Britain as a Contractor State:
Cooperation between the Navy and private shipbuilders (1688-1714)

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Abstract

This study argues for the importance of a mutually beneficial relationship between the English/British navy and private shipbuilders for the state's efforts in naval shipbuilding at the turn of the eighteenth century. Historically, Britain has been viewed as a 'fiscal-military state' that efficiently gathered funds via Parliament-endorsed taxation and debt. More recent scholars introduced the term 'contractor state' to describe Britain's strategy of mobilising private resources flexibly with many contractors, compared to its rivals like France and Spain. Britain's broad contractor network enabled its naval power to grow efficiently.

This thesis investigates the Navy's collaboration with private shipbuilders, especially their role in constructing frigates, which was crucial to Britain's maritime control and economic growth. Key research questions address who these contractors were, how they managed large-scale naval shipbuilding, and their motivations for engaging in naval projects. Through a synthesis of contractors' correspondence, navy records, and existing historical studies, the thesis re-examines the Navy-private yard relationship, previously characterised by conflicts over resource procurement and quality. Instead, it emphasises cooperative aspects that highlight contractors as 'military entrepreneurs', using extensive shipbuilding resources, business networks, and personal ties to exploit the high demand for warships.

The thesis is structured around specific inquiries, with early chapters providing a literature review and historical context. Chapter 3 investigates contractors' profiles and defines them as military entrepreneurs who exploited naval demand. Chapter 4 examines the Navy's interactions with private shipbuilders and argues that the Navy Board, a department responsible for constructing and maintaining warships, assisted the contractors beyond its formal obligations. Although practices like impressments disrupted operations, the Navy generally cooperated with private yards, enabling a rapid expansion of warship production. Chapter 5 analyses the motivations behind private yards' involvement in warship contracts, underlining that a wartime recession of mercantile shipbuilding drove many shipyards to naval shipbuilding as an alternative revenue source.

Chapter 6 synthesises the thesis' findings, proposing three main factors behind the expansion of warship contracts: the presence of large-scale entrepreneurs, wartime change in the shipbuilding market, and the active Navy Board's support. The thesis portrays Britain's 'contractor state' as an 'embedded state', wherein mutual benefits allowed both maritime and naval interests to flourish, creating a sustainable ecosystem that underpinned Britain's eighteenth-century maritime success.

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Acknowledgements

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I have also received a great deal of help from many people. First, I thank my supervisors at Kyoto University and the University of Glasgow. As I was in the doctoral double degree programme between the two graduate schools, I had four supervisors. At Kyoto University, Professor Takafumi Kurosawa helped me foster an interdisciplinary analytical view. I have been trained in the School of History up to my master's programme, and getting into the field of social science was a new challenge for me. Professor Kurosawa guided me with the approach and methods to connect history to modern-day urgencies. Dr Steven Ivings assisted me in framing and organising my argument. He gave me detailed comments on my thesis and helped elevate my immature English academic writing skills. Moreover, whenever I brought fragmented ideas, discussing them with Professor Takafumi and Dr Ivings helped me put them down into my thesis. At the University of Glasgow, Dr Christopher Miller made various critical comments as a professional naval historian. He also gave me much practical support, especially for the archival research in London, which allowed me to retrieve the navy records without getting lost. And Professor Duncan Ross always reminded me to connect the case study of naval shipbuilding to a wider context. His advice helped me to elevate my research from naval history to a broader study of the relationship between the 'state and society'.

Many pieces of advice from my colleagues and other researchers have also been included in this thesis. Among all the contributors, I want to note special thanks to Sungshin Cho, who specialised in the history of shipping in late-twentieth-century East Asia, especially Imabari. Even though our topics are far apart in terms of time and space, discussing with him always pulled me out of the bottomless swamp of early modern Europe and reminded me of the possibility of interdisciplinary research. If any errors remain in this thesis, it goes without saying that they are solely my responsibility. In the end, I want to thank my beloved parents and sisters, who were a great help to me, both financially and emotionally, in navigating through the uncharted ocean of doctoral research.

Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work. I also declare that I submit this dissertation only to the two degrees specified on the first page, according to the agreements of the International Double Doctoral Degree Programme between the School of Social & Political Sciences at the University of Glasgow and the Graduate School of Economics at Kyoto University, and that this dissertation has not been submitted for any other degree at the University of Glasgow, Kyoto University, or any other institution.

Printed Name: Shoya Fugetsu Signature: _____

Conventions

First, there are several notes regarding the treatment of archival sources. The present thesis mainly analyses late seventeenth-century letters, and the spellings are much different from those of modern-day English. To avoid confusion, the author modernised the spellings in the quotes in this thesis. Additionally, England had a different calendar system at the turn of the eighteenth century. 25 March was the beginning of the year, and the years that appear in archival sources sometimes differ from that of the modern Western calendar. For clarity, this thesis standardises the years in the modern Western calendar unless specified.

Secondly, it is always controversial whether the term 'England' or 'Britain' is better to describe the state of the British Isles at the turn of the eighteenth century. For instance, John Brewer used 'English state' to describe the fiscal-military state, while Roger Knight and Martin Wilcox used 'British state' for the contractor state. This thesis uses 'Britain' unless the context requires clarification by perceiving it as a 'conglomerate state', as explained in Chapters 1 and 2.

Thirdly, there are several notes about the style of writing. The capitalised 'Navy' is used when it refers to the English/British navy. In a similar way, the capitalised 'Board' is used to refer to the Navy Board. In the footnotes, the citations give places of the publications for English monographs and give the publishers' names for Japanese ones, following the custom in each language. The reference at the end of the thesis gives both the publication sites and the publishers for all books. Additionally, it is a convention in English writing not to use numerals for numbers that can be written in a single word. But this thesis uses numerals for them when comparing with a number that cannot be written in a single word, i.e. '11 new Third Rates and 102 Fourth Rates', so that the readers can easily compare the figures.

Chapter 1: Introduction – Literature Review and Research Questions

1.1: Warship Contracts & the Rise of Britain

It is a long-lasting narrative that Britain emerged to be a world great power over the course of the long eighteenth century (from the end of the seventeenth to the beginning of the nineteenth century). Britain achieved the first industrialisation in the world and became the centre of the 'world system', the corporate order of the modern capitalist economy.[1] Britain's economic growth was sustained by the expanding maritime trade; the English-owned shipping steadily increased from 340,000 tons in 1686 to 1,055,000 tons in 1788.[2] To maximise the profits from trade, cheaper transportation was necessary, and the Navy was to secure safe voyages for merchants.[3] Early modernists and naval historians have demonstrated that Britain's accession to an economic powerhouse was based on the synergy between its growing maritime trade and naval power.[4] On the one hand, expanding trade brought naval stores required for shipbuilding and funds to the government through customs and stimulated consumption. On the other hand, expanding naval force promoted maritime trade, primarily through trade protection by cruisers and convoys. Thus, the Royal Navy was the backbone of Britain's economic growth throughout the long eighteenth century.

Recent historiographical developments highlight the significance of the Navy's outsourcing of shipbuilding to private yards (hereafter, 'warship contracts') to the strengthening of Britain's naval power. Historians traditionally attributed the sinews of Britain's naval power to its 'military, financial, and administrative developments'.[5] For the

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[1] Wallerstein, I., *Kindai Sekai Sisutemu 1600-1750: Jusho Shugi to 'Yoroppa Sekai Keizai' no Gyoshu*, Kawakita Minoru (trans.), (Nagyoya Daigaku Shuppan-kai, 1993). More recent accounts inherit this view but with various modifications, especially more weight on the Asian counterparts. Pomeranz, Kenneth, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Oxford, 2001).

[2] Davis, Ralph, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries* (London, 1962), p. 27.

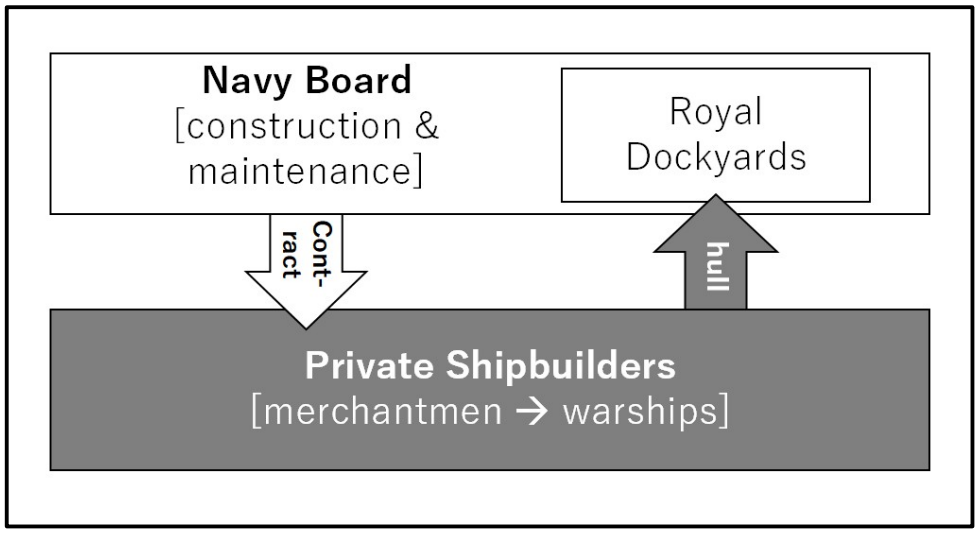
[3] Gray Walton, for example, argued that safer voyages with the elimination of pirates rather than technological innovations themselves were the key to reducing the transportation cost. Walton, Gary M., 'Obstacles to technical diffusion in ocean shipping, 1675–1775', *Explorations in Economic History*, 8:2 (1970): 123-140, p. 140.

[4] Fayle, Charles Ernest, *Sekai Kaiun-gyo Sho-shi*, Sasaki Seiji (trans.), (Nihon Kaiun Shukai-jo, 1957), pp. 1-13, 195. Hiono Yuichi, 'Supein Keisho Senso-ki Ingurando ni okeru Kaigun Shizai-ho to Senpaku Hitsuju-hin Chotatsu', *Waseda Daigaku Daigakuin Bungaku-kenkyuka Kiyo*, 4:58 (February 2013): 109-125. Kennedy, Paul, *Igirisu Kaijo Haken no Seisui Jo: Shipawa no Keisei to hatten*, Yamamoto Fumihito (trans.), (Chuo-Koron Shinsha, 2020), p. 134-135. O'Brien, Patrick K., 'The Nature and Historical Evolution of an Exceptional Fiscal State and its Possible Significance for the Precocious Commercialization and Industrialization of the British Economy from Cromwell to Nelson', *Economic History Review*, 64 (2011): 408-446, p. 438. Rodger, N. A. M., 'From the "military revolution" to the "fiscal-naval state"', *Journal of Maritime Research*, 13:2 (2011): 119-128, p. 123. Rodger, N. A. M., *The Command of the Ocean: A Naval History of Britain, 1649-1815* (London, 2004), p. 180.

[5] Baugh, Daniel A., *British Naval Administration in the Age of Walpole* (Princeton, NJ, 1965). Brewer, John,

past decade, more scholars have begun to approach how government departments like the Navy cooperated with private actors to achieve their strategic end.[6] Although the state-owned dockyards, 'royal dockyards', produced most capital warships, private yards produced the majority of smaller warships used for trade protection. Roger Knight demonstrated the proportion of private-build warships gradually increased through the eighteenth century and that private-built warships exceeded those of royal-built in tonnage during the War of American Independence (1775-1783).[7] As Richard Harding noted that Britain's 'Dominance was partly assured by out-building the enemy', private shipyards as the suppliers of the vast quantities of warships cannot be ignored.[8] Since the large portion of warships used in trade protection was built by warship contracts, private shipbuilders played an indispensable role in Britain's maritime control.

Image 1-1: Image of warship contracts



Despite the recognised importance of warship contracts, the scholarly understanding of private contractors is limited. Since the contract relationship is a two-way matter, of course, we cannot make a proper assessment of the Navy's mobilisation of private yards without grasping the characteristics and interests of private actors. However, the shipbuilding industry up to the late eighteenth century is largely unknown due to the lack of statistical surveys and in-house records of private yards. Therefore, various questions

The Sinews of Power: War, Money and the English State 1688-1783 (Cambridge, MA, 1989). Wheeler, James Scott, *The Making of a World Power: War and the Military Revolution in Seventeenth Century England* (Stroud, 1999), pp. v-vi.

[6] Knight, Roger, and Wilcox, Martin, *Sustaining the Fleet, 1793-1815: War, the British Navy and the Contractor State* (Woodbridge, 2010).

[7] Knight, Roger, 'Devil Bolts and Deception? Wartime Naval Shipbuilding in Private Shipyards 1739-1815', *Journal of Maritime Research*, 5:1 (April 2003): 34-51, p. 41.

[8] Harding, Richard, *The Evolution of the Sailing Navy, 1509-1815* (London, 1995), p. 135.

remain to be answered regarding the practice and decision-making surrounding warship contracts.[9] Who were warship contractors, and why did the Navy choose these individuals? How did private yards build warships, and how did the Navy intervene in the contractors' shipyards? And what were the incentives for the private shipbuilders to engage in the business with the Navy? This thesis approaches these questions, which are essential for providing a more complete image of the reasons behind Britain's successful efforts in naval shipbuilding projects. By doing so, it attempts to present a new insight into the institution through which maritime and naval interests coordinated each other and sustained Britain's maritime efforts in the long eighteenth century.

Therefore, even though the Navy is one of the main actors, the central theme here is not the history of the Royal Navy. People who expect the analysis of large-scale naval confrontations or the detailed descriptions of often-glorified capital warships might find this thesis disappointing. The centre of the examination is warship contractors who have been in the shadow of the study of naval administration despite their significant contribution to Britain's maritime efforts. More precisely, the thesis depicts warship contractors as 'military entrepreneurs' who capitalised on their extensive shipbuilding resources, business networks, and personal ties with the Navy to exploit the high demand for warships during wartime. The goal of this study is to stress the importance of those military entrepreneurs' activity in expanding Britain's naval strength and maritime interests. First, this chapter introduces the debate over early modern state formations and scholarly accounts relating to warship contracts. In this way, it locates the present thesis in the midst of broader historiographical developments. Then, the chapter explains the analytical framework and documents concerned in this study. The last section provides a map of this thesis by introducing the chapter structure and overall arguments and implications.

1.2: State Formations & Military Entrepreneurs

This section reviews historiographical developments leading to the emergence of the idea of the 'contractor state', an important framework to examine warship contracts.[10] The state's mobilisation of private resources has been at the centre of scholarly attention in the studies of early modern state formations. Yet, historians' focus has shifted from the causes

[9] Harding, Richard, 'Contractors, Warships of the Royal Navy and Sea Power, 1739-1748', in Harding, Richard, and Ferri, Sergio Solnes (eds.), *The Contractor State and Its Implications, 1659-1815* (Las Palmas de Gran Canaria, 2012): 153-168. Knight, 'Devil Bolts and Deception?', p. 47. Rodger, *The Command of the Ocean*, p. 301.

[10] 'Red Imperial – Contractor State Group', <https://www.unav.edu/web/contractor-state-group>, [accessed on 30 July 2024].

of rising war expenditures to the development of the fiscal system to catch up with expenditure, and then to the ways of spending the funds collected so as to obtain strategic resources. The Navy's practice of warship contracts is one element of the British state's mobilisation of resources from private hands for its strategic purpose. Thus, the debates over the rise of Britain's naval power and the emergence of the modern state are heavily intertwined topics and cannot be separated. This section reviews the historiographical developments in detail to locate the subject of the present study, warship contracts, in a wider debate on state formations.

Historians have long made a connection between the rising war expenditure and the emergence of modern states. As two-thirds of their expenditure was for the military sector, it is reasonable to claim that the prime function of states up to the nineteenth century was waging war.[11] The idea can be traced back to Joseph Schumpeter's 'tax state' and Max Weber's 'monopoly of the means of violence'.[12] But the debate saw its culmination in the 1950s. E. J. Hobsbawm's 'crisis of the seventeenth century', for example, made a clear connection between the political turmoil and continuous warfare in seventeenth-century Europe and the emergence of the sovereign states.[13] Michael Roberts' 'military revolution' is one of the most prominent concepts to explain the rising state expenditures in early modern Europe.[14] He argued this was rooted in the developments of military technologies and tactics during the century between 1560 and 1660, mainly gunpowder weapons and linear formations. Geoffrey Parker further developed the argument and instead emphasised the changes in the warfare of sieges, especially by the emergence of *trace italienne*, or bastion forts.[15] Despite the disagreements over the causes of the growing war expenditures, Roberts and Parker both agreed that the demands for higher state incomes meant the necessity to create more centralised states by the mid-seventeenth century. Receiving this historiographical development, Charles Tilly characterised the state's role as falling into four main categories: waging war (war-making), eliminating internal threats (state-making), defending against external threats (protection), and acquiring the means to execute such objectives (extraction).[16] As such, the idea to attribute the birth of modern

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[11] Sánchez, Rafael Torres, Brandon, Pepijn, and 't Hart, Marjolein, 'War and economy. Rediscovering the eighteenth-century military entrepreneur', *Business History*, 60:1 (2018): 4-22., p. 4.
[12] Schumpeter, Joseph, *Sozei Kokka no Kiki*, Kimura Motoichi and Kotani Yoshizi (trans.), (Iwanami Shoten, 1983), p. 39. Weber, Max, *Shokugyo to shite no Seiji*, Waki Keihei (trans.), (Iwanami Shoten, 2020), pp. 9-10.
[13] Hobsbawm, E. J., 'The Crisis of the 17th Century – II', *Past & Present*, 6 (1954): 44-65.
[14] Roberts, Michael, 'The Military Revolution, 1560-1660', in Clifford J. Rogers (ed.), *The Military Revolution Debate: Readings on the military transformation of early modern Europe* (New York, 1995): 13-36.
[15] Parker, Geoffrey, *Nagashino Kassen no Sekaishi: Yoroppa Gunzi-Kakumei no Shogeki 1500-1800*, Okubo Keiko (trans.), (Dobunkan Shuppan, 1995).
[16] Tilly, 'War Making and State Making', p. 15.

states to the growing scale of warfare was popular up to the late twentieth century.

However, the assumption that rising war expenditure naturally led to a more efficient and coercive form of 'absolutist state' came to be questioned.[17] First, the arguments based on the military revolution did not fully square with studies by economic historians emphasising the role of governments in industries in early modern Europe. For example, J. U. Nef argued that the advantage of England's representative government is in reflecting the broader industrial interests into its state's policies, advocating the institution as a source of its early industrialisation.[18] France, perceived as the prominent example of an absolutist state, rather had an obstacle to promote its industrial interests as the Crown and a few influential individuals dictated the state policy owing to its highly centralised structure. In addition, the military revolution's stress on absolutist states' successes contradicts Britain's eventual victory over the French counterpart. It was the British state that withstood the financial burden of the rising war expenditures throughout the long eighteenth century. Thus, Nicholas Rodger evaluated the military revolution as 'dangerously close to what David Edgerton has called "anti-history": the invention of imaginary explanations to account for things which never happened.'[19]

Against such backgrounds, historians began to focus on the reasons behind Britain's success in keeping up with rising state expenditures. John Brewer claimed that Britain's 'Sinews of Power' lay in its efficiency to mobilise resources for the state's strategic purposes.[20] Brewer's 'fiscal-military state' model explains Britain's success with its superior fiscal system with the taxation capacity and trusted national debts. Early modern Britain might have been a 'weak' Crown without a large standing army. But the fiscal system through Parliament legitimised the government's taxation and allowed the state to mobilise resources across the territories effectively. Thus, Brewer's argument marked a turn in the historical debate from the causes of growing war expenditures to the efficiency of state administrations in early modern Europe.

Brewer's fiscal-military state provided an important framework for the studies of the rise of Britain and early modern state formations, but various revisions to the model appeared at the turn of the twenty-first century. Most remarkably, an increasing number of historians investigated if similar characteristics of resource mobilisation existed in other

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[17] Félix, Joël, and Tallett, Frank, 'The French Experience, 1661-1815', in C. Storrs (ed.), *The Fiscal-Military State in Eighteenth-Century Europe: Essays in Honour of P.G.M. Dickson* (Farnham, 2009): 147-166, p. 156. Parrott, David, *The Business of War: Military enterprise and military revolution in early modern Europe* (Cambridge, 2012), p. 310.
[18] Nef, J. U., *Industry and Government in France and England* (Ithaca, 1957), pp. 1-12, 156-157.
[19] Rodger, 'From the "military revolution"', p. 120.
[20] Brewer, *The Sinews of Power*, p. 24.

European states.[21] Two aspects of the British state's uniqueness came to be emphasised: its enormous military spending that exceeded rival states and the concentration of funding on the naval sector over the land force. Historians began to call early modern states with such features 'fiscal-naval states'.[22] Even more sceptical scholars regarding the fiscal-naval state view recognised the naval sector's prominence. Anthony Page argued, for example, that the proportion of army and naval expenditures in Britain was mostly even until the end of the eighteenth century, thus challenging the fiscal-naval state view. However, Page also stated the importance of naval expenditure for vast spending in the domestic market and the implications for the security of the commercial empire.[23] Thus, while receiving various revisions, the fiscal-military state retains its position as one of the dominant frameworks to explain Britain's success in the long eighteenth century and the formation of modern states in early modern Europe.

The state, of course, needed to convert collected funds into strategic resources to achieve its goals. Thus, as the debate over fiscal-military state matured, scholars turned their eyes to the ways of spending the money collected and how the state's vast spending influenced its society.[24] This trajectory reflects the development of scholarly understanding of early modern states in the last decade of the twentieth century. Historians have traditionally assumed a coherent sovereign state and attributed the beginning of the modern state to early modern Europe, especially in the seventeenth century, as Hobsbawm and Robert did. However, more recent studies challenge the view and perceive an early modern state as a group of multiple political entities gripped by a monarch or other sort of leader. H. G. Konigsberger called this structure 'composite states', and John Elliot applied the concept for European countries in the early modern period as 'composite monarchies'.[25] Harald Gustafsson developed the concept one step further and advocated 'conglomerate states' with his emphasis on the 'mosaic' of multiple strata of actors worked in early modern domains.[26] Historians thus began to reinterpret early modern states as institutions that exercised their powers through intricate interactions and compromises between central

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[21] Rodger, 'From the "military revolution"'.

[22] Brandon, Pepijn, and Blakemore, Richard, 'The Dutch and English fiscal-naval states: a comparative overview', in G. Rommelse and D. Ormrod (eds.), *War, Trade and the State: Anglo-Dutch Conflict, 1652-1689* (Cambridge, 2020): 117-136.
Page, A., 'The Seventy Years War, 1744–1815, and Britain's Fiscal-Naval State', *War & Society*, 34:3 (July 2015): 162–186. Sánchez, Rafael Torres, *Military Entrepreneurs and the Spanish Contractor State in the Eighteenth Century* (Oxford, 2016), pp. 115-135.

[23] Page, 'The Seventy Years War', p. 175.

[24] Rodger, 'From the "military revolution"', p. 123.

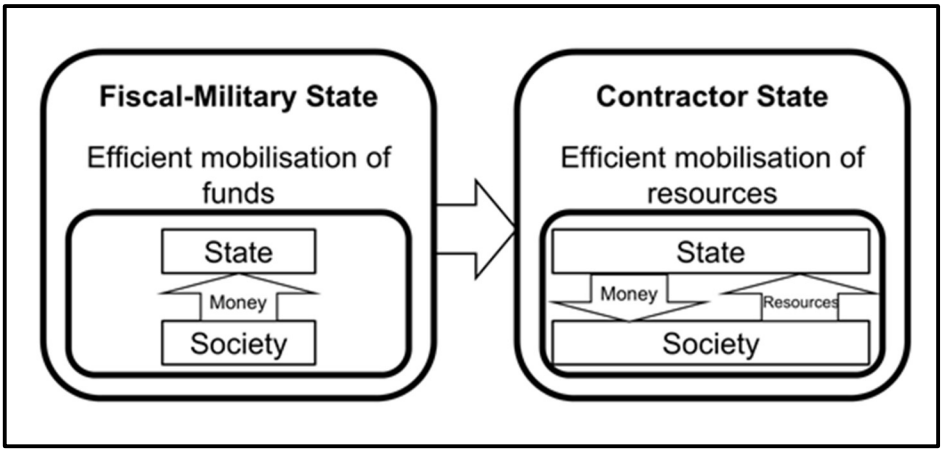
[25] Elliott, J. H., 'A Europe of Composite Monarchies', *Past and Present*, 137 (1992). Konigsberger, H. G., 'Composite States, Representative Institutions and the American Revolution', *Historical Research*, 62:148 (1989).

[26] Gustafsson, Harald, 'The Conglomerate State: A Perspective on State Formation in Early Modern Europe, *Scandinavian Journal of History*, 23:3-4, (1998): 189-213, p. 189.

governments and local elites. As the key roles played by various minor powers and civilians came to be revealed, historians began to approach actors who participated in the state's projects and strategic concerns.

Against these historiographical developments, the 'contractor state' appeared as a framework to approach how early modern states spent money to mobilise strategic and war resources. Roger Knight and Martin Wilcox first coined the term in their book to explain Britain's success in the Napoleonic Wars (1803-1815) with the Navy's efforts to supply logistics for sailors when the military operations extended across the globe. Knight and Wilcox attributed Britain's success to its mobilisation of a large number of contractors. France and Spain allowed a small number of powerful individuals to monopolise state contracts. On the other hand, Britain employed a wide range of contractors, which gave the state an effective means to procure strategic resources by utilising market competition.[27] By drawing a contrast to the fiscal-military state model, Knight and Wilcox summarised their argument as 'Success in war was not only dependent upon a plentiful supply of money, but also the ability to spend it to best effect'.[28]

Image 1-2: Image of the fiscal-military state and contractor state model



The debate was merged with the Contractor State Group (hereafter, 'CSG'), a scholarly community centred at the University of Navarra, and comparative studies between Britain and its continental rivals began.[29] The CSG members examine the managements of military contracts, mainly in Britain, France, and Spain, to unveil each state's efficiency and effectiveness in mobilising the private sector for its strategic end. In

[27] Knight and Wilcox, *Sustaining the Fleet*, pp. 4-5.
[28] Ibid., p. 214.
[29] The research group was active before it was renamed to the CSG. It was formally known as 'Financial History Group' or 'GRHIFI' in Spanish. Enciso, Agustín González, 'Forward', in Rafael Torres Sánchez (ed.), *War, State and Development. Fiscal Military States in the Eighteenth Century* (Pamplona: EUNSA, 2007): 9-11, p. 9.

this context, the contractor state model is expected to provide a new analytical framework to reinterpret the narrative of the growing central government's control over local resources across territories.[30] In fact, Tilly had already recognised that some states relied on private suppliers and named such a system 'the capital-intensive mode'.[31] Yet, he categorised both the English and French state formations into the 'capitalized coercion' mode, an intermediate model between the 'capital-intensive' and 'coercion-intensive' modes, the model with extensive government establishment of resource extraction. Against Tilly's theoretical debate, the CSG scholars conduct closer empirical studies and recognise more capital-intensive characteristics of the British state as the source of its military success.

The CSG has published several books in the English and Spanish languages, but *The Contractor State and Its Implications, 1659-1815*, published in 2012, probably captures the CSG's arguments most effectively.[32] The book is a collection of papers submitted to the group's fourth congress in November 2011, which explores the possibility of applying the contractor state model to broader regions. It covers the studies of traditionally focused Britain, France, and Spain in addition to other Western European countries like Portugal and the Netherlands, as well as Japan in the Edo period and a pan-Eurasian perspective. However, given that six out of the sixteen articles focus on British cases, four on Spain, and two on France, it is safe to conclude that the CSG's main focus continues to be comparisons between these three countries.

Britain is generally regarded as a successful example of a contractor state. Margrit Beerbühl depicted the British licensing system under the French continental blockade during the Napoleonic Wars as a successful example of its contractor state.[33] Napoleon attempted to cut off supplies of munitions and food to Britain by isolating it from trade with continental Europe. Beerbühl argued that Britain was nonetheless able to sustain trade with the continent and the New World. By capitalising on its naval power, the British state successfully signed contracts with neutral merchants in return for offering them licences to promise the safety of maritime transports. Beerbühl described the case as Britain's breakthrough of the continental blockade by the state's skilful use of an already internationalised commercial network.

On the contrary, the French and Spanish cases are regarded as the failures of the

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[30] Parrott, David, 'Review of The Contractor State and its Implications, 1659-1815 by Richard Harding and Sergio Solbes Ferri', *Journal of Economic History*, 75:1 (March 2015): 279-281.
[31] Tilly, Charles, *Coercion, Capital, and European States, AD 900-1990* (Cambridge, MA, 1990), pp. 29-30.
[32] Harding and Ferri (eds.), *The Contractor State*.
[33] Beerbühl, Margrit Schulte, 'Supplying the belligerent countries. Transnational trading networks during the Napoleonic Wars', in Harding and Ferri (eds.), *The Contractor State*: 18-31.

contractor states. Joël Félix stressed the French government's lack of funds, which caused its delinquency in paying private contractors, thus delaying food supply to the army.[34] Similarly, Pierrick Pourchasse explained France's incapability to establish a direct trade link with the Baltic region, the contemporary centre of naval store productions, with a lack of state ambition, financial difficulties, failure to manage contracts with merchants, and lack of naval power penetrate into the market.[35] In the Spanish case, studies vary across suppliers and manufacturers of strategic resources like artillery, uniforms, and hemp.[36] However, all studies emphasise Spain's ineffectiveness as a contractor state with its failures as a buyer in the open market, such as by forcing purchases only at a fixed price and relying on a few powerful contractors that led to a semi-monopolistic state.

Despite the absence of a conclusion chapter, the overall argument of *The Contractor State and Its Implications* is to reinforce Knight and Wilcox's original statement. Britain's success lay in mobilising a large number of contractors, while France and Spain allowed the dominance of a few contractors. As Rafael Sánchez stated, governments constantly face 'make-or-buy' decision-making to obtain essential supplies for state projects.[37] Manufacturing within the state-run organisation has the advantage of being able to adjust the quality and quantity of products. However, it also incurs costs in terms of maintenance of facilities and personnel. On the other hand, outsourcing can provide a more comprehensive selection of products from a broader market, but there is no direct government control over production. When the state faces a sudden surge in demand, for example, the government may be forced to buy from a poor selection of products or suppliers without established trust. Taken these aspects together, the CSG's arguments suggest that the 'buy' option had an advantage in efficient resource mobilisation, at least in Western Europe in the long eighteenth century.

While the CSG's studies have contributed to our understanding of military expenditures in early modern Western Europe, *The Contractor State and Its Implications* points out that the model still has various shortcomings. Most importantly, the definition of the contractor state itself is of concern. As Knight and Wilcox themselves pointed out,

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[34] Félix, Joël, 'Victualling Louis XV's armies. The Munitionnaire des Viveres de Flandres et d'Allemagne and the military supply system', in Harding and Ferri (eds.), *The Contractor State*: 99-125.
[35] Pourchasse, Pierrick, 'Buying supplies from your enemy or how the French navy stocked up with products from the North in the eighteenth century', in Harding and Ferri (eds.), *The Contractor State*: 246-265.
[36] Enciso, Agustin Gnonzalez, 'Buying cannons outside: when, why, how many? The supplying of foreign iron cannons for the Spanish Navy in the eighteenth century', in Harding and Ferri (eds.), *The Contractor State*: 130-15. Ferri, Sergio Solbes, 'Contracting and Accounting: Spanish Army Expenditure in Wardrobe and the General Treasury Accounts in Eighteenth Century', in Harding and Ferri (eds.), *The Contractor State*: 266-286. Sánchez, Rafael Torres, 'Contractor State and Mercantilism. The Spanish-Navy Hemp, Rigging and Sailcloth Supply Policy in the Second half of the Eighteenth Century', in Harding and Ferri (eds.), *The Contractor State*: 308-335.
[37] Sánchez, 'Contractor State and Mercantilism'.

outsourcing a part of the state's project to the private sector is a phenomenon widely apprehended across time and space.[38] If the practice of outsourcing is universal, the implications of specifically naming Britain in the long eighteenth century as a contractor state is questionable.

This issue is heavily intertwined with the second problem. Although the CSG's studies make it explicit that Britain outsourced parts of state business to private contractors more widely than in France and Spain, why such a large-scale outsourcing was possible remained unanswered. Indeed, Knight and Wilcox mentioned the formation process of the British contractor state in their article summarising the current situation of research on the British contractor state. Using the Navy as an example, they argued that the relationship between the state and private contractors changed throughout the eighteenth century from 'relational' contracts of a small number of closely related contractors to 'transactional' ones in which a larger number of contractors competitively tendered.[39] However, although the function of the state departments as a contractor state has been studied, what led to the formation and development of the contractor state is still in the range of assumption. The circumstances and factors that allowed Britain to extend its reach of contracts can provide reasons to name long-eighteenth-century Britain a contractor state. Further theoretical and empirical research on this part is necessary to further advance our understanding of the contractor state model.

Thirdly, scholars are divided on whether the contractor state model was always effective in achieving the state's strategic goals. Despite general trends regarding Britain as a successful example, some scholars also stressed the failures of Britain's outsourced operations. Stephen Conway examined the Allied forces between Britain and German states during the Seven Years War (1756-1763) and pointed to the negative aspects of their logistics during the campaign.[40] Britain planned to purchase supplies for the Allied garrisons locally, but the food requirements of the operation far exceeded what could be supplied locally. Conway concluded that outsourcing in the operation was a failure, both in terms of efficient logistics and the burden on rural villages from the Allied presence. Additionally, Huw Bowen demonstrated that private merchants did not always align with the state's interests. Bowen examined the British expansion into India to show that merchants sometimes sold arms to the Indian states that were at war against the British

[38] Knight, Roger and Wilcox, Martin, 'War, Government and the Market: The Direction of the Debate on the British Contractor State, c. 1740-1815', in Harding and Ferri (eds.), *The Contractor State*: 169-192.
[39] Ibid., pp. 177-178.
[40] Conway, Stephen, 'Provisioning the Combined Army in Germany', in Harding and Ferri (eds.), *The Contractor State*: 77-98.

state.[41] The extent to which the contractor state system substantially contributed to Britain's military success in the face of this discrepancy between the interests of the state and private actors is one of the major remaining questions. As such, the contractor state model still has unsolved issues to sufficiently make itself an effective framework to explain Britain's success in the long eighteenth century.

Considering these issues as a whole, the remaining problems evidently stemmed from the following: while the contractor state targets the contractual relationship between military departments and private contractors, it lacks sufficient attention to the latter. Indeed, Brewer focused on the efficiency of the British fiscal system, thus giving weight to the 'state' side, too. On the other hand, he clearly recognised the importance of the development of agriculture, manufacturing, and domestic infrastructure for efficient tax collection.[42] Brewer even mentioned the essential role taken by private actors in resource mobilisation process and called them 'military "Enterprisers"', thus creating the ground for recent historical development as well.[43] As such, Brewer's debate ranged to how the society influenced the emergence of the fiscal-military state and how the society reacted to the growing state. The contractor state model identifies itself as a 'complementary' theory of the fiscal-military state and focuses on the relationship between 'state and society'.[44] Nevertheless, its main argument is largely limited to the efficiency of government departments in procuring strategic resources to explain the military successes of long-eighteenth-century Britain.

The ambiguous definition of 'state and society' in the study of the contractor state is plausibly the source of insufficient attention to private actors. Let us now review the relationship between 'state and society' in a broader sense. John Brooke and Julia Strauss argued that historians' perceptions of the 'state' can be divided into two categories broadly: the 'autonomous state' descended from Weber and the 'embedded state' descended from Antonio Gramsci.[45] The studies of the contractor state, and various other early modernists of military history, mainly regard the state as an independent entity to protect its territory, which falls under the 'autonomous state' view.[46] This is also evident from the fact that it inherits Weber's view of the state's monopoly on the means of

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[41] Bowen, Huw V., 'Trading with the enemy. British private trade and the supply of arms to India, c. 1750-1820', in Harding and Ferri (eds), *The Contractor State*: 32-53.
[42] Brewer, *The Sinews of Power*, p.182.
[43] Ibid., p. 64.
[44] Knight and Wilcox, *Sustaining the Fleet*, p. 10.
[45] Brooke, John L., Strauss, Julia C., Anderson, Greg (eds.), *State Formations: Global histories and cultures of statehood* (Cambridge, 2018), pp. 1-5.
[46] Mann, Michael, 'The Autonomous Power of the State: Its Origins, Mechanisms, and Results,' *European Journal of Sociology*, 25:2 (1984): 185-213, pp. 210-211.

violence. Tilly, for example, well synthesised the debate of state formations and noted that 'governments stand out from other organizations by their tendency to monopolize the concentrated means of violence.'[47] On the other hand, in the 'embedded state' view, the state is seen as an arena where various interest groups pursue and coordinate their interests. Here, 'state and society' are not dichotomous, but the state is literally 'embedded' in a part of the society.

The studies over the contractor state tend to limit the main focus of analysis to the government departments as the 'autonomous state' even though it deals with the coinciding interests between the military and private sectors through contracts. In the contractor-state studies, the term 'state' is often synonymous with 'government' and 'society' with 'territory' or 'contractors'. In fact, *The Contractor State and Its Implications* concentrates on questioning the extent to which the contractor state relied on the private sector and the contracting policies of military departments. To answer the remaining questions in the debate over the contractor state model (hereafter simply, 'contractor state debate'), however, it is necessary to examine the interactions between the contracting parties. In other words, this thesis emphasises the importance of employing the 'embedded state' interpretation in the context of the contractor state debate.

Indeed, the state-led perspective came to be challenged in research over the past decade or so. The contractors who undertook the state's business are referred to as 'military entrepreneurs' or 'military enterprisers', and their role in early-modern state formations is discussed.[48] Jeff Fynn-Paul, Marjolein 't Hart, and Griet Vermeesch claimed that how a state faces military entrepreneurs can be divided into three: 'subvert the market (e.g. through requisition, debasement, or price fixing)... Work with the market (by enlisting entrepreneurs)... [and] Bring the market under the umbrella of the state.'[49] For the British case, scholars emphasised the second type of cooperation between the state and market. Julia Paul, for example, focused on the contracts between the Royal Navy and the Royal African Company in the first half of the eighteenth century and highlighted a cooperative attitude between the two.[50] She presented the mutually supportive relationship in which the Navy assisted the company by giving permission to use the royal dockyards, and the company's merchants actively provided supplies to the Navy. Thus, historians began to strive to identify the individual actors and interest groups that engaged in state contracts,

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[47] Tilly, Charles, 'War Making and State Making as Organized Crime', University of Michigan, Working Paper No. 256 (February 1982), p. 2.
[48] Parrott, *The Business of War*, p. 193. Sánchez, *Military Entrepreneurs and the Spanish*.
[49] Fynn-Paul, Jeff, Marjolein 't, Hart, and Vermeesch, Griet, 'Introduction', in Jeff Fynn-Paul (ed.), *War, Entrepreneurs, and the State* (Leiden, 2014): 1-12, p. 11.
[50] Paul, Helen Julia, 'Suppliers to the Royal African Company and the Royal Navy in the Early Eighteenth Century', in Fynn-Paul (ed.), *War, Entrepreneurs, and the State*: 131-150.

mainly for the contracts for food supplies for the army and naval stores for the Navy. Some CSG scholars also followed this development, which Sánchez called the 'second contractor-state interpretation'.[51]

This trajectory is still at its beginning. In order to grasp the characteristics of the contractor state properly, the scope should not be limited to how the state mobilised private resources but also how private contractors participated in state projects through empirical studies of various sorts of contracts. The present study positions itself in this historiographical context. By accumulating case studies like Paul's and taking another look at the 'state in society' relationship in the broader sense, it will be possible to identify the circumstances that led to Britain's unique contracting system. This approach could highlight the unique characteristics of the contractors and their relationship with the government departments in Britain in the long eighteenth century worth calling a 'contractor state'.

1.3: Research Question & Approach

With the developments of the debates over the contractor state and the military entrepreneurs, the present study seeks to understand what allowed the British navy to mobilise private yards intensively at the turn of the eighteenth century. This thesis examines the case of warship contracts owing to their historical and historiographical significance. Warship contracts provided frigates that were essential in securing Britain's maritime trade, as briefly introduced in Section 1 and discussed in more detail in Chapter 2. Owing to their historical significance, naval historians have consulted warship contracts; though often, this has been done separately from the contractor state context. Thus, this section first reviews how the scholarly understanding of warship contracts developed. It then introduces the research question of this study in more detail and shows the analytical scope and the primary and secondary sources examined.

Naval historians have long recognised the Navy's reliance on private contractors. The discussion on this theme can be roughly divided into three phases: up to the 1970s (Phase 1), between the 1980s and 2000s (Phase 2), and from the 2010s onwards (Phase 3). Each phase had a unique scope of research and provided some foundations for the present thesis. Phase 1 depicted the naval administration's efficiency in utilising private contractors to achieve its strategic end. Traditionally, scholarly focus was on the procurement of naval stores, especially of timber, rather than naval shipbuilding. Already in 1926, Robert Albion

[51] Sánchez, *Military Entrepreneurs and the Spanish*, p. 9.

provided an overview of the Navy's timber procurements between 1652 and 1862.[52] He argued that the ongoing deforestation of England eventually led to critical changes in the naval administration, colonial and maritime laws, and even naval architecture.[53] Based on his argument of the timber crisis at home, Albion demonstrated the importance of the Baltic trade and North American colonies as suppliers of naval stores. Private merchants played a key role here, intermediating these trades with the Navy. Albion gave special weight to the decision-making of the Navy Board, a naval department responsible for the construction and maintenance of warships. He pointed to corruption in the timber contracts as a few influential traders dominated the business, making a contrast to the contractor state model. Albion also highlighted issues in payment for the contractors and conflicts between the Navy's and lumber traders' interests, thus providing a comprehensive image of the contract relationships for timber procurement.[54] As such, while his focus was on the Board's policy over procurements of naval stores, Albion created a great foundation for studying the Navy's contracts.

Bernard Pool further elevated the understanding of the Navy Board's contracts through his analysis of the Board's policy and practice of outsourcing.[55] Pool pointed to reform of the naval administration after the Restoration of the Stuart monarchy in 1660 as the starting point of the contracting practice. The practice of the Board's contracts was systematised towards the end of the seventeenth century and almost unchanged by the time when the Board was abolished in 1832, Pool argued.[56] Alongside the Navy's policy, he also examined its interactions with private contractors. Although the descriptions are concentrated on timber contracts and those of warship contractors are fragmented, Pool provided general sceneries of the Board's attitudes towards private contractors.

Based on these overviews of the Navy Board's contracts, two studies relating to warship contracts appeared in 1971. Philip Banbury gave a dedicated survey of warships built at both royal and private yards along the Thames and Medway rivers.[57] Banbury's work is divided into four parts. Part 1 lays the historical background of naval shipbuilding from the birth of the English navy in the Tudor period to its decline after World War One. One of the most significant contributions in the context of warship contracts is the list of

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[52] Albion, Robert Greenhalgh, *Forests and Sea Power: The Timber Problem of the Royal Navy, 1652-1862* (Cambridge, MA, 1926).
[53] Ibid., p. vii.
[54] Ibid., pp. 41, 112.
[55] Pool, Bernard, 'Some Notes on Warship-Building by Contract in the Eighteenth Century', *The Mariner's Mirror*, 49:2 (1963): 105-119. Pool, Bernard, *Navy Board Contracts, 1660-1832: Contract Administration under the Navy Board* (London, 1966).
[56] Pool, 'Some Notes on Warship-Building', p. 119. Pool, *Navy Board Contracts*, pp. 60, 141-144.
[57] Banbury, Philip, *Shipbuilders of the Thames and Medway* (Newton Abbot, 1971).

naval shipbuilding. Part 2 covers naval shipbuilding at four royal dockyards in the Thames and Medway regions, Deptford, Woolwich, Chatham, and Sheerness, while Parts 3 and 4 consist of lists of warships built at private yards. Through his research, Banbury claimed that private 'shipwrights, riggers, caulkers and sailmakers' together with various other workers built the foundation for the British shipbuilding industry and contributed to its industrialisation.[58] Part 3 ('Private Shipyards of the Seventeenth and Eighteenth Centuries') gives only short entry notes to most warship contractors, and the lists are sometimes incomplete.[59] Nevertheless, Banbury's work allows us to spot the families of private shipbuilders who contributed to the building of the Royal Navy, thus creating a foothold for later historians.

Another study of warship contracts also appeared in 1971 by A. J. Holland.[60] Holland explored warship contractors in Hampshire in the long eighteenth century and provided new insights into the private shipbuilders' business with the Navy. With his dedicated research of the interactions between the two parties, Holland concluded that both the Navy and private shipbuilders in Hampshire played a key role in ascending Britain's naval power.[61] Holland's contribution lies in his dedicated descriptions of private shipbuilders' activities, who often struggled to engage in the naval business. For instance, warship contracts were heavily concentrated on wartime, and shipbuilders experienced a sharp decline in demand when peace arrived.[62] How impactful the cycle of war and peace in the long eighteenth century was on shipbuilders' businesses is a question left to be answered.[63] Nevertheless, Holland unveiled the struggle of contractors, their petitions to the Navy, and the Navy Board's reactions to them, thus delivering one aspect of the relationship between the two parties in Hampshire. A similar approach to warship contracts in wider regions is necessary to reveal the general characteristics of warship contracts. The present study thus builds on what has been revealed in these Phase 1 studies and reinterprets them in the context of the contractor state debate.

