already researched the Portuguese shipbuilding industries in South Asia. However, many have ignored the role which these vessels played in the consolidation of the European maritime empire. Another opportunity is the comparison between the tasks performed by European-built ships and locally-built ships. This would give a further understanding of the importance of locally constructed vessels in the process of empire-building. This thesis has shown that the ships built in Rembang were used to partake in intra-Asian trade and to enforce and consolidate the VOC empire. Researching whether the VOC also deployed European-built ships for the tasks of consolidating will shed a light on the importance of locally built vessels for VOC empire-building.

The case of the ships constructed in Rembang shows that the VOC relied on local resources, designs, and labour for shipbuilding. This thesis also proved that these ships were paramount in the patrolling of trade routes. If future research focusses on locally built ships in other European maritime empires, it will demonstrate whether the VOC was unique in employing such vessels in the consolidation of its empire or if other European empires also relied on local shipbuilding. It will also help understand the colonial process of empire-building more generally.

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