Despite the foundations made by these studies, research about warship contracts experienced a break after the 1970s. This is possibly because of the declining scholarly interest in the history of shipbuilding, while the British shipbuilding industry experienced a sharp decline in the 1980s. Nevertheless, naval historians at the end of the twentieth

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[58] Ibid., pp. 22-23.
[59] Ibid., pp. 111-155.
[60] Holland, A. J., *Ships of British Oak: The Rise and Decline of Wooden Shipbuilding in Hampshire* (New Abbot, 1971).
[61] Ibid., pp. 180-181.
[62] Ibid., p. 99.
[63] For the details, see: Chapter 2 Section 2 (hereafter, the thesis notes the references to itself as '[Ch2§2]', for example).

century paid considerable attention to the naval administration. Thus, during Phase 2, naval shipbuilding appeared in the context of the Navy Board's management of the royal dockyards.[64] Due to this focus, private yards only appear as the counterparts of the royal yards, as Chapter 2 introduces in more detail.[65] Against the traditional view of comparing the royal and private yards, the present study stresses the cooperation and interrelationship between the two. This is not to deny the conflicts between the royal and private yards emphasised in Phase 2 studies, i.e. the competition for procuring labour and materials. Nevertheless, as the warship contracts were a part of a larger shipbuilding project, the connection rather than comparison between the two yards needs to be examined thoroughly to demonstrate the contract relationships. Only with an adequate grasp of the contract relationship, would a thorough analysis of the contractor state model be possible. Thus, the present study revisits what Phase 2 studies highlighted from private shipbuilders' perspectives.

Studies directly centre on warship contracts revived towards the 2010s, especially by the CSG scholars, thus marking the beginning of Phase 3. As mentioned earlier, Knight conducted numerical analysis on warship contracts between 1739 and 1815. He provided the estimated proportion of the royal- and private-built warships alongside the projections of contract shares on the maps of the British Isles. Knight's data shows various aspects of the trends of warship contracts, which the previous focus on the Navy Board's policy could not unveil. For example, it became clear that the ratio of new constructions by private hands reached two-thirds of total output in tonnage by the end of the long eighteenth century.[66] Yet, this does not mean that the workloads of the royal dockyards declined. Knights argued that the royal yards concentrated on 'building the largest ships, of ninety and a hundred guns, and for maintenance and repair of the fleet', thus pointing to the division of labour between the two yards.[67] In his previous work, Knight described this division of labour as follows: 'The merchant yards, more flexible and speedy, built more and more tonnage for the Navy, while the dockyards continued to perform their maintenance function.'[68] Additionally, the analysis of the contract shares across the British

[64] More recently, James Wilson approached the block mill at the Portsmouth dockyard and underlined the birth of modern management with the ability to maximise its labour efficiency. Wilson, James M., 'Implementing and operating the Portsmouth', *Business History*, 63:5 (2021): 795-825.
[65] Coats, Ann, 'Efficiency in Dockyard Administration, 1660-1800: A Reassessment', in Richard Harding (ed.), *Naval History: 1680-1850* (Ashgate, 2006): 413-429. Haas, J. M., 'Work and Authority in the Royal Dockyards from the Seventeenth Century to 1870', *Proceedings of the American Philosophical Society*, 124:6 (December 1980): 419-428. Haas, J. M., *A Management Odyssey: The Royal Dock- yards, 1714-1914* (Lanham, 1994). [Ch2§3].
[66] Knight, 'Devil Bolts and Deception?', pp. 38-39.
[67] Ibid., p. 35.
[68] Knight, R. J. B., 'From Impressment to Task Work; Strikes and Disruption in the Royal Dockyard, 1688-

Isles shows that the Thames area maintained the highest share, around 50%, until the Napoleonic Wars when it declined to 22% of the total. But the recession of the Thames region must be temporary. It is plausible that the flood of captured merchantmen to the British market stagnated its mercantile shipbuilding activity, and private yards needed to shift their focus to naval shipbuilding. In fact, Knight explained the sharp drop in the Thames share with the fall of Britain's shipping volume and the surge in the naval demand for smaller vessels.[69] Smaller warships did not necessarily require large-scale facilities, thus allowing a wider range of private yards to join warship contracts during the Napoleonic Wars. The data nonetheless points to Thames shipbuilders' dominance over warship contracts during the prolonged conflicts with France in the long eighteenth century.

In a chapter in *The Contractor State and its Implications*, Harding also took a statistical approach to warship contracts during the wars between 1739 and 1748.[70] According to Harding's list, 313 new vessels joined the Navy, and 211 ships or the 67% of the total number were by warship contracts, chartered merchantmen (mercantile vessels), and purchases from private hands. It is important to note that the number includes auxiliary vessels, such as hospital ships and victualling ships, which could be easily converted from merchantmen. As warship contracts expanded towards the end of the Napoleonic Wars, Harding described that the British navy largely consisted of private-built ships by 1815. Like Knight, Harding also presented the possibility of the division of labour between the royal and private yards for the repair and maintenance of warships against the construction of new vessels, respectively. As such, the CSG scholars came to reveal the extent to which the Navy relied on private yards for its shipbuilding efforts.

Nevertheless, as their examinations are largely numerical, Knight and Harding both concluded that more studies are required to unveil the relationship between the Navy and private contractors. Knight called for examinations of warship contracts 'in the context of Admiralty policy, political stresses, shipbuilding standards, economic efficiency and effectiveness, as well as its economic legacy'.[71] Harding also lists potential questions for future research, calling for others to examine 'how this relatively small early group of

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1788', in A. Day and K. Lunn (eds.), *History of Work and Labour Relations in the Royal Dockyards* (London, 1999): 1-20, p. 13.

[69] Knight, 'Devil Bolts and Deception?', pp. 44-47. The article sometimes does not specify whether percentages are of numbers of the ships built or tonnages. But judging from the context, the figures are likely to be the percentages of tonnages.

[70] Harding, 'Contractors, Warships of the Royal Navy'. Although there were two separate wars, a war with Spain starting in 1739 and the War of the Austrian Succession (1740-1748), the wars merged together as the continental and colonial concerns intertwined. This study thus simply uses the term the War of the Austrian Succession to refer to the period of the wars between 1739 and 1748.

[71] Knight, 'Devil Bolts and Deception?', p. 48.

contractors conducted their businesses in support of growing British naval power, how they managed the switch to periods of peace and how they continued to develop their relationships with the Navy Board and Admiralty as war and peace continued to interchange until 1815'.[72] These questions can be roughly categorised into two: one is about the Navy's policies and decision-making, and another is about private shipbuilders' business and social aspects. The present study gives special weight to the latter issue while revisiting the former through the overall Navy-private relationships. In other words, while Harding clearly stated that 'The purpose of this paper is not to explore in detail the business and social history of the shipbuilders, but some interesting features emerge from the navy lists', this study takes after where these CSG studies left off.[73]

Based on these historiographical developments, the present study questions what allowed the rapid expansion of warship contracts at the turn of the eighteenth century by giving more weight to the private actors. The thesis, therefore, focuses on how state projects were executed on the ground, rather than the traditional focus on policies in Parliament and Navy Office. In this way, the thesis tests how sufficiently the contractor state model explains Britain's maritime efforts at the turn of the century. The main scopes unique to this study are the following two: private focus and time frame.

First, the private focus is essential to develop the contractor state debate further, as shown in Section 2. The recent developments in the study of warship contracts point to the importance of the subject in the context of the state's mobilisation of private resources as well. Referring back to Sánchez's 'make-or-buy', the Navy had the option to 'make' as it had state-owned dockyards.[74] Nevertheless, it took the 'buy' option and outsourced a significant portion of naval shipbuilding to private hands. It is widely accepted that a sudden surge in wartime demand necessitated the Navy Board to outsource warship construction, often reluctantly.[75] The royal dockyards frequently reached the limits over the courses of the prolonged conflicts with France and other continental powers, and the Navy needed to inquire into private shipbuilding capacity. Warship contractors provided extra shipbuilding capacities and allowed the royal dockyards to concentrate on the more urgent concerns of repairing and refitting warships. Against this image, more careful examinations of the activity of warship contractors are needed to grasp the whole picture of the contract relationship. Foreshadowing this study's findings here, the examination of

[72] Harding, 'Contractors, Warships of the Royal Navy', p. 166.
[73] Ibid., p. 164.
[74] Sánchez, 'Contractor State and Mercantilism', p. 309.
[75] Coleman, D.C., 'Naval Dockyards under the Later Stuarts', *Economic History Review*, 6:2 (December 1953): 134-155, p. 151. Knight and Wilcox, *Sustaining the Fleet*, p. 171. Pool, *Navy Board Contracts*, p. 50. Holland, *Ships of British Oak*, pp. 23, 76. Rodger, *The Command of the Ocean*, p. 188.

interactions between the two parties unveils the active endeavour of private shipbuilders. Thus, as the Navy craved extra shipbuilding capacity, it is plausible that private shipbuilders also benefited from warship contracts as well. A study of warship contracts thus makes a great case to test the contractor state model against the reality of the relationships and interactions between the state and private contractors.

Additionally, the private focus on warship contracts can contribute to scholarly understanding outside of naval administration, too. Sánchez, Pepijn Brandon, and Hart, for example, called for scholarly attention to the impact of the vast state expenditure on its industry that created the 'business of war'.[76] To unveil the traits of warship contractors, this study bridges the gap between naval history and the history of shipbuilding and shipping. Warship contracts have historical significance in the context of the impact of a state's expenditure on private industries as well. As the previous section showed, historians mainly focused on contractors who supplied food and raw materials to military departments. In fact, Fynn-Paul, Hart, and Vermeesch categorised military entrepreneurs into those who provided finance, troops, and supplies.[77] On the other hand, the present study focuses on outsourcing of naval shipbuilding, which were both capital- and labour-intensive manufacturing of the time.[78] The development in naval architecture gradually demanded warships to be purpose-built, and warship contracts became a colossal manufacturing project dedicated for the Navy's use, as Chapter 2 will explain in detail. For example, Brewer estimated that while Ambrose Crowley's iron factory, the largest in England at the turn of the eighteenth century, had a facility with a total fixed value of £12,000, that of the famous First-Rate *Victory* of 1765 amounted to £63,174.[79] Image 1-3 can also hint at the scale of the naval shipbuilding business just by comparing the size of the hull to the surroundings.

The claim that naval shipbuilding contributed to Britain's industrialisation is in no way a new idea. Already in 1957, Nef argued for Britain's first industrial revolution, underlined by its representative government that allowed the synchronisation of the wealthy individuals' interests.[80] In this context, Nef briefly mentioned the royal dockyards and their influence on the surrounding communities, too. D. C. Coleman more directly connected the

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[76] Sánchez, Brandon, and Hart, 'War and economy', pp. 4-5.
[77] Fynn-Paul, Marjolein 't, and Vermeesch, 'Introduction', p. 8.
[78] Brandon, Pepijn, 'Global power, local connections: The Dutch admiralties and their supply networks' in Harding and Ferri (eds.), *The Contractor Stat*: 54-76, p. 54
[79] Brewer, *The Sinews of Power*, p. 34. The British navy classified rated warships into six levels based on the number of guns they carried, with the First Rate being the largest and the Sixth Rate the smallest. For more detail, please see: [Glossary].
[80] Nef, *Industry and Government*, pp. 1-12.

presence of the royal dockyards to the economic growth of the surrounding areas.[81] Phillip MacDougall also maintained this view and extended it to the life of dockyard towns.[82] As the state-owned yards were the biggest assembly industry with largest capital and labour accumulations in contemporary Britain, the impact of their outsourcing to private businesses should not be overlooked.[83] Against this background, the present study also examines what warship contracts meant to the private shipbuilders who undertook the business.

Image 1-3: Launching of the Third-Rate *Buckingham* in 1751[84]

Another unique trait of this study is its focus on the turn of the eighteenth century. It was when the Navy Board rapidly expanded warship contracts both numerically and geographically, as Chapter 2 will present in detail.[85] Warship contracts were largely contained in the Thames basin before 1689. Between 1660 and 1688, there were 25 warship contracts for new constructions and rebuilding.[86] Among them, 15 were contracted within the Thames region. The situation turned in the 1690s, with the opening of the

[81] Coleman, 'Naval Dockyards under the Later Stuarts', p. 139.
[82] MacDougall, Philip, *Shire Album No. 231, Royal Dockyards* (London, 1989), p. 4.
[83] Lavery, Brian, *Anson's Navy: Building a Fleet for Empire 1744 to 1763* (Barnsley, 2021), p. 105. MacDougall, *Shire Album No. 231*, pp. 3-4.
[84] <https://en.wikipedia.org/wiki/Third-rate#/media/File:HMSBuckingham.jpg>, [accessed on 9 November 2024].
[85] [Ch2§2].
[86] Winfield, Rif, *British Warships in the Age of Sail (1603-1714)* (Barnsley, 2009).

Second Hundred Years War with France (1689-1815). 134 warship contracts were handed out to 43 contracting families between 1689 and 1713. Despite the Thames keeping its dominance with the 49.5% share of the private-built tonnage just during the Nine Years War (1689-1697), shipbuilding in Hampshire, Suffolk, Shoreham, Hull, and the Southwest coasts also joined the business at the end of the seventeenth century.[87] Thus, referring back to Knight and Wilcox's terminology, it was a transitional period of warship contracts from relational to transactional modes. While the number of warship contracts scaled down at the beginning of the eighteenth century, this study consults the period for the continuity of some characteristics and practices, as well as for the availability of primary sources. The expansion of warship contracts towards the end of the seventeenth century is evident. Pool argued that the basis of the Board's contracts was established with the reforms in the Restoration period, as mentioned, and Harding also claimed that warship contracts became standardised by the time of the War of the Spanish Succession (1702-1713).[88] Therefore, the warship contracts at the turn of the century have a historical significance as the foundation for the Navy's large-scale mobilisations of private yards. Historians of the fiscal-military state debate underlines the importance of the late seventeenth century as the beginning of England's increasing national debts for its war efforts.[89] This study attempts to depict that the turn of the century also marked the birth of Britain as a contractor state.

1.4: Archival Sources Employed

Despite the importance of warship contracts at the turn of the century, the contractors largely remain faceless, and scholarly attention to the period is limited. The biggest barrier to studying warship contractors at the turn of the eighteenth century is the scarcity of records. Almost all warship contractors did not leave their in-house records of the yards. Nevertheless, the letters written by warship contractors addressed to the Navy Board are preserved in the navy records. Borrowing John Ehrman's words, 'almost all their records have since disappeared, and it is only from their letters to the navy, scattered over many volumes of its miscellaneous correspondence, that any picture of them can be obtained'.[90] These correspondences are often one-sided and incomplete. For instance, the navy records mostly contain only letters that the Board received from the contractors, thus making it

[87] [Ch3§1].
[88] Harding, *The Evolution of the Sailing Navy*, p. 117. Pool, *Navy Board Contracts*, p. 60. Pool, 'Some Notes on Warship-Building', p. 115.
[89] For example, Hamish Scott estimated that the debts inflated from £16.7 million in 1697 to £40 million in 1714, thus emphasising the importance of the period for the British state's practice as a fiscal-military state. Scott, Hamish, 'The Fiscal-Military State and International Rivalry during the Long Eighteenth Century', in Storrs (ed.), *The Fiscal-Military State*: 23-53, pp. 36-37.
[90] Ehrman, J., *The Navy in the War of William III, 1689-1697* (Cambridge, 1953), p. 73.

difficult to gauge what the Board dispatched exactly. However, it is possible to reconstruct many interactions between the Navy and warship contractors by putting together this fragmented information. The lack of in-house records of private yards means that the Navy Board in-letters are effectively one of the best documents for researchers to reconstruct activities and interactions surrounding contemporary warship contracts.

The navy records relating to warship contracts at the turn of the century are scattered across the National Archives at Kew and the Caird Library (National Maritime Museum). These are mainly the Navy Board's correspondence with the contractors, progress reports of contractors' work, and orders from the Admiralty, a naval department responsible for commanding warships and supposed senior department to the Navy Board. The ADM 106 series in the National Archives holds most of the correspondence between the Board and private contractors. The boxes with these documents are labelled 'Miscellaneous', a subseries of the Navy Board in-letter series. The volumes are filed both by the initials of the writer's family name and timeframe.[91] Due to the sorting system and the sheer volume of the Board's correspondence, a single sequence of letters can easily go over multiple boxes, with a single box having 100 to 400 letters. Warship contractors' letters to the Board between 1689 and 1713, the main focus of this study, are scattered across ADM 106/385 to 689. The absence of organised series by topics, unlike the navy records after the 1730s, might be one reason for a lack of dedicated studies of warship contracts at the time.[92] Nevertheless, the updates to the National Archives' online catalogue mean improved accessibility to correspondence. While the information on the online catalogue alone is insufficient to reconstruct the correspondence adequately, it tells which volume contains letters from which warship contractors and roughly what the prime concerns are in the correspondence. Thus, it helps researchers identify the boxes they need to consult. By taking advantage of such developments, the present study investigates these 305 volumes mainly to reconstruct the interactions between Navy Board commissioners and private shipbuilders.

The ADM 106 series makes the core of the present research across the chapters. The Navy Board in-letters contain information relating to shipbuilders' tendering for warship contracts, difficulties that shipbuilders faced during naval shipbuilding, and how the Board reacted to them. Additionally, the series also had a box with copies of the contemporary

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[91] 'The National Archives, Discovery', <https://discovery.nationalarchives.gov.uk/browse/r/h/C1815>, [accessed on 18 June 2023].

[92] For example, after 1719, the Ship Plans section of the National Maritime Museum holds a collection of specifications of warships, and the contracts in the late eighteenth century and onwards are digitised and available online. ADT, [Specifications of warships, 1786-1808], <https://www.rmg.co.uk/collections/object/search/ADT0001>, [accessed on 17 September 2022].

contracts, which the author found the online catalogue mislabelled as documents relating to a different department. However, one-sided correspondence in the Navy Board in-letter series alone cannot provide a sufficient picture of the contract relationship and interactions, and this study reinforces it with other surviving records. The Caird Library holds a series of Admiralty letters (ADM/A), which contain some information relevant to warship contracts. The Admiralty did not participate in the decision-making over warship contracts directly, as Chapter 2 will show in more detail.[93] Yet, as a supposed senior department, the Admiralty needed to approve the Navy Board's proposals for warship contracts. The ADM/A series thus contains the Admiralty's order to the Board, which can tell when a warship contract was started. Additionally, when the Admiralty appointed an officer to a warship, they often stated the name of the builder of the subject ship. For example, the appointment of Richard Wise as a master carpenter in March 1691 reads, 'Their Majesties' new fireship building by Mr Castle at Deptford'.[94] As such, one can trace back to private shipbuilders when a subject ship was contract built. While the history of the naval administration has been revealed in great detail by existing studies, the ADM/A series is nonetheless helpful in cross-examining the Navy Board in-letters to fill the gaps of the extant one-way correspondence.

In addition, the thesis consults some other archives and databases to approach the yet faceless warship contractors. The relevant documents are preserved in the British Library and London Metropolitan Archives, and other materials were available online, i.e., the *London Gazette*. Although descriptions in these records are often fragmentary and limited to specific subjects, they can reinforce the information in the navy records and allow us to reconstruct clearer images of warship contractors. Among these, this study makes the most of the records about the Johnson family of Blackwall, the leading warship contractors of the time, preserved in the British Library. The library's 'manuscript collections' has the *Johnson Papers* series and countless other charts relating to the family, as Chapter 3 will introduce them in detail.[95] Capitalising on the Johnsons' relatively abundant records, this study reconstructs the thorough image of the leading contracting family and then reinforces the general characteristics of warship contracts with other families' cases.

1.5: Goal & Structure of the Thesis

All in all, the historiographical developments surrounding warship contracts and the improved accessibility to important archival records mean that the time is right to examine

[93] [Ch2§3].
[94] ADM/A/1773/245, [The Admiralty to the Navy Board, 6 March 1691].
[95] [Ch3§2].

warship contracts in relation to private shipbuilders. While the existing studies on warship contracts question the efficiency and effectiveness of the Navy Board's administration, this study questions the contract relationship and interactions between the Board and warship contractors. A contract relationship is, of course, a two-way matter, and a proper examination of private shipbuilders' interests is essential as well as one for the Navy's. The focus on warship contractors allows us to examine the practice of Britain's naval shipbuilding from a wider perspective rather than merely as the state's mobilisation of private resources.

The goal of this study is to reinterpret the contractor state model. Again, the main question of the CSG researchers has been how successful the British state was in mobilising strategic resources from private hands in the long eighteenth century. Thus, the 'state' here has often been regarded as an autonomous entity like a 'government', and the 'contractor state' is a system to achieve its military objective effectively. On the other hand, the present research brings the 'autonomous state' back into the context of wider 'society'. The cooperative side of the 'state and society' relationship has been recognised in the field of naval history. For example, Jan Glete's *Navies and Nations: Warships, Navies and State Building in Europe and America, 1500-1860* points to the 'aggregation of domestic interests' as the key source of naval power.[96] Naval historians often cite Glete's work for its detailed quantitative data on the European and American navies from 1500 to 1860. However, his core argument lies in the importance of the mutually beneficial relationship between the state and maritime interests.[97] He argued that a central government's monopoly of the naval force developed through the careful balance of effectiveness between merchants' self-defence and an aggregated force under the state's command. For the formation of a standing navy, the state's protection needed to be more efficient than self-defence among maritime interests.[98] The present thesis examines this mutually beneficial structure among maritime interests by consulting the activity and interests of warship contractors. In other words, it attempts to depict warship contracts within the British 'political society', the concept to dismantle the dichotomy of the 'state

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[96] Glete, Jan, *Navies and Nations: Warships, Navies and State Building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), p. 160.

[97] Bruijn, J. R., 'States and their Navies from the late 16th to the end of the 18th Centuries' in Philippe Contamine (ed.) *War and Competition between States* (Oxford, 2000): 69-98. Rodger, *The Command of the Ocean*, pp. 606-609.

[98] Glete, *Navies and Nations*, pp. 10-11. Kobayashi Yukio also took a similar view and claimed that only a national emergency, such as a threat of landing invasion, could align their interests. Kobayashi Yukio, *Zusetsu Ingurando Kaigun no Rekishi* (Genshobo, 2007), p. 15. In the broader context, Konigsberger also stated that 'Only when there was a very severe crisis, or one perceived as such when the estates of the separate states of a composite monarchy felt their very existence threatened, were they likely to come together entirely on their own initiative.' Konigsberger, 'Composite States, Representative', p. 138.

and society,' by bringing the 'society' side actors of private shipbuilders back to the picture of naval and military history.[99] In this way, this study redefines the 'contractor state' as an institution to align and enhance maritime and naval interests.

To achieve this goal, the present research attempts to unveil the nature and practices of warship contracts to examine the extent to which the reinterpreted idea of the contractor state – an institution of collaboration between government departments and private contractors – explains Britain's efforts for its naval shipbuilding. As a case study of Britain's contractor state, this research questions what allowed the rapid expansion of warship contracts between 1689 and 1713. To realise this, it divides the question into three smaller questions:

1) Who were the warship contractors? (Chapter 3)
2) How did warship contractors conduct naval shipbuilding? (Chapter 4)
3) Why did warship contractors choose to do business with the Navy? (Chapter 5)

This thesis structures itself around each sub-question. It comprises an introduction (Chapter 1), a conclusion (Chapter 6), and four main chapters.

Chapter 2 provides a more comprehensive historical background of the turn of the eighteenth century to underline the circumstances in which warship contracts were conducted. In other words, it explores why the Navy expanded warship contracts in the first place. The late seventeenth century was the period of revolutions in Britain. It experienced not only radical political upheavals – The English Civil War (1642-1651), the Restoration (1660), and the Glorious Revolution (1688) – but also diplomatic and geopolitical shifts with the open wars with the continent – first against the Netherlands and then against France. These instabilities required Britain to have maritime defence, and the demand for warships skyrocketed. It was also a period of important technological and organisational reforms in the naval sphere. These trends are considered more carefully in Chapter 2 to lay out the needed information to analyse the nature and practice of contemporary warship contracts. In particular, the chapter underlines that all political, social, diplomatic, economic, and technological factors affected the rising importance of relatively smaller warships, which demanded the Navy rapid expansion of warship contracts.

Chapter 3 focuses on the general traits of warship contractors to unveil who engaged in the shipbuilding business with the Navy. Although historians have dealt with warship contracts from the Navy's perspective, the shipbuilders who undertook the business are

[99] Kondo Kazuhiko, 'Nagai Juhachi Seiki Igirisu no Seiji-shakai', in Kondo Kazuhiko (ed.), *Nagai 18 Seiki no Igirisu: Sono Seiji-shakai* (Yamakawa-shuppan, 2002): 3-20, pp. 7-10.

largely faceless in those accounts. The chapter connects fragmented descriptions of warship contractors in the existing studies of warship contracts and contemporary shipbuilding and shipping. Then, it underlines the highlighted traits with the 'Dataset' made of lists of naval fleets and the documents preserved in navy records.[100] By doing so, Chapter 3 underlines that warship contractors are best described as 'military entrepreneurs' who capitalised on their large-scale shipbuilding capacities, extensive business reaches, and connections to the Navy to fully exploit the naval demands of the time.

Chapter 4 examines how the Navy and private shipbuilders conducted warship contracts. The existing studies of the Navy Board's contracts have paid some attention to the Board's actions against its contractors. Yet, as their prime concern was the efficiency of the naval administration, some important aspects relating to the contractors' activity have been overlooked. Here, the chapter approaches the agreed responsibilities of the two parties at the signing of contracts, the troubles that warship contractors faced during their naval shipbuilding, and how the Board reacted to them. To highlight these aspects, it analyses the correspondence between the Navy and warship contractors and reconstructs the interactions between the two parties during contracted shipbuilding. Through this analysis, the chapter revises the Navy's attitude towards private shipyards and redraws warship contracts as cooperative works between the two parties. More precisely, the chapter argues that while the Navy had some negative impact on private businesses like impressments, a forcible conscription of sailors, the Board clearly supported the contractors exceeding its written obligation.

Chapter 5 then investigates private shipbuilders' incentives to engage in the naval shipbuilding business. First, the chapter underlines that warship contractors often took the initiative to obtain more contracts despite the troubles caused by the Navy's practice of late payments. Then, it examines the hypothetical factors that motivated shipbuilders to undertake warship contracts: profit-seeking motives, prospects for promoting future business, and the changes in the shipbuilding market during wartime. The lack of private yards' in-house records makes it challenging to fully address what private shipbuilders expected from the naval shipbuilding business. However, with scattered archival records and existing studies on shipbuilding and shipping, it is possible to give some estimates. In this way, the chapter argues that while the motives for profit-seeking and business promotion could incentivise shipbuilders, the wartime recession of mercantile shipbuilding was the most striking factor in driving private yards towards warship contracts.

Chapter 6 concludes this study and synthesises the findings of the individual chapters.

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[100] For the details, please see: [Appendix II].

It points out the somewhat contingent factors of the matured industrial base with large-scale military entrepreneurs, as well as the declining mercantile shipbuilding activity and growing naval shipbuilding demands, as the backbones of the expanding warship contracts. At the same time, the chapter highlights the importance of the Navy Board's active support of warship contractors, without which even the largest private yard of the time could not complete the colossal project of naval shipbuilding. Thus, these three factors all worked together to enable Britain of the rapid expansion of warship contracts at the turn of the eighteenth century.

Additionally, the chapter attempts to relocate the contractor state model from the debate of Britain's military success in the long eighteenth century to the question of the relationship between the contemporary 'state and society'. Forecasting the conclusion first, the thesis as a whole presents the possibility of perceiving the 'contractor state' as a type of the 'embedded state'. As the contractors also engaged with broader maritime business, especially with maritime trade, warship contracts were a mutually beneficial option for both contracting parties. While the Navy could have extra shipbuilding capacity outside of its costly royal dockyards, private shipbuilders could make the state bear the cost of maritime defence by providing the tools of trade protection, especially frigates. The practice of warship contracts thus created the ecosystem between the maritime and naval interests. The present thesis implies that this exact institution, supported by the representative government, to arrange and promote the influential interests was what made long-eighteenth-century Britain a 'contractor state'.

Chapter 2: Historical Background and the Naval Actors of Warship Contracts

2: Chapter Introduction

As prominent business historian Alfred Chandler noted, 'Most histories have to begin before the beginning.'[1] The same is true for the emergence of the practice of warship contracts. This chapter reviews the historical background necessary to examine the relationship between the Navy and private shipbuilders at the turn of the eighteenth century. More precisely, it synthesises existing studies of naval history as well as wider historical developments. By doing so, the present chapter provides a context of the circumstances in which the Navy and warship contractors were operating.

Section 1 overviews Britain's contemporary political, social, economic, and war contexts. As the thesis is concerned with 'state and society' in the contractor state debate, the section focuses on how the context of the Glorious Revolution of 1688 and the open war with the continent affected contemporary policy and the thoughts of Britain's government and people. Against the highlighted general picture, it reviews Britain's international and diplomatic situation to understand why it was urgent for the Navy to rapidly expand its force and shipbuilding capacity. Section 2 then moves on to the more technical aspects of the increasing importance of warship contracts. It reviews transitions in naval architecture, especially about the emergence of the frigate design. Here, the section provides an overview of what types of vessels warship contractors mainly built and underlines private yards' contributions within the context of the rising importance of trade protection. Sections 1 and 2 combined thus provide the historical background to answer the following questions: Why did the Navy outsource naval shipbuilding? What kinds of warships were outsourced? How did the contracted warships serve Britain's maritime and naval efforts?

Based on these insights, Section 3 provides a broad picture of how the Navy directed its shipbuilding projects. Naval historians have revealed a great deal about naval actors in the story, the Navy Board commissioners and royal dockyard officers. The section synthesises existing studies on the naval administration, royal dockyard management, and some contemporary notes to locate warship contracts in the broader picture of naval shipbuilding projects. Collectively, the chapter serves to provide the historical background essential to examining private shipyards and their relationship and interactions with the

[1] Chandler, Alfred D., *The Visible Hand: The managerial revolution in American business* (Cambridge, MA, 1977), p. 13.

Navy in the chapters that follow.

2.1: State, Society, & Geopolitics

The turn of the eighteenth century was also an important turning point in British history. The country experienced political, diplomatic, economic, and military transitions throughout the period. John Brewer's research on the English fiscal-military state covers a period starting in 1688.[2] This section introduces these intertwined contexts chronologically. Then, it moves on to the relationship between various wars and naval shipbuilding. In this way, this section reviews how these historical developments increased the demand for warships as a background of expanding warship contracts.

Firstly, it is important to give a broad picture of seventeenth-century Europe. The seventeenth century is widely regarded as an era with crises and upheavals in the European 'state and society' located in between the two periods of European prosperity, the sixteenth and eighteenth centuries.[3] Historians long sought the origin of the modern state in seventeenth-century Europe, as introduced in Chapter 1.[4] As E. J. Hobsbawm advocated the term the 'crisis of the seventeenth century', it was the time when European states experienced the internal and external conflicts of political, economic, dynastic, and religious turmoil. Europe experienced overseas trade expansion in the previous century, and the population and economy grew steadily. Why Europe entered the age of crises is exactly what caught early modern historians' attention in the late twentieth century. For example, Hugh Trevor-Roper criticised the Marxist interpretation of the contemporary crises as '*bourgeois* revolution' – a class struggle over the constitution of production.[5] Instead, he emphasised religious aspects and subsequent social changes as sources of conflict between central authorities like monarchies and social elites. More recently, Geoffrey Parker's emphasis on climate change seemingly left an unignorable impact on scholarly understanding.[6] Parker argued that the 'Little Ice Age' of the seventeenth century was the cause of the crises and extended the scope of the 'crisis of the seventeenth century' to the 'global crisis'. Regardless of the continuing controversy over the causes of the crises, scholars widely agree that European states needed to face internal and external

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[2] Brewer, *The Sinews of Power*.
[3] Sakashita Chikashi, 'Kinsei/ Shoki Kindai no Yoroppa: Runesansu kara Furansu Kakumei made', in Kibatake Yoichi and Yasumura Naoki (eds.), *Iwanami Koza Sekaishi 15: Shuken Kokka to Kakumei, 15-18 Seiki* (Iwanami Shoten, 2023): 3-67, p. 19.
[4] Hobsbawm, 'The Crisis of the 17th Century'. [Ch1§2].
[5] Trevor-Roper, Hugh, *The Crisis of the Seventeenth Century: Religion, the reformation, and social change* (Indianapolis, 1999), pp. 79-81.
[6] Parker, Geoffrey, *Global Crisis: War, climate change and catastrophe in the seventeenth century* (New Haven, 2013), pp. 17-18.

conflicts in the seventeenth century.

England was no exception to the crisis of the seventeenth century. Internally, it experienced civil wars and revolutions over the conflict between the 'Crown' authority led by the monarchs and the 'Parliamentary' authority represented by social elites.[7] One may visit the medieval era to find the roots of the conflict. Yet, it became most vivid in the seventeenth century when the Stuart monarchy of Scotland succeeded to the English throne in 1603. While the Stuart monarchs attempted to extend their powers across the British Isles, the English Parliament advocated its authority mainly in taxation policy. The result of the conflict was the crises in the mid to late seventeenth century. England experienced the Civil War (1642-1651), and Parliamentary authority executed King Charles I (reign: 1625-1649), regarding his action as treason to England. After the short experience of the republican era, known as the Interregnum with Oliver Cromwell's *de facto* rule (1653-1658), Parliament eventually received the Stuart monarch again in the Restoration of 1660. But the monarch needed to surrender some of its traditional prerogatives, and Parliament gradually strengthened its control.[8]

The turn of the eighteenth century marked the climax of the conflicts in the British state. For the past three decades and so, scholars particularly emphasised the links between the sequences of revolutions in the later seventeenth century – the English Civil War, the Restoration, and the Glorious Revolution.[9] John Morrill, for example, interpreted the English Civil War as the clash between the three kingdoms of Britain – England, Scotland, and Ireland – and the Stuart monarchy.[10] Here, contemporary Britain is perceived as a 'composite state' in which multiple polities were loosely bound under a ruler.[11] The British state was in 'a delicate balance between a patchwork approach that preserved internal

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[7] For detailed observations of how this conflict developed into the English Civil War, please see: Trevor-Roper, *The Crisis of the Seventeenth Century*, pp. 273-316.

[8] Hart, Marjolein 't, 'The Emergence and Consolidation of the 'Tax State'. II. The Seventeenth Century', in Richard Bonney (ed.), *Economic Systems and State Finance* (Oxford, 1995): 281-293, p. 290.

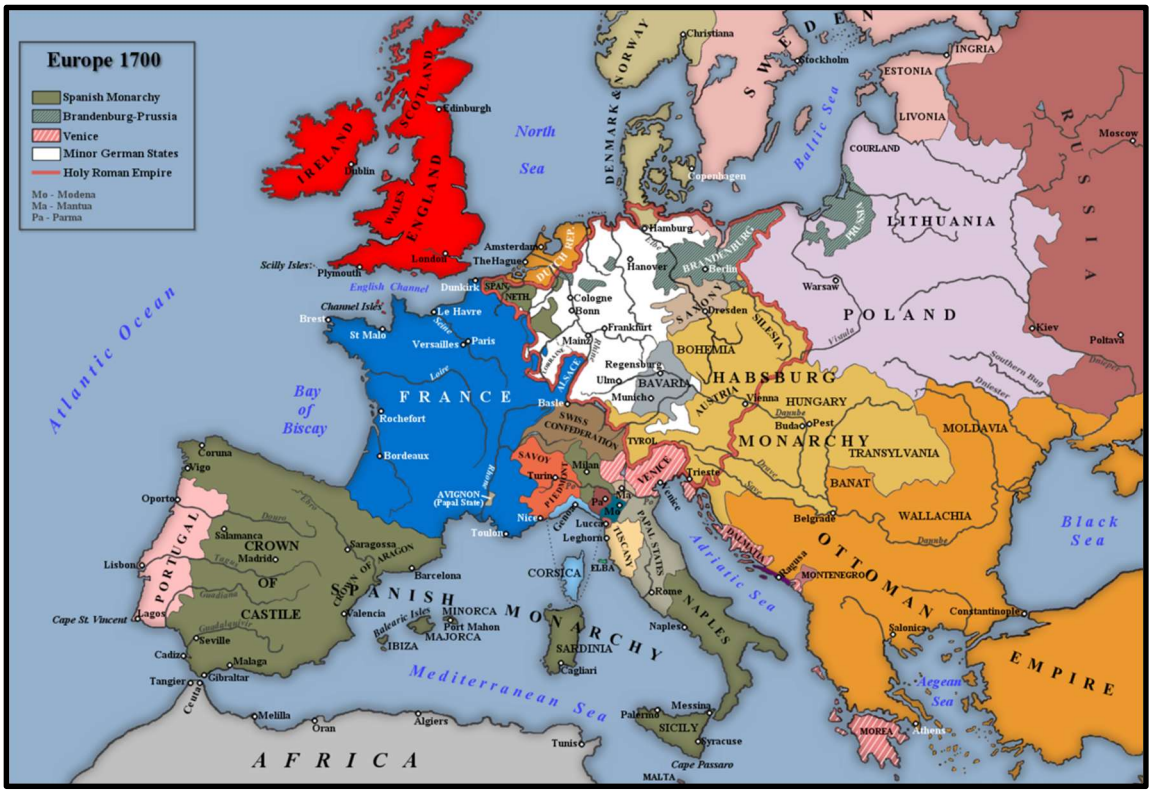
[9] This does not mean that scholars traditionally overlooked the multiple factors behind the outbreak of each revolution. Christopher Hill, for example, stressed the economic developments in the sixteenth to the seventeenth century as the resource of the political and social upheavals in the mid-seventeenth century. Hill, Christopher, *Igirisu Kakumei: 1640*, Tamura Hideo (trans.), (Sobunsha, 1956), p. 9.

[10] Morrill, John, 'Buriten no Fukugo Kunshu-sei, 1500-1700', Goto Harumi (trans.), *Shiso*, 964 (August 2004): 76-92, p. 80. The causes of each phase of the revolutions themselves can be a central question of historical research. As this section's purpose is to give a general historical context, it does not go over the historiographical developments in detail. But for a comprehensive examination of the cause of the English Civil War, for example, see: Russell, Conrad, *The Causes of the English Civil War: The Ford lectures delivered in the University of Oxford, 1987-1988* (Oxford, 1990).

[11] Japanese historiography has a particularly strong tendency to connect Britain's 'long revolution' to the state's characteristics as a 'conglomerate state'. Goto Harumi, 'Buriten Shoto ni okeru Kakumei', in Kibatake Yoichi and Yasumura Naoki (eds.), *Iwanami Koza Sekaishi 15: Shuken Kokka to Kakumei, 15-18 Seiki* (Iwanami Shoten, 2023): 191-212, p. 194. From the perspective of the conglomerate state and the composite state of the three kingdoms (and Wales), together with the eventual union between England and Scotland in 1707, the present study uses 'Britain' rather than 'England' unless the context demands a specification.

differences and a governing approach that aimed to homogenise the various regions and did not settle on one side or the other'.[12] As such, the British state tied by the Stuart monarchs was still under tension between the Crown and Parliamentary authorities led by various political and interest groups at the end of the seventeenth century.

Image 2-1: Map of Europe (*c.* 1700)[13]



Geopolitically, this was a transitional period, with Britain's prime rival shifting from the Netherlands to France. In the early half of the seventeenth century, Britain and the Netherlands fiercely competed for overseas trade, especially between their respective East India Companies. The English East India Company (EIC) was charted at the end of 1600, and the Dutch trading companies were quick to react and united in two years. Trade conflicts at the time often came with violence. These chartered companies could make treaties with local powers and militarise themselves and almost acted like independent states.[14] Even in the trade with the New World, merchants often armed themselves and

[12] Goto, 'Buriten Shoto ni okeru Kakumei', pp. 193-194. Translated by the author.
[13] 'File: Europe, 1700—1714.png', <https://en.m.wikipedia.org/wiki/File:Europe,_1700%E2%80%941714.png>, [accessed on 24 October 2024].
[14] The EIC activity and its implication for Britain's overseas expansion is a subject that can make extensive independent research. For these matters, please see: Stern, Philip J., *The Company-State: Corporate Sovereignty and the Early Modern Foundations of the British Empire in India* (New York, 2011). For one example of the Anglo-Dutch conflicts in East Asia and their relationships with the local powers, see: Fugetsu, Shoya, 'The Impact of Domestic Japanese Politics on the English East India Company in Japan, 1613-1623', *Journal of Early Modern History*, 28:3 (June 2024): 209-229.

relied on violence, both defensively and offensively, in times of need. This nature of the contemporary overseas trade escalated the conflicts between the two maritime powers. While the early Stuart monarchs avoided war with the Netherlands in the European theatre, the two countries entered a sequence of open conflicts after Parliament seized control as the result of the Civil War. The three Anglo-Dutch Wars (1652-1654, 1665-1667, 1672-1674) continued even after the Restoration of the Stuart monarchy in 1660.

However, the prolonged conflict between the two maritime powers came to a rather indecisive end. One reason was the domestic situation of the British state. Although the Crown and Parliament saw some compromise after the Restoration, the conflict emerged again in the 1670s. The resurfaced issue was based on religious aspects as well.[15] King Charles II (reign: 1660-1685) signed a secret treaty with King Louis XIV of France (reign: 1643-1715) to attack the Netherlands in a coordinated manner. In the agreement, Charles received funds from France to bypass Parliament and promised to bring some tolerance to the Catholic faith in Britain in return. The Test Act of 1673 highlights another phase of the British conglomerate states' internal struggles. This parliamentary act was to remove any non-conformist to the Anglican Church from public offices. As a result of the backlash, Britain immaturely retreated from the Third Anglo-Dutch War. According to Kobayashi Yukio, Britain and the Netherlands reconciled with each other through the fierce naval wars and created 'mutual respect and sympathy' by the end of the Second Anglo-Dutch War.[16] Whether such a cordial attitude was actually emerging, the third war resulted from the conflict between the Crown and Parliament rather than that between the two countries. Under these circumstances, King Charles' approach to the King of France heightened Parliament's suspicion towards France as a potential rival.

Another reason for the shift of Britain's rival from the Netherlands to France came from broader European geopolitics. In the late seventeenth century, Britain was not yet a leading competitor. The centre of European geopolitics lay between France and the Holy Roman Empire, what we know today as Germany. Britain was seemingly no longer the prime concern of the Netherlands towards the end of the century. The Dutch hostility with France had already started as a result of King Louis' territorial claim in the Spanish Netherlands, modern-day Belgium, and the Third Anglo-Dutch War was the other side of the coin of this Franco-Dutch conflict. The Netherlands now faced imminent danger from the emerging neighbouring power of France on land and shifted its focus away from the

[15] Rodger, *The Command of the Ocean*, pp. 80-86.
[16] Kobayashi, *Zusetsu Ingurando Kaigun no Rekishi*, p. 211.

seas.[17] These continental geopolitics also dragged Britain into prolonged wars with France. At the turn of the eighteenth century, thus for the period of this study, Britain experienced two major wars, the Nine Years War (1689-1697) and the War of the Spanish Succession (1702-1713).[18] While Britain joined the war in 1689, the Nine Years War had been provoked on the continent a year earlier. King Louis asserted the territorial claim in the Rhineland, and the emperor and princes of the Holy Roman Empire and other neighbouring powers formed an anti-French coalition. The Dutch Stadtholder, William of Orange, played a key role in forming the 'Grand Alliance' against France. Louis now needed to face the colossus coalition of the Netherlands, the Holy Roman Empire, Savoy, and Spain.

Britain's entry into the Nine Years War was a result of William of Orange's strategy. He took advantage of the conflict between the Crown and Parliament to mobilise the British resources on his side. The growing alarm of Parliament against King James VII/II (reign: 1685-1688) was convenient for William. After the successful landing on Britain and James' escape to France, William was eventually coronated as the King of England, William III (reign: 1689-1702), as a co-ruler with his wife Mary II (reign: 1689-1694), James' daughter. England and the Netherlands practically entered a personal union, and William secured British resources to stand against France.[19] At the same time, it was Parliament's interest as well to keep its now superior position and fight against James' attempt to regain the control of the British state. As such, the cause of the Glorious Revolution and Britain's entry into the Nine Years War were closely intertwined with contemporary continental affairs. Unsolved grievances among the European powers soon led to the second round of open conflict after the Nine Years War. The French dynastic interest in the Spanish crown and the death of King Charles II of Spain (reign: 1665-1700) triggered the War of the Spanish Succession. Hereafter, Britain was occupied with the prolonged conflicts with France that lasted for a century, so-called the Second Hundred Years War.

Now, the section turns to the question of how these backgrounds of the wars and the revolutions influenced the demands for warships. One reason behind the Navy's decision to outsource naval shipbuilding is the pressing workload of the royal dockyards under the rising demand for warships. The Nine Years War ended the 'cold war' of the arms race

[17] Johnston, J. A., *Parliament and the Navy, 1688-1714*, PhD thesis submitted to Sheffield University (1968), p. 487.
[18] Brackets indicate the years Britain participated in the wars.
[19] Harding, *The Evolution of the Sailing Navy*, pp. 99-100, 111.

between the English and French navies.[20] It was the opening phase of Britain's competition for maritime control, especially with France. The Napoleonic Wars are often regarded as the climax of the conflicts through which Britain rose to the 'Command of the Ocean', the incontestable naval power.[21] This geopolitical background demanded the British state expand its capacity to mobilise resources for the wars, not only through rising taxation but also by expanding contracts with private hands. While experiencing peaceful decades without major wars between 1713 and 1739, the tension continued until the beginning of the nineteenth century. Therefore, the turn of the eighteenth century was when Britain's capacity for naval shipbuilding came under trial in an open conflict with the newly emerging French navy.

Another reason for the rising attention to the Navy is the growing identity and policy of Britain as a 'seapower'.[22] Alfred Mahan coined the term 'sea power' to describe the policy and ability to press a national interest with a large number of capital warships and allies in continental Europe.[23] It is not counterintuitive that the war with France brought the threat of landed invasion, thus agitating people for a policy to strengthen its maritime defence. That Britain's geography as an island nation demanded naval protection, especially from the French menace and possible Jacobite invasion – King James VI/II and his successors' attempts to seize back the throne – was a long-established notion.[26] On the other hand, Richard Harding pointed to the earlier date, the diplomatic isolation during its republican era after the Civil War.[27] He argued that the strategic use of naval power emerged as a means of defending the country and putting diplomatic pressure on continental European countries to make them recognise the legitimacy of the revolutionary regime.[28] Whatever the beginning of the seapower policy was, it is certain that Britain

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[20] Sakai Shigeki, *Junana-seiki Igirisu Zaiseishi-ron: 'Kokuou-shizai' to Futatsu no Kakumei* (Minerva Shobo, 2021). The end of the cold war coincided with the end of pacifist regimes by the Restoration monarchs in Britain and by Jean-Baptiste Colbert in France. Scott, 'The Fiscal-Military State'.

[21] Rodger, *The Command of the Ocean*.

[22] The great surge in the strength of the British naval force during the long eighteenth century is a well-told narrative both in the academic world and the 'myth' of Britain as a maritime state. Harding, *The Evolution of the Sailing Navy*, p. 102. Rodger, *The Command of the Ocean*, pp. 606-609. Satsuma Shinsuke, 'Kaigun: "Ki no Tate" kara "Tetsu no Hoko" e', in Kanazawa Shusaku (ed.), *Umi no Igirisu-shi: Toso to Kyosei no Sekaishi* (Showado, 2013): 50-76, p. 72. Kennedy, *Igirishu Kaijo Haken*, pp. 96-97.

[23] Mahan, Alfred T., *Kaijo Kenryoku Shiron*, Kitamura Kenichi (trans.), (Genshobo, 1982). Kennedy, *Igirishu Kaijo Haken*, pp. 63-77.

[26] Rodger, *The Command of the Ocean*, pp. 152-163. Harding, *The Evolution of the Sailing Navy*, pp. 109, 114.

[27] Harding, *The Evolution of the Sailing Navy*, p. 79.

[28] Tamura Hideo rather stressed the religious motives for Oliver Cromwell's policy. Yet, the Navy's importance stays in the Commonwealth's policy to preserve the revolution. Tamura Hideo, *Kuromuweru to Igirisu Kakumei* (Seigakuin Shuppan-kai, 1999), pp. 252-253. The present study does not degrade the religious aspects of the contemporary state and society. However, the correspondence between the Navy and private shipbuilders does not talk much about the subject. Here, this thesis gives weight to the business characteristics of warship contracts, as the following chapters will show in detail.

focused on maritime strategy by the turn of the century. For example, Satsuma Shinsuke focused on the diverse interests that created Britain's 'pro-maritime war argument' and demonstrated how their arguments were reflected in the policies in the early eighteenth century.[29] As such, the exposure to external threats was one factor that made the contemporaries realise the need for a seapower policy.

At the same time, the growing Parliamentary power, especially after the Glorious Revolution, likely played a key role in the increasing focus on maritime affairs. And the increasingly represented maritime interests in the British state created the ground for its seapower identity as well. Andrew Lambert demonstrated how a seapower was 'a constructed identity' by his examination of major seapower states throughout history. He pointed out that 'inclusive politics, the central place of commerce in civic life, and opposition to universal monarchies, hegemonic powers intent on conquest and domination' were the backbones to shape an identity as a seapower.[31] In the British case, the Glorious Revolution set the institution in which influential maritime interests exercised their powers, or at least coordinated each other.[32] This historical background allowed both the execution of pro-maritime war policy and the creation of the cultural identity as a maritime state. Therefore, external pressure and internal developments both paved the way for Britain's emergence as a seapower.

The trend of the rapidly expanding naval force can be observed in a numerical manner. Figure 2-1 shows that the number of warships increased dramatically in both Britain and France during the Nine Years War, between 1690 and 1695 in the figure. On the other hand, after a short peace, while Britain maintained the number of warships, the French counterpart sharply fell since the War of the Spanish Succession, 1700 afterwards. Paul Kennedy explained Britain's rise to a seapower with its advanced mechanism to extract resources while stressing France's geographic disadvantage to being dragged into land warfare in the continent.[33] Joël Félix and Frank Tallett, on the other hand, stressed the impact of the famine in France between 1694 and 1695 and its lack of success at sea, together with the French policy to focus on land.[34] Despite the difference in emphases, it is widely agreed that France needed to face its continental enemies continuously and could not dedicate itself to naval affairs. Britain, on the other hand, had a geopolitical advantage in focusing on its navy as an island nation, Kennedy argued. However, detachment from

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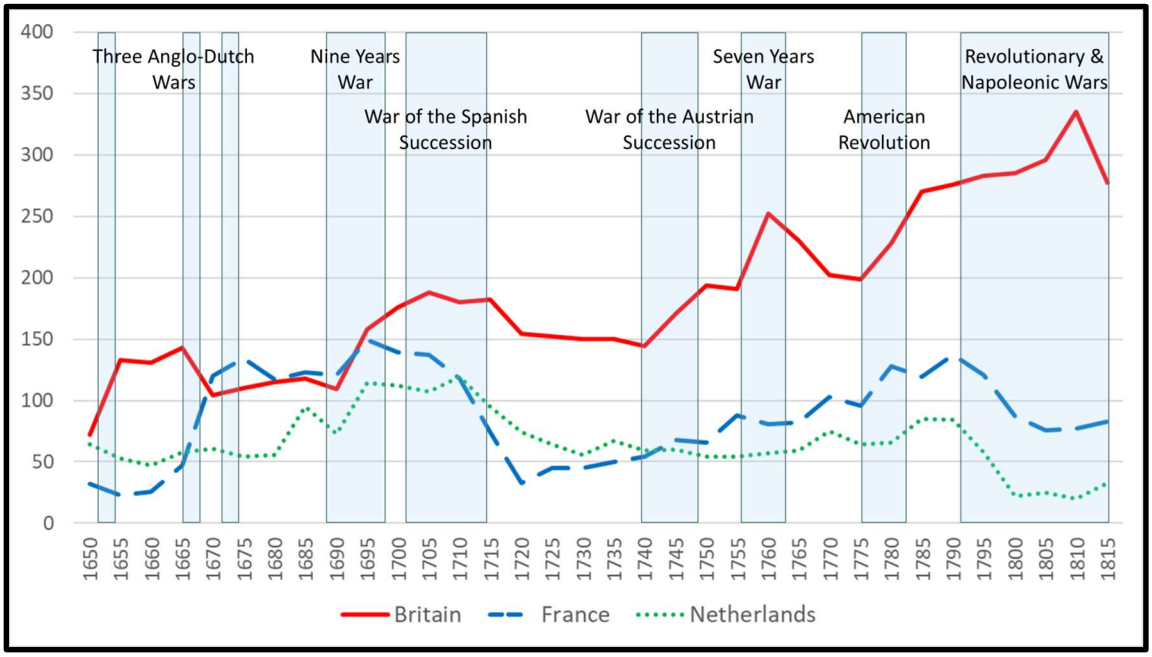
[29] Satsuma Shinsuke, *Britain and Colonial Maritime War in the Early Eighteenth Century: Silver, Seapower and the Atlantic* (Woodbridge, 2013), pp. 6-8.
[31] Lambert, Andrews, *Seapower States: Maritime Culture, continental Empires and the Conflict that Made the Modern World* (New Haven, 2018), pp. 1-2, 147.
[32] Johnston, *Parliament and the Navy*, p. 488.
[33] Kennedy, *Igirishu Kaijo Haken*, p. 199.
[34] Félix and Tallet 'The French Experience, 1661-1815', p. 156.

the continent did not guarantee safety from the landed invasion, as Nicholas Rodger highlighted.[35] The sophisticated navy was essential to capitalise on its geographic advantage. The war context thus obliged Britain to undertake rapid shipbuilding projects and make efforts to maintain that colossal naval force. As such, historical developments at the turn of the century required the Navy to maximise its shipbuilding capacity.

Figure 2-1: Numbers of warships in the British, French, and Dutch navies (1650-1815)[36]



It is plausible that the great surge in warship demand was one reason for the growing Navy's outsourcing of naval shipbuilding as well. Many naval historians, such as Bernard Pool, James Dodds and James Moor, Jonathan Coad, Robert Albion, and Harding, suggested that the growing number of warship contracts reflected the pressing situation of the royal yards since the late seventeenth century.[37] The Navy became increasingly dependent on warship contracts throughout the long eighteenth century, and by the War of American Independence, private yards were building more warships than the royal dockyards in tonnage.[38] The understanding of pressing royal yards and the use of private yards for building and rebuilding can be observed in contemporary accounts as well. For example, when Richard Burchett, a shipbuilder at Rotherhithe, proposed a contract for

[35] Rodger, *The Command of the Ocean*, p. lxv.
[36] Based on: Rodger, *The Command of the Ocean*, pp. 606-609. The figures only include warships equivalent to the British rated warships in size.
[37] Albion, *Forests and Sea Power*, pp. 88-89. Coad, Jonathan, *The Royal Dockyards, 1690-1850: Architecture and Engineering Works of the Sailing Navy* (Aldershot, 1989), p. 109. Dodds, James, and Moore, James, *Zusetsu Eikoku no Hansen Gunkan*, Watanabe Shuji (trans.), (Genshobo, 2011), p. 63. Harding, *The Evolution of the Sailing Navy*, p. 107. Pool, *Navy Board Contracts*, pp. 17-18.
[38] Knight, 'Devil Bolts and Deception?', p. 41.

rebuilding two Second Rates in March 1709, he wrote, '…believing that Her Majesty's yards are so fully employed, in repairing the Royal Navy for immediate service, that the docks cannot conveniently be spared for so long a time as will be required to rebuild such a ship'.[39] In response to the proposal, the Navy Board's letter to the Admiralty states that 'it should be thought fit to have any more great ships rebuilt by contract, the other merchant builders who are willing and capable of undertaking the same should be treated with, that so Her Majesty might have it done on the best terms'.[40] Therefore, it is evident that the surge in demand for warships turned the Navy's eyes to private shipbuilding capacity. Yet, it does not mean that the Navy fully abandoned to build up its own shipbuilding capacity. As A. J. Holland noted, the Navy also had options to expand or newly construct royal dockyards to enhance shipbuilding capacity.[41] In fact, Coad estimated that the number of slips at the royal yards increased fivefold between 1700 and 1830.[42] These attempts are most visible at the turn of the century by the expansion of the Portsmouth dockyard and the new construction of the Plymouth dockyard.[43] Despite such efforts, the demand for warships plausibly grew much faster than the expansion of the royal yards. To catch up to the ever-rising demand, the Navy needed to rely on expanding warship contracts for the most part.

The division of labour between the royal and private yards should be the reason for the simultaneous growths of the royal dockyards and warship contracts. As shown in Chapter 1, naval historians pointed out the division of labour between the two yards: while the royal yards were busy repairing warships, the Navy increasingly relied on private shipbuilders for new constructions of warships of Third Rate and below.[45] By 1764, in fact, the Admiralty formalised the policy to devote the dry docks at the royal yards to repair and maintenance works, thus making an explicit policy of the division of labour.[46] Therefore, it is plausible that outsourcing to private yards was essential for ever-inflating workloads in naval shipbuilding.

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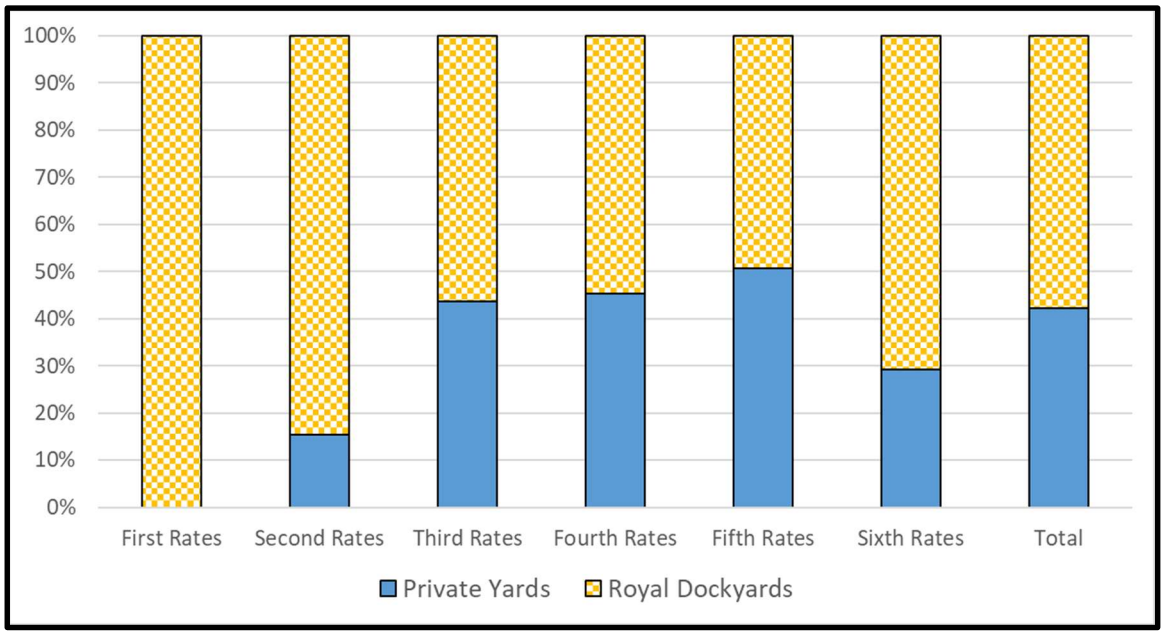
[39] Merriman, R.D. (ed.), *Queen Anne's Navy: Documents concerning the administration of the Navy of Queen Anne, 1702-1714* (London, 1961), p. 82.
[40] Merriman (ed.), *Queen Anne's Navy*, pp. 82-83.
[41] Holland, *Ships of British Oak*, p. 24.
[42] Coad, *The Royal Dockyards*, p.109.
[43] Coad, *The Royal Dockyards*, pp. 7-9. Holland, *Ships of British Oak*, pp. 76-77. It is worth noting that most of the work of Plymouth construction was also conducted by contracts, mainly with a certain Mr Fitch. This even indicates another example of the Navy's reliance on private hands. However, only a few documents give insights into these contractors' works, and the recorded activities at the royal yards are mainly of the officers and regular employees. Coad, *The Royal Dockyards*, pp. 35-36.
[45] [Ch1§3].
[46] Coad, *The Royal Dockyards*, p. 91.

Figure 2-2: Navy's reliance on private yards by the number of each rate (1689-1713)[48]



The analysis of the list of naval shipbuilding between 1689 and 1713, compiled by the author (hereafter, simply the 'Dataset'), also indicates the emergence of the division of labour. The Dataset is largely based on the two volumes of Rif Winfield's *British Warships in the Age of Sail*, lists of warships added to the Navy, but it is also reinforced by various studies dealing with warship contracts specified in the footnote.[49] The Dataset covers information on warship contracts, such as the names of warships, years ordered of construction, years launched, their rates, either new building or rebuilding, the locations of construction, the contractors' names, and the tonnages.[50] Figure 2-2 compares the numbers of rated warships launched at the royal and private yards between 1689 and 1713. It shows that the royal dockyards produced more warships in number for each rate, except for Fifth Rates. Warship contracts at the turn of the century were still at their experimental stage, and the practice was not yet mature enough to make an explicit division of labour between the two yards. However, the figure clearly indicates that the royal dockyards contained all capital ships of First Rates. Additionally, warship contracts for rebuilding Second Rates were all handed to the leading contracting family, the Johnsons of Blackwall.[51] The Navy

[48] The Dataset (See [Appendix II]).
[49] Based on: Winfield, *British Warships in the Age of Sail (1603-1714)*. Winfield, Rif, *British Warships in the Age of Sail (1714-1792)* (Barnsley, 2007). Reinforced with, Merriman (ed.), *Queen Anne's Navy*, pp. 365-72, Banbury, *Shipbuilders of the Thames*. Barnard, John E., *Building Britain's Wooden Walls: The Barnard Dynasty, c. 1697-1851* (Oswestry, 1997). Green, Henry, and Wigram, Robert, *Chronicles of Blackwall Yard* (London, 1881). Holland, *Ships of British Oak*. Her Majesty's Stationery Office, *The Manuscripts of the House of Lords Vol. 4*, (London, 1965). Her Majesty's Stationery Office, *The Manuscripts of the House of Lords Vol. 5*, (London, 1966). Jones, D. W., *War and Economy in the Age of William III and Marlborough* (Oxford, 1988). Pool, 'Some Notes on Warship-Building'. Pool, *Navy Board Contracts*.
[50] For the complex terminology of 'rebuilding', please see [Glossary].
[51] [Ch3§3].

might outsource only Third Rates and below to the private yards simply because no private yards could build capital warships. However, it rather implies that the practical difficulty was the origin of the division of labour between the royal and private yards.

The present section reviewed the broad historical background of Britain's political, geopolitical, and social situations at the turn of the eighteenth century and how it affected the expansion of warship contracts. It showed that all such historical circumstances demanded the naval shipbuilding capacity greater than the royal yards possessed. While the Navy expanded its own shipbuilding capacity, it increasingly relied on outsourcing to private yards. Warship contractors mainly built from the Third to Sixth Rate classes, and capital ships were largely contained at the royal dockyards. Despite the sheer numbers of guns carried by the First- and Second-Rate classes, however, Daniel Baugh stated that these capital ships were rarely set on sail, except those enrolled as flagships, and the Third and Fourth Rates were the core of the naval confrontations.[52] Thus, as the builders of a large part of Britain's naval forces, warship contractors played a crucial role in naval shipbuilding. Nevertheless, a closer examination of the warships themselves is essential to fully understand the historical developments towards the different roles taken by the two yards. The next section investigates the developments of naval architecture in more detail to explain the numerical trend shown here.

2.2: Rise of Frigates & Warship Contracts

The reason for expanding warship contracts had another layer: the emergence of the frigate design. Historians of naval architecture commonly agree that there were no significant changes in shipbuilding technologies between the seventeenth and eighteenth centuries until the emergence of steamships.[53] Nevertheless, modifications and specialisations of designs are also unignorable developments in the context of the warship contracts at the turn of the eighteenth century. This section presents how the ongoing separations between warships and merchantmen and between battleships and cruisers influenced the increasing importance of warship contracts.[54]

The developments in naval architecture towards the mid-seventeenth century came with the divergence between warships and merchantmen. One reason was the emergence of linear formation tactics with the increasing reliance on firepower in naval battles.[55] C.

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[52] Baugh, *British Naval Administration*, p. 249.
[53] Albion, *Forests and Sea Power*, p. 5. Sugiura Akinori, *Hansen Shiwa* (Kajisha, 1978), p. 65. Anderson, Romola, and Anderson, R. C., *Hansen 6000-nen no Ayumi*, Sugiura Akinori and Matsuda Tsunemi (trans.), (Seizan-do Shoten, 2001), pp. 97, 115, 121.
[54] For these terminologies of the types of ships, see [Glossary].
[55] Harding, *The Evolution of the Sailing Navy*, pp. 74-75.

M. Cipolla claimed that the invention of gunports in the sixteenth century allowed the capitalisation of firepower.[56] Before the invention, a warship could only carry light cannons on its upper decks to keep its centre of gravity low. Gunports allowed warships to carry heavier guns on the lower decks while covering cannon holes for stable sailing. But the effectiveness of firepower required tests in practice, and the tactical employment of the line of battle needed to wait until the Anglo-Dutch wars of the mid-seventeenth century.[57] Prior to the adoption of the line of battle, boardings on enemy ships often decided the outcome of a naval confrontation.[58] As the linear tactics took hold throughout the second half of the seventeenth century, capital warships became larger and more durable to adopt heavy arms. Merchantmen, of course, needed more cargo spaces for their trading activities and required sailing speed. As such, the designs of warships and merchantmen gradually developed in different trajectories and became almost completely diverged by the beginning of the eighteenth century.[59]

While the separation of warships and merchantmen was one factor behind the increasing demand for warship contracts, the emergence of the frigate design was another. The emergence of linear tactics in naval battles also fostered the specialisation of designs within warships according to their operational purposes. Capital warships called 'ships of the line', specialised in the line battles, grew bigger and slower in order to fill them with a larger number of guns.[60] For example, the *Sovereign of the Seas*, a 100-gun First Rate built by an influential royal shipwright Peter Pett in 1637, was sized at an impressive 1,522 tons.[61]

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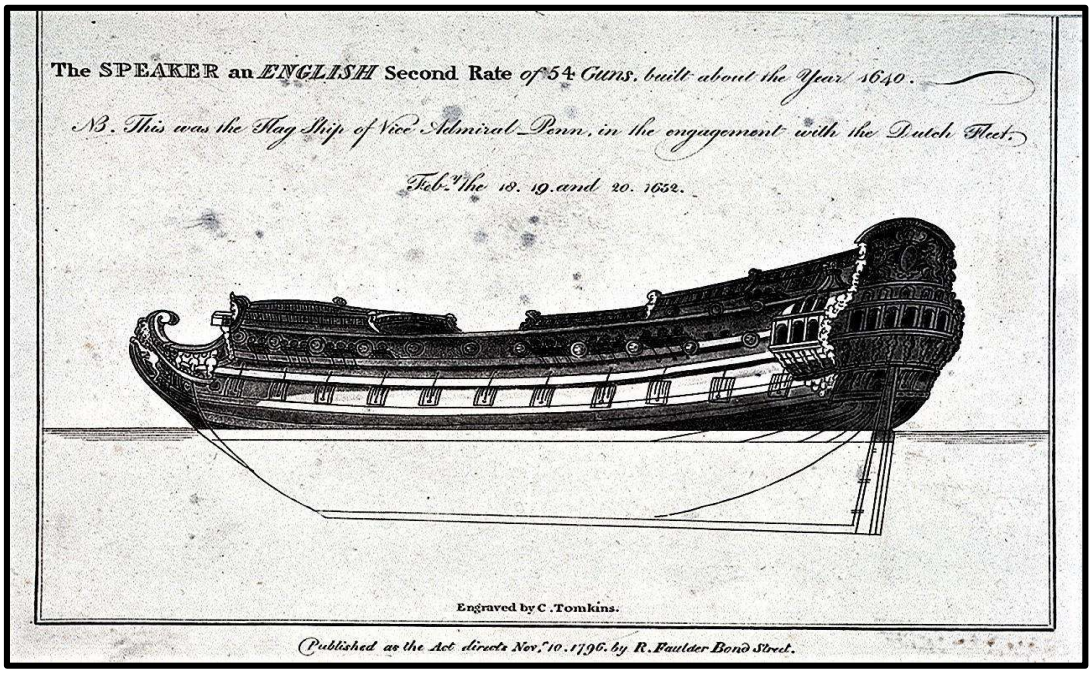
[56] Cipolla, C. M., *Taiho to Hansen: Yoroppa no Sekai Haken to Gijutsu Kakushin*, Otani Takanobu (trans.), (Heibon-sha, 1996), pp. 76-78.
[57] Harding, *The Evolution of the Sailing Navy*, pp. 74-75.
[58] Glete, Jan, *Warfare at Sea, 1500-1650: Maritime Conflicts and the Transformation of Europe* (Routledge, 1999), pp. 17-39.
[59] Albion, *Forests and Sea Power*, p. 76.
[60] Harding, *The Evolution of the Sailing Navy*, pp. 74, 80.
[61] Anderson and Anderson, *Hansen 6000-nen no Ayumi*, p. 102.

Image 2-2: Painting of the *Sovereign of the Seas* and Peter Pett[62]

Image 2-3: Later depiction of the *Speaker* (1796)[63]



[62] <https://en.wikipedia.org/wiki/HMS_Sovereign_of_the_Seas#/media/File:Peter_Pett.jpg>, [accessed on 9 November 2024].

[63]<https://en.wikipedia.org/wiki/HMS_Mary_(1660)#/media/File:The_Speaker_an_English_second_rate_of_54_Guns_built_about_the_year_1640._NB_This_was_the_Flag_Ship_of_Vice_Admiral_Penn_in_the_engagement_with_the_Dutch_Fleet_Feby_the_18,_19_and_20_1652_RMG_PU0262.jpg>, [accessed on 9 November 2024].

On the other hand, smaller and faster warships were still demanded for cruising and convoying for trade protection and destruction, as well as various other supportive purposes. Under these circumstances, the design called 'friggotts' or frigates emerged. It is widely accepted that the frigate design appeared in the early seventeenth century to answer the demands for both firepower and speed.[64] According to Parker, frigates were first invented in the Netherlands during their independence war from the Spanish crown.[65] The English navy also adopted the design around the mid-seventeenth century, especially by the prestigious Pett dynasty. The *Constant Warwick*, launched in 1645 by Peter Pett, is sometimes referred to as the first English frigate.[66] The ship was originally built as a merchantman and employed in naval services during the English Civil War. In the 1650s, the Navy built countable frigates against the Dutch armed merchantmen under the tension of the First Anglo-Dutch War. Especially the *Speaker* by Christopher Pett marked the beginning of the standard frigate class in the Navy.[67] The *Speaker* class design retained its popularity up to the mid-eighteenth century until the new 74-gun design took over.[68]

Frigates further obtained its importance during the opening phase of the Second Hundred Years War. Figure 2-1 shows that Britain emerged victorious in a naval arms race with France by the turn of the eighteenth century. However, this does not mean the French menace from the seas ceased. France avoided large-scale naval combats since its defeat at the Battle of Barfleur and La Hogue in 1692 until the mid-eighteenth century.[71] As a result, while Britain engaged in large-scale naval battles between capital ships eleven times between 1652 and 1674, the number dropped to seven between 1689 and 1748.[72] At the same time, the Navy newly built 24 warships with 90-guns or more between 1660 and 1688, but the number dropped to 4 between 1688 and 1714.[73] It is important to note that 'rebuilding' could mean a complete replacement of a lost or heavily damaged warship, and the Navy rebuilt fifteen First and Second Rates between 1688 and 1714. Nevertheless, it is

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[64] Anderson and Anderson, *Hansen 6000-nen no Ayumi*. Cipolla, *Taiho to Hansen*. Parker, *Nagashino Kassen no Sekaishi*.
[65] Parker, *Nagashino Kassen no Sekaishi*, pp. 138-139.
[66] Anderson and Anderson, *Hansen 6000-nen no Ayumi*, p. 122. Parker claims the dimensions of 3.5:1, broadside to width, from 1646-1647 marked the early English frigates. However, this does not change the widely agreed recognition of the mid-seventeenth century as the period of frigates' appearance in the English navy. Parker, *Nagashino Kassen no Sekaishi*, p. 138.
[67] Parker, *Nagashino Kassen no Sekaishi*, p. 139. Anderson and Anderson, *Hansen 6000-nen no Ayumi*, pp. 121-122. Rodger, *The Command of the Ocean*, p. 217. Davies, J., 'A Permanent National Maritime Fighting Force 1642-1689' in J. Hill (ed.), *The Oxford Illustrated History of the Royal Navy* (Oxford, 1995), p. 59. Winfield, Rif, *British Warships in the Age of Sail (1603-1714)*, p. 251.
[68] Lavery, Brian. *The Ship of the Line: A History in Ship Models* (Havertown, 2014), pp. 13-14.
[71] Duffy, Michael, 'The Establishment of the Western Squadron as the Linchpin of the British Naval Strategy', in Richard Harding (ed.), *Naval History: 1680-1850* (Hampshire, 2006): 95-116. Harding, *The Evolution of the Sailing Navy*, pp. 103, 113.
[72] Lavery, *Anson's Navy*, p. 10.
[73] Parker, *Nagashino Kassen no Sekaishi*, p. 141. The Dataset (See [Appendix II]).

evident that the Navy shifted to maintain the number of capital warships rather than expanding it. The shift in the policy reflects the declining strategic importance of large-scale naval confrontations.

Nevertheless, this was simply a shift in policy, and France instead focused on trade destructions by privateers, *guerre de course*.[74] While naval historians traditionally emphasised the importance of battleships, recent studies re-evaluate the essential role of cruisers. Against the background of the Second Hundred Years War, Mahan underlined the indispensability of seapower with large capital ships for Britain's defence, together with allies on the continent, as mentioned. [75] Kennedy succeeded Mahan's perspective but also provided various revisions, and the importance of trade protection is one of them. For instance, Kennedy criticised Mahan for underestimating the French *guerre de course*.[76] He argued that this policy was highly effective at the time of attrition wars since the French crown could employ private resources for naval affairs and spare the government's resources for land warfare against its continental rivals.[77] Similarly, Harding estimated the damage caused by the French privateering and claimed that the Nine Years War was 'the first conflict in modern times that seriously destabilised the English economy'.[78] By combining these backgrounds, it is evident that although the risk of a large naval confrontation with France ceased during the War of the Spanish Succession, maritime control was still essential for Britain's economy. As such, frigates, the main actors in trade protection, became indispensable for Britain's maritime security as France's *guerre de course* shifted the main battlefield away from large-scale naval battles.[79]

It is important to note how the French navy, Britain's prime rival throughout the period, mobilised its private resources. The French navy too, relied on the private shipbuilding capacity, but in a different way. Towards the end of the 1690s, France shifted its focus to trade destruction by privateers, as mentioned. Therefore, the French navy mobilised private shipyards for smaller vessels, similarly to Britain's warship contracts. However, fleet operations were also in private hands. Indeed, there were some collaborations between the navy and private actors in France, such as providing naval officers to privateers and operating naval and private fleets side by side.[80] The sheer

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[74] Harding, *The Evolution of the Sailing Navy*, p. 103. France also employed the frigate design that contributed well to the *guerre de course*. Parker, *Nagashino Kassen no Sekaishi*, pp. 140-141.
[75] Mahan, *Kaijo Kenryoku Shiron*. Kennedy, *Igirishu Kaijo Haken*, pp. 63-77.
[76] Mahan, *Kaijo Kenryoku Shiron*, pp. 245-275. Kennedy, *Igirishu Kaijo Haken*, pp. 182-183.
[77] Kennedy, *Igirishu Kaijo Haken*, pp. 182-183。
[78] Harding, *The Evolution of the Sailing Navy*, p. 112.
[79] Parker, *Nagashino Kassen no Sekaishi*, p. 141.
[80] Symcox, Geoffrey, *The Crisis of French Sea Power 1688-1697: From the Guerre D'escardre to the Guerre de Course* (The Hague, 1974), pp. 5-7. Rodger, *The Command of the Ocean*, pp. 158-159.

contrast to the British case is that the French merchants were still responsible for the costs of maritime defence in this system. What the difference means to the wider historical contexts is the subject of debate in Chapter 6 as it requires a deeper understanding of Britain's practice of warship contracts.[81] But the unique trait of Britain's system is the balance between mobilisation of private resources and direct operation by public funds.

Alongside the intensifying trade raiding, Britain's growing maritime trade also raised the importance of frigates. In the early eighteenth century, Britain experienced rapid growth of long-distance trade, particularly of the Atlantic.[82] Anthony Slaven estimated that the total value of English trade grew from £6.7 million between 1665 and 1669 to £8.3 million between 1699 and 1702.[83] Although a large part of Britain's economy was still dependent on agriculture, Harding argued the importance of overseas trade in increasing mobility of resources.[84] This growth in maritime trade also necessitated ever-demanded trade protection.

Under these developments, the contemporaries recognised the importance of trade protection. Harding argued that as commerce became increasingly important for Britain's wealth, the contemporaries regarded the Navy as the essential defender of Britain's 'national interests'.[85] In fact, Parliament made the Navy dispatch a certain proportion of warships for trade protection in 1694 and 1708 against the increasing French privateering, aligned with the growing influence of maritime interests.[86] Cruisers were allocated to five areas, 'one in the Western Approaches off southern Ireland, one near the Scillies one off the Channel Isles, one based in the Downs and one on the East Coast', thus guarding the southern half of the British Isles.[87] While the convoy acts were still experimental and left various issues in administration and practice, the enforcements exemplify the rising attention to trade protection. The decision to operate the royal dockyards as naval bases even in peacetime after the War of the Spanish Succession also reflects the growing concerns.[88] Although ships of the line were the cornerstone of naval battles, confrontations between squadrons were rare, and the trade protection and destruction by frigates played a key role in securing control of the seas.[89] Therefore, while capital ships were built and

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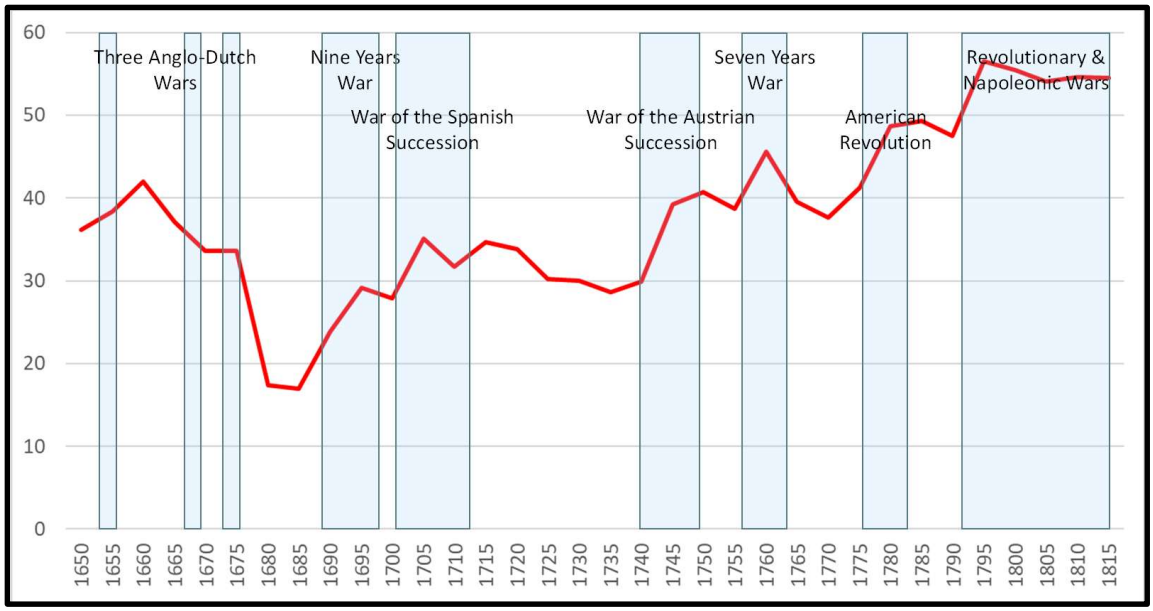
[81] [Ch6§2].
[82] Tamaki Toshiaki, *Kaiyo Teikoku Koryu-shi: Yoroppa, Umi, Kindai Sekai Sisutemu* (Kodansha, 2014), pp. 88-127.
[83] Slaven, Anthony, *British Shipbuilding, 1500-2010* (Lancaster, 2013), p. 4.
[84] Harding, *The Evolution of the Sailing Navy*, pp. 79, 94, 106.
[85] Harding, *The Evolution of the Sailing Navy*, pp. 69, 71-72, 81-82. Kennedy, *Igirishu Kaijo Haken*, p. 148.
[86] Johnston, *Parliament and the Navy*, p. 492.
[87] Crowhurst, Patrick, *The Defence of British Trade 1689-1815* (Folkestone, 1977), p. 46. Lavery, *Anson's Navy*, p. 10. Rodger, *The Command of the Ocean*, pp. 159-160. The direct quote from Rodger.
[88] Coad, *The Royal Dockyards*, pp. 1-2.
[89] Barbero, Alessandro, *Kinsei Yoroppa Gunzishi: Runesansu kara Naporeon made*, Nishizawa Ryusei and

maintained at the royal dockyards, the role that private shipbuilders played in Britain's naval power should not be underestimated.

The concentration on frigates can be observed numerically, too. Figure 2-3 presents the percentage of cruisers in the total number of ships owned by the Navy. Here, the 'cruiser' only includes Fifth and Sixth Rates and omits vessels below 300 tons for the period between 1680 and 1790. The graph shows that the percentage of cruisers was declining between 1660 and 1680, corresponding to increasing reliance on linear battle tactics. Yet, the cruisers reemerged after 1685, and the proportion bumped up at the opening phase of each war afterwards. This trend aligns with the defence against the French trade destruction at the turn of the eighteenth century and the rising awareness of trade protection.

Figure 2-3: Proportion of cruisers in the English/British navy (1650-1815) (% of the numbers)[90]



Such advancements directly altered the way in which the Navy procured warships through mobilising private shipbuilding capacity.[91] Although the foundations of the Royal Navy had been laid since the reign of Henry VIII (reign: 1509-1547), the majority of its naval force was in the form of commissions in time of war throughout the sixteenth century.[92] In fact, during the famous Armada Campaign of 1588 against Spain, the Navy

Ishiguro Morihisa (trans.), (Ronso-sha, 2014), pp. 138-139. Aoki Eiichi, *Sipawa no Sekaishi 1: Kaigun no Tanjo to Hanso-gunkan no Hattatsu* (Shuppan-kyodo-sha, 1982), pp. 112-113. Kennedy, *Igirishu Kaijo Haken*, pp. 193-194. Harding, *The Evolution of the Sailing Navy*, p. 113.

[90] Rodger, *The Command of the Ocean*, pp. 606-609. Constructed from the table of Appendix II.

[91] Parrott, *The Business of War*, p. 291.

[92] Haas, *A Management Odyssey*, p. 2. Harding, *The Evolution of the Sailing Navy*, p. 82.

had only 34 ships out of the 197 English forces; thus, converted merchantmen shared 83% of the total strength.[93] Such practice came to an end when naval warfare shifted towards the concentration of firepower. As the linear tactics required larger warships to carry more guns, the employment of commissioned merchantmen became obsolete. It is difficult to put a finger on when precisely the levying of merchantmen for a major naval confrontation ceased.[94] Yet, it is undoubted that how the naval battles that were fought in the latter half of the seventeenth century were much different from those in the previous century. As the changing tactics meant changing design, which required warships to be purpose-built, the Navy needed to begin expanding warship contracts instead of hiring merchantmen when they required private shipbuilding capacity.

The rising importance of purpose-built warships meant the Navy's increasing reliance on warship contracts. The mid-seventeenth to the beginning of the eighteenth century was a period of changes for the Navy, and the practice of building frigates through warship contracts accompanied this movement. The republican government rapidly expanded its naval strength, and the Restoration government followed up with administrative reforms to sustain the large fleet, especially under the direction of Samuel Pepys (life: 1633-1703), a prominent naval administrator and diarist. It is difficult to trace back what was the first warship contract in the British Isles, and outsourcing of naval shipbuilding was probably a practice from the classical era. Contracts for the construction of small ships existed from the early days, as a large number of fireships being contracted in the early 1600s.[95] By Cromwell's time, large private yards had sprung up mainly in the Thames basin, such as Blackwall, which was described as comparable to the royal dockyards in its scale.[96] Thus, when the Navy launched a scheme to build new *Speaker*-class frigates around 1650, a few private yards were ready to contribute to the Navy's shipbuilding efforts.

However, the shipbuilding programmes by the mid-seventeenth century were mainly contained by the families of influential royal shipwrights and other naval officers. For instance, the Navy expanded the size of its fleet significantly during the republican era. In the Programme of 1650, the Council of State ordered six new frigates to be built, and five of them were contracted out to private yards. Nevertheless, four of five contracts were contained by the Pett family and its relatives, the Johnsons of Blackwall, and another contract was to the Taylor family, also likely to be a relative of Captain John Taylor, the

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[93] Özveren, Y. Eyüp, 'Shipbuilding, 1590-1790', *Review (Fernand Braudel Center)*, 23:1 (2000): 5-86, p. 25.
[94] While David Parrott gave May 1644 as the last large-scale employment of hired merchantmen, James Wheeler gave a later date of July 1653. Parrott, *The Business of War*, pp. 290-291. Wheeler, *The Making of*, p. 48.
[95] Pool, *Navy Board Contracts*, pp. 46-48.
[96] Banbury, *Shipbuilders of the Thames*, p. 34.

Master Shipwright and Commissioner of the Harwich dockyard.[97] Additionally, with the Programme of 1652, eight out of the eleven Third Rates were contracted out to private yards. But here, too, the three families shared five contracts while an additional two were built by the Graves family of Limehouse, another strong contender in the shipbuilding business.[98] Therefore, a few influential families dictated warship contracts in England in the mid-seventeenth century, rather contrarily to the contractor state model.

Such a semi-monopolistic situation began to change in the latter half of the century. The Programme of 1677 marked one of the earliest attempts to mobilise a wide range of private yards, geographically speaking. The programme coincided with rising tension with France after the Third Anglo-Dutch War.[99] Parliament ordered the construction of thirty new warships, which consisted of one First Rate, nine Second Rates, and twenty Third Rates, totalling around 34,000 tons.[100] The Programme was also based on the 'new establishment' or the standardisation of warship designs by Pepys and Anthony Deane (life: 1633-1721), a prominent naval architect and master shipwright. The establishment formally lasted until 1719 and laid the foundation for the two-decker design lasting until 1755.[101] The attempt at standardisation extended not only the dimensions of hulls but also to the masts and spars.[102] The flood of workload to the royal yards exceeded their capacities, and the Navy outsourced part of the shipbuilding projects to private hands.[103] Although a similar approach had taken place since 1649, what was new this time was that the Navy Board surveyed for areas to establish new yards for the shipbuilding programme. Nevertheless, large-sized vessels of rated warships were again contained by the influential Thames shipbuilders, with the only exception being Francis Bayley of Bristol; although, this Bayley also could be a relative of Captain Edmund Bayley.[104] Seven of the Third Rates were contracted out, and the Johnsons obtained four. On the other hand, the Castles of Deptford built the other two, and Bayley provided one.

Warship contracts became truly open to wider private shipbuilders towards the end of the century, the period of the present study. The Navy's policy to open the opportunity

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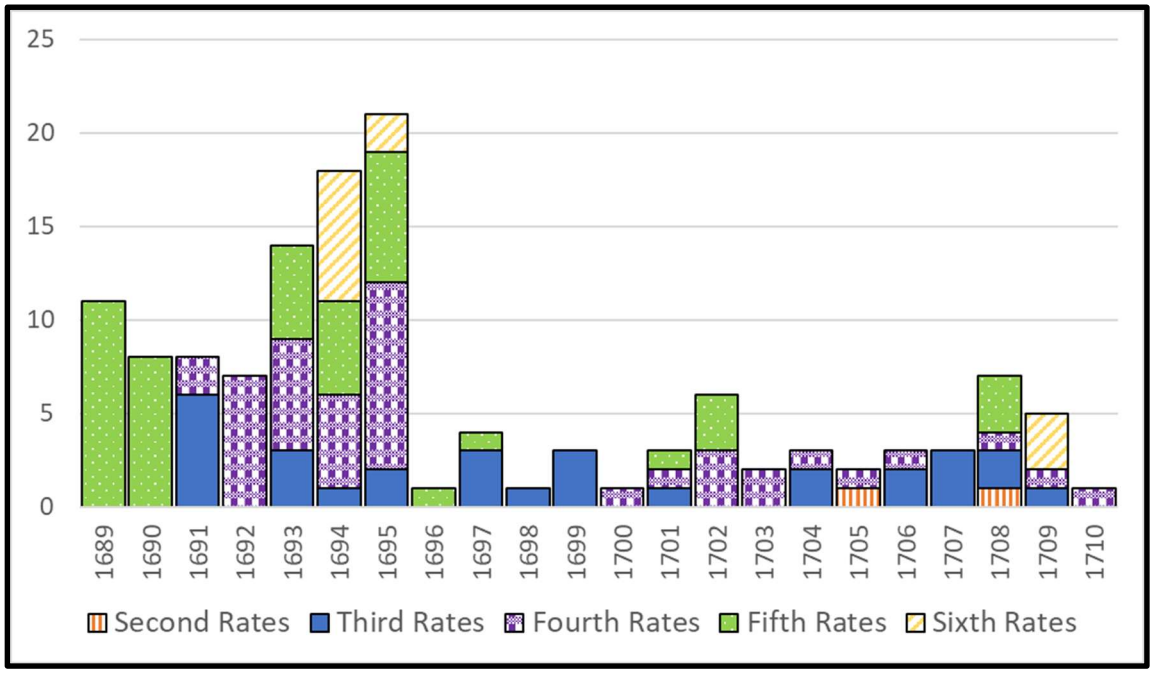
[97] Rodger, *The Command of the Ocean*, pp. 103, 902. Winfield, *British Warships in the Age of Sail (1603-1714)*, p. 401.
[98] Or it could be said 'two families' as the Petts and Johnsons were direct relatives, as shown in: [Ch3§2].
[99] Saville, R. V., 'The Management of the Royal Dockyards 1672-1678', in N. A. M. Rodger (ed.), *Naval Miscellany, Vol. 5* (London, 1984): 94-142, p. 94.
[100] Ehrman, *The Navy in*, p. 34. Saville, 'The Management of the Royal Dockyards', p. 94.
[101] Hemingway, Peter, 'Sir Jacob Acworth and Experimental Ship Design during the Period of the Establishments', *The Mariner's Mirror*, 96:2 (May 2010): 149-160, p. 152. Rodger, *The Command of the Ocean*, p. 218. Lavery, *Anson's Navy*, p. 10.
[102] Harding, *The Evolution of the Sailing Navy*, p. 89. Rodger, *The Command of the Ocean*, p. 218.
[103] Rodger, *The Command of the Ocean*, p. 108.
[104] Banbury, *Shipbuilders of the Thames*, pp. 40-41. Fox, Frank, 'The English Naval Shipbuilding Programme of 1664', *The Mariner's Mirror*, 78:3 (August 1992): 277-292, p. 281.

became more explicit when Parliament issued the building of thirty new Third and Fourth Rates. Technically, the project was a combination of multiple programmes of 1690 and 1691, but most parts of the constructions themselves took place simultaneously.[105] These Third and Fourth Rates were handed to various private shipbuilders, namely Barret of Harwich, Clements of Bristol, Frame of Hull, Snelgrove of the Thames, and Winter and Wyatt of Hampshire, as Chapter 3 shows in more detail.[106] Therefore, the contractor state model, the competition among a wide range of shipbuilders, became more visible with warship contracts at the end of the seventeenth century. The turn of the eighteenth century was when the Navy expanded the number of contractors for rated warships from the 3 families in 1677 to 43 families.[107] And it is plausible that warship contracts shifted from 'relational' contracts to 'transactional' ones over the course of the period, following Rodger Knight and Martin Wilcox's terminology.[108]

Figure 2-4: Number of ordered rated warships built by warship contracts (1689-1710)[109]



Yet, the demand for warships was heavily sensitive to shifts between war and peacetime, and shipbuilders could not expect business with the Navy to continue forever. Figure 2-4 shows the number of warship contracts ordered each year. It indicates that the sharp rise in warship contracts coincided with the rising awareness of the importance of trade protection. Brewer estimated that Britain lost 4,000 merchantmen during the Nine

[105] Winfield, *British Warships in the Age of Sail (1603-1714)*, pp. 317, 336, 483.
[106] [Ch3§1].
[107] Banbury, *Shipbuilders of the Thames*, pp. 40-41. [Ch1§3].
[108] Knight and Wilcox, 'War, Government and the Market', pp. 177-178.
[109] The Dataset (See [Appendix II]).

Years War, and it is not hard to imagine the heavy losses from hostile trade raiding raised awareness of the need for frigates.[110] In particular, the surge in the number of warship contracts between 1693 and 1695 corresponds to the Smyrna convoy disaster of 1693.[111] In the event, 92 merchantmen of the English and Dutch joint fleet were captured or sunk by the French force despite the Navy's protection. The event alerted Parliament to the immediate need to reinforce its trade protection, which led to the above-mentioned parliamentary acts of 1694 and 1708 to assign convoys. The heavy concentration of Fourth to Sixth Rates between 1692 and 1695 reflects the rising attention to trade protection. Another notable trend in Figure 2-4 is the sharp decline in warship contracts from 1696. The Board handed out 102 warship contracts between 1689 and 1701, but the number dropped to 32 during the War of the Spanish Succession. This is likely because the numerous newly constructed warships during the Nine Years War provided sufficient ground for the Navy to navigate the war at the beginning of the eighteenth century.

The previous figure, Figure 2-3, also points out that warship contracts were a business only available during wartime. It indicates the declining proportion of frigates during interwar periods, between 1675 and 1690, 1715 and 1740,1765 and 1775, and 1785 and 1790 in the figure. In general, the Navy sold smaller warships away during peacetime and quickly purchased them again once war broke out. This practice meant that shipbuilders could not expect warship contracts during peacetime. Additionally, smaller warships were frequently replaced owing to their short lifespan. As the Navy's policy was to maintain the number of capital ships during the eighteenth century, First and Second Rates were frequently repaired or rebuilt but rarely added. In fact, during the War of the Spanish Succession, Britain did not build any new First or Second Rates, but 11 new Third Rates and 102 Fourth Rates and below.[112] At the same time, smaller warships were frequently destroyed or captured by the enemy. Contrarily, capital ships suffered no losses except for one wreck during the War of the Spanish Succession. Collectively, there were great surges in the need for warship contracts during wartime, but these quickly faded once peace was made. Going back to Rafael Sánchez's model of 'make-or-buy' decision-making, it is a reasonable choice to outsource frigate shipbuilding to private yards.[113] In this way, the Navy could avoid the maintenance costs that would result from expanding the royal dockyards. On the other hand, what this fluctuating market meant to private shipbuilders requires a proper assessment in relation to the trends in the mercantile shipbuilding

[110] Brewer, *The Sinews of Power*, p. 197.
[111] Rodger, *The Command of the Ocean*, pp. 153-154.
[112] Merriman (ed.), *Queen Anne's Navy*, p. 363.
[113] Sánchez, 'Contractor State and Mercantilism', p. 309.

industry, which is the subject of Chapter 5.

This section showed that the seventeenth century saw critical advancements in naval architecture, especially in the divergence among ships of the line, frigates, and merchantmen. These developments made the traditional practice of levying merchantmen during wartime obsolete. The changing circumstances of Britain's trade, with the growing overseas trade and France's intensifying trade destruction, also brought awareness of the need for trade protection. The technical necessity of purpose-built warships and the increasing importance of frigates for maritime control thus leaned the Navy towards warship contracts. As such, warship contractors took an indispensable part of Britain's naval shipbuilding as builders of smaller warships that recent naval historians recognise their strategic importance.[114]

2.3: Process & Management of Naval Shipbuilding

To properly assess Britain's contractor state in a broader 'state and society' relationship, the actors on both sides need to be identified. The 'society' side actors of warship contracts, private shipbuilders, demand a dedicated investigation, and as such are treated in Chapter 3. This section reviews the characteristics of the 'state' actor, the Royal Navy, and how it directed naval shipbuilding projects. By doing so, this section locates warship contracts in the wider process of naval shipbuilding under the rising demand for purpose-built warships outlined in the previous section.

Superior firepower and well-trained sailors have been depicted as the British navy's distinctiveness both in the contemporary and modern-day popular image. Naval history has paid much attention to individual battles, warships, and naval officers commanding warships (hereafter, simply 'sea officers') traditionally, as Jan Glete and John Ehrman critically noted.[115] As the scholarly focus shifted towards state institutions, naval historians turned to the development of naval administration, the engines to exercise its naval power. In the case of the British navy, Daniel Baugh laid the foundation for this trend.[116] Because of this historiographical background, characteristics of the naval departments have been explored to a great extent.

The bodies of the contemporary Navy can be divided into two major sections: the Principal Officers and Commissioners of the Navy, also known as the Navy Board, and the Admiralty. These departments' origins are old and can be traced back to Henry VIII's

[114] Harding, 'Contractors, Warships of the Royal Navy', pp. 162-4. Wheeler, *The Making of*, p. 203.
[115] Ehrman, *The Navy in*, p. 10. Glete, *Navies and Nations*, p. 89.
[116] Baugh, *British Naval Administration*.

period, the early sixteenth century.[117] The Admiralty was the head of England/Britain's naval organisation and was generally responsible for the commissioning of naval officers and commanding of warships. However, it changed its form and remit numerous times, especially during the major political transitions in the seventeenth century. It was during the English Civil War when the Admiralty was reformed into a committee rather than a title held by a single figure, such as the Lord High Admiral. It took the form of a committee like the Board of Admiralty throughout most of the long eighteenth century. But between 1702 and 1708, Prince George of Denmark, Queen Anne's (reign: 1702-1714) spouse, held the title of the Lord High Admiral.[118] Considering that Pepys became the Clerk of the Acts after obtaining the Crown's favour with his voyage to the Netherlands to receive Charles II in the Restoration, it is plausible that the contemporary Navy had mixed characteristics of nepotism and meritocracy.[119] J. A. Johnston depicted that Parliament gradually strengthened its grip over the Navy during the period between 1688 and 1714, mostly without a deliberate policy, due to the monarchs' lack of interest in naval affairs and growing representatives of maritime interests in the House of Commons.[120] But at the same time, the Admiralty had representatives in Parliament as Admiral Edward Russell was an important Whig Junto who exercised notable influence in the political world.[121] Thus, the Navy at the time was at a unique stage. It was 'royal' on paper but gradually strengthened its ties with Parliament at the turn of the eighteenth century. Harding noted, 'Most organisational and operational features of the navy were in place by 1713 and remained little changed until the 1830s'.[122] As the British state experienced a radical rearrangement, the turn of the century was the developmental phase of the Navy as well.

What is important in the context of warship contracts is that the Admiralty usually did not take a direct role in it. It approved the Navy Board's proposals for warship contracts and occasionally gave comments on them. There are extensive records relating to the Admiralty's naval operations and administration. For example, the ADM 1 series contains indexes to the voluminous letters that the Admiralty received from the Navy Board.[123] However, the indexes show that, even for the events ashore, the Admiralty's prime concerns were victualling, manning, appointing of officers, and preparing for transports of

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[117] Wheeler, *The Making of*, p. 23.
[118] Harding, *The Evolution of the Sailing Navy*, p. 70. Kobayashi, *Zusetsu Ingurando Kaigun no Rekishi*, pp. 27-37, 475.
[119] Pool, *Navy Board Contracts*, pp. 1-3.
[120] Johnston, *Parliament and the Navy*, p. 474.
[121] 'RUSSELL, Edward (c.1652-1727), of Chippenham Hall, Cambs.', *The History of Parliament: British Political, Social & Local History*, <https://www.historyofparliamentonline.org/volume/1690-1715/member/russell-edward-1652-1727>, [accessed on 20 October 2024].
[122] Harding, *The Evolution of the Sailing Navy*, p. 115.
[123] ADM 1/3556-3598, [Admiralty in-letters from the Navy Board].

soldiers.

Here, the Navy Board commissioners took a more direct role in warship contract relationships. The Board was a department responsible for almost all aspects of constructing and maintaining warships.[124] The Board also experienced numerous reforms throughout the seventeenth century. Among which, one by Pepys during the Restoration period has received much attention to the extent that Harding emphasised the emerging culture to 'marry theoretical science with practical applications'.[125] The Glorious Revolution was another turning point in the naval administration, but it was less impactful to the Board's structure compared to that of the Admiralty, according to Pool.[126] He argued that the Board retained its structure from Pepys' reforms while the Admiralty experienced the said changes at the beginning of the eighteenth century.

By the end of the seventeenth century, the Navy Board consisted of four major offices: Treasurer of the Navy, Comptroller of the Navy, Surveyor of the Navy, and Clerk of the Acts.[127] The Treasurer acted as a practically separate body in Parliament, according to R. D. Merriman, and obtained budgets for the Board's activity. The Comptroller supervised the accounting of the Board's business, including that for naval store contracts. The Surveyor was the key officer in the context of warship contract relationships, as he was responsible for all sorts of naval shipbuilding. The Surveyor and the candidates often supervised contractors' shipbuilding progress directly. The Clerk of the Acts acted as a secretary to the Board's business, and drawing contracts was his responsibility. These officers, with various other commissioners, took the core part of warship contracts on the Navy's side.

Under the Navy Board's supervision, the royal dockyards operated to build and maintain warships for the Navy. The Board strengthened its control over the royal yards in the late seventeenth century, especially with Pepys' reforms again between 1684 and 1688.[128] Besides the royal yards at the Thames that could communicate with the Navy Office in London easily, the Board sent resident commissioners to each yard to inspect the daily works.[129] At the turn of the eighteenth century, the Navy had seven home dockyards at Chatham, Deptford, Harwich, Plymouth, Portsmouth, Sheerness, and Woolwich, although Harwich was on the decline.

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[124] Kobayashi, *Zusetsu Ingurando Kaigun*, pp. 30-31.
[125] Harding, *The Evolution of the Sailing Navy*, p. 88.
[126] Pool, *Navy Board Contracts*, pp. 45-46.
[127] Merriman, R. D. (ed.), *The Sergison Papers, 1688-1701* (London, 1950), pp. 11-12.
[128] Tanner, J. R., *Samuel Pepys and the Royal Navy* (Cambridge, 1920), pp. 18-56. Harding, *The Evolution of the Sailing Navy*, p. 91.
[129] Coad, *The Royal Dockyards*, p. 23, Knight, 'From Impressment to Task Work', p. 10, MacDougall, *Shire Album No. 231*, pp. 4-6.

The royal dockyards had five major officers each: Master Shipwright, Storekeeper, Master Attendant, Clerk of the Survey, and Clerk of the Cheque.[130]The Master Shipwright, the head of a royal dockyard, was responsible for designing, building, and repairing of warships. The Storekeeper managed the materials for the shipbuilding purpose. The Master Attendant was for maintaining 'ordinary' ships, those out of service and being moored, and the Clerk of the Survey oversaw the stores for these ordinary ships. The Clerk of the Cheque was to provide wages for dockyard workers. Together, these five officers managed the colossal business of the royal dockyards. Due to the required shipbuilding knowledge, the Surveyors of the Navy were often former master shipwrights of the royal dockyards. For instance, Daniel Furzer was the Master Shipwright of Sheerness and Chatham, and William Lee was at the Sheerness and Woolwich dockyards. Additionally, master shipwrights often did not stay at a single dockyard but moved to others. The fact that Furzer and Lee moved to the Thames royal yards before getting promoted to the Surveyors of the Navy hints that the contemporaries recognised the offices in the Thames region as having a certain prestige.

Table 2-1: List of the Navy Board commissioners with office titles (1689-1713)[131]

Treasurer of the Navy	Anthony Cary (1681-1689), Edward Russell (1689-1699), Thomas Littleton (1699-1710), Robert Walpole (1710-1711), Charles Caesar (1711-1714)
Comptroller of the Navy	Richard Haddock (1682-1715)
Surveyor of the Navy	John Tippetts (1672-1692), Edmund Dummer (1692-1699), Daniel Furzer (1699-1715), William Lee (1706-1714)
Clerk of the Acts	James Sotherne (1680-1689), Charles Sergison (1689-1719), Samuel Atkins (1702-1706)

To grasp the scale of the naval shipbuilding business, it is important to know the kinds and sizes of the royal yards. As they were the largest industrial agglomerations in eighteenth-century Britain, scholars of naval, economic, and management histories paid much attention to the facilities and management of the royal yards, revealing a lot about their features.[132] The royal yards contained various facilities relating to almost all sorts of shipbuilding and naval equipment. This included docks, slips, sawpits, smith shops, storehouses, ponds for mast preservation, boat-making facilities, and even rope-making facilities at some yards. Among these various facilities, docks were by far the most

[130] Rodger, *The Command of the Ocean*, p. 103.
[131] Based on: Merriman (ed.), *Queen Anne's Navy*, pp. 357-358. Merriman (ed.), *The Sergison Papers*, pp. 337-338. Pool, *Navy Board Contracts*, p. 45. Rodger, *The Command of the Ocean*, pp. 633-635.
[132] Coad, *The Royal Dockyards*, p. 1. MacDougall, *Shire Album No. 231*, p. 3. Dodds and Moore, *Zusetsu Eikoku no*.

expensive features. Coad estimated that a dry dock and a wet dock at the Plymouth dockyard combined cost £22,000, four times the construction cost of an Officer's Terrace.[133] That Blackwall Yard, the largest private yard at the time, was sold only for £4,350 gives some image of the royal dockyards' scale.[134] As such, it is plausible that the royal dockyards were highly capital-intensive and were out of the reach of what a single business-person afforded. Nevertheless, it is important to stress that the two yards had different purposes. The most outstanding difference between the royal and private yards was that while the latter was a mostly shipbuilding facility, the former was more of a naval base.[135] The royal yards had the responsibility of storing and maintaining naval stores, too. Therefore, the royal dockyards naturally became larger than private yards as they contained facilities which private yards might have no use for.

It is not difficult to imagine that the Navy Board struggled to oversee the colossal industrial facilities of the royal dockyards. For example, J. M. Haas argued that the royal dockyards ran inefficiently due to the lack of communication between the Board and dockyard officers. Resident commissioners of the Board did not have the authority to punish dockyard officers locally. Thus, even when dockyard officers accepted the Board's orders through resident commissioners, they tried to solve problems encountered in operations independently on-site, Haas argued.[136] He also stressed the workers' disobedience and that labour communities openly opposed dockyard officers. Similarly, Coad's view of the royal dockyards as inefficient organisations was based on the Board's lack of control over funds, long-term planning, and inadequate management of the dockyard officers.[137]

In contrast, Ann Coats and Roger Morriss instead stressed the effectiveness of the royal dockyards' works by advocating the importance of analysing the subject in the broader historical context.[138] In particular, Coats strongly disagreed with Haas' view by stressing that the royal dockyards did not suffer much from corruption like bribery compared to other early-modern institutions. And in the end, the Navy achieved its goal of maintaining Britain's naval power. At the same time, Coats regarded the shipwrights and other workers as the most valuable assets of the royal yards and argued that their motivation was essential for effective work there. While acknowledging the bargaining

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[133] Coad, *The Royal Dockyards*, pp. 90-94.
[134] Hobhouse, Hermione (ed.), 'Blackwall Yard: Development, to c.1819', *British History Online*, <https://www.british-history.ac.uk/survey-london/vols43-4/pp553-565>, [accessed on 1 November 2024].
[135] Coad, *The Royal Dockyards*, p. 2.
[136] Haas, 'Work and Authority', pp. 426-427. Haas, *A Management Odyssey*, p. 9.
[137] Coad, *The Royal Dockyards*, p. 24.
[138] Coats, 'Efficiency in Dockyard Administration', pp. 413-429. Morriss, Roger, *The Royal Dockyards during the Revolutionary and Napoleonic Wars* (Leicester, 1983).

power of the shipwrights' communities, Coats thus perceived that the Board successfully maintained workers' loyalty by 'awarding promotion, overtime and apprentices'.[139]

While there are conflicting arguments regarding the efficiency of the Board's management of the royal yards, Haas and Coats shared the view of contrasting the royal and private yards with the former's advantage in labour conditions. Shipwrights who had completed their apprenticeship at the royal yards would likely be employed there for life. Additionally, although there was little demand for warships during peacetime, the royal yards provided workers with job opportunities.[140] Coats disagreed with the view that lifetime employment was common in the royal yards by stressing the dismissal of workers for disciplinary reasons.[141] Yet, both Haas and Coats agreed that employment at the royal yards was more stable than in private yards. The royal dockyards also allowed paid leave and medical attention for accidents at work or illness.[142] As such, historians have tended to compare the management of the royal dockyards to their private counterparts in terms of organisational structure, wages, and labour safety.[143]

On the other hand, as a warship contract was an outsourcing part of the Navy's shipbuilding projects, private yards need to be consulted within the entire process of naval shipbuilding to capture the contract relationship properly. Yet, while various historians have revealed the works at the royal dockyards as we saw here, warship contracts are not properly allocated in wider shipbuilding projects thoroughly. Dodds and Moore, for example, depicted the shipbuilding process from the lumber industry to royal yard management.[144] But these accounts are limited to naval shipbuilding at the royal dockyards, and warship contracts are mainly out of the picture. As warship contracts were a part of the manufacturing process with the royal dockyards, the cooperation between the two yards should not be overlooked. Sánchez, Pepijn Brandon, and Marjolein 't Hart noted that 'A switch of attention to the relations between them [state and entrepreneurs], without presupposing an inbuilt confrontation, will substantially improve our grasp of the activities of these military entrepreneurs, as well as their contribution to the eighteenth-century "contractor state"',[145] and this is exactly the present thesis' approach. Here, the section

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[139] Coats, 'Efficiency in Dockyard Administration', pp. 424-426.
[140] Haas, 'Work and Authority', p. 421.
[141] Coats, 'Efficiency in Dockyard Administration', pp. 416, 420-421.
[142] Haas, 'Work and Authority', p. 421.
[143] Here, there is another disagreement between Haas and Coats. Haas argues for the royal yards' low incentive for work as many private dockyards in the Thames basin paid by task and could increase the wage during wartime, whereas the royal dockyards paid by day until the late eighteenth century. Coats instead claimed that the royal yards could hire with lower wages because shipwrights expected more stable employment. Haas, 'Work and Authority', pp. 419-421. Coats, 'Efficiency in Dockyard Administration', pp. 420-423.
[144] Dodds and Moore, *Zusetsu Eikoku no*.
[145] Sánchez, Brandon, and Hart, 'War and economy', p. 13.

now lays out the process of naval shipbuilding at private yards to grasp warship contracts in the wider context of the Navy's shipbuilding programmes.

It is difficult to point a finger on whether the Admiralty or the Navy Board took the initiative in naval shipbuilding. In some cases, the Admiralty ordered the Board to investigate the number of ships required to be built, and in other cases, the Board presented the Admiralty with the need for new ships.[146] What is certain is that the Navy's shipbuilding programmes took the form of parliamentary acts at the turn of the eighteenth century. These acts specified the exact number and dimensions of vessels for major shipbuilding programmes. For example, Parliament issued the building of thirty new ships for both the 1677 Programme, with the rising tension with France, and the 1690 Programme, with Britain's entry into the Nine Years War.[147] As Parliament also assigned budgets for these acts, the Royal Navy's shipbuilding and warship contracts could be characterised as 'national' projects rather than 'royal' ones. The political transitions of the late seventeenth century, as seen in Section 1, strengthened parliamentary control of the Navy. The Navy was no longer funded by the Crown but firmly by taxes.

Not much is known about the Navy Board's decision-making over which warships are assigned to be built in-house and others to be outsourced exactly. However, after receiving the order from Parliament, or simultaneously, the Board sometimes took a survey of available private yards suitable for naval shipbuilding. For example, the Board's survey of the number of shipwrights at Thames private yards in November 1703 is preserved.[148] To whom the Navy decided to commission shipbuilding is not known well, and the question is a subject of the present study, especially in Chapter 3. Once the Navy committed to a shipbuilding project, it handed a draft of the newly designed ship to the royal dockyards. A master shipwright then made a model and sought the Board's approval. While models were not always used at the turn of the eighteenth century yet, master shipwrights plausibly checked the Board's draught before the beginning of construction. The Board then brought the approved design to the Admiralty before starting the actual shipbuilding process.[149]

A few documents held in the Caird Library provide fragmented insights into the Admiralty's approval process. In most cases, the Admiralty only approved the Navy Board's proposals and rarely expressed its opinion. Concerns over private shipbuilders' tendering for building another warship sometimes came up to the Admiralty's office. In June 1693, the Winter family of Southampton proposed to the Board to take another

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[146] *Coad, The Royal Dockyards*, pp. 10-11.
[147] Banbury, *Shipbuilders of the Thames*, p. 41. Coleman, 'Naval Dockyards under the Later Stuarts', p. 147.
[148] Merriman (ed.), *Queen Anne's Navy*, p. 70.
[149] Dodds and Moore, *Zusetsu Eikoku no*, pp. 96-98.

contract with the same price as the previous one.[150] This matter was brought up to the Admiralty, and the contract was eventually approved. One of the rare Admiralty's comments is, for instance, when it approved the use of the Harwich dockyard for Nicholas Barret's contracts in the letter of January 1691.[151] Nevertheless, it appears that the Admiralty rarely rejected the Board's proposal for warship contracts at the turn of the century. As such, the decision-making to whom the Navy would commission shipbuilding was largely done inside the Navy Board.

After signing a contract, a warship contractor promptly began construction. In most cases, the contractor had already secured the needed resources to start a construction process. Shipbuilding was the largest 'assembly industry and labour-intensive' manufacturing of the eighteenth century,[152] and two dominant inputs dictated the final price as well: prices of raw materials and wages for labour. Chapter 5 will give a detailed analysis of the costs against prices of warship contracts, but some early notes here would be helpful to understand the general image of the industry.[153] The construction of a hull, the body part of a ship, required many naval stores. Typical naval stores for a wooden ship included timber, iron, pitch, and tar.[154] As its significance as the largest material for wooden shipbuilding, there are various studies on timber, from the characteristics of different types of wood (mainly oak, elm, and fir) to Britain's policies over timber procurements.[155] Dodds and Moore suggested that the contemporary timber industry could rival the modern-day oil industry for its high demand and strategic importance.[156] Besides oak, Britain needed to import various other naval stores, especially from the Baltic and Scandinavian regions and the North American colonies.[157] The timber for the mainmast was from Maine, the topmast from Ukraine, the spars from Norway, and the planking from Dantzig.[158] Due to the importance of the imports of naval stores from the Baltic trade, these goods were called 'East Country' goods at the time. The lack of in-house records prevents us from estimating input costs of private yards exactly, and Albion stated that 'It is almost impossible to give a systematic account of the gradual rise of the price of

[150] ADM/A/1796/1, [The Admiralty to the Navy Board, 1 June 1693].
[151] ADM/A/1771/7, [The Admiralty to the Navy Board, 3 January 1691].
[152] Haas, *A Management Odyssey*, p. 3.
[153] [Ch5§2].
[154] Coad, *The Royal Dockyards*, pp. 1, 121.
[155] Albion, *Forests and Sea Power*. Dodds and Moore, *Zusetsu Eikoku no*, pp. 25-26. Hiono, 'Supein Keisho Senso-ki'.
[156] Dodds and Moore, *Zusetsu Eikoku no*, p. 16.
[157] Hiono, 'Supein Keisho Senso-ki'. Onishi Yu, 'Kankyo Seiyaku to Sangyo Kakumei: Mokuzai Shigen to Igirisu Kaigun Senretsukan', *Public History*, 12 (2015): 78-88. Tamaki Toshiaki, *Hoppo Yoroppa no Shogyo to Keizai 1550-1815 nen* (Chizen Shokan, 2008), p. 249.
[158] Albion, *Forests and Sea Power*, p. 4.

timber'.[159] But it is not difficult to imagine that costs of shipbuilding were highly sensitive to the condition of overseas trade, thus to the wartime situation. In fact, some warship contractors complained of the low price of the contract under the pressing situation of material and labour markets.[160] Warship contractors either procured naval stores in local markets near their yards, the markets in London, or through their own trading business, as Chapters 3 and 4 will demonstrate.

Contemporary shipbuilding was, again, a highly labour-intensive industry. While being an estimate for the later period, Haas even judged that around two-thirds of the final price was for wages in the early nineteenth century.[161] Various kinds of workers were required just for the construction of a hull. Shipwrights played a significant role in the construction process of physically building up the body of a ship. However, caulkers and joiners also played an essential role in the assembly process, fitting the gaps between planks and installing the interior of a ship, respectively. Sawyers and smiths often worked at a construction site to provide needed materials and parts, such as planks and nails. Other miscellaneous labourers were also essential, i.e. for operating dock gates, carrying materials and wastes, and cleaning the site.[162] The sizes of the workforce at private shipyards at the turn of the eighteenth century has been largely unknown, and Chapter 3 will reconstruct the general trend with a careful examination of the navy records.[163] But even the largest yard of the time, Blackwall Yard, did not have permanent employees, and private shipbuilders usually rallied needed labourers for the period of their shipbuilding projects. Additionally, a royal shipwright received 2s 1d for a day in 1690, which was around the average wage for a skilled tradesman of the time.[164] However, colossal manufacturing of naval shipbuilding naturally demanded more materials and labour force, thus higher input costs compared to the mercantile shipbuilding. For example, Blackwall Yard had at least 272 workers at the height of its warship contracts. The impact of input cost and the size of the vessel in determining the final price is plausibly the reason why the contemporaries agreed on the price of a shipbuilding contract in price per tonnage. How the seemingly 'high-risk, high-return' business of warship contracts worked as an incentive

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[159] Ibid., p. 90.
[160] ADM 106/420/326, [Henry Johnson Jnr to the Navy Board, 6 April 1692]. Navy officers also recorded the impact of war on the prices of pitch and tar. ADM 106/654/27, [Charles Joye, George Behrens, and John Nieman's letter to the Navy Board, 1 May 1710].
[161] Haas, *A Management Odyssey*, p. 3.
[162] Hobhouse (ed.), 'Blackwall Yard: Development', p. 10. Reid, Phillip, *The Merchant Ships in the British Atlantic, 1600-1800* (Leiden, 2020), p. 100.
[163] [Ch3§3].
[164] 'Currency converter: 1270–2017', *The National Archives*, <https://www.nationalarchives.gov.uk/currency-converter/#currency-result>, [accessed on 17 November 2024]. Haas, *A Management Odyssey*, p. 31.

for private shipbuilders' engagement in the military contracts is the subject of Chapter 5.

After they secured the needed resources, shipbuilders began with the construction process based on the draught sent by the Navy Board. They started with the laying of a keel, then attaching ribs, and implanted floors.[165] At the turn of the eighteenth century, warship contractors usually built only a hull, and the royal dockyards took the rest of the fitting process. Yet, considering that the costs for the construction of the hull amounted to three-quarters of the total cost for the building of the Third-Rate *Thunderer* of 1760, it is plausible that the contractors took the largest portion of the manufacturing process.[166] Frigates were usually built on slips, unlike capital warships that generally demanded capital-intensive facility of dry docks. But even the lower Rates required mast timbers, pulley blocks, and ropes to hang up ship parts for construction.[167] Therefore, it is plausible that warship contractors also had a certain size of the labour force. More exact images of naval shipbuilding at private yards are the subject of Chapter 4.

During the contractors' shipbuilding, the Navy Board sent an overseer familiar with shipbuilding, such as the master shipwrights of the royal yards and the Surveyors of the Navy.[168] This is to monitor whether the construction was being carried out in accordance with the agreements. Thus, the Navy implemented careful quality control with the inspection. Failing to comply with the agreement could bring some punishment. The Board paid its contractors with bills, and the payments for warship contracts were in instalments in designated stages of shipbuilding.[169] Here, the Navy had the right to make deductions from the agreed-upon price as a kind of penalty for late delivery.[170] As such, the Board took a careful measure to ensure the quality of contracted warships.

The construction of a hull alone was not enough to make a warship functional. A hull built at a private yard was towed to a royal dockyard, where it was fitted out with masts, ropes, sails, anchors, and so on. Even in a case when a warship contract included fitting the ship in the private yard, the letter from the clerk of the Woolwich ropeyard shows that the Navy provided the contractor with equipment for fitting, like cordage.[171] Dodds and Moore suggested that the royal dockyard premises could manufacture all the equipment for fitting

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[165] Sugiura, *Hansen Shiwa*, p. 67. Dodds and Moore, *Zusetsu Eikoku no*, pp. 103-120.
[166] Dodds and Moore, *Zusetsu Eikoku no*, p. 10.
[167] Ibid., p. 129.
[168] Merriman (ed.), *Queen Anne's Navy*, p. 92.
[169] Knight and Wilcox, 'War, Government and the Market', pp. 182-183. As Chapter 5 will show in more detail, the contractors experienced frequent payments in arrears because of the Navy's chronic financial shortage [Ch5§1]. This might be one reason that the culture of the bill of exchange was emerging with those who demanded cash immediately despite some discounts on the bill. Rodger, *The Command of the Ocean*, p. 41.
[170] Pool, *Navy Board Contracts*, p. 63. Banbury, *Shipbuilders of the Thames*, p. 40.
[171] ADM 106/442/177, [Thomas Rogers to the Navy Board, 1693 November 13].

in principle, except for cannons, which were under the Board of Ordnance's control.[172] These components were also consumable, and many warships were repaired and refitted at the royal yards after a battle or a patrol mission. As such, while the royal yards were busy repairing and refitting warships, the Navy inquired into private shipbuilding capacity. Although the royal dockyards could fulfil the fitting and repairing process on their own, it does not mean there was no outsourcing of the kind. It is acknowledged that the Navy Board found it difficult to predict the cost of repairs and hired private shipbuilders to carry out a survey, for example.[173] Nevertheless, there was a general tendency for a division of labour between private yards for the construction of a hull and the royal yards for the rest of the fitting process.

As such, shipbuilding of rated warships started at Parliament and ended at a royal yard, and a warship contractor took a single but important portion of the entire shipbuilding process: hull construction. How warship contractors and the Navy supported each other in this collaborative work of colossal manufacturing is largely unknown, apart from some limited works.[174] The exact interactions between the two parties during their contracts are the subject of the present study.

2: Chapter Conclusion

The present chapter reviewed the important historical background to grasp the contract relationships between the Navy and warship contractors at the turn of the eighteenth century. The open conflict with the continent and Britain's expanding overseas trade necessitated the means of maritime protection, while the advancements in naval tactics and architecture demanded purpose-built warships. Britain's internal conflicts and growing maritime interests in the House of Commons also helped this process. Therefore, the geopolitical and technological spheres led the Navy toward the rapid expansion of warship contracts. The Navy perhaps did not yet have an explicit policy of mobilising private yards for building and rebuilding frigates. Nevertheless, the skyrocketing demands for trade protection and purpose-built warships bumped up the number of warship contracts. Thus, the 'military revolution' of the Navy brought not only rising military expenditure but also expanding military contracts. These developments all became the foundation for the British fiscal-military state as well as the contractor state.

Additionally, the reviews here indicate that naval shipbuilding in Britain can be best described as a national project rather than the Crown's project. The abundant research on

[172] Dodds and Moore, *Zusetsu Eikoku no*, p. 68.
[173] Pool, *Navy Board Contracts*, p. 49.
[174] Pool, *Navy Board Contracts*. Holland, *Ships of British Oak.*

the contemporary naval administration enabled us to locate a warship contract in the broader picture of naval shipbuilding. They also allowed us to see the roles that the ‘state’ actors, especially the Navy Board, played in warship contracts. Moreover, after the Glorious Revolution, the Navy’s budget was under Parliament’s control. As maritime interests, at least of those wealthy ones, had a say in Parliament, they evidently had some influence on the Navy’s shipbuilding programmes, too. This background points to some connections between maritime and naval interests. Again, warship contracts were a part of the wider shipbuilding programme. As the two yards took different parts of a single manufacturing process, it is vital to perceive warship contracts through the lens of collaboration between the royal and private yards.

This chapter thus provided the historical context to explain ‘why’ warship contracts rapidly expanded at the turn of the eighteenth century by synthesising naval history and studies of the contemporary state and society. However, this alone does not answer ‘how’ Britain successfully expanded warship contracts. A more dedicated investigation is required to reveal the characteristics of the ‘society’ side actor, warship contractors. Identifying who these individuals were is essential to assess the contract relationship properly. Here, Chapter 3 explores the locations and comparative sizes of warship contractors, as well as their wider business and personal networks. By doing so, it attempts to unveil the as-yet-faceless characters behind warship contractors.

Chapter 3: Warship Contractors as Military Entrepreneurs

3: Chapter Introduction

This chapter seeks to identify who the warship contractors were and to properly assess the contract relationship between the Navy and private shipbuilders. Half of frigates, a type of warship essential for trade protection and maritime control, were built at private yards through warship contracts at the turn of the eighteenth century. Despite the emphasised importance of warship contracts, exactly who undertook this naval shipbuilding business at the time is largely unknown. Researchers of the contractor state debate have generally questioned the extent of the efficiency of the state's mobilisation of private resources and focused on government departments' policies and strategies.[1] However, to properly assess the contract relationship between the two parties, it is essential to approach the seemingly faceless characters of the contractors. Although historians began to approach the private interests of those who undertook the state's business, the examination has not yet reached the warship contractors of Britain at the turn of the century. Thus, before examining how the contractors conducted naval shipbuilding and interacted with the Navy, the present chapter reveals the general characters of these individuals.

Naval historians have paid much attention to naval architecture and how the naval administration managed the royal dockyards, as seen in the previous chapter in detail. Such information helps provide some insights into how warship contractors operated their yards. On the other hand, the accounts by naval historians usually do not engage the overall situation of the contemporary shipbuilding industry beyond providing a brief description. To highlight the uniqueness of warship contractors, it is first necessary to lay out the general characteristics of mercantile shipbuilders at the time. One reason the contractor state debate has not examined private actors in warship contracts enough is that the contemporary shipbuilders did not leave their own in-house records of shipyard business. To counter the situation, the present chapter examines the known traits of mercantile shipbuilding, naval history, and contemporary records side by side. By doing so, it relocates warship contracts as the shipbuilders' enterprises within the wider range of mercantile shipbuilding and other maritime businesses. Only through such an observation is it possible to see warship contracts from the perspective of these 'military entrepreneurs' who were 'busy just off-stage in the theatres of war, organising and financing the show'.[2] Forecasting the conclusion first, the chapter demonstrates that warship contractors were entrepreneurs who exploited the Navy's demands widely through their extensive business

[1] [Ch1§2].
[2] Fynn-Paul, Marjolein 't, and Vermeesch, 'Introduction', p. 2.

reaches and personal connections.

More precisely, this chapter approaches warship contractors' traits from two different scopes: the locations and sizes of their yards as well as the wider business and personal connections to the Navy. Section 1 first analyses the numerical trend in warship contracts between 1689 and 1713. It observes where the contracting families conducted their naval shipbuilding and how many contracts each region received to see the concentration of warship contracts. The section also compares the sizes of contracted warships and large mercantile vessels built at the time. In this way, Section 1 makes a contrast between the growing mercantile shipbuilding industry and expanding warship contracts. Therefore, Section 1 serves to provide a macro image of the relationship between warship contracts and the shipbuilding industry.

The rest of the chapter then approaches the contractors' broader business interests. It inquires into existing studies on warship contracts and reinforces them with contemporary documents relating to these individuals. Sections 2 and 3 focus on the Johnson family of Blackwall, the leading contractors at the time, and Section 4 examines other contractors' cases. The abundant records left by the Johnsons allow us to reconstruct relatively precise images of their origins, wider business interests, connections to the Navy, and the features of their shipyard. Section 4 then contrasts the laid-out picture of the leading contractors to other warship contractors' traits. This method allows us to alleviate the lack of in-house records of most contractors. The sections collectively serve to highlight the microscopic image of warship contractors by focusing on the individuals. Through these examinations, the present chapter attempts to answer the question of who warship contractors were exactly.

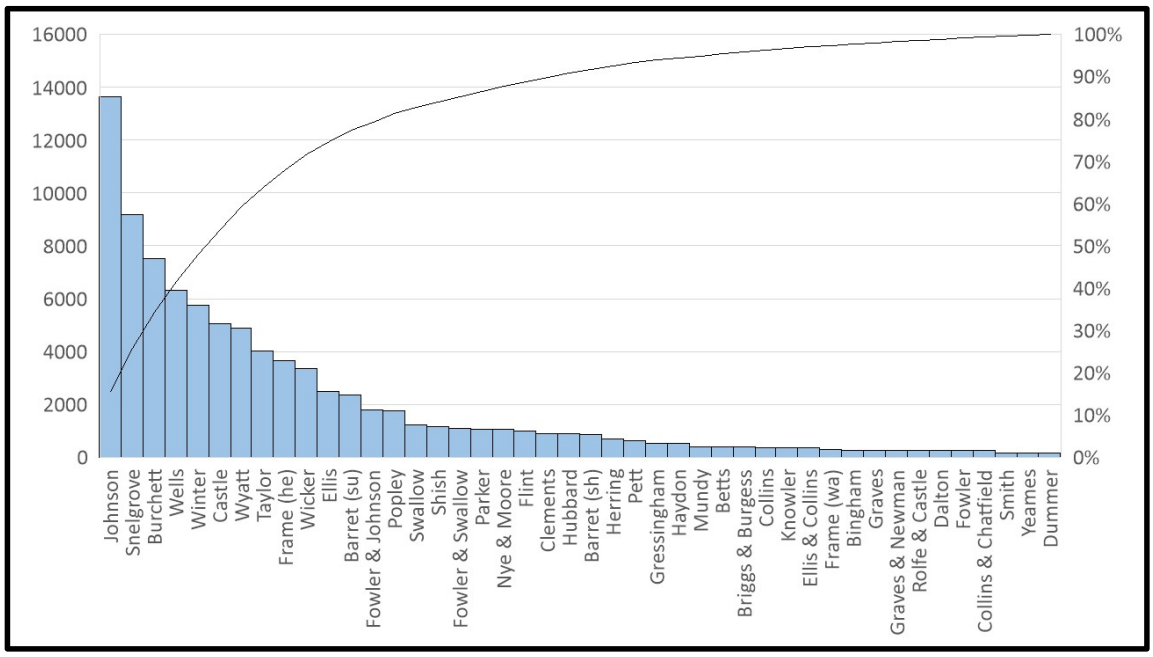
3.1: Sizes & Locations of Warship Contractors

This section highlights the macro-scale image of warship contractors at the turn of the eighteenth century. More precisely, it highlights warship contractors' position in the wider shipbuilding industry. It first introduces numerical analysis of the 'Dataset' of the naval shipbuilding between 1689 and 1713.[3] Based on the Dataset, the present section lays out the geographic distribution of private yards that received building and rebuilding of rated warships. Next, it compares the average sizes of large merchantmen and the size of contracted warships. This is to test whether the growing size of merchantmen became a factor in the expansion of warship contracts. The section then contrasts the numerical trends that the Dataset shows with the scholarly understanding of mercantile shipbuilding

[3] The Dataset (See [Appendix II]).

to highlight the general traits of warship contractors. Collectively, the section argues that warship contractors were the largest kind of shipbuilders who could produce bigger vessels than large-scale merchantmen.

Figure 3-1: Shares of warship contracts by families and partnerships in tonnages (1689-1713)[4]



To highlight the characteristics of warship contractors, it is first necessary to identify the individuals who undertook naval shipbuilding. At the turn of the eighteenth century, there were 43 contracting families who undertook the building and rebuilding of rated warships. Figure 3-1 is a graph showing the shares of the warship contracts in tonnage for each family between the Nine Years War and the War of the Spanish Succession. 134 warship contracts for rated warships are identified for the period. The number excludes the Navy's purchases of merchantmen as this study focuses on the contract relationship over the manufacturing of purpose-built warships.[5] The Navy acquired three vessels from the Scottish navy following the Act of Union in 1707. For the said reason, however, Figure 3-1 excludes them because they were not acquired through warship contracts directly; they

[4] The Dataset (See [Appendix II]). As Section 4 shows in more detail, it is difficult to definitely prove individuals with the same family name were relatives. Thus, the figure here treats warship contractors with identical family names but built in different regions separately. '(he)' stands for Hessle in Hull, '(su)' for Suffolk, '(sh)' for Shoreham, and '(wa)' for Wapping in the Thames basin.

[5] Grant, James (ed.), *The Old Scots Navy from 1689 to 1710* (London, 1914), p. 199. Also, it is worth noting that the Navy Board experimented with naval shipbuilding in the North American colonies, although they were purchased after the launches. Thomas Holland built the Forth-Rate *Fakland* in 1696. Despite the scarcity of surviving related letters, a timber contractor, Mr Bridger, described Holland as the 'only person experienced in those parts in ship timber and knows all the country, all the produce of it'. ADM 106/515/286, [Portsmouth officers to the Navy Board, 14 June 1698].

were originally built by unknown London shipbuilders and purchased by the Scottish navy. There were ten warship contracts signed under a partnership between two shipbuilders. For example, the two pairs of shipbuilders, William Briggs and Thomas Burges as well as George Moore and Joseph Nye, only signed warship contracts jointly. Since coordinate ventures could output higher shipbuilding capacity, the joint contracts are counted separately here.

Figure 3-1 shows that the market of warship contracts was far from being a monopolistic state. The Johnson family of Blackwall was the leading contracting family, obtaining seventeen warship contracts at the turn of the century, of which two were joint contracts with George Fowler of Limehouse. Nevertheless, even the Johnsons shared only 15% of the total tonnage of the contracts, and families with less than 5% of shares covered 36% of all.[6] The Herfindahl-Hirschman Index (HHI) is one measurement to examine whether the market is monopolistic or competitive.[7] The sum of the squared percentage of shares of all contracting families is 668. When the figure is close to 10,000, the squared 100%, it entails the market is in high variant, thus being monopolistic. On the other hand, when the figure is close to 0, it indicates the market is in a competitive state. The HHI here is 668 and far from reaching 10,000, which indicates that the market should be characterised as relatively competitive. This finding supports Roger Knight and Martin Wilcox's idea of Britain as a contractor state which rallied war resources cheaply and flexibly through competitions among many contractors.[8] While long-standing contracting families like the Johnsons and Castles still exercised their influence, numerous newcomers with relatively small shipbuilding capacity sustained the expansion of warship contracts at the turn of the century, too.

The Dataset also shows that shipbuilders in the wide regions across England supported the rapid expansion of warship contracts. Image 3-1 highlights the places where warship contractors conducted their naval shipbuilding. The regions correlate with the contemporary centres of shipbuilding, namely the Thames basin, Suffolk in East Anglia, and widely across the northeast, south, and southwest coasts.[9] The distribution of warship contracts thus points to the possibility that the Navy Board inquired into the regions with a flourishing shipbuilding industry large enough to produce rated warships.

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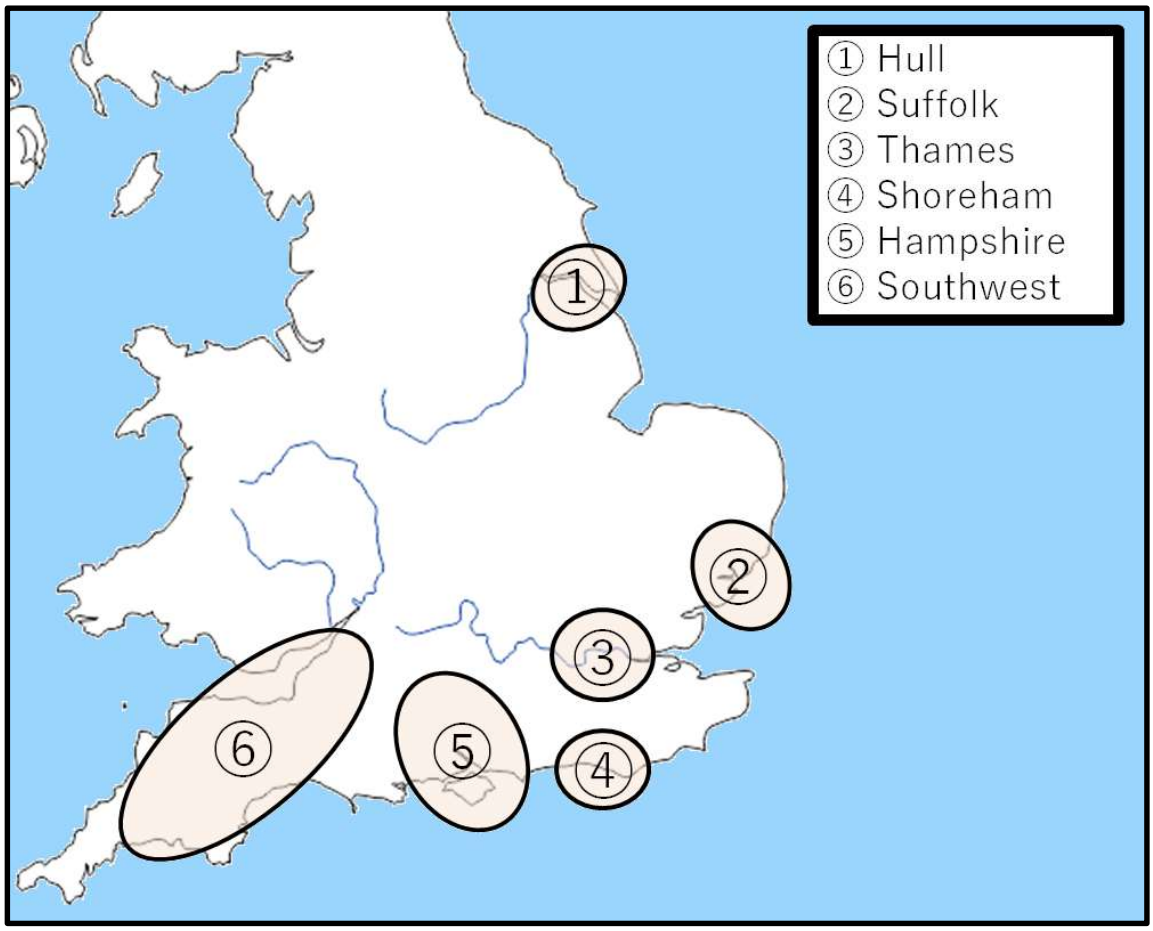
[6] As the Johnsons had joint contracts with Fowler as well, counting those makes the Johnsons' share 18%. But the market retains its rather competitive state.
[7] Odagiri Hiroyuki, *Sangyo Soshiki-ron: Riron, Senryaku, Seisaku wo Manabu* (Yuhikaku, 2019), pp. 28-29.
[8] Knight and Wilcox, *Sustaining the Fleet*, pp. 4-5.
[9] 'Suffolk' in this study includes warship contracts at Harwich, which is across the River Stour. There were two sites of warship contracts in the 'Southwest' region, Plymouth and Bristol.

Image 3-1: Map of England and the locations of warship contractors[10]



At these shipbuilding centres, the Navy could expect some help from local trade associations, which played a key role in the contemporary shipbuilding industry. The existing studies of mercantile shipbuilding show the strong influence of local trade associations in various regions. J. F. Clark, for example, conducted a detailed survey of the shipbuilding industry on the northeast coast of England using the records of the local shipwrights' companies.[11] Among these, the one in the City of London, the Worshipful Company of Shipwrights', still exists today. The origin of the company is unclear, as the Great Fire of 1666 destroyed its records prior to that date.[12] The official webpage of the Shipwrights' Company notes its history of resistance against the Crown's attempt to unify shipwrights of England and Wales under its chartered company, thus highlighting the Shipwrights' Company's characteristic as a livery company of London.[13] These companies

[10] The Dataset (See [Appendix II]).
[11] Clarke, J. F., *Building Ships of the North East Coast (Part 1. c 1640-1914)* (Tyne & Wear, 1997), p. 5.
[12] Ehrman, *The Navy in*, p. 73.
[13] The Worshipful Company of Shipwrights, <https://www.shipwrights.co.uk/shipwrights-history>, [accessed on 23 June 2024]. The webpage also tells the history of the Ratcliffe Company. Charles Knight claimed that after 1684, thus for the duration of this study, all Thames shipbuilders were incorporated into one company. Yet, this contradicts the description of *History of Parliament* that Henry Johnson Jnr became the master of Rotherhithe Shipwrights' Company in 1686. Ridge, C. Harold., Records of the Worshipful Company of

took apprentices and educated numerous shipwrights. Therefore, inquiring into these regions should be a reasonable choice for the Navy since the strong industrial base meant a concentration of tangible and intangible resources for shipbuilding.

The Trinity Houses were other corporations with a significant presence in the shipbuilding business. The Trinity House of London still exists today and secures the safety of maritime travel by managing lighthouses, issuing licenses to pilots, and providing welfare and care to sailors. By the beginning of the seventeenth century, the Trinity House came to take duties on 'marine surveying, naval stores inspections, pilot licensing, buoyage and beacons and the Ballastage Office'.[14] Such companies and corporations strictly monitored the shipbuilding business, including the businesses with the Navy. In fact, Navy Board in-letters show that these companies took some part in the Navy's shipbuilding projects, such as conducting surveys of warships.[15] Trade associations' assistance further supports the idea that the Board focused its contracts on regions with a well-developed industrial base.

Additionally, existing studies show that the required technologies for naval and mercantile shipbuilding might not have been far apart at the turn of the eighteenth century. The seventeenth century saw the divergence between merchantmen and warships.[16] But this was a specialisation of design for each use, and it is commonly agreed that there was no significant difference in the technology and knowledge required for the two types of shipbuilding, especially between smaller warships and larger merchantmen.[17] This understanding implies that private yards could build a warship as long as contracted vessels were comparable in size to those of their mercantile shipbuilding. If this is true, the general growth of the mercantile shipbuilding industry could be the foundation of the expanding warship contracts at the turn of the eighteenth century.

To test the hypothesis, the section now reviews the largest kinds of mercantile vessels. In the seventeenth and eighteenth centuries, there were already named categories for types of merchantmen based on the design of their sails, riggings, and hulls, i.e. brig, ketch, hoy,

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Shipwrights: Being an alphabetical digest of freemen and apprentices, &c. (London, 1939), p. xiii. Henning, B. D. (ed.), 'JOHNSON, Sir Henry (c.1659-1719), of Blackwall, Mdx. and Friston, Suff.', *The History of Parliament*, <http://www.historyofparliamentonline.org/volume/1660-1690/member/johnson-sir-henry-1659-1719>, [accessed on 24 September 2022].

[14] 'History of the Corporation: A brief history of the Corporation of the Trinity House, from our origins to our 500th anniversary in 2014', <https://www.trinityhouse.co.uk/about-us/history-of-trinity-house/th500>, [accessed on 23 June 2024].

[15] ADM 106/333/304, [Francis Barham, John Graves, Abraham Graves, Richard Boys, John Longe, Mark Croney, and Company of Shipwrights to the Navy Board, 26 June 1678].

[16] Anderson and Anderson, *Hansen 6000-nen no Ayumi*, pp. 104, 107. [Ch2§2].

[17] Clapham, John, *A Concise Economic History of Britain from the Earliest Times to 1750* (Cambridge, 1949), p. 236. Holland, *Ships of British Oak*, p. 22.

and pink.[18] However, since the definition of the terms was not agreed even among contemporary writers, this section categorises mercantile vessels by the purpose of their uses. More precisely, it employs Lawrence Harper's four categories: long-distance traders, colliers, large fishing boats, and other coastal boats.[19] The section divides the long-distance traders into larger and smaller ones due to the broad range of sizes, thus effectively making five categories. Despite their growing sizes, the average of merchantmen was around 100 tons as late as the 1770s.[20] Since the objective here is to examine whether mercantile vessels grew large enough to be comparable with the contracted warships, this section only focuses on the largest classes.

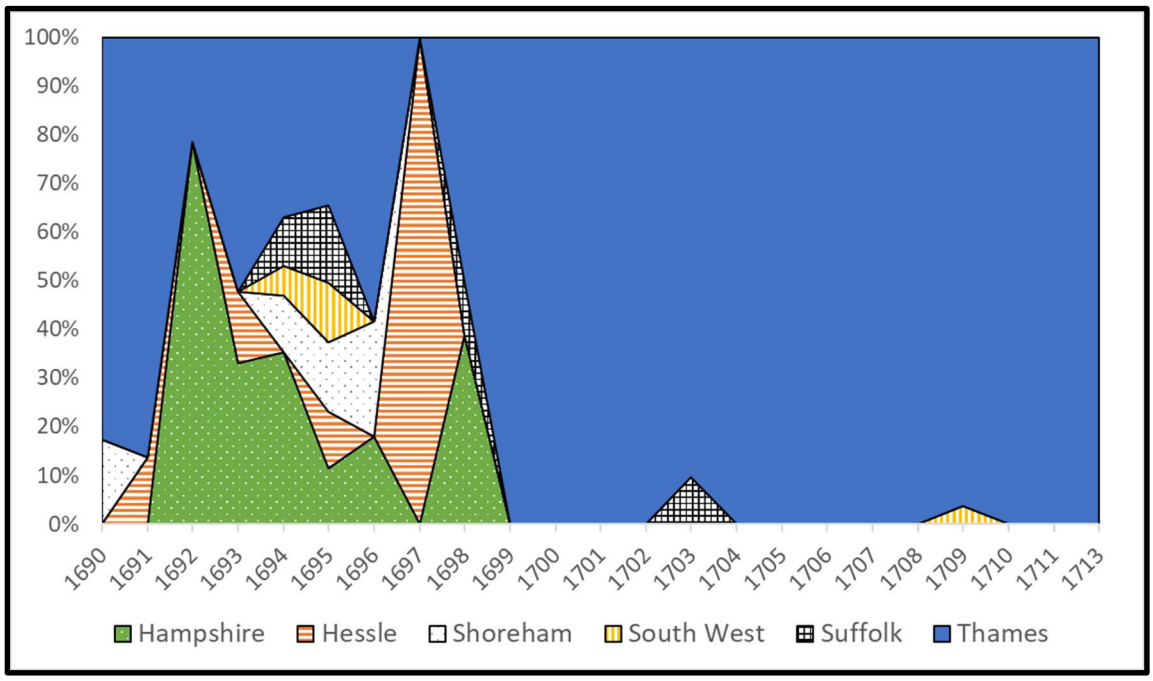
The growing demand for long-distance traders was accompanied by the establishment of various chartered companies, such as the Muscovy Company (chartered: 1555), Levant Company (1592), and EIC (1600), throughout the second half of the sixteenth century. East Indiamen, vessels for trade with Asia, grew from 800 tons to 1,200 tons in the eighteenth century, equivalent to the size of the Third and Fourth Rates.[21] Owing to its sheer size, Robert Albion judged that the shipbuilders who built East Indiamen could easily convert their mercantile shipbuilding to the one for the ships of the line.[22] These large long-distance traders were mainly built alongside the Rivers Thames and Medway. In November 1689, the Navy made a report with a list of 'substantiallest Master Shipwrights [sic.]' in the Thames basin, likely for the coming shipbuilding programmes.[23] The list includes families with connections to the Navy from the mid-seventeenth century – Robert Castle of Deptford, John Graves of Limehouse, Henry Johnson of Blackwall, and John Taylor of Rotherhithe –, together with Peter Narborough, William Rolfe of Rotherhithe, and Jonas Shish. All but Narborough took naval shipbuilding of rated warships at the turn of the eighteenth century. The survey of the Thames shipbuilders soon after Britain's entry into the war reflects the Navy Board's reliance on the region that produced the biggest merchantmen since peacetime.

The mature shipbuilding base of the Thames region matches the trend in the Dataset of the Navy's reliance on the region. Figure 3-2 shows the geographic distribution of warship contracts completed between 1690 and 1713. Between 1692 and 1698, during the Nine Years War, the Navy inquired into the private yards widely across the six regions. However, all warship contracts except for two were handed to the Thames' private yards

[18] Davis, *The Rise of the English Shipping*, p. 46.
[19] Harper, Lawrence A., *The English Navigation Laws: A Seventeenth-Century Experiment in Social Engineering* (New York, 1939), p. 329.
[20] Clapham, *A Concise Economic*, p. 234. Slaven, *British Shipbuilding, 1500-2010*, p. 6.
[21] Slaven, *British Shipbuilding, 1500-2010*, pp. 2-3, 6.
[22] Albion, *Forests and Sea Power*, p. 88.
[23] ADM 106/386/213, [John Bowyer to the Navy Board, 20 November 1689].

for the War of the Spanish Succession period. The sharp drop in non-Thames regions at the beginning of the eighteenth century is likely to be because the sheer amount of naval shipbuilding at the end of the seventeenth century covered the needs for the War of the Spanish Succession, as mentioned.[25] Nevertheless, considering the Navy commissioned 30 out of 32 contracts to the Thames region, the Thames shipbuilders evidently had some advantage in warship contracts. Additionally, it is more plausible that increasing commissions to shipbuilders of wider regions were owed to the expanding scale of warship contracts itself rather than by the Navy Board's deliberate policy. The number increased from 25 between 1660 and 1688 to 102 between 1689 and 1701.[26] Although the Board's reliance on non-Thames contracts increased when it expanded warship contracts rapidly, the proportion of non-Thames contracts only increased from 40% to 46%. It is worth stressing here that even the leading contractors in Hampshire and Hull, the Winter, Wyatt, and Frame families, originated in London, as the thesis will introduce later. To highlight the advantage of the Thames shipbuilders, it is necessary to investigate how private yards built warships. Thus, further examination of the matter is the subject of Chapter 4, which compares the troubles the contractors faced in each region to unveil how the location of private yards impacted their naval shipbuilding. Nevertheless, the numerical analysis here clearly indicates the Navy's reliance on the Thames region.

Figure 3-2: Shares of warship contracts by regions in tonnage (1690-1713)[27]



[25] Pool, *Navy Board Contracts*, p. 60. [Ch2§2].
[26] The Dataset (See [Appendix II]). Winfield, Rif, *British Warships in the Age of Sail (1603-1714)*. The numbers here do not include purchases of vessels after their launches.
[27] The Dataset (See [Appendix II]). The years in the figure indicate when the hulls were launched.

West Indiamen, used for the transatlantic trade, were another type of long-distance traders but much smaller than East Indiamen. They averaged between 100 and 250 tons, the size between Sixth Rates and unrated fireships, following Tsunoyama Sakae's estimates.[28] Ralph Davis gave a larger measure of the range between 300 and 400 tons, the size of a Fifth Rate.[29] Regardless of whether one follows either figure, the size of West Indiamen was minuscule compared to that of East Indiamen. These transatlantic traders were built widely across Britain's south and west coasts, apparently. However, as the shipbuilding industry grew in the North American colonies, the proportion of English-built tonnage decreased throughout the eighteenth century.[30]

Colliers, a speciality of East Anglia and the northeast coast of England, also grew in size and rivalled that of the long-distance traders. At the beginning of the seventeenth century, this type was relatively small and averaged around 73 tons.[31] But it grew rapidly to an average of 139 tons in 1638 and 248 tons in 1701. The colliers of Newcastle were particularly big, and in 1625, they were already capable of carrying 200 to 300 tons of coal on average and 500 tons at maximum. Thus, the northeast coast produced merchantmen equivalent to the Sixth- and Fifth-Rate sizes as early as the mid-seventeenth century. The period overlaps with the transition of the shipbuilding centres from East Anglia to the northeast coast. East Anglia flourished with the shipbuilding of merchantmen modelled after the Dutch flyboat – light vessels designed for cargo space and speed.[32] Yet, the industry faced its decline with the flood of captured Dutch vessels during the Anglo-Dutch Wars. It is commonly agreed that the northeast coast took over the position towards the end of the seventeenth century for easier access to the local coals, together with skilled migrants from East Anglia.[33] Regardless of the transition, both regions secured their positions in warship contracts at the turn of the eighteenth century. The growing northeast coast and some resilience in East Anglia were seemingly the reasons why the Navy Board contracted out to Suffolk and Hull at the end of the seventeenth century.

There were some other types of commercial vessels which could match rated warships

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[28] Tsunoyama Sakae, 'Jusho-shugi to Igirisu Zousen-gyo no Hatten', in Horie Yasuzo, (ed.), *Kaiji Keizai-shi Kenkyu* (Kaibun-do, 1976): 205-237, p. 225.

[29] Davis, *The Rise of the English Shipping*, p. 78. The reason for such fluctuations in historians' measurements is that there are few reliable statistics on tonnage until the end of the eighteenth century, apart from the abundant records of the East India Company. This is because while most domestic and intra-European traders could be recorded at English ports, many vessels engaged in the Atlantic trade did not return to home ports frequently, together with the difficulty of distinguishing long-distance vessels from other near-shore traders in port records. Harper, *The English Navigation*, p. 338.

[30] Clapham, *A Concise Economic*, p. 236. Goldenberg, Joseph A., 'An Analysis of Shipbuilding Sites in Lloyds register of 1776', *The Mariners' Mirror*, 59:4 (November 1973): 419-435, p. 435. [Ch5§3].

[31] Harper, *The English Navigation*, p. 335. Tsunoyama, 'Jusho-shugi to Igirisu', p. 222.

[32] Davis, *The Rise of the English Shipping*, pp. 60-62.

[33] Dougan, *The History of North East*, p. 20. Özveren, 'Shipbuilding, 1590-1790', pp. 50-51, 57.

in size. The largest fishing vessel scored over 100 tons. The boats for coastal fishing were minuscule, averaging 16 tons, which were widely built along the English coast.[34] But those specialised in distant waters like one for Greenland averaged 139 tons already in 1615 and grew to an average of 250 tons in the mid-seventeenth century, according to Harper's measure. Similarly, various scales of vessels were engaged in intra-European trade. The smallest vessels were about 50 tons, but some of the larger ones counted 200 tons.[35] If the sizes of these largest kinds of mercantile vessels matched those of contracted warships, it would support the idea that general growth of the shipbuilding industry allowed the Navy of a wider choice of contractors, which enabled the rapid expansion of the contracts at the turn of the century.

Table 3-1 summarises the information on the types and sizes of large mercantile vessels and which region built them mainly. Table 3-2 shows how many warship contracts there were by each rate in the six regions. The comparison of the two tables clearly shows that the size of the merchantmen and the size of the contracted warships do not match up. Except for East Indiamen, the biggest kinds of mercantile vessels at the turn of the century scored only 500 tons, equivalent to Fifth Rates. Therefore, although there was a trend of enlargement in various types of merchantmen, it was not to a level comparable to frigates of the Fourth Rate and above. Nevertheless, all six regions except Shoreham provided the Fourth Rate or above. In other words, the general growth of mercantile shipbuilding had not yet caught up with the massive scale of naval shipbuilding.

Table 3-1: Types and sizes of large mercantile vessels and their shipbuilding sites[36]

Merchantmen	Regions of Speciality	Tonnage ranged	Similar warships
East Indiamen	Thames, Medway	800-1,200	Third and Fourth Rates
Colliers	Northeast, East Anglia	200-500	Fifth Rates to the auxiliaries
West Indiamen	Various coasts	100-400	Fifth Rates to the auxiliaries
Large fishing vessels	Various coasts	139-250	Sixth Rates to the auxiliaries
Other coastal ships	Various coasts	50-200	Sixth Rates to the auxiliaries

[34] Harper, *The English Navigation*, pp. 330-333.
[35] Tsunoyama, 'Jusho-shugi to Igirisu', p. 225.
[36] Davis, *The Rise of the English Shipping*. Harper, *The English Navigation*, pp. 329-339. Slaven, *British Shipbuilding, 1500-2010*, pp. 1-7. Tsunoyama, 'Jusho-shugi to Igirisu', pp. 205-237.

Table 3-2: Numbers of contracts of rated warships by region (1689-1713)[37]

Region	Second	Third	Fourth	Fifth	Sixth	Total
Thames	2	21	34	23	11	91
Hampshire		6	7	4	1	18
Shoreham				11	4	15
Suffolk		2		4	1	7
Hull		2	1	1		4
Southwest			2	2		4
Total	2	31	44	45	16	139

This finding indicates that the Navy indeed relied on mercantile shipbuilding centres, but it also implies that the existence of large-scale shipbuilders, rather than the general growth of mercantile shipbuilding, was behind the rapid expansion of warship contracts. In other words, warship contractors were likely to have the facilities and capital to build vessels larger than the popular merchantmen in their regions. This statement can be reinforced by the Navy's purchase of vessels, which tells what kind of ships the contractors' yards built daily. Despite the gradual separation of warship designs from those of merchantmen in the late seventeenth century, the Admiralty letters show that countable conversions of merchantmen took place. In July 1690, for example, the Admiralty ordered a survey for Blackwall Yard's ship under construction, which could carry seventy cannons.[38] The ship was not intended to be a warship initially but was redirected during the construction. Similarly, a survey of 1696 indicates that the Wyatts of Bursledon's construction was not initiated as a warship but suited to be converted to a rated warship.[39] These events also underline that shipbuilders who could obtain warship contracts produced bigger vessels for their mercantile shipbuilding business, too.

The revealed numerical trends imply that the barrier to entry into shipbuilding, especially of a large scale, was high. The required technologies for mercantile and naval shipbuilding might not be far apart, as implied in existing studies of naval architecture. However, contemporary shipbuilding was more of mastery of arts than manufacture based on a scientific theory, and certain groups of people seemingly monopolised know-how of building large-scale vessels.[40] Indeed, the turn of the eighteenth century was when publications on shipbuilding techniques sprang up, and knowledge of the arts became available to wider audiences.[41] For example, Anthony Deane, Master Shipwright of Harwich and Portsmouth, compiled his own designs and ideas for naval shipbuilding in

[37] The Dataset (See [Appendix II]).
[38] ADM/A/1768/72, [The Admiralty to the Navy Board, 9 July 1690].
[39] ADM/A/1832/130, [Edmund Dummer to the Navy Board, 4 August 1696].
[40] Rodger, *The Command of the Ocean*, pp. 409-410.
[41] Dodds and Moore, *Zusetsu Eikoku no*, p. 92.

Doctrine of Naval Architecture, published in 1670.[42] William Sutherland, who experienced offices at several royal dockyards, also published his famous book in 1717.[43] However, one should not assume the barrier to entry for naval shipbuilding suddenly lowered because of these publications of knowledge. Despite the increasingly accessible information, these were mainly in naval officers' accounts, and private shipwrights rarely wrote down their mystery of arts.[44] A common way to learn shipbuilding was through an apprenticeship. It usually took seven years to master the shipbuilding practice, as well as mechanical drawing, writing, and arithmetic.[45] One usually needed to pay a premium to a master, and J. M. Haas judged that only people in the middle class and above could have a qualified apprenticeship.[46] The mystery of the arts of naval shipbuilding was yet concealed among certain groups of people.

These characteristics indicate that those who were able to build rated warships were from a wealthy background and/or connected to shipbuilders of large-scale vessels. Geoffrey Scammell argued that the builders of Britain's merchantmen were from the wide 'range of wealth and status' due to the shipwrights' companies' practice of inviting apprentices broadly.[47] Yet, as underlined in this section, contracted warships were much larger vessels than merchantmen. By combining these factors, it is plausible that the shipbuilders who could undertake naval shipbuilding had certain capital strength to afford the colossal manufacturing and connection to learn in large-scale shipbuilding.

In fact, existing studies of warship contracts indicate that the contractors engaged with a wide range of businesses other than shipbuilding, too. Philip Banbury and Scammell both claimed that shipbuilders often engaged in various enterprises to make a profit.[48] Holland also revealed that Hampshire contractors had broader business interests, such as running inns and engaging in trade activity, especially of timber.[49] These observations in existing

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[42] Lavery, Brian (ed.), *Deane's Doctrine of Naval Architecture, 1670*, (London, 1981).
[43] Sutherland, William, *The prices of the labour in ship-building adjusted: or, the mystery of ship-building unveiled. Being a brief explanation of the value of the labouring part in ship-building; from a Ship of the biggest Magnitude, to a small Boat. First, Shewing the Working the whole Ship, according to the Length, Breadth, Depth and Girt; and then by Sub-Divisions shews the Value of every particular Part* (London, 1717), NII-REO, Humanities & Social Sciences Collection, <https://reo.nii.ac.jp/hss/3000000000349429/fulltext/ja#>, [accessed on 23 April 2023].
[44] Lavery, Brian, 'The Rebuilding of British Warships 1690-1740: Part II', *The Mariner's Mirror*, 66:2 (1980): 113-127, p. 115.
[45] Holland, *Ships of British Oak*, pp. 55-56. There were some exceptions like Phineas Pett, who took only two years to master shipbuilding himself, as Scammell claims. However, judging from his origin as a member of the Pett family who provided numerous royal shipwrights, it further reinforces the argument in the latter part of the section that connections to the navy and royal dockyard officers played an important role in being a successful naval shipbuilder. Scammell, Geoffrey, 'British Merchant Shipbuilding, c.1500-1750', *International Journal of Maritime History*, 11:1 (June 1999): 27-52, p. 45.
[46] Haas, *A Management Odyssey*, pp. 24-25.
[47] Scammell, 'British Merchant Shipbuilding', p. 44.
[48] Ibid., p. 50.
[49] Holland, *Ships of British Oak*, pp. 46-107.

studies collectively point out that most warship contractors were wealthy individuals prior to their naval shipbuilding, enough to participate in such a large-scale project. It is important to stress here again that warships were the most capital-intensive asset of the time. While the largest private yard, Blackwall Yard, was sold for £4,350, the price of the Third-Rate *Cumberland* by Anne Wyatt amounted to over £12,798, for example.[50] The Navy paid warship contractors with Navy Bills in instalments, and the first instalment at signing a contract alone was evidently insufficient to cover their expenses. Some contractors asked for immediate payments to the Navy to continue their business, as later chapters will show in more detail.[51] The contractors, therefore, should have accumulated wealth in peacetime by building merchantmen or in other businesses enough to endure warship contracts. In other words, what sustained the expansion of warship contracts was not the general growth of the mercantile shipbuilding industry but large-scale shipbuilders.

However, perceiving all warship contractors as a single group is misleading. Figure 3-1 shows that while the leading contracting family had 15% of the share, there were 30 out of 44 families and partnerships that only had 1% of the shares or less in tonnage.[52] This implies a significant disparity in the shipbuilding capacities among contemporary warship contractors.

Yet, the nature of surviving records makes it difficult to identify the yard facilities of warship contractors. Navy records tell little about the traits of the contractors' shipyards as well. It is easy to identify contractors' locations because the contemporaries referred to people as, for example, 'William Johnson Esquire of Blackwall'.[53] However, even overseers' progress reports only go as far as 'Western most 4 Rate', and which dock precisely in the given area is uncertain.[54] Thus, in most cases, even a simple estimation of shipbuilding capacity by the number of docks each contractor had is difficult. Several other documents could provide some images of private yards. Alongside the navy records, the National Archives at Kew also holds documents about shipbuilders' property issues, such as their wills and court records.[55] Wills, in particular, include inheritance of properties that sometimes mention their yards. A. G. E. Jones recreated the business of Ipswich shipbuilders with his dedicated research of their wills.[56] As such, these property-related documents sometimes help us to identify the ownership of a shipyard, at least.

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[50] The Dataset (See [Appendix II]). Hobhouse (ed.), 'Blackwall Yard: Development'.
[51] ADM 106/396/305, [Thomas Ellis to the Navy Board,1 March 1690].
[52] This counts the joint contracts separately from independent contracts.
[53] ADM 106/726/286, [A. Johnson to the Navy Board, 18 November 1719].
[54] ADM 106/453/148, [Cornelius Purnell and John Quallet to the Navy Board, 5 July 1694].
[55] For example: PROB 11, [Prerogative Court of Canterbury and related Probate Jurisdictions: Will Registers, 1384-1858].
[56] Jones, A. G. E., 'Ship Building in Ipswich, 1700-1740', *The Mariner's Mirror*, 43:4 (1957), pp. 294-305.

Table 3-3: Highest number and tonnage of Third to Sixth Rates each family held[57]

Year	Family	Location	Number	Ton	Ships held (rates and notes)
1706	Johnson	Blackwall	4	2,742	Colchester (4), Romney (4), Severn (4), Burlington (4)[58]
1693	Winter	Northam	3	2,698	Southampton (4), Dorsetshire (3), Sunderland (4)
1708-1709	Burchett	Rotherhithe	3	2,602	Pearl (5), Gloucester (4), Edgar (3)
1693	Wyatt	Bursledon	3	2,504	Winchester (4), Lancaster (3), Winchelsea (5)
1692-1693	Snelgrove	Limehouse, Rotherhithe	3	2,425	Canterbury (4, Rotherhithe), Carlisle (4, Limehouse), Falmouth (4, Limehouse)
1707	Wicker	Deptford	2	2,404	Humber (3), Yarmouth (3)
1699	Wells	Rotherhithe	2	2,154	Kent (3), Essex (3)
1695	Frame	Hessle	2	2,139	Newark (3), Kingston (4)
1694	Barret (su)	Harwich	2	2,107	Ipswich (3), Yarmouth (3)
1695	Castle	Deptford	3	2,043	Pendennis (4), Nonsuch (4), Warwick (4)
1708	Swallow	Limehouse, Rotherhithe	2	1,641	Southsea Castle (5, Rotherhithe), Grafton (3, Limehouse, with Fowler)
1695	Ellis	Shoreham	4	1,372	Arundel (5), Orford (6), Faversham (5, with Collins), Lynn (5)
1690	Taylor	Rotherhithe	2	1,136	Lightning (5), Vesuvius (5)[59]
1696	Parker	Southampton	2	1,072	Scarborough (5), Dartmouth (4)
1696	Moore & Nye	East Cowes	2	1,057	Poole (5), Jersey (4)
1694	Flint	Plymouth	2	1,004	Anglesea (4), Lyme (5)
1695	Collins	Shoreham	3	998	Dunwich (6, with Chatfield), Gosport (5), Faversham (5, with Ellis)

On the other hand, what makes the assessment more difficult is that not all warship

[57] The Dataset (See [Appendix II]). For a complete table with all warship contractors and their naval shipbuilding capacity explained in the following page, please see: [Appendix I].
[58] Blackwall Yard was the only private yard which could receive Second-Rate ships of the line. If the rebuilding of Second Rates was also concerned, Blackwall Yard's highest tonnage would be 2879 tons in 1708 with William's rebuilding of the *Marlborough* and *Boyne*.
[59] As the *Lightning* and *Vesuvius* were both small Fifth Rates, the highest tonnage of the Taylor family was the building of the *Hampton Court* between 1708 and 1709.

contractors owned their shipbuilding sites; some of them only rented them temporarily.[60] The Navy Board mainly outsourced only the building of a hull, and the royal yards had facilities to produce equipment such as ropes, sails, and anchors.[61] This meant that warship contractors did not have to produce each item of equipment and could fulfil their contracts by simply storing materials for the duration of their constructions. Additionally, while First and Second Rates often demanded a dock, Third Rates and below, prime targets of warship contracts, could be handled on slipways. Slips were easy to erect and dismantle, to the extent that some royal yards spared available space for temporal slips to expand their shipbuilding capacity.[62] Thus, warship contractors did not necessarily own large-scale yards. They could rent a suitable site along a river and coast, procure naval stores and shipwrights for a short period of time, and disband workers and evacuate the site after the completion.[63] This trait further makes it difficult to compare the shipbuilding capacities among warship contractors.

Against this background of surviving documents, how many warships a shipbuilder could receive at a time seems to be a good candidate as an index of the estimated shipbuilding capacity. However, this measurement could be misleading, too. Table 3-3 shows this information by each contracting family. The rates of the warships they built or rebuilt in the given year are accompanied to indicate their sizes. Additionally, as some shipbuilders engaged with warship contracts at multiple locations and some with another contractor jointly, the table gives such information as well. Contractors who did not hold more than one contract at a time are omitted from the list. At a glance, this categorisation adequately grasps how much the Navy relied on these yards.

However, three significant problems remain. First, simply counting how many warships one yard could hold does not reflect the degree of its contribution in providing shipbuilding capacity to the Navy well. For instance, the table indicates that Thomas Ellis of Shoreham could have the highest number of contracts at a time and gives the impression that Ellis was the largest contractor alongside the Johnsons. In reality, he only built smaller frigates of the Fifth and Sixth Rates, and the measurement does not reflect this aspect. Secondly, some shipbuilders signed new contracts before the launch of a ship they were engaging. Such overlaps obscure when exactly the shipbuilder began with the construction, thus how many ships they were building at a time.[67] Additionally, the number of docks and

[60] Coad, *The Royal Dockyards*, p. 107. MacDougall, *Shire Album No. 231*, p. 11.
[61] MacDougall, *Shire Album No. 231*, pp. 11-17.
[62] Coad, *The Royal Dockyards*, pp. 107, 109. Davis, *The Rise of the English Shipping*, p. 55.
[63] Holland, *Ships of British Oak*, pp. 93-95. Scammell, 'British Merchant Shipbuilding', p. 46. Tsunoyama, 'Jusho-shugi to Igirisu', p. 223.
[67] There are three cases where clear overlaps can be observed. Winter of Northam contracted for the

slips alone could not determine the yard's shipbuilding capacity, but its labour and material sizes also played an important role. Thus, grouping contractors by how many contracts they received simultaneously is misleading when gauging their shipbuilding capacities.

Therefore, this study categorises warship contractors into three groups by the highest yearly tonnage they built and rebuilt. As tonnage is often used in the study of shipbuilding, it is a valuable measure when considering multiple types and sizes of vessels simultaneously. This study labels contracting families with the highest yearly output of more than 950 tons as 'high-capacity', between 950 and 600 tons as 'middle-capacity', and contractors below 600 tons as 'low-capacity'. They roughly correspond to the range of the rates of contracted warships: Third Rates ranged from 948 to 1300 tons, Fourth Rates from 602 to 942 tons, and Fifth and Sixth Rates from 152 to 559 tons. It is important to note that warship contractors did not spare all of their shipbuilding capacity to the Navy. For example, the Johnsons rarely mobilised all capacity for warship contracts and built merchantmen even during wartime. Because of these traits, the categorisation here only reflects the capacity as a warship contractor. Since even a Sixth Rate was relatively large compared to most mercantile vessels, the category is not a 'low-capacity shipbuilder' but a 'low-capacity contractor'. Nevertheless, due to the lack of in-house records, this is one of the best ways to measure private yards' naval shipbuilding capability. Following these measurements, there were nineteen high-capacity, five middle-capacity, and seventeen low-capacity contractors at the turn of the eighteenth century.[68]

Overall, this section provided several numerical trends of warship contracts to give a macro image of contemporary warship contracts, which indicate the following aspects. Firstly, warship contractors were large-scale shipbuilders. Even the Sixth and Fifth Rates were as big as the largest kinds of mercantile vessels, and the contractors were evidently individuals who possessed capital and know-how to build large-scale vessels. Secondly, the existence of East Indiamen builders, together with the revealed numerical trends, implies some advantages of the Thames shipbuilders in warship contracts. Thirdly, warship contractors were not in a single group, but their naval shipbuilding capacities varied. The following sections of this chapter give a closer look at warship contractors' broader business interests, connection to the Navy, and the traits of their shipyards to test the assumption that some warship contractors were indeed large-scale entrepreneurs.

Dorsetshire while completing the *Southampton* in June 1693. Wyatt of Bursledon signed for the *Winchelsea* while finishing the *Winchester* in April 1693. And Nye and Moore of East Cowes entered the contract for the *Jersey* at the end of July 1696 although launching the *Poole* the following month.

[68] The number does not count 43 because Briggs and Burges, as well as Moore and Nye, only contracted jointly.

3.2: Origins & Wider Businesses of the Leading Contractors

While the previous section underlined the geographic distribution of warship contracts and their position against the average mercantile shipbuilders, this section recreates the image of the contracting families in a more qualitative way. By doing so, it examines whether warship contractors were individuals with wealthy backgrounds and business connections. The section here investigates the case of the leading warship contractors, the Johnsons of Blackwall. Capitalising on the relatively abundant primary and secondary sources relating to the Johnson family, it tests to what extent such traits are recognisable and what other characteristics were prominent. Highlighting the conclusion first, the section underlines the Johnsons' three characteristics: its genealogical ties with naval officers, extensive reach of enterprises, and long-run business connections with the Navy. Therefore, the most reliable contractors to the Navy were neither really 'private' nor just 'shipbuilders'.

One reason behind the focus on the Johnsons is the family's historical significance as leading contractors, as seen in the previous section. However, for a market that was far from being in a monopolistic state, another reason to focus on the Johnson family is the relatively voluminous records they left. While most of the other contractors did not leave records themselves, the Johnsons' private papers are preserved in the *Johnson Paper* series at the British Library.[69] John Ehrman once dismissed the documents relating to the family as 'though interesting, are disappointing.'[70] Yet, dedicated research on those documents alongside the navy records can reconstruct the image of the leading warship contractors quite substantially. The *Johnson Paper* series consists of multiple volumes categorised by content.[71] Additionally, even though the Johnson family's management of the yard ended soon after the conclusion of the War of the Spanish Succession, Blackwall Yard remained one of the leading private yards up to 1987. Owing to its 350-year life, various hands have compiled the history of the yard. *Chronicles of Blackwall Yard*, *The Blackwall Frigates*,

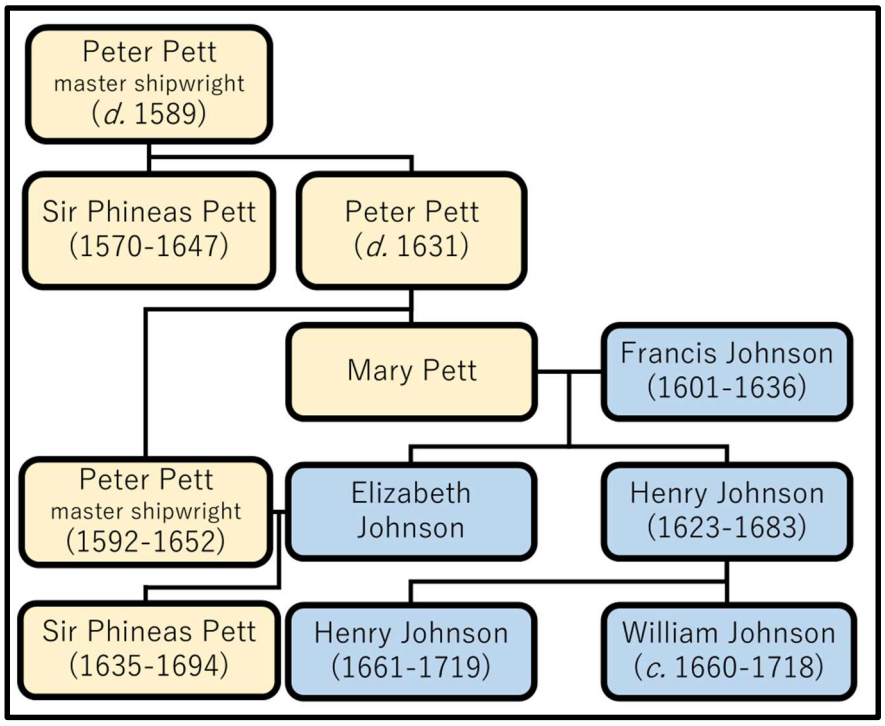
[69] The series covers the various aspects of the Johnsons' life from shipbuilding to their activities as a MP of Aldeburgh. The contents relating to warship contracts and the family's relationship with the Navy appear in the volume *Papers relating to the Navy 1638-1699*, Add MS 22183. Some aspects of Blackwall Yard's mercantile shipbuilding, i.e. repairing and sheathing of merchantmen and purchasing of timber, can be observed in *Papers relating to the Merchant Service 1613-1710*, Add MS 22184, and the two volumes of the miscellaneous papers, Add MS 22186 and Add MS 22187. The series also has two volumes of bills and accounts, one from 1630 to 1699 and the other from 1700 to 1720, Add MS 22188 and Add MS 22189. Nevertheless, most of the bills are accounts of Henry's daily expenses incurred by food consumption and correspondence costs. Despite some accounts relating to the shipbuilding project, such as fees to painters, bills directly relating to shipbuilding and the purchase of naval stores are scarce. Thus, it is difficult to reconstruct the Johnsons' management of Blackwall Yard through the volumes alone.

[70] Ehrman, *The Navy in*, p. 73.

[71] It is unclear how the volumes came to be held at the British Library, but it is certain that the British Museum obtained them in 1855 and later transferred them to the library. British Library, *Catalogue of Additions to the Manuscripts in the British Museum, in the years MDCCCLIV. – MDCCCLX* (London, 1875).

and ‘Blackwall Yard: Development’ are three major examples of such secondary sources.[72] As they held the largest share of warship contracts, the Johnson family might not be a representative or typical example of contractors at the time. However, their rich records can provide various clues about the characters of the leading contractors.

Image 3-2: Family tree of the Johnson and Pett families[73]



Firstly, regarding the origins of the Johnson family, the most distinct feature is that it was a branch of the Pett family, which provided numerous royal shipwrights and other naval officers in the seventeenth century. It is worth reminding here that the Pett family was also the earliest builders of the frigate design in England.[74] The warship contractors in the Johnson family were Sir Henry (life: 1623-1683, hereafter, ‘Henry Snr’) and his two sons, another Sir Henry (1661-1719, hereafter, ‘Henry Jnr’) and William Johnson Esquire (*c.* 1660-1718).[75] Henry Snr was born in 1623 between Francis Johnson, a descendant of a

[72] Green and Wigram, *Chronicles of Blackwall Yard*. Hobhouse (ed.), ‘Blackwall Yard: Development’. Lubbock, Basil, *The Blackwall Frigates* (Glasgow, 1922).
[73] Burke, Farnham, and Barron, Oswald, ‘The Builders of the Navy: A Genealogy of the Family of Pett’, in Oswald Barron F.S.A (ed.), *The Ancestor: A quarterly review of county and family history, heraldry and antiquities* (London, 1904): 147-178, p. 164. Henning (ed.), ‘JOHNSON, Henry (1623-83)’. Henning (ed.), ‘JOHNSON, Sir Henry (c.1659-1719)’. Henning, B. D. (ed.), ‘JOHNSON, William (c.1660-1718), of Blackwall, Mdx.’, *The History of Parliament: British Political, Social & Local History*, < https://www.historyofparliamentonline.org/volume/1660-1690/member/johnson-william-1660-1718#footnoteref1_lu25qae>, [accessed on 13 July 2024].
[74] [Ch2§2].
[75] A certain John Johnson had a quarrel with the Woolwich officers over John’s tar kettle in 1710. ADM 106/659/177, [John Johnson to the Navy Board, 12 May 1710]. ADM 106/659/178, [Woolwich officers to the Navy Board, 15 June 1710]. And Henry Jnr had correspondence with Boshwick Johnson in the same

merchant family, and Mary Pett, a daughter of Peter Pett who was a shipbuilder at Wapping. Also, Francis' daughter Elizabeth married Peter's son, another Peter Pett, who was the Master Shipwright of the Deptford dockyard. By 1639, Henry Snr succeeded the family's tradition and became an apprentice at the Deptford dockyard to a prestigious shipbuilder, Sir Phineas Pett – Henry Snr's grand uncle and the designer of the *Sovereign of the Seas*, King Charles I's flagship.[76] Thus, service in a royal yard was not foreign to Henry Snr. After finishing his apprenticeship, he settled at Deptford and ran both mercantile and naval shipbuilding businesses.[77] As such, it is first important to note that the 'private shipbuilders' who undertook most warship contracts at the turn of the eighteenth century were direct relatives of prestigious royal shipwrights.

Secondly, the Johnsons were not only shipbuilders but also engaged in various enterprises. Regardless of numerous contradictions among the secondary sources, the family's wide activities in commercial and political affairs are apprehended.[79] The extensive business network was likely hereditary. Henry Snr held a position in the Trinity House and the Royal African Company (RAC) from 1672 and became a committee member of the EIC in 1683, the very last year of his life. Moreover, King Charles II himself visited Henry Snr's house at Blackwall and knighted him in 1680.[80] Considering the king was an enthusiastic promoter of Britain's maritime power, the event may symbolise the family's contribution to the building of the Navy.[81] Henry Snr's eldest son, Henry Jnr, almost entirely succeeded in his father's positions. At Henry Snr's death in 1683, Henry Jnr started the management of Blackwall Yard.[82] He also succeeded to the post of the EIC committee in 1684 and was knighted by King James VII/II in the following year. Henry Jnr had undertaken shipbuilding for the EIC from his youth and was appointed as a master of the Shipwrights' Company at Rotherhithe in 1686.[83] Thus, the leading warship contractors at the turn of the century were of the family with various enterprises.

Moreover, all three contractors from the family were Members of Parliament (MPs) for Aldeburgh in Suffolk, where the family originated.[84] 1689 was the year of Henry Jnr's

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year. Add MS 22187 203, [Boshwick Johnson to Henry Johnson Jnr, 1 December 1710]. However, the genealogical ties between these figures are uncertain.

[76] Green and Wigram, *Chronicles of Blackwall Yard*. Henning, B.D. (ed.), 'JOHNSON, Henry (1623-83), of Blackwall, Mdx. and Friston, Suff.', *The History of Parliament: British Political, Social & Local History*, <http://www.historyofparliamentonline.org/volume/1660-1690/member/johnson-henry-1623-83>, [accessed on 24 September 2022]. Banbury, *Shipbuilders of the Thames*, p. 139. [Ch2§2].

[77] Henning (ed.), 'JOHNSON, Henry (1623-83)'

[79] Green and Wigram, *Chronicles of Blackwall Yard*. Lubbock, *The Blackwall Frigates*. Hobhouse (ed.), 'Blackwall Yard: Development'.

[80] Hobhouse (ed.), 'Blackwall Yard: Development'.

[81] Pool, *Navy Board Contracts*, p. 42.

[82] Green and Wigram, *Chronicles of Blackwall Yard*, p. 18.

[83] Henning (ed.), 'JOHNSON, Sir Henry (c.1659-1719)'.

[84] Hobhouse (ed.), 'Blackwall Yard: Development'.

parliamentary activities, and he participated in the debates over the EIC affairs and the war expenditures.[85] Henry Jnr also engaged in the debate over administering press gangs for the Navy's impressments and appealing to remove Sir Richard Haddock (life: 1629-1715) from the Victualling Board office. While keeping his position as the Comptroller of the Navy, Haddock was imprisoned in 1689 for accused corruption and lost his post as the first commissioner of the Victualling Office.[86] To what extent Henry Jnr's presence was decisive in these debates is uncertain. However, the event shows that the Johnsons had at least some say in the Navy's direction. Therefore, combining the fragmented descriptions in the existing accounts makes it explicit that 'private shipbuilders' is not the best term to describe the leading contractors who had a variety of business and political interests.

The contemporary letters and other documents also reflect the Johnson family's diverse enterprises. First, the family utilised its connection to the EIC and capacious Blackwall Yard for East Indiaman shipbuilding. Simultaneously to the loaded warship contracts, Henry Jnr did not halt his business with private hands. In January 1694, Henry Jnr's East Indiaman, *Diana*, was surveyed.[87] The event implies that Henry Jnr kept providing vessels for the EIC even during the period of high demand for warships. Besides the large capacity of Blackwall Yard, the family's connection to the company plausibly helped the East Indiamen's shipbuilding business. Before his father's death, William was a factor of the EIC in the Bay of Bengal.[88] Although the details of the family's activity as the committee members of the company could not be identified, the family's letters clearly indicate a lasting relationship with EIC traders. For example, Henry Jnr's recommendation of a trader to the governor of Fort St George at Madras shows his engagement with the EIC business.[89] Moreover, Thomas Pitt, the governor of Madras and the grandfather of later Prime Minister William Pitt, kept the Johnson family updated with the news in the East Indies.[90] As such, the connection to the EIC from Henry Snr's time brought various business opportunities to Henry Jnr and William.

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[85] According to *The History of Parliament*, Henry Jnr's other known political activities are 'with repealing the Corporations Act and inquiring into exactions by customs officials…, into the expenses of the war, the administration of martial law on St. Helena'. Henning (ed.), 'JOHNSON, Sir Henry (c.1659-1719)'.
[86] Davies, J. D., 'Haddock, Sir Richard (*c.* 1629-1715)', *Oxford Dictionary of National Biography* (January 2008), <https://www.oxforddnb.com/display/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-11849?rskey=2vpvB9&result=1>, [accessed on 4 March 2024].
[87] ADM 106/443/2, [Captain Aston and Pratt to the Navy Board, 1 January 1694].
[88] Henning (ed.), 'JOHNSON, William (c.1660-1718)'. For his activity in India, see Hedges, Sir William, and Barlow, R. (eds.), *The Hakluyt Society. No. LXXIV. The Diary of William Hedges, Esq. (Afterwards Sir William Hedges), During His Agency in Bengal: As Well as on His Voyage out and Return Overland (1681-1687) Vol. I* (New York, 1964).
[89] Add MS 22186 132, [Feveningham to Henry Johnson Jnr, November 1701].
[90] Add MS 22186 145, [Thomas Pitt to Henry Johnson Jnr, February 1704]. There is Martha Johnson's letter showing gratitude for the present from the East Indies preserved in the *Johnson Paper: Miscellaneous papers relating to the families of Johnson and Lovelace*. Add MS 22186 91, [Martha Wentworth & Johnson to Madam Aress, 20 December 1697].

Although the information is too scattered to reconstruct a complete picture, some documents show that the family engaged in transatlantic trade as well. When his brother Henry Jnr succeeded Blackwall Yard, William also returned to England. William carried the family tradition of trade into Africa and became an assistant of the RAC in 1687.[91] It is likely that he also engaged in the slave trade. For instance, the RAC's account of November 1705 shows that a certain William Johnson purchased three men, one woman, and one girl for £285.[92] In addition, Elizabeth Donnan noted that William had 36 slaves, £4 per head, on board the *Dorothy* in 1717. As such, William left Blackwall and conducted overseas trade himself when he was not engaging in warship contracts.

Considering numerous documents regarding Henry Jnr's shares of merchantmen together,[93] it is plausible that the Johnson family utilised the synergy between shipbuilding, shipowning, and trading businesses when Britain's overseas trade was rapidly growing. John Brewer noted that shipowning was a popular enterprise among 'merchants, tradesmen, shipwrights and mariners as well as gentlemen and widows who all hoped to turn a profit with their modest investment'.[94] The Johnsons' case indicates that these people were sometimes from a same family. Henry Jnr apparently did not stay at Blackwall. He left the management of the yard to William Collins and moved to Wentworth in the South Midlands at the time of his second marriage in 1693 and later to West End, Friston in Suffolk, in 1708.[95] Although his contributions to warship contracts and shipbuilding for the EIC, business at Blackwall Yard was not Henry Jnr's only enterprise. Basil Lubbock assessed Henry Jnr as 'a mean old curmudgeon with no attractive qualities'.[96] Regardless of his personal character, it is evident that Henry Jnr attracted various sorts of business-people and engaged with a wide range of enterprises.

Thus, the Johnson family is best described as entrepreneurs rather than shipbuilders. In fact, the family took advantage of the extensive commercial networks for its business with the Navy. For instance, William offered timber to the Navy Board in July and a frame for a

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[91] Henning (ed.), 'JOHNSON, William (c.1660-1718)'. Davies, K. G., *The Royal African Company* (London, 1957), p. 384.
[92] Donnan, Elizabeth, *Documents Illustrative of the History of the Slave Trade to America, Vol. 2* (Washington, D.C, 1931), pp. 41, 213.
[93] For example, Add MS 22187 163, [A certificate of Henry Johnson Jnr's ownership of the *Anna*, 1 February 1698].
[94] Brewer, *The Sinews of Power*, p. 194. Knight and Wilcox, *Sustaining the Fleet*, p. 39.
[95] According to the biography in *The History of Parliament*, Henry Jnr married his second wife, Martha Lovelace and moved to Wentworth in the South Midlands in March 1693. Henning (ed.), 'JOHNSON, Sir Henry (c.1659-1719)'. But William Collins, a manager of the yard during Henry Jnr's absence, noted that Henry Jnr had been away since Martha's sister died. ADM 106/429/203, [William Collins to the Navy Board, 28 June 1693]. Regardless of when he left Blackwall exactly, Henry Jnr frequently appeared back in Blackwall and continued his business with the Navy.
[96] Lubbock, *The Blackwall Frigates*, p. 30.

First Rate in August 1708 by capitalising on the lack of resources at the royal yards.[97] Although the offer of a frame apparently did not go well for William, the events nonetheless show the Johnson family's entrepreneurial attitude to fully utilise its diverse range of business activities for the Navy. As shown more in Section 4, the family extended its naval business, and Blackwall Yard acted as if it were a secondary royal dockyard. The wide range of enterprises and the spirit to exploit the Navy's demands marks the Johnson family as 'military entrepreneurs'.[98]

The third important characteristic of the Johnson family is that it already had a long business relationship with the Navy by the time of the Nine Years War. Henry Snr provided numerous warships for both the republican government and the Restoration monarchy.[99] Already in 1649 at Deptford, he constructed two 40-gun ships, the *Assurance* as a royal shipwright and the *Assistance* as an independent shipbuilder.[100] When he moved to Blackwall, Henry Snr launched larger 60-gun ships, the *Dreadnought* and *York*, in 1653 and 1654, respectively.[101] After the Restoration of 1660, Henry Snr continued to build warships for the Navy, and the 70-gun *Warspite* in 1666 was launched under the tension of the Second Anglo-Dutch War. He also built smaller auxiliary vessels, too. By capitalising on his experience at the royal yard, Henry Snr successfully promoted Blackwall Yard business during the wars with the Netherlands in the latter half of the seventeenth century.

It was under the rapid rise in demand for the 1677 Programme when Henry Snr's business with the Navy flourished. Henry Snr's time was the experimental stage of warship contracts both for the Navy Board and Blackwall Yard. As the Navy implemented the standardisation of dimensions, it increasingly required private contractors to build purpose-built warships. He launched two 62-gun Third Rates, the *Essex* and *Kent*, in 1679 and two 70-guns, the *Exeter* and *Suffolk*, in 1680.[102] Henry Snr's letters to the Navy and the shipwrights' hall to ask the measurement of the *Exeter* are preserved.[103] The event provides another example of the Shipwrights' Company's involvement in warship contracts. It is

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[97] ADM 106/629/198, [William Johnson to the Navy Board, 23 July 1708]. ADM 106/629/203, [William Johnson to the Navy Board, 6 August 1708]. ADM 106/629/205, [William Johnson to the Navy Board, 12 August 1708]. ADM 106/629/208, [William Johnson to the Navy Board, 23 August 1708].

[98] The Johnsons evidently did not complete all the work by themselves but utilised sub-contractors. For example, Henry Jnr outsourced the cleaning of equipment for the *Rochester* in January 1692. However, as the HMS *Rochester* was ordered to be built in June 1692, this is likely for a merchantman of the same name. Add MS 22184 105, [Thomas Austine to Henry Johnson Jnr, 10 January 1692].

[99] Banbury, *Shipbuilders of the Thames*, pp. 35-36.

[100] Green and Wigram, *Chronicles of Blackwall Yard*, pp. 9-10. Banbury, *Shipbuilders of the Thames*, p. 114.

[101] Green and Wigram, *Chronicles of Blackwall Yard*, pp. 10, 15-16.

[102] Add MS 22183 95, [Account for the four frigates built by Henry Johnson Snr, 2 April 1680]. Green and Wigram, *Chronicles of Blackwall Yard*, pp. 18-24.

[103] ADM 106/350/642, [Henry Johnson Snr to the Navy Board, 24 March 1680]. ADM 106/350/644, [Henry Johnson Snr to the Navy Board, 31 March 1680]. A list of bills for the *Exeter* survives, which provides a general image of what kind of work a warship contractor conducted. Add MS 22183 94, [The account of Henry Johnson Snr's work on the *Exeter*, 2 April 1680].

important to add that Henry Snr's contributions to naval shipbuilding went beyond works at Blackwall Yard. In June 1677, Deane travelled to Aldeburgh with Henry Snr to inspect whether the area was serviceable for naval shipbuilding, which seemingly contributed to the opening of new yards in Suffolk.[104] Thus, the rising tension with France in 1677 onwards provided a business opportunity for Blackwall Yard. Henry Snr's experiences in both royal and private yards, as well as the family's continuous relationship with naval officers, reflect the unclear boundary between private and royal shipbuilding.

The range of enterprises and intimate ties with the Navy might help the Johnson family obtain numerous warship contracts. Some correspondence, in fact, implies that the Navy particularly relied on Blackwall Yard. For example, Edmund Dummer, later Surveyor of the Navy, asked Henry Jnr directly what the most convenient way would be to decide the price of the work for the *Warspite* in February 1691.[105] Moreover, in November 1694, Henry Jnr wrote to the Navy Board that he was willing to take more warship contracts of Fourth Rates. At the moment, the Board did not have any orders to build a new Fourth Rate but promised to inform him when it would receive more orders.[106] For timber contracts, Phineas Pett also recommended the Board obtain timber from Blackwall Yard.[107] These interactions indicate that the direct connections to navy officers worked advantageous for the family's businesses.

As such, the leading contracting family at the turn of the eighteenth century had intimate connections to the Navy and broader interests in maritime businesses. Henry Snr's career and connections created advantageous grounds for his sons to become successful warship contractors. Henry Jnr's business at Blackwall started in a well-secured position for warship contracts. Samuel Pepys once noted Henry Snr's son, most likely Henry Jnr, as 'an ingenious young gentleman, but above all personal labour, as being left too well provided for to work much'.[108] The correspondence with the Navy shows that Henry Jnr also engaged in the naval shipbuilding business with some dedication as Chapter 4 will depict in more detail. Yet, Pepys' comment describes Henry Jnr's solid position when he succeeded in his father's place. The Johnsons' case indicates that a wide range of enterprises and connections to the Navy over generations worked as an advantage to be

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[104] Green and Robert, *Chronicles of Blackwall Yard*, p. 17. *Chronicles of Blackwall Yard* spells it 'Aldborough'. But this thesis modernises the spelling to avoid confusion with Aldborough in York.
[105] Add MS 22183 171, [Edmund Dummer to Henry Johnson Jnr, 28 February 1691].
[106] Add MS 22183 215, [The Navy Board to Henry Johnson Jnr, 12 November 1694].
[107] ADM 106/285/160, [Phineas Pett to the Navy Board, 2 September 1673]. Phineas Pett went to Blackwall Yard to survey the Johnsons' timber for the Navy again. However, an unsigned note on the letter states the price the Johnsons offered was 'extravagant'. ADM 106/285/262, [Phineas Pett to the Navy Board, 8 September 1673].
[108] Quoted in Tanner, J. R., and D., Litt. (eds.), *Samuel Pepys's Naval Minutes* (London, 1926), p. 163.

successful warship contractors. In other words, the existence of these military entrepreneurs with close ties with the Navy was a backbone for the rapidly expanding warship contracts.

3.3: Blackwall Yard as the Largest Private Yard

Despite the highlighted business and personal connections of the Johnsons, one should not label contemporary warship contracts solely with nepotism. Blackwall Yard, in fact, was the largest private yard at the time and must have been a reliable client for the Navy. Thus, before assuming the 'old corruption' in warship contracts, a proper examination of the Blackwall Yard facility and the Johnsons' shipbuilding capacity is essential. This section examines the facility, workforce, and access to naval stores to reconstruct the yard's shipbuilding capacity. It also compares them with the same aspects of other contractors' shipyards to highlight the scale of Blackwall Yard. By doing so, the section demonstrates that the Johnson family was also a reliable partner to the Navy because of its possession of the highest shipbuilding capacity among contemporary private shipyards.

Blackwall Yard is a rare example of a private yard with reasonable clarity on its origins and facilities. The shipyard was first commissioned by the EIC and designed for the construction and repair of East Indiamen. The first dock was laid in 1614, while there might have been some shipbuilding activity prior to this.[111] The Johnson family's business at Blackwall likely started in 1653 when Henry Snr rented the yard from the EIC, which he purchased two years later.[112] The fact that he was wealthy enough to buy such a massive yard implies the scale of his business already in the 1650s. Moreover, the fact that the size of East Indiamen could match those of rated warships while the average merchantmen scored around 100 tons indicates the size of Blackwall Yard.[113] Blackwall Yard was well equipped from the start of the Johnsons' possession. When Henry Snr purchased the yard in 1655, it had 'three [dry] docks, two launching slips, two cranes, storehouses', and one of the dry docks was a double dock – two docks jointed together vertically.[114] Blackwall Yard also had various facilities relevant to the shipbuilding business. Under the EIC's ownership, the yard had a smith shop, a spinning house for cordages, a tar house, a sawing pit, and mast ponds. Henry Snr's lease of storehouses to three shipwrights in 1654 hints at

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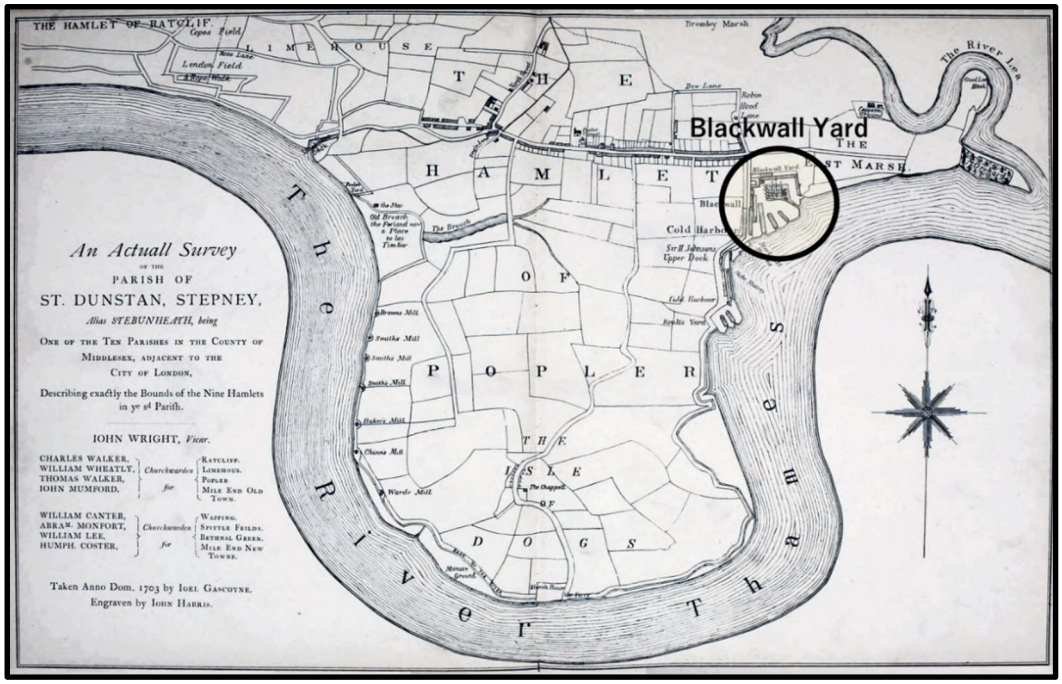
[111] Hobhouse (ed.), 'Blackwall Yard: Development'. Banbury claimed that there is no explicit proof that the EIC owned the yard to this point. However, it is plausible that the EIC exercised some influence on Blackwall Yard. Banbury, *Shipbuilders of the Thames*, p. 114.
[112] Hobhouse (ed.), 'Blackwall Yard: Development'. As a certain Robert Johnson rented the yard from the EIC previously, the family's connection to the Company could be inherited. Yet, the direct connection between the two Johnsons is uncertain. Banbury, *Shipbuilders of the Thames*, p. 114.
[113] Slaven, *British Shipbuilding, 1500-2010*, p. 6.
[114] Hobhouse (ed.), 'Blackwall Yard: Development'.

their capaciousness, too.[115] Moreover, the event that the Board of Ordnance ordered Henry Jnr to prepare a proposal for guns for the Navy also implies that Blackwall Yard had solid production capacity for ironworks.[116] Therefore, the yard was already well-equipped when it came to the family's hands.

Image 3-3: Painting of Blackwall Yard (1784)[117]

Image 3-4: Map of Poplar, surrounding Blackwall Yard (1703)[118]



[115] Ibid.
[116] Add MS 22183 179, [A survey of the *Dunkirk*, 23 April 1691].
[117] <https://en.wikipedia.org/wiki/Blackwall_Yard#/media/File:Blackwall_Yard_from_the_Thames.jpg>, [accessed on 1 November 2024].
[118] Based on: <https://en.wikipedia.org/wiki/Blackwall_Yard#/media/File:Poplar_&_Blackwall_1703.jpg>, [accessed on 1 November 2024].

Blackwall Yard experienced further expansions under the Johnsons' possession. Under Henry Snr's ownership, the yard obtained a wet dock for repairing and careening purposes, which Samuel Pepys described as 'the largest wet dock in England'.[119] This capacious wet dock, together with the two dry docks and one double dock, can be seen in Image 3-4, the map of Poplar surrounding Blackwall Yard from 1703. Henry Snr also rebuilt a red-brick mansion at the main entrance of the yard in 1678, and the family oversaw the business from this residence.[120] As such, when warship contracts expanded at the end of the seventeenth century, Blackwall Yard already had well-developed facilities. Henry Jnr's first business with the Navy was the sale of the Third-Rate *Dreadnought*, designed to be a merchantman.[121] The event gives another example of Blackwall Yard building large-scale vessels even during peacetime. Later historians even described the yard as 'bigger than the neighbouring royal yards' and the 'only [private] one with a dock able to take a First Rate'.[122]

The volume of the Johnsons' letters and naval shipbuilding allow us to estimate Blackwall Yard's shipbuilding capacity. Pepys already estimated the yard could build two Third and two Fourth Rates at a time.[124] It is possible to test this by examining the yard's workload for the Navy-related businesses. Table 3-4 is the list of warships that Henry Jnr completed between 1694 and 1695, the years of the highest concentration of warship contracts.[125] It shows that Henry Jnr fully utilised the two dry docks and one double dock to produce four Fourth Rates simultaneously. In November 1693, he contracted the *Burlington*, *Colchester*, *Romney*, and *Severn*.[126] When the *Colchester* and *Romney* left the yard, he spared the facilities to repair and fit various ships in the table. In particular, the Third-Rate *Dreadnought* and *Hampton Court*, seemingly replaced the completed Fourth Rates. He also engaged with fitting the First-Rate *Queen*, and the work was likely to have taken place at the spacious wet dock his father created.[127] When the *Burlington* and *Severn* were launched, Henry Jnr soon obtained new contracts to build two Fourth Rates, the

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[119] Banbury, *Shipbuilders of the Thames*, p. 115. Green and Wigram, *Chronicles of Blackwall Yard*, p. 11. Hobhouse (ed.), 'Blackwall Yard: Development'. According to *Chronicles of Blackwall Yard*, John Stow's *Survey of London* describes the wet dock 'a well-known wet Dock, called Blackwall Dock, belonging to Sir Henry Johnson, knight, very convenient for building and receiving of ships. However, as Stow's edition was published in 1603, before the construction of the wet dock, Chronicles *of Blackwall Yard* evidently mentions a later edition with additional notes. Quoted in Green and Wigram, *Chronicles of Blackwall Yard*, p. 19.
[120] Banbury, *Shipbuilders of the Thames*, p. 115. Green and Wigram, *Chronicles of Blackwall Yard*, p. 17.
[121] ADM/A/1768/72, [The Admiralty to the Navy Board, 9 July 1690].
ADM/A/1770/107, [The Admiralty to the Navy Board, 29 November 1690]. ADM/A/1770/132, [The Admiralty to the Navy Board, 8 November 1690].
ADM/A/1770/273, [The Admiralty to the Navy Board, 10 December 1690].
[122] Respectively: Clapham, *A Concise Economic*, p. 236. Rodger, *The Command of the Ocean*, p. 189.
[124] Hobhouse (ed.), 'Blackwall Yard: Development', p. 5.
[125] [Ch2§2].
[126] Copies of the contracts for the *Colchester* and *Romsey* are preserved in ADM 106/3070.
[127] ADM 106/451/14, [Henry Johnson Jnr to the Navy Board, 16 February 1694].

Blackwall and *Guernsey,* in September 1695, thus replacing the spots of the former two. As such, the Johnsons fully utilised capacious Blackwall Yard between 1693 and 1695, when Britain was urged to build up its naval strength for maritime control after the Smyrna convoy disaster of 1693. The analysis of Blackwall Yard's workload indicates that Henry Jnr took advantage of his extensive facility to obtain numerous contracts with the Navy, which could contain up to four rated warships, as Pepys once estimated.

Table 3-4: Blackwall Yard's workload with rated warships (completed: 1694-1695)[128]

Started	Completed	Name	Rate	Type of work
?	1694 February	*Blaze*	5	new construction
1693 November	1694 October	*Colchester*	4	new construction
1693 November	1694 October	*Romney*	4	new construction
1693 November	1695 September	*Burlington*	4	new construction
1693 November	1695 September	*Severn*	4	new construction
?	1694	*Charles* Gally	5	repair
1693	1694	*Lion*	5	repair
?	1694	*Oxford*	4	repair
1693	1694	*Dreadnought*	3	repair
1694	1694	*Queen*	1	fitting
1695	1695	*Hampton Court*	3	repair

While the number of contracts is one measure to highlight Blackwall Yard's shipbuilding capacity, the kind of warships it received is another. It was William's time when the family engaged with the more ambitious project of rebuilding Second Rates. When William completed the work on the Second-Rate *Neptune*, the Admiralty directed the Navy Board in October 1708 to sign a contract with him for rebuilding another Second Rate, the *Sandwich*, on the same terms as the previous work. Moreover, the Board proposed in August 1708 to rebuild a First Rate, the *Queen*, in the Johnsons' yard since it was 'the only merchant dock in the river [Thames] that we apprehend fit to receive a ship of that magnitude'.[129] There were some contractors who tendered for receiving capital

[128] The Dataset (See [Appendix II]). ADM 106/451/14, [Henry Johnson Jnr to the Navy Board, 16 February 1694]. ADM 106/458/173, [Woolwich officers to the Navy Board, 16 August 1694]. ADM 106/475/234, [John Quallet to the Navy Board, 15 August 1695]. ADM 106/475/310, [John Quallet to the Navy Board, 13 November 1695].
[129] Merriman (ed.), *Queen Anne's Navy*, pp. 131-133.

ships. For instance, Richard Burchett proposed to build a Second Rate on the same terms given to William Johnson in March 1709.[130] However, as there are no further traces of the negotiation, it is likely that the Board strictly contained the works for capital ships in the royal dockyards with only the exception of Blackwall Yard. Regardless of the constraints by the availability of documents, these comparisons further reinforce the uniqueness of Blackwall Yard. The Board's reliance on the Johnsons was thus not solely from personal ties but also rooted in the sheer shipbuilding capacity of the yard. Blackwall Yard was a leading private yard in warship contracts regarding the number and size of warships it could contain. Such practical advantages as a shipbuilding facility seemingly contributed to the Johnson family becoming the leading warship contractors. Therefore, while the personal and business connections to the Navy surely played a key role in contemporary warship contracts, the emergence of colossal private yards like Blackwall Yard was another factor that sustained the skyrocketing demand for warships.

On the other hand, the yard facility alone could not define its shipbuilding capacity, but a large workforce was essential to fully utilise the colossal shipyard. Owing to the variety of tasks, as we saw in Chapter 2, the number and kinds of workers were other critical aspects of shipbuilding capacity.[131] Studies of the royal dockyards have revealed some aspects of private yards' workers as counterparts to highlight the royal yards' traits. For instance, some sub-contractors provided and managed the labour force for shipbuilders. Workers might prefer to work at private yards because the wages were higher than those at the royal dockyards. Private yards paid their workers by task, and Haas estimated that the daily wage of the royal dockyards between 1690 and 1752 was roughly 2s 1d or 60% of the wages at private yards.[132] As R. V. Saville claimed that many royal yard workers needed to find additional work elsewhere, it is plausible that workers moved between royal and private yards flexibly.[133] Sugiura Akinori also noted that sawyers and their assistants moved around shipyards based on received orders, while a large shipyard might have dedicated employees.[134] These descriptions point out that many private yards did not have permanent employees.

Despite the known general image of the workforce at private yards, it is difficult to reconstruct the exact size and kinds of workers even at Blackwall Yard due to the lack of

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[130] Ibid., p. 82.
[131] [Ch2§3].
[132] Haas, *A Management Odyssey*, pp. 28-31, 34. He also argued the advantage of the royal yards to employing task work was that 'more ships could be built with fewer shipwrights, dependence on commercial shipyards would be diminished, the least productive shipwrights could be discharged, and the wages of the rest would be competitive with those paid in London'.
[133] Saville, 'The Management of the Royal Dockyards', p. 97.
[134] Sugiura, *Hansen Shiwa*, p. 76.

in-house records. A few of the Navy Board's surveys of private yards' workforce are extant today. For example, the Board conducted a survey of Thames shipyards in answer to the call for the shortage of shipwrights in November 1703.[135] Even during the difficult time, Blackwall Yard embraced by far the largest number of shipwrights among Thames private yards. The survey also shows that most warship contractors kept the high numbers of shipwrights. However, the Board did not practice regular surveys, leaving these documents only in time of need. Thus, it is difficult to gauge the trends over the size and kinds of workforce at private yards with the Board's surveys alone.[136]

Table 3-5: Numbers of shipwrights at the Thames private shipyards (1703)[137]

Shipbuilders	**Shipwrights**	**Contractor**	**Shipbuilders**	**Shipwrights**	**Contractor**
Johnson	32	☑	Rich	4	
Wells (1)	25	☑	Russell	4	
Burchett	20	☑	West (1)	4	
Gardner	14		West (2)	4	
Swallow	12	☑	Castle	4	☑
Popley	10	☑	Witchelow	4	
Winter	10	☑	Shish	4	☑
Taylor	10	☑	Ides	4	
Lamb	10		Huggins	4	
Graves	8	☑	Roberts (1)	3	
Dampier	7		Roberts (2)	3	
Wells (2)	7		Ames	3	
Fowler	6	☑	Roberts (3)	3	
Cook	6		Thwaites	2	
Nalborough	6		Smith	2	☑
Rolt	5		Dorton	2	
James	5		Hartwell	2	
Kirby	5		Golder	2	
Dosett	5		Mares	2	
			Total	**263**	

[135] Merriman (ed.), *Queen Anne's Navy*, p. 70.
[136] It is worth noting that there are some individual accounts which refer to warship contractors' intention to procure a certain number of workers. For example, Henry Jnr wrote to the Navy Board that he was going to hire 100 shipwrights after Christmas. Yet, it is difficult to reconstruct the trends of private yards' workforce with this brief information. ADM 106/506/353, [Henry Johnson Jnr to the Navy Board, 20 December 1697].
[137] Based on the printed version in: Merriman (ed.), *Queen Anne's Navy*, p. 70. Although the original states the total number was 264, the total is actually 263.

Against this background, the section employs warship contractors' petitions for protection for their workers, which allows us to see the size of the labour force. As Chapter 4 will show in more detail, the Navy Board issued protection tickets for warship contractors' workers from the impressments, the Navy's forcible conscription of sailors. For Henry Jnr's time, the surviving documents are fragmented, but it is possible to reconstruct the number of workers in a given period. When William took over the operation of Blackwall Yard, seafaring populations were further pressed out onboard to meet the need for the intensifying war with the continent. This background made the records regarding protection richer, and more information about the workers became available.

On the other hand, it is essential to note some limitations in reconstructing the size of the workforce with documents relating to protection. Protection tickets were frequently renewed, and many shipbuilders held multiple contracts simultaneously. Since the tickets were only for a particular work and period, the practice blurs the exact size of the workforce present at a given moment. For instance, the Navy Board granted Henry Jnr with the protection of 64 shipwrights and 20 caulkers in May 1689.[138] Although the letter states only fitting of the *Sampson*, *Success*, *Smirna Merchant*, and *Scepter* for a month, Blackwall Yard engaged with the *Cleaveland* simultaneously. As Henry Jnr would soon start the construction of the Third-Rate *Dreadnought*, it is plausible that while some workers were allocated to multiple works, there were more men than those specified in the tickets. Nevertheless, due to the lack of private accounts, the Board's protection tickets are among the best records available to gauge some aspects of private yards' workforce.

Table 3-6 presents the numbers of Henry Jnr and William's workers specified in protection-related documents to see the trend of Blackwall Yard's workforce. As the war went on and the demands for warships rose, the number of workers at Blackwall Yard also increased. Although the entry into November 1691 shows considerably low numbers, the period corresponds with the construction of a shallop, a small boat usually used for coastal navigation, soon after the launch of the *Dreadnought*.[140] The fluctuation of the numbers indicates the high fluidity of workers in the shipbuilding industry of the time. Moreover, the table shows that shipwrights comprised the largest portion of the workforce throughout the period. Its number heightened between 1707 and 1710 when William was rebuilding the *Marlborough*, *Boyne*, and *Neptune*, two Second and one Third Rates. Overall, Blackwall Yard embraced a larger workforce under William than in Henry Jnr's time. As

[138] Add MS 22183 149, [The order of the Navy Board, 16 May 1689].
[140] Add MS 22183 173-174, [Henry Johnson Jnr's warship contracts for building a shallop, March 1691/2].

no significant expansion of the yard facility at the time is identified, the rise in the number should be rooted in the rising demand for warships and engagements with the larger vessels of the Second Rates.

Table 3-6: Protected workers at Blackwall Yard (1689-1710)[141]

Year	Ship wrights	Caulkers	Sawyers	Joiners	Labourers	Smiths	Rope makers	Carpenters	Total
1689	64	20							84
1691	6	10							16
1693	100	10	24	10	6				150
1694	86								86
1697	120	12	30	6	12				180
1706	120	20	30	6	30	12	6		224
1707	150	20	30	10	30	20	6	6	272
1708	150	20	30	10	30	20	6	6	272
1709	150	20	30	10	30	20	6	6	272
1710	150	20	30	10	30	20	6	6	272
1712	120	30	24		10				184

Comparing Blackwall Yard's workforce to other contractors' yards could highlight the importance of shipbuilding capacity for repeated business with the Navy. While only patchy records regarding other warship contractors' workforce are extant, even those relating to protection, some reconstruction is possible, as shown in Table 3-7. The highest figure of workforce identified was of the Winter family of Hampshire, a high-capacity contractor, when it asked the Navy Board to renew protection for his fifty shipwrights and fifty other labourers in January 1694.[142] This was when the Winters built the Fourth-Rate *Dorsetshire* and the Third-Rate *Sunderland*. The second largest number is forty shipwrights, eight pairs of sawyers, and fifteen other labourers by the Herring family, a middle-capacity contractor, which protection was plausibly for the construction of the Fourth-Rate *Salisbury*.[143] Thus, Blackwall Yard embraced a two- to three-time number of shipwrights compared to other warship contractors. Another aspect highlighted is none of the nine other contractors mentioned smiths and ropemakers in their petitions for protection. This implies that Blackwall Yard was a rare private yard that could provide

[141] Add MS 22183 149, [The order of the Navy Board, 16 May 1689]. ADM 106/390/221, [Henry Johnson Jnr to the Navy Board, August 1689]. ADM 106/420/361, [Henry Johnson Jnr to the Navy Board, 14 November 1692]. ADM 106/451/22, [Henry Johnson Jnr to the Navy Board, 16 March 1694]. ADM 106/451/6, [Henry Johnson Jnr to the Navy Board, 12 January 1694]. ADM 106/506/304, [Henry Johnson Jnr to the Navy Board, 20 July 1697]. ADM 106/610/37, [William Johnson to the Navy Board, 12 February 1706]. ADM 106/610/49, [William Johnson to the Navy Board, 20 February 1706]. ADM 106/620/129, [The Navy Board's protection to William Johnson, 7 May 1707]. ADM 106/629/166, [William Johnson to the Navy Board, 25 March 1708]. ADM 106/629/226, [The Navy Board's protection to William Johnson, 20 March 1709]. ADM 106/674/382, [William Johnson to the Navy Board, 9 May 1712]. If there are several documents identified for the same year, the table gives the one with the largest numbers.

[142] ADM 106/457/213, [John Winter to the Navy Board, 24 January 1694].

[143] ADM 106/489/106, [Richard Herring to the Navy Board, 26 February 1696].

ironworks and ropes required during construction and for fitting. Therefore, in terms of both the variety in its facilities and the size of its workforce, the Johnson family appeared to be the most attractive option for the Navy as well.

Table 3-7: Largest numbers of workforces protected at warship contractors' yards[144]

Year	Family	Ship wrights	Caulkers	Sawyers	Joiners	Labourers	Notes
1708	Bingham	20		6		5 or 6	
1706	Burchett	35	10	8		6	
1690	Castle	47					
1695	Collins	30	6	4	4	10	plus 6 bargemen
1689	Ellis						34 shipwrights and others
1694	Graves						40 workers
1695	Haydon	15	15				
1695	Herring	40		16		15	
1703	Hubbard		2	2	6		plus 12 carpenters
1696	Parker	32		12		12	joint with Castle
1690	Rolfe	15		3		2	
1702	Swallow	40	12	20		6	
1706	Wicker						4 workers
1694	Winter	50				50	
1694	Yeames		8				plus 12 carpenters

On the other hand, the limitations of this approach to gauge contractors' shipbuilding capacities need to be stressed. As the table is reconstructed from patchy information in existing documents relating to protection, the figures are only the largest numbers in available sources, obviously. Some contractors should have more workers than what

[144] ADM 106/389/28, [Thomas Ellis to the Navy Board, 19 December 1689]. ADM 106/395/2/16, [John Castle and Robert Castle to the Navy Board, 9 January 1690]. ADM 106/395/2/18, [Castle and Rolfe to the Navy Board, 19 November 1690]. ADM 106/424/185, [Winter to the Navy Board, 12 February 1692]. ADM 106/427/142, [John Brooks to the Navy Board, 28 March 1694]. ADM 106/441/311, [John Winter to the Navy Board, 13 November 1693]. ADM 106/449/141, [William Graves to the Navy Board, 19 December 1694]. ADM 106/453/209, [James Parker to the Navy Board, 2 August 1694]. ADM 106/457/203, [Ann Wyatt to the Navy Board, 8 January 1694]. ADM 106/457/213, [John Winter to the Navy Board, 24 January 1694]. ADM 106/460/107, [John Bennett to the Navy Board, 8 April 1695]. ADM 106/462/109, [William Collins to the Navy Board, 23 August 1695]. ADM 106/469/281, [John Haydon to the Navy Board, 30 December 1695]. ADM 106/489/106, [Richard Herring to the Navy Board, 26 February 1696]. ADM 106/489/127, [James Parker to the Navy Board, 12 March 1696]. ADM 106/513/304, [John and Richard Wells to the Navy Board, 19 May 1697]. ADM 106/513/33, [Robert Winter to the Navy Board, 18 January 1697]. ADM 106/561/158, [Edward Swallow to the Navy Board, 24 July 1702]. ADM 106/572/100, [William Hubbard to the Navy Board, 16 March 1703]. ADM 106/606/140, [John Burchett to the Navy Board, 8 April 1706]. ADM 106/606/235, [Richard Burchett to the Navy Board, 9 August 1706]. ADM 106/626/273, [Joseph Bingham to the Navy Board, 13 June 1708].

appears on the table. For instance, the given number for the Castles is for constructing a fireship. The family had contracts for up to the Fourth-Rate class during the Nine Years War and even built Third Rates previously. Additionally, Richard Barret asked the Navy Board to grant protection for ten shipwrights, four sawyers, and four barge-men for his building of two Third Rates in January 1692.[145] This is the unlikely size for building such high-rated warships, and Barret evidently asked only for renewing expired tickets for a particular portion of his workers. Dummer's report of September 1704 also shows that the Taylor family had a rope yard from which they provided cordages for the Johnsons' contracts for two sloops.[146] Additionally, George Taylor who supplied guns to the RAC could be a relative of the warship contracting family, thus showing the possibility of having a smith shop as well.[147] Yet, the examination of protection-related documents alone does not reflect these aspects. Thus, a fair comparison of workforces between private yards remains difficult. Regardless of these limitations, by combining the revealed numerical trends and contemporary comments, it is plausible that Blackwall Yard retains its position as the largest private yard at the turn of the eighteenth century.

Lastly, another critical aspect that indicates warship contractors' shipbuilding capacity is their access to naval stores. The contractors knew that their resource reserves would be advantageous for warship contracts as an inquiry into shipbuilders' tendering highlights. The proposals left by John Frame of Hessle provide a great example of the contractors' tendering. His letter of January 1691 shows Frame's confidence in his timber stock. He noted, 'I have a considerable quantity of timber in Yorkshire and Norfolk, the greatest part cut down and seasoned, and if to be used for Their Majesties' service may cut down the rest this winter'.[148] Similarly, Joseph Bingham of Plymouth left detailed tendering. Besides the successful tendering for the Fifth-Rate *Phoenix*,[149] Bingham also approached the Navy Board to rebuild a Fourth, Fifth, or Sixth Rate in December 1708. He appealed:

> I have about 1500 large oak timber trees bought and shall be able; if there be occasion for a 4th, 5th, or 6th Rate more this spring to be rebuilt here to contract for the rebuilding any of them, or make a considerable tender of timber against next filling; please to inform him, which of the two or if either you think may suit with the occasions of the Navy at this place, this ensuing

[145] ADM 106/415/4, [Richard Barret to the Navy Board, 1 January 1692].
[146] ADM 106/583/65, [Edmund Dummer to the Navy Board, 4 September 1704].
[147] Paul, 'Suppliers to the Royal African Company', pp. 145-146.
[148] ADM/A/1771/143. The letter also indicates the constraints of the nature of river transportation. Frame continued, 'And there is also more timber that I am in treaty for above York, fit for building 3rd or 4th rate ships, only cannot be brought down the river, unless there be speedy orders for it, by reason of the shallowness of the water in summer'.
[149] ADM 106/626/232, [Joseph Bingham to the Navy Board, 9 April 1708].

summer…[150]

Considering that Anne Wyatt of Hampshire's proposal for building an 80-gun warship also highlights the plentiful stock of timber in her yard, it is evident that the contractors across England saw the access to timber, the prime naval stores, as a core part of their competency in naval shipbuilding.[151]

Like warship contractors, the Navy also saw timber reserves as an essential measure to outsourcing naval shipbuilding. Some Shoreham contractors provide excellent examples of such cases. William Collins, a high-capacity contractor, tendered to have a contract in April 1694.[152] Overseer Benjamin Furzer wrote, 'Mr Collins builder of this town understanding there are soon 6th Rates to be built for Their Majesties' service, and having timber and materials fit for the building such a ship has desired me to acquaint Your Honours'.[153] On the exact same day, Furzer also wrote that Thomas Burgess was 'very willing to take a 6th Rate having timber and materials and ready and fitting for building such a ship'.[154] These descriptions indicate that access to naval stores was the 'bottleneck' to be successful warship contractors at the time. In his research on warship contractors of the interwar period of the two world wars, Christopher Miller underlined that certain processes and equipment of naval shipbuilding, such as guns and armour plates, were 'sufficiently difficult and/or expensive to produce that only a select few firms could make them'.[155] While supplies of guns were largely contained by the Board of Ordnance during the wooden shipbuilding period, the contemporary bottleneck was the procurement of timber. Due to the restriction by the nature of timber, larger warships not only require more timber in quantity but also different types of them.[156] Banbury claimed that private shipbuilders had difficulty in obtaining timber for warship contracts because of their capital strengths as naval shipbuilding demanded larger and more sound timber, which could endure the recoil of cannons.[157]

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[150] ADM 106/626/420, [Joseph Bingham to the Navy Board, 7 December 1708].
[151] ADM 106/478/193, [Ann Wyatt to the Navy Board, 5 January 1695].
[152] It is unclear if this William Collins has any connection with William Collins of Blackwall Yard, a manager for the Johnson family. According to Hobhouse (ed.), 'Blackwall Yard: Development', the manager Collins worked as a partner to Henry Johnson senior between the 1660s and 1670s and became a manager in 1677. As he stayed in Blackwall until William Johnson's time, it is unlikely that the two individuals are identical.
[153] ADM 106/447/126, [Benjamin Furzer and William Collins to the Navy Board, 29 April 1694].
[154] ADM 106/447/127, [Benjamin Furzer to the Navy Board, 29 April 1694].
[155] Miller, Christopher, *Planning and profits: British naval armaments manufacture and the military-industrial complex, 1918-1941* (Liverpool, 2018), pp. 10-11.
[156] Bruijn, 'States and Their', p. 71.
[157] Banbury, *Shipbuilders of the Thames*, p. 37.

Table 3-8: The Johnsons' requests for protection for transporting naval stores[158]

Places From	Transports	Places From	Transports
Woodbridge	14	Norfolk	5
Ipswich	10	Arundel	4
Isle of Wight	10	Redbridge	4
Guildford	8	Manningtree	3
Suffolk	8	Shoreham	3
Great Yarmouth	7	Essex	2
Aldeburgh	6	Lynn (Norfolk)	2
Reading	6	Southwold	2
Ditton	5	Less than 1 or unnamed	27

Despite the importance of access to naval stores, the lack of in-house records prevents us from sufficiently examining the contractors' resource procurement abilities. One type of document that allows us to see this aspect is the protection-related documents again. Warship contractors also requested protection for the transport of naval stores. Plenty of the Johnson family's letters to request protection over transports are extant, especially during William's time. The wide connection to timber suppliers might be one reason Henry Jnr and William Johnson were leading warship contractors of the time.[159] Table 3-8 is the list of where the Johnson family obtained naval stores and how many times they requested protection.[160] The table indicates that 57 out of 125 identified transports were from the areas near Suffolk: Woodbridge, Ipswich, Great Yarmouth, Manningtree, Lynn,

[158] ADM 106/445/89, 165. ADM 106/470/153, 174, 179. ADM 106/490/90, 93, 94, 96. ADM 106/501/286. ADM 106/546/269. ADM 106/573/90, 99, 102. ADM 106/587/12, 14, 16, 17, 25-27, 57, 65, 71, 76, 93, 97, 98, 111, 141. ADM 106/600/189, 208, 209, 212, 221, 226, 229, 235, 243, 257, 259, 276, 294, 303, 305, 309. ADM 106/610/46, 56, 65, 77, 89, 108, 123. ADM 106/620/3, 9, 12, 28, 39, 59, 77, 79, 80, 88, 91, 104, 109, 118, 121, 126, 133, 134, 142. ADM 106/629/144, 146, 148, 154, 180, 186, 196, 201, 209, 213, 220, 227, 237, 238, 257. These are all Navy Board in-letters relating to protection for the Johnsons' transports. ADM/A/1838/364, [Navy Board's protection for Henry Johnson Jnr, 26 October 1696]. One of the letters mentions 'Alborow' which probably refers to Aldeburgh. ADM 106/587/71, [William Johnson to the Navy Board, 6 May 1704]. And another letter that refers to Yarmouth does not specify it as 'Yarmouth in Norfolk' as other letters do, so this may refer to Yarmouth in the Isle of White. ADM 106/587/65, [William Johnson to the Navy Board, 6 April 1704]. Nevertheless, these unclear cases do not alter the dominant share of the naval stores around Suffolk.

[159] Albion, *Forests and Sea Power*, pp. 55-56. Banbury, *Shipbuilders of the Thames*, p. 153.

[160] As the numbers include the petitions for renewing protection tickets, one may suspect the risk of double counting. However, as the protection was usually granted for individual transporters onboard, the Johnsons often asked for renewal to the same individual for different transports. On the other hand, although there are several letters by navy officers to confirm these petitions, these documents are not included in the table to avoid double-counting. ADM 106/629/147, [The Navy Board's protection to William Johnson, 22 October 1707]. ADM 106/629/149, [The Navy Board's protection to William Johnson, 14 November 1707].

Southwold, and Norfolk. This points to the family's continuing influence surrounding Aldeburgh, its birthplace. In fact, all three contractors became MPs for Aldeburgh, as mentioned. While it would be hasty to conclude that the Johnsons had some intimate political ties to the region, the family evidently did not neglect its activity in Suffolk even when the business at Blackwall Yard was in full swing.

There are several petitions from other warship contractors to protect naval store transports. However, the documents are too scarce to conduct a proper comparative analysis. Among them, the Wyatt family left the most voluminous records. They transported goods from Arundel, 'Buley' (likely to be the River Beaulieu), Reading, Redbridge, and Sussex between 1693 and 1695.[161] Since this was the period when people paid much attention to maritime defence because of the Smyrna convoy disaster, there are abundant records relating to maritime transportation left. As the Herring, Wells, and Winter families also transported goods from Arundel and Brighton, these regions were evidently major timber suppliers on the south coast of England.[162] What is more certain is that many warship contractors had connections to timber suppliers and often managed the transport of naval stores themselves. Nevertheless, the records are too scarce to make a firm conclusion about their shipbuilding capacities in terms of access to naval stores. It is nevertheless clear that the Johnsons had voluminous timber transports, enough to leave abundant letters in the navy record.

The intimate connections to the Navy surely helped the Johnsons to obtain the largest portion of warship contracts. Nevertheless, the sheer shipbuilding capacity of Blackwall Yard also secured the Johnsons' position as the leading contractors of the time. The analysis of this section showed that Blackwall Yard appears to have by far the highest shipbuilding capacity with its vast facility, workforce, and access to naval stores among private yards. With the personal and business connections from their father's time and the ownership of the largest private shipyard in England side by side, Henry Jnr and William became the most reliable contractors to the Navy Board. The Johnsons' case well underlines that the existence of large-scale shipbuilders was essential for the Navy to expand warship contracts under the urgency of the opening of the Second Hundred Years War.

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[161] ADM 106/441/51, [William Wyatt to the Navy Board, 8 March 1693]. ADM 106/441/260, [Ann Wyatt to the Navy Board, 30 September 1693]. ADM 106/441/294, [Ann Wyatt to the Navy Board, 28 October 1693]. ADM 106/457/220, [Ann Wyatt to the Navy Board, 14 February 1694]. ADM 106/457/288, [Winter to the Navy Board, 14 April 1694]. ADM 106/478/325, [Ann Wyatt to the Navy Board, 16 March 1695].
[162] ADM 106/457/288, [Winter to the Navy Board, 14 April 1694]. ADM 106/489/172, [Richard Herring to the Navy Board, 20 April 1696]. ADM 106/564/179, [John Wells to the Navy Board, May 1702].

3.4: Warship Contractors' Personal & Business Ties with the Navy

Section 2 revealed that the leading contractors of the turn of the eighteenth century had a wide range of business interests and intimate connections with navy officers. Yet, being the leading contractors and the owners of the largest private yard, as seen in Section 3, the Johnsons' case might be unique. Further examinations of other warship contractors are essential to underline the extent to which such traits were apprehended. This section thus examines warship contractors' correspondence with the Navy to test whether other contractors had personal and comprehensive business ties with the Navy as the Johnsons did. Presenting the conclusion first, the section argues that many warship contractors shared the traits of connections to the Navy and a broader range of business interests, thus underlining their characteristics as 'military entrepreneurs'.

While the scarcity of records prevents us from making a firm conclusion about other warship contractors, it is plausible that not a small number of them had relatives in the Navy. For instance, R. D. Merriman judged that 'Richard Burchett may have been related to the Secretary of the Admiralty [Josiah Burchett]; Richard Dummer was almost certainly of the same family as Edmund Dummer, Surveyor of the Navy in the previous reign, and a founder the West India Packet Service'.[163] As such, some warship contractors might be related to the commissioners of the Navy Board and the Admiralty. As mentioned in the previous chapter, the Taylors seem to be the family of the Master Shipwright and Commissioner of the Harwich dockyard, John Taylor. John Shish who built the *Dartmouth* at Rotherhithe between 1692 and 1693 is also likely to be a family member of the master shipwright of the Deptford with the identical name. Edward Dummer who seemingly subcontracted his warship contracts of the auxiliary vessels to Blackwall Yard might be a relative of the above-mentioned Edmund Dummer as well. There is a possibility that this 'Edward Dummer' is simply a mistake of 'Edmund Dummer' as Rif Winfield also noted, 'Tippetts remained initially as Surveyor, until Edward Dummer was appointed as Surveyor on 9 August 1692'.[164] However, as this study conducts numerical analyses by families, this does not affect the argument as a result. These examples show that a countable number of warship contractors had familial ties with the navy commissioners.

Some navy records show the possibility that warship contractors also could have genealogical connections to sea officers. John Haydon of Limehouse might be related to Richard Haydon, a gunner of the *Flame*, and another John Haydon, the captain of the

[163] Merriman (ed.), *Queen Anne's Navy*, p. 62.
[164] Winfield, *British Warships in the Age of Sail (1603-1714)*, p. 53.

Eagle.[165] The Barret family of Shoreham also provides another example. They could be related to Lieutenant Phillips Barret of the *Providence* and Master Attendant Edmund Barret.[166] Similarly, William Hubbard of Ipswich might have a genealogical tie with John Hubbard, the captain of the *Elizabeth* in 1706.[167] Therefore, some contractors evidently had direct links to naval officers and commissioners as the Johnsons did. Yet, it is difficult to prove the genealogical connections between these individuals. It was a time when even famous historical figures' origins were unclear, i.e. of the Clerk of the Acts, Charles Sergison, and the same is true for most warship contractors.[168] But these cases show that familial ties seemingly played a role in the signing of warship contracts in various regions across England, even far away from the Navy Office in London.

As branch families of naval officers received warship contracts like the Johnsons, some naval officers themselves also undertook contracts at their private yards as well. Although the Pett family had a long history at the royal dockyards, it also conducted naval shipbuilding at its private yard. For example, Phineas Pett, being a sea officer himself, negotiated for his contracts to build one Third and one Fourth Rate in July 1691.[169] Edmund Dummer also built the Sixth-Rate *Swann* at Rotherhithe in 1709. Moreover, Isaac Betts of Suffolk might be identical to the former master shipwright of Harwich (1677-1680) and Portsmouth (1680-1689) royal dockyards.[170] In addition, like Henry Snr did, other shipbuilders also participate in the Navy's survey. Thomas Clements, for example, received the *Saint David* hulk to survey what kind of repairs would be needed in July 1694.[171] The business between the Navy and warship contractors went beyond the contract relationship of naval shipbuilding. Thus, it is difficult to make a clear distinction between royal and private shipbuilders, contrary to the classic dichotomy between the 'state and society'. Rather, these individuals acted as semi-naval officers. It was the time when royal and private shipbuilders coexisted across a loose boundary.

Despite such uncertainties about genealogical ties, what is clearer is that an

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[165] ADM 106/536/22, [John Haydon to the Navy Board, 25 March 1700]. 'The National Archives, Discovery', <https://discovery.nationalarchives.gov.uk/details/r/C10064442>, [accessed on 18 June 2024]. Richard Haydon was found to be guilty of causing a certain Edward Williams' death but eventually discharged.

[166] ADM 106/444/126, [Phillips Barrett and Robert Anbey to the Navy Board, 31 March 1694]. ADM 106/456/186, [Mr Felton to the Navy Board, 3 August 1694]. 'The National Archives, Discovery', <https://discovery.nationalarchives.gov.uk/details/r/C16415826>, [Accessed on 24 November 2024].

[167] ADM 106/609/136, [John Hubbard to the Navy Board, 26 February 1706].

[168] Hattendorf, John B., 'Sergison, Charles (1654-1732)', *Oxford Dictionary of National Biography*, < https://www.oxforddnb.com/display/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-25096?rskey=5TnkFN&result=1>, [accessed on 15 July 2024].

[169] ADM 106/409/72, [Phineas Pett to the Navy Board, 9 July 1691]. ADM 106/409/74, [Phineas Pett to the Navy Board, 22 July 1691].

[170] ADM 106/350/334, [Isaac Betts to the Navy Board, 13 March 1680].

[171] ADM 106/445/131, [Thomas Clements to the Navy Board, 14 July 1694].

acquaintance with naval officers worked as an advantage for the contractors. Similarly to the Johnsons' case, the Winter and Wyatt families of Hampshire provide a great example of this aspect. Together with being the leading contractors in Hampshire in the late seventeenth century, their abundant documents reflect rich scholarly attention. Holland evaluated that the Winters and Wyatts' acquaintance with Dummer might help to expand warship contracts into Hampshire.[172] When the Board contracted out naval shipbuilding in 1690, the Wyatts had already managed a shipbuilding business around Bursledon on the River Hamble. And in July 1691, the Winters held forty workers, and the Wyatts had forty shipwrights for their constructions of Third Rates.[173] Considering that the Board did not contract out to the Hampshire regions in the previous programme of 1677, the families' acquaintance with the future Surveyor of the Navy may have assisted their tendering evidently.

The Winters and Wyatts' connections might be rooted in their wealthy backgrounds in the Thames region. Holland revealed the families' backgrounds in detail.[174] The two families were 'friends and distant relative' to each other.[175] At the end of the seventeenth century, John and Robert Winter as well as William and Anne Wyatt provided the Navy with rated warships. John Winter appeared in Southampton by 1681 and expanded his business into land leasing, timber yard, and trade in various naval stores. After the family moved to Northam, John held the position of the bailiff of the common council and sheriff there. Holland noted that John became 'more than a middle-class merchant' by 1696 with these financial and social successes.[176] Similarly, William Wyatt was from a family with shipowning and trading in wine and timber, thus having a wide range of maritime businesses. A certain Richard Wyatt's will of May 1680 shows that he possessed a quay and storehouse.[177] As the will states Richard's sons, another Richard and Willaim Wyatt of Bursledon, this is most likely to be the contractors' father. The two families engaged in trade activity, and naval shipbuilding could be a tool to foster their other businesses simultaneously. Thus, as Margrit Beerbühl emphasised the importance of 'F-connections', family and friends, in the context of obtaining logistics, the importance of connections was equally applicable to the colossal manufacturing of rated warships.[178] Wide range of warship contractors had intimate ties with the navy officers, and the Winters and Wyatts' case points to the practical advantages of the connections.

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[172] Holland, *Ships of British Oak*, p.
[173] ADM 106/403/388, [William Creed to the Navy Board, 23 July 1691].
[174] Holland, *Ships of British Oak*, pp. 79-81.
[175] Ibid., p. 80.
[176] Ibid., p. 80.
[177] PROB 11/363/34, [Will of Richard Wyatt, 7 May 1680].
[178] Beerbühl, 'Supplying the belligerent countries', p. 23.

On the other hand, some caution is needed to conclude that the Winter and Wyatt families' personal connections were the decisive factors in extending warship contracts to Hampshire. For example, the lower wages for workers meant the lower price of warship contracts in remote areas.[179] In January 1691, John Winter offered the Board to build a single Third Rate or two Fourth Rates at lower prices than in the Thames region.[180] The contract was signed, and the family soon started with another Third Rate in July.[181] While the Winters first provided warships at Southampton, they successfully appealed to the Navy to build Third Rates at Northam by highlighting the area's advantage in the depth of water and firmness of the ground in May 1693.[182] Overseer William Creed also found Northam suitable for building Third Rates and offered to obtain contracts himself on the same terms to the Winters and Wyatts' in July, which tendering evidently failed.[183] Thus, when the Navy's demand inflated the shipbuilding prices in the Thames, shipbuilders in other regions could advocate geographic advantages and lower shipbuilding prices.

It is important to add that the Wyatt family provides another unique feature of warship contractors as entrepreneurs. When William Wyatt died of smallpox in the middle of his warship contract in June 1693, his widow Anne took over the business.[184] Anne fully exploited the Navy's demand for frigates while Parliament was debating the need for reinforcing Britain's trade protection.[185] On this occasion, Anne showed her sophisticated management skills by terminating a contract to supply plank to the Navy and demanding swift payments.[186] After Anne successfully completed her husband's contract, she directly inquired to the Navy Board and obtained more warship contracts, including that for a Third Rate. Nevertheless, the Board's attitude towards Anne was less enthusiastic than hers. Holland claimed that the Board was reluctant to 'do business with a woman', and Anne herself might have felt the same way.[187] In June 1694, she complained to the Board directly that the term she received was less favourable than her husband's and other contractors'.[188] In another letter of the same month, she clearly noted that 'I find Your Honours are displeased with me'.[189] Such an attitude of the Board might have undermined

[179] Pool, *Navy Board Contracts*, p. 42.
[180] ADM 106/411/265, [John Winter to the Navy Board, 5 January 1691].
[181] ADM 106/403/388, [William Creed to the Navy Board, 23 July 1691].
[182] ADM 106/441/130, [John Winter to the Navy Board, 6 May 1693].
[183] ADM 106/429/208, [William Creed to the Navy Board, 19 July 1693].
[184] ADM 106/441/172, [Ann Wyatt to the Navy Board, 1 July 1693]. PROB 11/415/335, [Will of William Wyatt, 31 July 1693]. Holland, *Ships of British Oak*, p. 89.
[185] Johnston, *Parliament and the Navy*, p. 35.
[186] ADM 106/441/190, [Ann Wyatt to the Navy Board, 12 July 1693]. ADM 106/441/202, [Ann Wyatt to the Navy Board, 24 July 1693].
[187] Holland, *Ships of British Oak*, p. 91.
[188] ADM 106/457/372, [Ann Wyatt to the Navy Board, 23 June 1694].
[189] ADM 106/457/374, [Ann Wyatt to the Navy Board, 30 June 1694].

Anne's efforts.[190] However, her case points out that entrepreneurial spirit was not solely dominated by male actors in society at the turn of the eighteenth century. As such, warship contractors shared entrepreneurial spirit to actively enter the market of naval shipbuilding, besides connections to naval officers.

Genealogical and personal ties were not the only ways to get acquainted with navy officers, and many warship contractors established a relationship through other contracts with the Navy Board. Likely capitalising on their wide business activity, a handful of the warship contractors supplied naval stores to the Board. These ranged from the supply of raw materials like timber to that of manufactured parts like masts.[191] Among these, timber and plank supplies for the royal yards were popular enterprises. Robert Albion and Bernard Pool already demonstrated that the Board commissioned the purchase and import of naval stores to private hands for the royal dockyards' business.[192] The most prominent example of such a family is probably the Taylors of Rotherhithe. The family had had a long history with the Navy by the beginning of the Nine Years War.[193] John Taylor had already built the Second-Rate *London* at the Deptford royal dockyard under a contract between 1665 and 1666, and the family also remained dominant naval store contractors into the mid-eighteenth century.[194] The families with firm business connections with the Navy evidently helped expand warship contracts during the Nine Years War. In fact, John and James Taylor held six new constructions, including a Third Rate, and one rebuilding for the Navy at the turn of the century.[195]

While the descriptions are scattered, some letters give limited but important information about other warship contractors' naval store contracts. Warship contractors frequently asked for protection from the Navy's impressments for transport, as mentioned. These petitions do not provide insights into how the contractors conducted their business, but they at least give some numerical overview of warship contractors' engagement with naval store transports. Compiling these petitions shows who among warship contractors also engaged in naval store contracts. 20 out of 43 warship-contracting families also

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[190] The Navy Board's attitude might not be the sole reason why the Wyatt family's warship contracts did not last longer. Holland explained that John Winter's failure to appeal to the Navy to obtain a contract for Anne, despite his continuation of the business, brought the friendship between the two families to an end. The termination of the cooperation between the Winters and Wyatts possibly undermined their competitiveness as the dominant contractors in Hampshire. Holland, *Ships of British Oak*, p. 91.
[191] ADM 106/684/302, [George St Lo to the Navy Board, 24 June 1713].
[192] Albion, *Forests and Sea Power*. Pool, *Navy Board Contracts*.
[193] Davis, *The Rise of the English Shipping*, pp. 55-54.
[194] Hiono Yuichi, '18-seiki Igirisu Kaigun to Nyu-Ingurando-san Ogata Masuto', *Tagen Bunka*, 7 (2017): 119-128, p. 92.
[195] While the works concentrated on Fifth and Fourth Rates, James Taylor also engaged with the building the Third-Rate *Hampton Court* between 1708 and 1709. ADM 106/646/233, [John Stone to the Navy Board, 17 August 1709].

engaged in naval store contracts or at least negotiated for them. These were namely the Bingham, Briggs, Burchett, Castle, Collins, Dalton, Ellis, Fowler, Graves, Haydon, Hubbard, Johnson, Moore, Shish, Smith, Snelgrove, Taylor, Wicker, Winter, and Wyatt families.[196] Due to the incomplete nature of archival records, this does not imply the contractors without surviving petitions had no connections to naval store contracts. Despite the partiality of the remaining information, it indicates that nearly half of the warship contractors were also associated with naval store contracts to some degree.

To give some descriptions, in December 1689, before the Navy Board expanded its warship contracts to the region, the Board already surveyed the Winters' small masts and considered purchasing them.[197] Also, the Wickers of Deptford evidently supplied naval stores as Commissioner Isaac Townsend's letter in June 1712 shows the plan to employ their plank to rebuild the *Southampton*.[198] Similarly, a purveyor of the Navy reported that a mast at John Haydon's yard at Limehouse was suitable for work at Chatham in October 1696.[199] Edward Snelgrove seemingly had a wide connection with timber suppliers. For the decade between 1690 and 1700, he launched twelve frigates from Deptford, Limehouse, Rotherhithe, and Wapping. His engagement in frequent timber contracts to the Navy and numerous requests for protection for transports reflect Snelgrove's commitment to the timber trade and his endeavour to secure safe voyages.[200] That Snelgrove asked the Board to use the 'East Country' plank in place of the Navy's direction to use English timber implies that he had supplies from the Baltic trade.[201] Thomas Ellis, the largest warship contractor in Shoreham, also provided naval stores to the Navy over a decade between 1685 and 1697.[202] As such, various warship contractors were not mere shipbuilders but

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[196] ADM 106/326/175, [R. Mayors to the Navy Board, 14 August 1677]. ADM 106/376/247, [Thomas Ellis to the Navy Board, 4 May 1685]. ADM 106/402/48, [Thomas Willshaw to the Navy Board, 24 June 1690]. ADM 106/411/42, [John Taylor to the Navy Board, 11 May 1691]. ADM 106/450/193, [William Hubbard to the Navy Board, 21 August 1694]. ADM 106/480/28, [Robert Smith to the Navy Board, 11 February 1695]. ADM 106/482/320, [Joseph Batt to the Navy Board, 30 October 1696]. ADM 106/489/235, [Fisher Harding to the Navy Board, 9 June 1696]. ADM 106/492/224, [George Moor to the Navy Board, 14 August 1696]. ADM 106/500/212, [Joseph Batt to the Navy Board, 11 June 1697]. ADM 106/528/227, [George St Lo to the Navy Board, 7 July 1699]. ADM 106/584/232, [Richard Wyatt to the Navy Board, 20 March 1704 (copy)]. ADM 106/615/135, [John Wicker to the Navy Board, 1 February 1706]. ADM 106/629/198, [William Johnson to the Navy Board, 23 July 1708]. ADM 106/713/172, [William Rann to the Navy Board, 21 October 1717]. 'The National Archives, Discovery', <https://discovery.nationalarchives.gov.uk/details/r/C16271337>, <https://discovery.nationalarchives.gov.uk/details/r/C16278002>, [Accessed on 10 November 2024].

[197] ADM 106/387/234-235, [Richard Beach to the Navy Board, 26 December 1689].

[198] ADM 106/678/390, [Isaac Townsend to the Navy Board, 1 June 1712].

[199] ADM 106/482/320, [Joseph Batt to the Navy Board, 30 October 1696].

[200] For his timber contracts, for example, see ADM 106/480/28, [Robert Smith to the Navy Board, 11 February 1695]. Chapter 4 will examine how resource shortages and impressments affected private yards' naval shipbuilding directly.

[201] ADM 106/523/37, [Edward Snelgrove to the Navy Board, 28 February 1698].

[202] For example, ADM 106/376/247, [Thomas Ellis to the Navy Board, 4 May 1685]. ADM 106/382/73, [Mr. Aymswell to the Navy Board, 25 October 1687].

entrepreneurs who engaged in a variety of businesses.

George Moore and Joseph Nye of East Cowes, Hampshire, left abundant documents that provide a great example of the relationship between warship contracts and the timber supply business. Being middle-capacity contractors, they launched the Fourth-Rate *Jersey* and the Fifth-Rate *Poole*.[203] As Moore wrote several petitions to grant protection for transporting naval stores from Arundel, it points out that he was working on acquiring materials while Nye managed the construction at East Cowes, at least in August 1696.[204] What underlines this division of labour is that Moore wrote to the Board to leave the contract and only supply materials while '…Mr Nye that he shall build the said ship wholly on his own account…' in December 1696.[205] The exact source of disputes between the two contractors is uncertain. But Thomas Barton of Portsmouth became the 'security' to complete the contract when any trouble would arise with the contract. His letter of March 1697 shows that Moore now supplied naval stores to the Herrings, too, thus focusing on his timber trade business besides building smaller boats.[206] Moore and Nye's case indicates troubles with a joint contract as well as the overlapping boundaries between shipbuilders and timber traders at the time. Since the shipbuilding business itself required the reserve of naval stores, it is not counterintuitive that shipbuilders sold their resources when the demand was high enough. As highlighted in the Johnsons' case, warship contractors engaged in a diverse array of enterprises in shipbuilding, shipowning, and trading, which was convenient for promoting their businesses for the synergy among the maritime businesses.

Providing naval stores was not the only business warship contractors engaged with the Navy, but many contractors utilised their capacious shipyards to fully exploit the Navy's demands. The Navy Board's commissions to private yards were not limited to rated warships. The purpose of the present thesis is to analyse the unique traits of warship contracts in the context of the importance of purpose-built warships for Britain's maritime control. Nevertheless, private shipyards engaged with various kinds of smaller vessels, such as fireships, bomb vessels, sloops, and other kinds of auxiliary vessels.[207] The auxiliaries were almost identical in size to those of large merchantmen and could be converted from mercantile vessels easily. However, warship contractors' engagement, even

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[203] ADM 106/492/189, [George Moore and Joseph Ney to the Navy Board, 25 June 1696].
[204] ADM 106/492/224, [George Moore to the Navy Board, 14 August 1696]. ADM 106/492/229, [George Moore to the Navy Board, 22 August 1696]. ADM 106/492/235, [George Moore to the Navy Board, 29 August 1696].
[205] ADM 106/492/298, [George Moore to the Navy Board, 5 December 1696].
[206] ADM 106/508/255, [George Moore to the Navy Board, 6 March 1697].
[207] Anderson and Anderson, *Hansen 6000-nen no Ayumi*, pp. 126-127. Harding, 'Contractors, Warships of the Royal Navy'.

with the auxiliaries, indicates their entrepreneurial spirit in exploiting the Navy's demands for various shipbuilding-related businesses. Therefore, warship contractors were 'entrepreneurs' who mobilised their large-scale shipyards and wider business extents to enter the market of naval business when the Navy craved extra shipbuilding capacity in times of war.

The abundant records left by the Johnson family again provide some insights into the contracts for auxiliary vessels. Navy officers recommended purchasing Henry's ships as auxiliaries many times. These included the construction of fireships, bomb vessels, and even some non-combatants like yachts.[208] The Navy often acquired these vessels by purchasing existing ships at private yards. In December 1693, Captain William Aston and Joseph Platt surveyed the Thames ships to determine their need for fireships, and they conducted measurements of Henry Jnr's privateer.[209] In the following year, Colonel James Richards suggested converting a ship at Blackwall Yard to a bomb vessel.[210] Construction of the auxiliaries continued into William's period. Dummer reported constructions of two sloops at Blackwall in June 1704, for example.[211] These events further show that Blackwall Yard regularly produced relatively large merchantmen, and the Navy was keen to obtain these vessels.

However, these auxiliary vessels are seemingly second in importance for warship contractors. Although Henry Jnr was taking new contracts for two Fourth Rates around the same time, Joseph Lawrence, an overseer and later Woolwich Master Shipwright, recorded the progress on the two bomb vessels was 'extremely backward' and Henry Jnr 'will not be able to comply with the time limited in his contract for their launching, the reason thereof, as he observed is their want of fitting timber for such works' in March 1695.[212] This corresponds with the period of launching the *Burlington* and *Severn*, and Blackwall Yard prioritised the contracts for the Fourth Rates.

Alongside the construction of new vessels and rebuilding of existing ones, repairing warships was another task private yards received. Repairing could be more complex than rebuilding, even though the former only replaces defective parts against the complete reconstruction of the latter.[213] Henry Jnr's repair of the *Hampton Court* in 1695 reflects the

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[208] ADM 106/459/213, [Barrit to the Navy Board, 18 January 1695]. ADM 106/463/205, [William Collins to the Navy Board, 7 June 1695]. ADM 106/480/90, [Edward Alford to the Navy Board, 24 April 1695]. ADM/A/1773/233, [The Admiralty to the Navy Board, 4 March 1691]. Green and Robert, *Chronicles of Blackwall Yard*, pp. 20-21. Some Fifth and Sixth Rates could be used as fireships as well.
[209] ADM 106/427/90, [William Aston and Joseph Platt to the Navy Board, 6 December 1693].
[210] ADM 106/454/240, [James Richards to the Navy Board, 28 March 1694].
[211] ADM 106/583/48, [Edmund Dummer to the Navy Board, 12 June 1704].
[212] ADM 106/480/45, [Joseph Lawrence to the Navy Board, 9 March 1695].
[213] For a more detailed explanation, see [Glossary].

troublesome nature of the work.[214] As repair work required technical judgements for how to fix the vessel to be serviceable again, there could be disagreements over the directions of the work between contractors and navy officers. In the case of the *Hampton Court*, they initially debated over whether the ship should be repaired or fully rebuilt.[215] Repair work also could be more time-consuming than building a new vessel. The repair of the *Suffolk*, for example, stretched from 1697 to 1699 again due to the debate over whether to rebuild or repair it.[216] Despite all these difficulties, the price for repair work was seemingly not satisfying for the contractors. Woolwich officers estimated the costs for Henry Jnr's repairing works of the Fourth-Rate *Greenwich* to be £1,100 and the Fourth-Rate *Deptford* to be £600.[217] Against these figures, the rebuilding of the Third-Rate *Orford* amounted to around £12,627, with £11 10s per ton for the 1,098-ton vessel. Although the total costs of repair tasks could be considerably smaller than those of building and rebuilding, repairs also occupied the contractors' yards for a long time, and their incomes were much smaller compared to warship contracts of rated warships.

It is important to add that the Navy sometimes used private yards for docking purposes, too. For instance, Henry Jnr offered the Navy to dock warships when the royal yards were occupied.[218] This practice continued into William's time as Captain Henry Greenhill suggested docking the *Dreadnought* at Blackwall Yard.[219] While being the largest contributor to producing rated warships, Blackwall Yard also engaged in a wide range of activities for the Navy.

Blackwall Yard was not the sole private yard that engaged in a variety of shipbuilding-related businesses. For instance, the Castles of Deptford fully utilised their shipbuilding capacity for the Navy. The Castles had a long history with the Navy and was one of a few contracting families who provided Third Rates from the 1660s.[220] John Castle's letter of February 1695 shows that the yard was building a bomb vessel alongside two Fourth Rates. Similarly, the Taylors obtained a repairing contract of the Fourth-Rate *Woolwich* in 1695.[221] The present study is not to underscore the contributions of shipbuilders who did

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[214] The contract was not going smoothly from its beginning. When Lawrence found out that the *Hampton Court*'s draught was too deep to be received in Blackwall Yard, he complained that it was Henry Jnr's responsibility to make sure of the matter before the docking. ADM 106/480/50, [Joseph Lawrence to the Navy Board, 11 March 1695].
[215] ADM 106/480/67, [Joseph Lawrence to the Navy Board, 29 March 1695].
[216] ADM 106/514/237, [Joseph Lawrence to the Navy Board, 4 January 1697]. ADM 106/514/246, [Joseph Lawrence to the Navy Board, 22 January 1697]. ADM 106/514/304, [Joseph Lawrence to the Navy Board, 11 June 1697]. Add MS 22183 232, [The Navy Board to Henry Johnson Jnr, 28 January 1697].
[217] ADM 106/496/190, [Woolwich officers to the Navy Board, 5 February 1696].
[218] ADM 106/451/7, [Henry Johnson Jnr to the Navy Board, 12 January 1694].
[219] ADM 106/585/325, [Henry Greenhill to the Navy Board, 29 November 1704].
[220] Banbury, *Shipbuilders of the Thames*, p. 146.
[221] ADM 106/480/118, [Woolwich officers to the Navy Board, 13 June 1695].

not provide many rated warships. The Sixth-Rate *Seahorse* of 1709 was the only rated warship by the Yeames family of Ratcliffe (Limehouse), but it also provided two shallops in 1693 and repaired the *Society*, which was converted from a warship to a hospital ship at the family's yard in 1696.[222] Also, the Graves of Limehouse, despite being a prominent shipbuilding family from the mid-seventeenth century,[223] had only two warship contracts but constructed the Bomb *Owner's Adventure*.[224] These families thus mobilised their shipyards to full extent to enter the market of the naval businesses.

These practices went beyond the Thames basin. Joseph Bingham of Plymouth provides another great example of how warship contractors widely employed their yards for the Navy. He was an apprentice to shipwrights at Woolwich, Harwich, and Chatham dockyards for seven years and had worked with the Navy Board and the Board of Ordnance for nine years.[225] As a warship contractor, Bingham only engaged with the rebuilding of the Fifth-Rate *Phoenix* between 1708 and 1709. However, the abundant navy records show that Bingham had more comprehensive businesses with the Navy. Greenhill's letter of May 1692 from Plymouth mentions that Bingham proposed to break up the *Harwick* and reuse some timber and planks for other purposes.[226] Moreover, Greenhill wrote about Bingham's work for oars in May 1694.[227] Bingham further proposed to the Board in August 1706:

> Being informed this post that you are taking in ten or twelve ships to make Men of War [warships]; this comes to inform you that my ship *Barbadoes* Merchant is out of business occasioned the loss of the West India convoy; she will completely carry thirty-four guns; she is a new ship but [one (?, partially damaged)] voyage to sea last year in the Royal African Company service to Barbados and from London… A war like and good countenance frigate-built ship he will either sell; or let her into the service[228]

This letter provides a great example of shipbuilders' tendering to sell their ships as warships. It stresses the large dimensions of the vessel and how many guns it can carry. Bingham's offer continued to 1708 when he proposed to take repair work on fireships.[229]

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[222] ADM 106/481/264, [John Batt to the Navy Board, 31 January 1696].
[223] Davis, *The Rise of the English Shipping*, pp. 55-54.
[224] ADM 106/454/107, [Cornelius Purnell to the Navy Board, 26 April 1694].
[225] ADM 106/515/348, [Joseph Bingham to the Navy Board, 27 September 1698].
[226] ADM 106/418/277, [Henry Greenhill to the Navy Board, 27 May 1692]. ADM 106/418/287, [Henry Greenhill to the Navy Board, 14 June 1692]. ADM 106/418/292, [Henry Greenhill to the Navy Board, 21 June 1692]. ADM 106/418/356, [Joseph Bingham to the Navy Board, 7 October 1692].
[227] ADM 106/449/217, [Henry Greenhill to the Navy Board, 15 May 1694]. ADM 106/449/310, [Henry Greenhill to the Navy Board, 23 October 1694].
[228] ADM 106/606/232, [Joseph Bingham to the Navy Board, 4 August 1706].
[229] ADM 106/626/201, [Joseph Bingham to the Navy Board, 2 March 1708].

As such, warship contractors remote from the Navy Office in London also vividly exploited the Navy's demands for various businesses relating to warships. Therefore, the characteristics of military entrepreneurship were widely apprehended by warship contractors at the turn of the eighteenth century.

Before concluding the section, some notes on the connection between warship contractors themselves need to be addressed. The stated influence of trade associations like the shipwrights' companies and Trinity Houses implies the close distance between these individuals, not nation-widely but at least region-widely. Nevertheless, the lack of private records is an obstacle to reconstructing the networks between warship contractors. The fact that contracting families often signed their contracts individually against only ten joint contracts at the time further makes proving the direct links between the contractors difficult. Yet, the joint contracts indicate the connections among those shipbuilders. Namely, those are between William Rolfe and the Castle family, George Fowler and the Johnson family, Robert Chatfield and William Collins, Thomas Ellis and William Collins, Thomas Burgess and William Briggs, George Moore and Joseph Nye, Thomas Newman and William Graves, and Edward Swallow and George Fowler. These joint contracts indicate some connections among shipbuilders in the same region.

Several other documents in the navy records imply that there were some communal relationships or at least acquaintances among the contractors. One hint of cooperative relationship among shipbuilders can be seen in the reports by William Keltridge, an overseer at the Thames. His reports at the end of 1690 reveal that the Castle, Gressingham, Haydon, Johnson, Shish, Snelgrove, and Taylor families were all building fireships or ketches.[230] While it is difficult to prove the exact relationships between these shipbuilders, the contracts to build fireships in March 1690 are signed on the same document by the Barret, Gressingham, Graves, Snelgrove, and Taylor families.[231] Additionally, the Castle, Ellis, Frame, Graves, Rolph, and Shish families together appealed to the Navy to take surveys before launching their ships.[232] Even though it is possible that each contractor signed them on separate occasions, the documents imply some acquaintance between the contractors at least. Yet, it is not certain whether warship contractors made familial bonds as shipwrights at the royal dockyards did at the time.[233]

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[230] ADM 106/398/296, [William Keltridge to the Navy Board, 18 November 1690]. ADM 106/398/299, [William Keltridge to the Navy Board, 2 December 1690].
[231] ADM 106/395/2/106, [Edward Snellgrove, John Graves, John Taylor, Nicholas Barrett, and Thomas Gressingham to the Navy Board, 17 March 1690].
[232] ADM 106/395/2/107, [John Castel, John Frames, John Graves, Jonas Shish, Robert Castel, Thomas Ellis, and William Rolph to the Navy Board, 14 April 1690]. William Castle and William Rolfe also built a ketch together. ADM 106/395/2/18, [Castle and Rolfe to the Navy Board, 19 November 1690].
[233] Haas, 'Work and Authority', p. 427.

The examination in this section points to that an intimate connection to navy officers was not a distinct feature of the Johnson family but also can be observed in various contracting families. Moreover, as the section revealed mainly with their letters to the Navy, many warship contractors fully mobilised their extensive enterprises for naval businesses. This aspect further underlines the entrepreneurial nature of warship contractors who keenly exploited the Navy's demands. Warship contractors often engaged in other sorts of business with the Navy, even if they did not deal with warships directly. The shipbuilders' broader business relations with the Navy helped them to acquire warship contracts by creating business infrastructure and trust with the Navy Board in advance. What is most explicit from the findings here is that warship contractors were not solely shipbuilders but entrepreneurs who capitalised on their wide range of maritime businesses to enter the naval shipbuilding business.

3: Chapter Conclusion

This chapter approached the traits of warship contractors who were mostly faceless in the previous accounts of naval shipbuilding. Through this analysis, it became apparent that warship contractors were not only shipbuilders but engaged with a wide range of maritime businesses. They were distinct from ordinary shipbuilders as contracted warships were much bigger than most large merchantmen at the time. Moreover, many warship contractors also engaged with broader naval businesses, especially in supplying timber. As Rafael Sánchez indicated with the Spanish warship contractors' cases, the wider business and personal connections to the Navy created trust and gave some information advantage, i.e. in knowing the timber reserves at the royal yards and orders for new shipbuilding.[234] Therefore, they utilised the trading enterprise and capacious yards to exploit the Navy's demands by supplying naval stores and working as the secondary royal dockyards.

These findings collectively indicate that warship contractors are best described as 'military entrepreneurs' rather than simply 'private shipbuilders'. Previously, the term has been used without a fixed definition other than that the people who undertook the state's contracts. However, the findings here give one example to allow us defining 'military entrepreneurs' as individuals who took advantage of their wide business and personal connections to fully exploit government departments' demands. Following Miyamoto Matao's terminology, warship contractors were more of Kirznerian entrepreneurs rather than Schumpeterian ones.[235] These military entrepreneurs did not create a new market with

[234] Sánchez, *Military Entrepreneurs and the Spanish*, p. 174.
[235] Miyamoto Matao, 'Kigyo-ka no Keifu', Miyamoto Matao, Kagono Tadao, and Kigyo-ka Kenkyu Forum

innovations, but they were keen on the Navy's demand and exploited it by capitalising on their extensive business reaches. This exact characteristic of warship contractors can be the reason for coining the term 'military entrepreneurs'.

The fixed definition of military entrepreneurs can provide a new lens to replace, or at least modify, the 'state and society' dichotomy in the contractor state model to grasp how early modern European powers mobilised strategic resources. Jeff Fynn-Paul, Marjolein 't Hart, and Griet Vermeesch described the rising attention to these contractors as such:

> …new ideas regarding the relationship between public and private, war and finance, and regarding the boundaries of the state itself, were being put forward, with the figure of the military entrepreneur serving as a fruitful nexus of many critical axes of power during the early modern state-forming process.[236]

These warship contractors were military entrepreneurs who acted in between, or acted to connect, the government and market of Britain. Banbury wrote that Henry Snr was 'accused of building warships indiscriminately for the Commonwealth and King. In truth, he built ships for England.'[237] However, in the era before the rise of nationalism, it is most likely that the Johnson family's motivation for naval shipbuilding beyond the Crown and Parliament conflict was driven by the spirit to exploit business opportunities. The allegiance was not a prime concern of the family. Whenever the Navy sought shipbuilding capacity, the Johnsons could mobilise its capacious Blackwall Yard to fill the demands. This attitude further reinforces the view of contemporary warship contractors as Kirznerian entrepreneurs.

On the other hand, perceiving all warship contractors as a single group is inadequate. While some contractors built warships much larger than most merchantmen, many shipbuilders provided Fifth and Sixth Rates, equivalent to the sizes of big merchantmen. Moreover, not all warship contractors had intimate connections to navy officers. The Navy Board's attempt to mobilise a wide range of shipbuilders geographically brought various newcomers at the end of the seventeenth century. As the naval race during the Nine Years War escalated, the Board suggested that private shipbuilders should set up new yards in areas where labour and materials were readily available.[238] The Herring family's warship contracts could be a response to such a call as the Beaulieu basin, located in south-west

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(eds.), *Kigyo-ka-gaku no Susume* (Yuhikaku, 2014): 4-21, pp. 5-10. Kirzner, Israel M., *Kigyo-ka to Shijo toha Nanika*, Nishioka Mikio and Tanimura Tomoki (trans.), (Nihon Keizai Hyoron-sha, 2001), pp. 4-8.
[236] Fynn-Paul, Marjolein 't, and Vermeesch, 'Introduction', p. 3.
[237] Banbury, *Shipbuilders of the Thames*, p. 115.
[238] Ibid., p. 41.

Hampshire, had abundant forest resources.[239] Portsmouth officers surveyed the site in March 1696 and judged that it was suitable for the business.[240] Despite being newcomers, Richard and James Herring built a Fourth Rate and contributed to the naval race by being middle-capacity contractors. Warship contractors and the Navy were not in the world with a clear boundary between the 'state and society', or public and private, but within the political society in which many sorts of actors cooperated and sometimes competed with each other. This nature fits the recent interpretation of early-modern states as 'conglomerate states', in which various kinds of actors from different strata worked together.[241]

Based on this perspective, one should not stress the sense of nepotism for military entrepreneurs too much. Warship contracts at the turn of the eighteenth century were in the transitional period from the 'relational' to the 'transactional' model of contracts.[242] While the families with long-lasting connections to the Navy, like the Castle, Graves, Johnson, and Taylor families, still retained their influence, various newcomers joined the market. The Navy's demand for warships dictated even the Johnson family's tendering. For example, Lawrence rejected Henry Jnr's offer of the continuous use of the *Charity* as a bomb vessel in April 1693.[243] When it comes to the Navy's reliance on the Johnson family, the high shipbuilding capacity of Blackwall Yard should not be overlooked. As Daniel Baugh stated, 'Sometimes political connection influenced the awarding of contracts, but in wartime it was mainly a matter of price.'[244] Thames shipbuilders did not offer the lowest price, but Blackwall Yard certainly provided the highest shipbuilding capacity for the Navy among private yards. At the same time, one should be careful with stressing the advantage of contracting in an 'open market' too much.[245] F-connections between the Navy and its contractors also brought a practical advantage of reducing transaction costs, i.e. for extensive surveys of private yards, by created trusts. In short, the relationship between the Navy and warship contractors was also that of business partners, and the contractors who provided practical advantages could promote their continuous business with the Navy.

As such, warship contractors were military entrepreneurs who exploited a wide range

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[239] Pool, *Navy Board Contracts*, p. 59.
[240] ADM 106/493/56, [Portsmouth officers to the Navy Board, 14 March 1696]. ADM 106/493/57, [Richard Herrings to the Navy Board, 12 March 1696].
[241] Kondo Kazuhiko, 'Rekigan no youna Kinsei Yoroppa no Chitsujo Mondai', in Furuya Daisuke and Kondo Kazuhiko (ed.), *Rekigan no youna Yoroppa* (Yamakawa Shuppan-sha, 2016): 3-24, p. 6. [Ch2§1].
[242] Knight and Wilcox, 'War, Government and the Market', pp. 177-178.
[243] Add MS 22183 207, [The Admiralty to Henry Johnson Jnr, 8 April 1693].
[244] Baugh, *British Naval Administration*, p. 255.
[245] Knight and Wilcox, *Sustaining the Fleet*, p. 5.

of the Navy's demands. The existence and active endeavour of these military entrepreneurs were thus essential requites for the Navy to rapidly expand warship contracts at the turn of the eighteenth century. As Helen Paul demonstrated that chartered companies like the RAC and South Sea Company were a part of Britain's fiscal-military state by supplying necessary funds, those large-scale entrepreneurs were also a part of Britain's contractor state who manufactured highly strategic and valuable commodities.[246] Based on the highlighted traits of warship contractors here, the thesis next investigates what allowed private yards to complete the colossal manufacturing of warship contracts through a closer examination of the naval shipbuilding process itself.

[246] Paul, Helen Julia, 'Joint-Stock Companies as the Sinews of War: The South Sea and Royal African Companies', in Torres Sánchez (ed.), *War, State and Development*: 277-294, p. 282.

Chapter 4: Warship Contracts as Cooperation between the Royal and Private Yards

4: Chapter Introduction

Chapter 3 explored warship contractors' characters and their entrepreneurial spirit to exploit the Navy's demand. As a result, it became explicit that the existence of military entrepreneurs was an essential requisite to expand warship contracts. On the other hand, how private shipbuilders built rated warships successfully also needs a proper assessment to answer what allowed the rapid expansion of warship contracts at the turn of the eighteenth century. While the existence of large-scale shipbuilders gave the Navy potential, this potential needed to be exploited to increase the scale of warship contracts. Answering this question requires a closer observation of the interactions between the Navy and private shipbuilders during their contracts.

Historians were not completely silent about the interactions between the Navy Board and private shipbuilders. Naval historians up to the 1970s reconstructed how the Board relied on private actors to achieve its strategic goals, as seen in Chapter 1.[1] For example, A. J. Holland's study revealed the business natures of Hampshire contractors and their relationship with the Navy.[2] Nevertheless, besides these few exceptions, scholarly understanding of how warship contractors conducted their naval shipbuilding is largely limited. Since the administration of the naval department has been naval historians' prime concern, warship contractors have been on the flip side of the picture.

The lack of insights into naval shipbuilding at private yards also limits the scholarly understanding of the Navy's attitude towards the contracts. Earlier studies emphasised the Navy's negative assessment of outsourcing shipbuilding to private yards. They recognised that the Navy's criticisms can be categorised into two: the quality concerns of contracted warships and the worry over friction between the royal and private yards for labour and resource procurement.[3] For example, Bernard Pool's early work already stressed the Navy's concern that private shipbuilders were only thinking about their profits and did not offer a quality that justifies the price. Pool further stressed the low quality of privately built warships by highlighting Edmund Dummer's criticisms of 'a very dangerous custom is the building of ships by contract' and that private-build warships would be 'worn out in less than half the time of those built in the King's Yards.'[4] As this chapter shows in more

[1] [Ch1§3].
[2] Holland, *Ships of British Oak*, pp 18-19.
[3] Pool, *Navy Board Contracts*, pp. 12-13. Baugh, *British Naval Administration*, p. 225.
[4] Pool, *Navy Board Contracts*, pp. 49, 61.

detail, the Navy indeed wrote criticisms of privately built warships.

Nevertheless, one should be cautious with the assessment that the Navy was hesitant to outsource shipbuilding. Most importantly, the Navy Board's aversion to warship contracts was concentrated on those for capital ships. In the Board's letter to the Admiralty in March 1708, it wrote:

> That it has always been our humble opinion that the building, rebuilding, and repairing of Her Majesty's ships in merchants' yards should be avoided as much as possible, and especially such important works as the capital ships; and that when there shall be a necessity to perform any works in the merchants' yards those [ships] of the least, and not of the greatest, importance should be put into their hands.[5]

More strikingly, the Board officers stated in a letter of January 1711 that 'All the merchants' yards in the river [Thames] are qualified for building such small ships', Fifth and Sixth Rates.[6] It might be true that the Navy wanted to contain naval shipbuilding at the royal yards as much as possible. However, considering the high volume of shipbuilding during wartime, the Board also saw outsourcing to private yards as an effective way to rapidly expand its shipbuilding capacity.[7]

Alongside the assessment of navy officers' concern over the quality of contracted warships, studies on the royal dockyard management implied that the Navy was reluctant to outsource naval shipbuilding because of the competition for resource procurement. J. M. Haas implied that warship contracts had negative impacts on the royal yards as private ones offered higher wages and took workers from the Navy, for example.[8] Indeed, the Navy Board wrote about the possibility of increasing competition between the two yards for timber by outsourcing the rebuilding of the capital ships to private hands in the above-mentioned letter of March 1708.[9] Based on those accounts, some naval historians emphasised the Board's negative view on warship contracts.

However, it is important to note that the required timber might differ according to the subject ship's size. James Dodds and James Moore argued that warships and merchantmen

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[5] Merriman (ed.), *Queen Anne's Navy*, p. 82.
[6] Ibid., p. 92.
[7] The Navy's attempt to contain its shipbuilding at the royal yards was persistent until the beginning of the nineteenth century. Nevertheless, the reliance on private resources remained essential due to the limited shipbuilding capacity and resources at the royal yards. Lambert, Andrew, *The Last Sailing Battlefleet: Maintaining naval mastery, 1815-1850* (London, 1991), pp. 165-166, 178.
[8] Haas, *A Management Odyssey*. Ranft, B. M., 'Labour relations in the Royal Dockyards in 1739', *Mariner's Mirror*, 47 (1961): 281-291, p. 286. Coats also shared the view of higher wages at private yards. Coats, 'Efficiency in Dockyard Administration'.
[9] Merriman (ed.), *Queen Anne's Navy*, pp. 82-83.

required different sizes and types of timber to be built.[10] Holland also noted that warship contracts required larger timber than mercantile shipbuilding both in size and amount, thus demanding connections to different sorts of timber suppliers.[11] In a similar way, timber used for capital ships and frigates might be different. If this was the case, the two yards did not necessarily compete for resource procurement as First and Second Rates were contained at the royal yards, except for some rebuilding at Blackwall Yard. Or this very nature of different requirements might be why such a division of labour emerged between the two yards in the first place. In addition, Ann Coats argued that, given the shortage of timber and labour, outsourcing to the private sector was a reasonable way of reducing friction between the two yards, creating a local pool of skilled labour.[12]

Collectively, it is inaccurate to conclude that warship contracts always created competition for resource procurement, thus hindering the business of the royal yards. Competitions for resources might have happened for Third and Fourth Rates. However, without private shipbuilders' collaboration, the Navy could not catch up with the skyrocketing demand in the first place. Judging how the royal yards regarded naval shipbuilding at private yards demands a closer look at how the two yards interacted with each other during warship contracts.

In summary, owing to the different sets of questions, the existing accounts drew the story from the navy officers' complaints, and what the Navy's attitude towards private yards meant to warship contractors was largely overlooked. Thus, the scholarly understanding of the Navy Board's negative attitude against warship contracts requires a proper reassessment to locate warship contracts in the new perspective of the contractor state debate and military entrepreneurs. In other words, this chapter analyses warship contractors' interactions with the Navy during naval shipbuilding through the lens of cooperation rather than competition between the two yards.

Against this background, the chapter examines how private yards conducted naval shipbuilding and what actions the Navy took for and against the contractors. Due to the lack of in-house records of private yards, it attempts to reconstruct their interactions, mainly with the correspondence between the Navy and warship contractors preserved in the navy records. Before analysing the interactions, Section 1 examines the agreements on a signed contract to clarify the responsibilities of the two contracting parties. The rest of the chapter then investigates how private yards and the Navy Board conducted the colossal

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[10] Dodds and Moore, *Zusetsu Eikoku no*, p. 17.
[11] Holland, *Ships of British Oak*, pp. 46-47.
[12] Coats, 'Efficiency in Dockyard Administration', p. 421. Harding, *The Evolution of the Sailing Navy*, p. 106.

project of naval shipbuilding against the written agreements.

Section 2 focuses on warship contracts of the Johnson family of Blackwall, who provided the largest number and tonnage of warships at the turn of the eighteenth century. The number of available records is also why the chapter gives special weight to the family.[13] In addition to the *Johnson Papers* at the British Library, the Navy kept strict weekly progress reports of warship contracts during the 1690s, which covers the period of Henry Jnr's contracts well. These documents combined allow us to reconstruct what kind of impact the Navy had on Blackwall Yard's warship contracts. The abundant records relating to the Johnsons can provide a great image of the leading contractors' difficulties and how they overcame them.

On the other hand, the case of the leading contractors alone is not sufficient to highlight the general traits of contract relationships. Thus, Sections 3 and 4 analyse other warship contractors' cases. While it is difficult to reconstruct the whole interactions between the Navy and these contractors, the revealed Johnsons' case provides a general framework of the Navy's actions. Based on this, Sections 3 and 4 also compare the traits of each contractor to highlight the differences in the interactions between the two parties. In this way, the sections attempt to extend the analysis of Chapter 3, which discusses what kind of shipbuilders were needed for the Navy to expand warship contracts. More precisely, they first examine whether a wide range of contractors faced struggles similar to the ones at Blackwall Yard. The sections then analyse what kind of shipbuilders' characteristics influenced the countering issues they faced.

Based on the analysis in Chapter 3 Section 1, the present chapter categorises the contractors by two factors: their shipbuilding capacities and the locations of their yards. The Navy might show different attitudes towards contractors of different sizes and regions. It is unsurprising if the Navy wanted to prioritise the business with large-scale shipbuilders. Also, in the age of slow and costly transportation and communication, the Navy Board likely wanted to contain the contracts in proximity. Against these assumptions, Section 3 reconstructs the interactions between the Navy and the Thames and Hampshire shipbuilders, the two centres of warship contracts, to test whether their shipbuilding capacity worked as competency of the naval shipbuilding business. Section 4 then moves on to the second factor of locations by examining warship contracts at relatively remote areas from the naval centres, Hull, the Southwest coast, Suffolk, and Shoreham.

Collectively, this chapter attempts to reconstruct the exact image of the Navy's

[13] [Ch3§3].

attitude towards warship contracts and the similarities and differences of the interactions by the sizes and locations of private yards. Presenting the conclusion first, the chapter argues for the Board's rather supportive attitude towards warship contractors. Contrary to the traditional image of the Navy's reluctance to warship contracts, the Board assisted naval shipbuilding at private yards to a great extent. What was the most negatively influential was not the Board's reluctance but rather its lack of authority to secure flawless warship contracts which was constantly disrupted by impressments.

4.1: Written Agreements & Contractual Obligations

In analysing the relationship and interactions between the Navy and warship contractors, it is first necessary to review their agreement when signing a contract. Existing studies revealed some aspects of the agreements and practices of warship contracts. For example, a contract specified the price per tonnage, the date of delivery, and the method of payment in instalments.[15] Also, the Navy could reduce the final payment when the contractor failed to deliver the hull on time. However, as the existing studies of warship contracts mainly question the Navy Board's administration, they stress the aspects of the Navy's quality control. This section instead reviews the agreements more widely, especially about the extent of the two parties' responsibilities. In particular for the present analysis, the section stresses that the indentures clearly specify that warship contractors were responsible for the entire process from resource procurement to hull launch.

Signed warship contracts at the turn of the eighteenth century are not compiled into a single series in archives, and they are scattered across the boxes, mainly of the ADM 106 series at the National Archives. Among these, the online catalogue labels ADM 106/3070 as 'Contracts and certificates as to sick, wounded and dead'.[16] Contrary to the misleading title, the box actually contains copies of warship contracts at the turn of the eighteenth century. First, the section examines Henry Jnr's contract for constructing a Fifth Rate fireship, later known as the *Strombolo*, on 31 October 1690 to clarify the scope of liabilities of both contracting parties.

The first part of the indenture gives an overview of the subject warship and agreements between Henry Jnr and the Navy Board:

> …the said Sir Henry Johnson, his executors, administrators, and assignees, shall and will finding all materials and workmanship, at his and their own

[15] Banbury, *Shipbuilders of the Thames*, p. 40. Pool, *Navy Board Contracts*, pp. 53, 63. Pool, 'Some Notes on Warship-Building', p. 115. [Ch2§3].
[16] 'The National Archives, Discovery', <https://discovery.nationalarchives.gov.uk/details/r/C4110946>, [accessed on 11 January 2024].

> proper cost and charges, well and workmanlike erect and build off the stocks for the use of Their Majesties' one new frigate which he shall make a fireship, building the same with all imaginable regard to her good sailing by and large… and entry finishing of the hull or body of the said fireship shall be as follow...[17]

This excerpt indicates that from procuring resources to completing the hull is Henry Jnr's responsibility. In particular, it clearly states that the shipbuilder was responsible for the costs of these items. It also clarifies that the vessel should be the frigate design, and the Navy would operate it as a fireship. As such, the Navy defined the dimensions and purpose of the subject ship precisely in advance.

After detailed dimensions of the ship and directions for the construction processes, including the raw materials' conditions, the second last paragraph of the contract specifies the procedure relating to the launch in detail:

> …and to launch and [the said (?, the document damaged)] ship on float in the river of the Thames into such of Their Majesties' officers and shall be appointed to receive her by or before the last of February next, or the first spring March in furthest. And it is further agreed if at any time during the building of the said ship herein mentioned according to the dimensions, protection, sheathings and conditions before expressed or intended to be expressed, there shall be found on due survey to be made thereon by such as shall be there unto appointed any mentioned materials or in sufficient workmanships prejudicial to Their Majesties that then after due notice thereof given in writing by the said surveyor or surveyors to the said Sir Henry Johnson or chief master workman under him there shall be effectual and speedy reformation of every such default in stuff or workmanship, and the said amendment shall be certified in writing by the said surveyor to the Principal Officers and Commissioners of Their Majesties' Navy.[18]

Therefore, the contracting parties agreed that the hull would be held on the River Thames after its launch and that a designated naval officer would receive it at a specified time. This part also states that the Navy will survey the vessel's condition, aligning with the already-known practice of warship contracts. The contract also clarifies that Henry Jnr must make changes if any problems are found during the survey and that the surveyor must receive the Navy Board's approval for the changes.

In this way, the Navy implemented the means of quality control through a strict survey

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[17] ADM 106/3070, [Henry Johnson Jnr's warship contract for the Fifth Rate *Strombolo*, 31 October 1690].
[18] Ibid.

and imposed the warship contractor to amend any defects found against the agreed dimensions. When Henry Jnr complained of the frequent surveys, Richard Haddock replied that the 'surveys were reported to be necessary, so that there can have been no obstruction to her works from thence'.[19] Haddock's response indicates that the survey was a way of the Navy's quality control for warship contracts. And even works at Blackwall Yard, the largest private yard and the intimate connection since Henry Snr's time, was a subject of the Navy's concern for the quality.

It is important to add that warship contractors' responsibility for fixing any defects could go over the period of the launch. The *Blackwall* and *Guernsey* were Henry Jnr's last new constructions of rated warships.[20] The Navy claimed that the two ships demanded some amendments; the *Guernsey* was particularly leaky and required further caulking.[21] In reaction to this, Henry Jnr requested the Thames shipwrights to survey his warships and wrote to the Navy Board under shipbuilders' witnesses as follows: 'The shipwrights of the river have given under their hands that they are serviceable for the said ships, and Sir Henry Johnson has promised that if they prove deficient in seven years he will make them good at his own proper cost and charge'. [22] As such, the Navy made sure that private shipbuilders would be liable for the quality of their naval shipbuilding.

The last paragraph of the indenture describes the details relating to the price and payments. First, it specifies the price should be 'the sum of seven pounds twelve shillings and six pence per ton for every ton the said fireship shall be in burthen computed by the rule of Ship Wrights' Hall'.[23] This part not only underlines the known trait of determining the price per the ships' tonnage, but it also highlights the Shipwrights' Company's influence to set the rule of measurement in contemporary shipbuilding. The paragraph continues, 'according to the admeasurement before agreed on and expressed in this contract and no allowance to be made for any over measure exceeding two hundred fifty six tons in burthen or any over works the said ship to be completely fitted in all respects as to her hull by the contractor'.[24] Some historians argued that warship contractors tended to build warships larger than the agreed dimensions to maximise their profits, thus stressing

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[19] Add MS 22183 191, [Henry Johnson Jnr to the Navy Board, 11 September 1691]. Add MS 22183 192, [Navy Office to Henry Johnson Jnr, 14 September 1691]. The direct quote is from the latter.
[20] ADM 106/497/250, [Edward Alford to the Navy Board, 7 July 1696].
[21] ADM/A/1832/141, [The Admiralty to the Navy Board, 15 July 1696]. ADM 106/493/223, [John Quallet to the Navy Board, 13 March 1696]. ADM 106/489/142, [Deptford officers to the Navy Board, 1 April 1696].
[22] Add MS 22183 227, [Shish, Norbrry, Graves, Rolph, Haydon's survey, 2 April 1696]. ADM 106/490/97, [Henry Johnson Jnr to the Navy Board, 7 April 1696]. The direct quote from ADM 106/490/97. Considering the repeated appearance of the same ships at Blackwall Yard, it hints that the Navy inquired about the maintenance of their builder. But whether the Navy had such an explicit policy is uncertain.
[23] ADM 106/3070, [Henry Johnson Jnr's warship contract for the Fifth Rate *Strombolo*, 31 October 1690].
[24] Ibid.

that the Board was unwilling to outsource naval constructions.[25] However, or precisely for this reason, the Navy acted in advance and set the cap of the tonnage that counts for the final price. Thus, the agreement over the measuring method assured the Navy that they would receive a vessel at a reasonable price.

On the other hand, the contract also gives insurance to the shipbuilder. The paragraph then clarifies that the Navy would pay Henry Jnr in instalments and notes the timing of the payments and amounts for each occasion. It was agreed that the first instalment would be paid at the signing of the contract, followed by payments at each designated stage of the construction, and finally the remaining amount at the time of delivery, for a total of five instalments. The contract also states:

> ...and in case any of them shall happen to be unpaid the said Sir Henry Johnson is to be allowed interest after the rate of six pounds per comptroller annum from and after the said six months until his money shall be paid him in witness whereof the said Principal Officers and Commissioners on Their Majesties' behalf…[26]

Thus, in addition to that the contract included the means to assure the Navy of the contracted warship's quality, it also guaranteed compensation in case of the Navy's late payment to the contractor. As such, the two parties agreed on all aspects, from the construction details to the payment method, to avoid any trouble over the contract. Among the clearly drawn lines of obligations, warship contractors were responsible for all the aspects from resource procurement to hull launch as well as the costs incurred during the process.

Examining the agreements on the indenture allowed us to review that a signed contract precisely defines the scope of liabilities of the Navy and a warship contractor. As the section took Henry Jnr's contract for building a Fifth Rate as an example, other contracts need proper care to underline the generality of the shipbuilders' responsibilities, too. In fact, the Navy had a fixed format of indentures even though all contracts were written by hand. For example, Thomas Ellis' contract for building a Six Rate states:

> ...the said Thomas Ellis – his executors, administrators, servants and assignees shall and will at their own proper costs and charges well and workmanlike erect and build at his yard at Shoreham in the county of Sussex – for the use of Their Majesties' one good and substantial new ship or frigate of the Sixth Rate

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[25] Fox, 'The English Naval Shipbuilding', p. 283. Against this view, Oppenheim wrote that shipbuilders built a larger vessel than what appeared in a draught because of their 'ignorance'. Oppenheim, M., *A History of the Administration of the Royal Navy and of Merchant Shipping in Relation to the Navy, Vol. 1, 1509-1660* (London, 1896), p. 340.

[26] ADM 106/3070, [Henry Johnson Jnr's warship contract for the Fifth Rate *Strombolo*, 31 October 1690].

> and wrought with good and well seasoned timber and plank of English oak and elm…[27]

The section is almost identical to the one in Henry Jnr's contract for the *Strombolo*. John Winter's contract for building the Third Rate *Norfolk* also reads, 'the said John Winter… shall and will at their own proper cost and charges well and workmanlike erect and build off the stocks'.[28] Also, John Burchett's contract for building a Fourth Rate, evidently the *Saint Albans*, is in a similar manner: 'the said John Burchett… shall and will at his own proper costs and charges well and workmanlike erect and build at his yard at Rotherhithe'.[29] In fact, a similar sentence appears in indentures for mercantile shipbuilding contracts as well. Henry Snr's mercantile shipbuilding contract states:

> ...the said Henry Johnson… at his and their own proper costs and charges for the consideration hereafter in these presents mentioned and expressed, shall and will on or before the thirteenth day of December next ensuing the date of these presents in good orderly, substantial, complete and workmanlike manner with sound, substantial, serviceable well grown timber, and… the said Henry Johnson situate and being in Blackwall aforesaid, make, build, finish, and launch forth in the river of Thames to and for the use of him the said John Paine…[30]

As such, it is evident that it was a common practice that the shipbuilder who undertook the business was responsible from the resource procurement to the hull launch and also the costs for the process.

Therefore, it is safe to conclude that for the new constructions of rated warships, warship contractors were always responsible for the process from the resource procurement to hull launch at the turn of the eighteenth century. Based on this finding, the chapter now examines how the actual performance of the contract was carried out in response to these written agreements.

4.2: Navy's Interventions at Blackwall Yard

Against the revealed written agreements, this section now focuses on the Johnson family's warship contracts to reconstruct the exact picture of how naval shipbuilding at Blackwall Yard was conducted. This section first examines the negative factors of the Navy's presence in Blackwall Yard's business: impressments. Then, it moves on to the positive aspects of the Navy's attitude towards the Johnsons: assistance beyond its obligation.

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[27] ADM 106/3070, [Thomas Ellis' warship contract for the Sixth Rate *Pensance*, 3 October 1694].
[28] ADM 106/3070, [John Winter's contract for the Third-Rate *Norfolk*, 21 December 1691].
[29] ADM 106/3070, [John Burchett's contract for a Fourth Rate, 16 November 1705].
[30] Add Ch 13679, [Henry Johnson Snr's shipbuilding contract for Captain John Paine, 28 June 1675].

Overall, the section argues that the Navy Board showed a more supportive attitude towards warship contractors than previously perceived.

As seen in the previous section, warship contracts clarified that the entire process from resource procurement to hull launch was the shipbuilders' responsibility. Despite such obligation, examining their correspondence reveals that the Navy's own practice prohibited the contractors from fulfilling their responsibility. This practice was none other than notorious impressments. As the contemporary Navy did not have a formal system of conscriptions, it was a widely accepted practice for groups called 'press gangs' and sea officers to forcibly take the seafaring population on warships as sailors. Impressments have been a popular subject for both the contemporaries and modern scholars, and historians have dealt with impressments in the context of social history onboard especially.[31] This chapter perceives that the impressment issue was not only a social matter but also an economic one since the impressments took workers away from private maritime businesses.

Such a situation, however, was not what the Navy Board desired, and it made a clear attempt to resolve the impressment issue. The Board handed out protection tickets from impressments to warship contractors' workers. Countable protection tickets survive in the navy records.[32] For example, a ticket dated November 1707 reads as follows:

> In order to the present service of Her Majesties' Navy, we do, by virtue of the power given us on that behalf, hereby strictly pray and require you to forbear the impressing, or otherwise molesting the bearer. John Darling waterman, employed in the Blackwall barge by William Johnson Esquire (who is under contract with this Board for rebuilding in his yard at Blackwall Her Majesty's ships the *Marlborough* and *Boyne*), in towing timber, carrying other stores, and performing other services necessary towards the rebuilding the said ship, until the last day of March next ensuing, provided his age and description be inserted on the other side, and he employed as above and not otherwise, as you will answer the contrary at your perils.[33]

While the contemporary survey and bills usually were hand-written and did not have a fixed format, many protection tickets had a printed format with blanks to fill in with the situational information, such as the workers' names and the shipyard they were working at.

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[31] Haas, 'Work and Authority', p. 427. Knight, 'From Impressment to', p. 15. Rodger, *The Command of the Ocean*, pp. 127-128.
[32] ADM 106/629/174, [The Navy Board's protection, 18 January 1708]. ADM 106/629/181, [The Navy Board's protection, 7 November 1707]. ADM 106/629/182, [The Navy Board's protection, 7 November 1707]. ADM 106/629/214, [The Navy Board's protection, 30 April 1708]. ADM 106/629/215, [The Navy Board's protection, 30 April 1708].
[33] ADM 106/629/181, [The Navy Board's protection, 7 November 1707].

The contractors frequently asked for protection for their workers, and the Board approved them on most occasions.[34] Coats wrote that 'Shipbuilders carrying out the Navy Board contracts were granted protection from the press for their shipbuilders, but these did not apply to other workers'.[35] In reality, various other workers also received the protection, as the example here shows. This implies the Board's effort to systematically enforce the protection to secure warship contractors' swift business.

Despite its efforts, the Navy Board's protection often came to be violated by press gangs and even sea officers.[36] Owing to the unsecured situation, the workers at private yards started boycotting from the fear of impressment. When Lieutenant Rider pressed Henry Jnr's man and refused to release him, Henry Jnr petitioned the Board in August 1694. This letter expresses the workers' worriedness about the limited value of protection tickets well:

> I have written several letters to him [Lieutenant Rider] for to clear him, but will not, but makes a slight of your protection, and speaks very unworthy of it, which makes my men think themselves not safe through this occasion, I hope Your Honours will take the thing into consideration to give him a reprimand for his impotence in denying your power, and also order the man's discharge which will quiet my men, and also very much oblige him.[37]

The letter indicates that the Board's lack of authority to enforce the protection was widely apprehended among shipyard workers, and the practice of impressments was a real hindrance to warship contractors' business with the Navy.

Possibly due to the repeated violations of the Board's protection, some contractors also wrote a certificate for their workers themselves. For example, Henry Jnr's ticket for March 1694 reads:

> These are to certify whom it may concern that the bearer hereof Thomas Bedford is a shipwright and is employed in my yard at Blackwall on the building of two of Their Majesties' Fourth Rate frigates and is mentioned in the said protection not to be molested or impress proven under my hand this 30th of March 1694 [38]

However, it is unlikely that such private protection tickets made any difference at the time when sea officers violated even the Navy Board's authority. Such private tickets rather reflect the desperate situation of warship contractors in securing their workers' working

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[34] ADM 106/390/221, [Henry Johnson Jnr to the Navy Board, August 1689].
[35] Coats, 'Efficiency in Dockyard', p. 422.
[36] ADM 106/490/96, [Henry Johnson Jnr to the Navy Board, 7 February 1696]. ADM 106/587/38, [James Hackett to William Johnson, 1704].
[37] ADM 106/451/50, [Henry Johnson to the Navy Board, 2 August 1694].
[38] ADM 106/449/26, [Henry Johnson Jnr's protection ticket, 30 March 1694].

conditions. Since William Wyatt of Bursledon also made his own protection ticket in 1693, it is likely that the expanding warship contracts, thus increasing the volume of naval operations, were accompanied by the intensifying impressment issue.[39]

The recognised naval officers' complaints of privately built warships must be consulted in this context. Henry Jnr was the subject of criticism by the Navy regarding his performance in warship contracts as well. However, the poor assessments of the contracts at Blackwall Yard were not the result of Henry Jnr's negligence, but they coincided with increasing impressment. Woolwich officers noted some defects in their surveys of the *Dreadnought*, *Lion*, *Oxford*, and *Charles* Gally in August 1694.[40] The report says, 'the plank on the outside which seems to me to be much shaken and worse than what I have observed to be put in other contract ships'.[41] The summer of 1694 was exactly when Henry Jnr appealed to the Navy Board that the impressment issue was preventing his workers from coming to work.[42] Additionally, this was the year of the convoy act and the number of warship contracts skyrocketed;[43] thus, the evident shortage of workforce did not help the situation. As such, while rapid naval shipbuilding during wartime caused a shortage of labourers, the Navy's practice of impressments further exacerbated the working environment of contractors' yards.

The turn of the eighteenth century was a period of increasing impressment. It is not counterintuitive that impressments were intensified as the war with the continent escalated. The impressment issue heightened during the War of the Spanish Succession at the beginning of the eighteenth century. By that time, William, Henry Jnr's younger brother, had taken over the Blackwall Yard business. It is plausible that Henry Jnr left the site and passed the management of the yard to William at the start of the eighteenth century.[44] For instance, the Navy's survey of 1703 notes the works on the *Dunkirk* and *Plymouth* at Blackwall Yard with William's name.[45] William is sometimes falsely disassociated with warship contracts, probably because Henry Jnr was the formal owner of the yard throughout the period.[46] *The Blackwall Frigates* especially contains some errors, such as

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[39] ADM 106/428/141, 142, 143, [William Wyatt's protection to his workers, 1693].
[40] ADM 106/458/173, [Woolwich officers to the Navy Board, 16 August 1694]. ADM 106/455/110, [George St Lo to the Navy Board, 25 August 1694].
[41] ADM 106/455/110, [George St Lo to the Navy Board, 25 August 1694].
[42] ADM 106/451/50, [Henry Johnson to the Navy Board, 2 August 1694].
[43] [Ch2§2].
[44] Henning (ed.), 'JOHNSON, Sir Henry (c.1659-1719)'.
[45] Merriman (ed.), *Queen Anne's Navy*, p. 70.
[46] Green and Wigram, *Chronicles of Blackwall Yard*, p. 20. Henige, David, '"Companies Are Always Ungrateful": James Phipps of Cape Coast, a Victim of the African Trad', *African Economic History*, 9 (1980): 27-47, p. 42. *Chronicles of Blackwall Yard* only mentions William's name to note he became an Elder Brother of the Trinity House with his brother Henry Jnr in 1689. Henige's article has some details regarding William's activity as a merchant but no mention of his shipbuilding business, as it is not the focus of the article.

the statements that William 'had no connection with the yard' and that Blackwall Yard was passed to Philip Perry after Henry Jnr's death in 1693.[47] These descriptions do not accompany William's abundant correspondence with the Navy Board regarding his warship contracts and Henry Jnr's existing letters up to 1714.[48] On the contrary, William contributed to the Navy's efforts throughout the War of the Spanish Succession. Philip Banbury claimed that 'No ships are recorded between 1706 and 1736' at Blackwall Yard.[49] Even though the documents became scarcer in the 1710s, William's letters can provide great insights into the yard's naval shipbuilding business.

William left abundant records relating to the impressment issue at Blackwall Yard. At the end of 1703 already, William complained that his men were pressed out regardless of the Navy Board's protection and could not continue with his work.[50] Further troubles can be reconstructed through William's repeated petitions to the Board. In September 1704, William wrote to the Board that he could not launch the *Dunkirk* and *Plymouth* on time since his pressed men had not been released. The letter reads, 'for I have all materials now in the yard and at the waterside ready to ship had I but hands to perform the work and I shall strenuously endeavour to procure as many more of them as I can wherein (if I meet with success) I may finish her sooner for I am here that is my interest'.[51] The event shows that even when warship contractors fulfilled their parts, the Navy's impressments undermined their efforts by taking the workforce away from the yards.

It is difficult to demonstrate precisely how each impressment impacted private yards' shipbuilding process due to the lack of these shipyards' internal records. Nevertheless, it is clear that even Blackwall Yard, the largest private yard at the time, was heavily exhausted by the ongoing labour shortage and intensifying impressments. When the Navy offered another warship contract to William in February 1707, he turned it down 'for having already two contracts with your Board and under severe penalties in case of failure in time, I dare not at this juncture take more of such great works for fear it might prove a disappointment to the government'.[52] Impressments further exacerbated the labour shortage situation in the following month. William again feared the penalty if he could not complete the ongoing contract in time and begged the Board to pardon him for the

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[47] Banbury, *Shipbuilders of the Thames*, p. 115. Green and Robert, *Chronicles of Blackwall Yard*, p. 22. Lubbock, *The Blackwall Frigates*, pp. 30, 34.
[48] Add MS 22186 174, [Henry Johnson Jnr to Mr Manning, 8 June 1714].
[49] Banbury, *Shipbuilders of the Thames*, pp. 114-115.
[50] ADM 106/573/104, [William Johnson to the Navy Board, 25 November 1703]. ADM 106/573/106, [William Johnson to the Navy Board, 30 November 1703]. ADM 106/573/110, [William Johnson to the Navy Board, 3 December 1703].
[51] ADM 106/587/121, [William Johnson to the Navy Board, 12 September 1704].
[52] ADM 106/620/23, [William Johnson to the Navy Board, 17 February 1707].

potential delay because of the labour shortage situation.[53]

As such, Henry Jnr and William's correspondence with the Navy highlights that the practice of impressments was the Navy's major negative influence on contractors' business, not its reluctant attitude towards outsourcing. Contrarily, the examination of the interactions between the two parties rather revealed that the Navy Board made every effort to secure the safety of workers at contractors' yards. However, its immature authority undermined the Board's efforts. The Board attempted to solve the matter by issuing tickets, but they were simply violated by press gangs and sea officers. Therefore, while it failed to control the unruly impressers well, the Board nonetheless showed its supportive attitude towards warship contractors.

The impressment issue may reflect the contrast of interests between the Navy and military entrepreneurs. But more explicitly, it points to the conflict between the Navy's civilian and military sectors. It is important to recognise that not all sectors of the Navy concurred with each other, and press gangs and sea officers executed impressments. It might be true that the royal dockyards also pressed workers until the end of the War of the Spanish Succession.[54] However, warship contractors' petitions to release their workers were usually from sea officers and rarely from the royal yards.[55] This reinforces the idea that the Board, the supervisor of the royal yards, had a clear attitude to protect their contractors' workplaces. When warship contractors asked for the release of their workers, the Board usually ordered the impressers to discharge the men immediately.[56] However, the sheer number of frequent impressments halted private yards' shipbuilding for the Navy. The analysis here points out that the Board tried to guarantee warship contractors' swift business by issuing protection tickets from impressments. However, the naval administration was not yet mature enough to enforce the Board's protection over impressers.

Such negative impacts of the Navy's presence in the Johnsons' business should not cloud its active support of Blackwall Yard. The section now investigates how the Navy Board intervened in Blackwall Yard in a positive way. As impressments exacerbated the workforce at the yard, the Johnsons might have been facing a shortage of naval stores, too. Due to the skyrocketing demand for warships during wartime, the market for naval stores was also tightened. In addition, it is plausible that the unstable imports during wartime

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[53] ADM 106/620/41, [William Johnson to the Navy Board, 21 March 1707].
[54] Hill, J. R. (ed.), *The Oxford Illustrated History of the Royal Navy* (Oxford, 1995), p. 128.
[55] Knight, 'From Impressment to', p. 2. Such rare examples of the impressments into the royal yards are ADM 106/428/159, [James Yeames to the Navy Board, 18 April 1693]. ADM 106/449/143, [William Graves to the Navy Board, 21 December 1694].
[56] ADM 106/429/203, [William Collins to the Navy Board, 28 June 1693].

further inflated the prices of naval stores.[57] Such situations hindered contractors from complying with their responsibility for procuring resources. In April 1692, for example, Henry Jnr petitioned the Navy Board to increase the prices for his warship contracts due to the scarcity of naval stores and workmen.[58] Traditionally recognised difficulty at the royal dockyards with resource procurement equally burdened on private yards.

The Navy Board was not ignorant of the contractors' difficult situations and provided various support outside of issuing protection tickets. In September 1691, Henry Jnr asked for the supply of workmen from the royal yards, considering the troubles in securing the workforce.[59] The Navy's initial reaction was cold. Haddock replied to Henry Jnr that it was on warship contractors to procure needed resources and criticised him as follows:

> Nor can you be less unsensible of the unusualness of lending workmen and material out of Their Majesties' yards to any contractors, then you are of the extraordinary occasions that are at this time approaching for the use of as many as can be had, and so do the more admire at your asking the loan of either at a juncture when both are like to be so much wanted for carrying on the service of the Navy. It is therefore hoped and expected that as other undertakers have always done, you will procure what is necessary for the dispatch of the said ship in time…[60]

His rather harsh comments might be related to the personal rivalry that Henry Jnr participated in removing Haddock from the Victualling Office.[61] Yet, Haddock's reaction was not unreasonable, as the signed contract clearly defines that it was the warship contractors' responsibility to prepare needed materials and cover the costs.

Nevertheless, the Navy soon provided Henry Jnr with some help beyond its contractual obligations. One help Henry Jnr received was the six caulkers from the Chatham dockyard in March 1692, correlating to the period of the contract for the much troublesome *Dunkirk*.[62] Yet, the six caulkers could not sufficiently ease Blackwall Yard's burden. Henry Jnr complained to the Navy at the end of the month that half of the caulkers did not work even with a higher payment, and he needed to delay the launch.[63] Moreover, Henry Jnr faced further struggles when the launch was approaching. The document on the

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[57] [Ch2§3].
[58] ADM 106/420/326, [Henry Johnson Jnr to the Navy Board, 6 April 1692].
[59] Add MS 22183 191, [Henry Johnson Jnr to the Navy Board, 11 September 1691].
[60] Add MS 22183 192, [Navy Office to Henry Johnson Jnr, 14 September 1691].
[61] [Ch3§2].
[62] ADM 106/419/56, [Edward Gregory to the Navy Board, 17 March 1692]. ADM 106/419/65, [Edward Gregory to the Navy Board, 27 March 1692].
[63] ADM 106/420/323, [Henry Johnson Jnr to the Navy Board, 28 March 1692].

third instalment of the contract states that the launch date should be 22 April.[64] However, Henry Jnr apparently could not complete his contract on time. The report of May 1692 notes that the *Dunkirk* was almost completed, but the Navy required Henry Jnr to make some modifications to the ship.[65] Yet, there is no further trace of the *Dunkirk* at Blackwall.

One may interpret the event as the Navy Board's insufficient support of contractors with the result of the contract for the *Dunkirk*. However, as Haddock noted, the royal yards faced labour shortage equally at the time, and the six caulkers might have been the only resources that the Navy could spare. 1694 was the year of high concentration of naval shipbuilding, and the ongoing labour and material shortages are evident. The event rather reflects the Board's supportive attitude to providing a labour force in times of pressed labour market. Again, it cannot be stressed too much that the resource procurement was on a warship contractor, and the Navy thus provided support beyond its written responsibility.

It is difficult to prove to what extent the Navy Board's resource supplies helped Blackwell Yard's shipbuilding due to the lack of the yard's in-house records. Nevertheless, such support evidently motivated shipbuilders to engage in additional contracts. In fact, the struggles with the *Dunkirk* did not prevent Henry Jnr from getting more contracts, and he signed one in March 1691 for building a shallop for a sloop.[66] From 1693 to 1694, Blackwall Yard was repairing and cleaning the *Dreadnought*, *Lion*, *Oxford*, and *Charles* Galley.[67] Moreover, in September 1695, the Navy Board issued the order to sign contracts with Henry Jnr for two Fourth Rates.[68] These were later named the *Blackwall* and *Guernsey*.[69] Overseer Joseph Lawrence asked to send more shipwrights to Blackwall Yard for the work on the two warships in December 1695.[70] The letter shows both that the labour shortage was persisting and that the Board kept its supportive attitude until the last phase of Henry Jnr's warship contracts. Thus, it is plausible that the Board's supportive attitude led shipbuilders to engage in further warship contracts despite the ongoing resource shortages.

Another support the Navy provided to warship contractors was to assist in the launching process. Overseers and the contractors themselves often recorded events surrounding the launching of hulls, the last phase of warship contracts in most cases,

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[64] Add MS 22183 205, [The Navy Board to the Treasurer, 22 April 1692].
[65] Add MS 22183 202, [The Navy Board to the Admiralty, 12 May 1692].
[66] Add MS 22183 173-174, [Henry Johnson Jnr's warship contracts for building a shallop, March 1692]. On the other hand, it is important to note that Henry's letter in May 1694 shows that he sent seven of his men to Woolwich and Portsmouth. ADM 106/451/37, [Henry Johnson Jnr to the Navy Board, 11 May 1694].
[67] ADM 106/458/173, [Woolwich officers to the Navy Board, 16 August 1694].
[68] ADM/A/1823/162, [The Admiralty to the Navy Board, 12 September 1695].
[69] ADM/A/1831/242, [The Admiralty to the Navy Board, 26 June 1696].
[70] ADM 106/480/230, [Joseph Lawrence to the Navy Board, 31 December 1695].

because the process was not smooth usually. What imposed additional difficulty to the process was that launching required a spring tide. Even though a warship contract clarified the launching date, they sometimes needed to delay the launch to wait for the tide.[71] The Navy Board was aware of the difficulty of the process, and when contractors asked for some assistance, it was not reluctant to comply. For example, in June 1696, Henry Jnr asked to borrow launching equipment to complete the *Blackwall* and *Guernsey*. Navy officers initially rejected the request as they were not happy with the conditions of the warships.[72] Yet, the Board eventually directed the ships to be launched before missing the spring tide.[73] The support for launching was not limited to this time. In December 1707, William prepared for the launch of the *Marlborough* and requested bilgeways, rails for launching a hull, from the Woolwich dockyard while inviting the Board officers to dine.[74]

In addition, it is important to note that contemporary shipbuilding was highly sensitive to weather conditions. The Navy Board was aware of such difficulty and pardoned the contractors from the deduction of payments on occasion. This aspect can be observed in Henry Jnr's last warship contract, the rebuilding of the *Suffolk*.[75] In December 1697, Henry Jnr lamented that Blackwall was experiencing extreme weather and short daytime during the winter, which prevented them from finishing the contract by the agreed date.[76] As contemporary shipbuilding was conducted outside, workers at shipyards were naturally exposed to advert weather. Similar petitions to the Navy can be observed in the other contractors' letters, i.e. ones by the Herrings of Beaulieu, Bingham of Plymouth, Ellis of Shoreham, and Smith of Rotherhithe.[77] Many letters also show the impact of weather conditions on the launching process. Of course, ships could not sail under the extreme wind, but adverse weather like rainstorms could cause floods which interrupted the swift

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[71] ADM 106/441/46, [John Winter to the Navy Board, 2 March 1693].
[72] ADM 106/483/189, [William Collins to the Navy Board, 19 June 1696]. ADM 106/486/7, [William Collins to the Navy Board, 25 June 1696]. ADM 106/490/100, [Henry Johnson Jnr to the Navy Board, 13 June 1696]. Add MS 22183 229, [Navy Office to Henry Johnson Jnr, 19 June 1696].
[73] ADM/A/1831/242, [The Admiralty to the Navy Board, 26 June 1696]. ADM 106/497/250, [Edward Alford to the Navy Board, 7 July 1696].
[74] ADM 106/620/143, [William Johnson to the Navy Board, 22 December 1707]. ADM 106/629/142, [William Johnson to the Navy Board, 23 January 1708]. There was another ship at Blackwall Yard around the same time as William requested help for launching an unnamed Sixth Rate, likely to be the *Nightingale*, in October 1707. ADM 106/620/120, [William Johnson to the Navy Board, 13 October 1707]. Merriman (ed.), *Queen Anne's Navy*, p. 371.
[75] Blackwall Yard received the *Warspite* again on 4 December 1699, but there is no trace of the work afterwards, and this was likely to be for docking. ADM 106/532/60, [Edward Alford to the Navy Board, 4 December 1699].
[76] ADM 106/506/353, [Henry Johnson Jnr to the Navy Board, 20 December 1697].
[77] ADM 106/446/362, [Thomas Ellis to the Navy Board, 15 September 1694]. ADM 106/465/45, [Thomas Ellis to the Navy Board, 22 April 1695]. ADM 106/519/222, [James Herring to the Navy Board, 15 January 1698]. ADM 106/519/236, [James Herring to the Navy Board, 22 January 1698]. ADM 106/638/227, [Joseph Bingham to the Navy Board, 24 April 1709]. ADM 106/650/114, [Joseph Bingham to the Navy Board, 31 December 1710]. ADM 106/657/135, [Robert Smith to the Navy Board, 17 February 1710].

completion of shipbuilding projects.[78] When Edward Swallow of Rotherhithe heard the Navy's concern for the delay with the Fourth Rate *Leopard*, for example, he responded that 'no wilful neglect or delay has been committed by me in carrying on the said work, but the weather has been so wet as (not only) hindered the workmen; but also (by the great floods of water has prevented the loading of a barge…'.[79] Considering contemporary shipbuilding's vulnerability to weather conditions, the pardon from deducting payments can be interpreted as another aspect of the Board's supportive attitude towards warship contractors.[80]

The inquiry into the navy records and the Johnsons' letters revealed the Navy's various assistance to Blackwall Yard's warship contracts. While the procurement of resources was on the warship contractors' side, the Navy often provided support beyond its stated obligation. It might be true that navy officers were reluctant to commission out naval shipbuilding to private yards at first, as various studies stressed. Nevertheless, once the contracts were out, it was a prime concern for the Navy Board to complete the work as well. The officers at the Board and the royal dockyards kept close eyes on contractors and helped them in time of need. The Navy's practice of impressments indeed hindered the Johnsons' naval shipbuilding, but the Board made every effort to improve the situation. This supportive attitude of the Board was one reason that the Johnsons could engage in naval shipbuilding throughout the period despite the pressing situation of the material and labour markets. As such, the Board's support of warship contracts stretched from its beginning (resource procurement) to its end (hull launch) beyond its agreed responsibility on a signed contract. The Johnsons' case points to the possibility that the Board's assistance was essential for the expanding warship contracts of the time because, without it, even the largest private yard could not manage the colossal project of naval shipbuilding successfully.

4.3: Thames & Hampshire Contractors

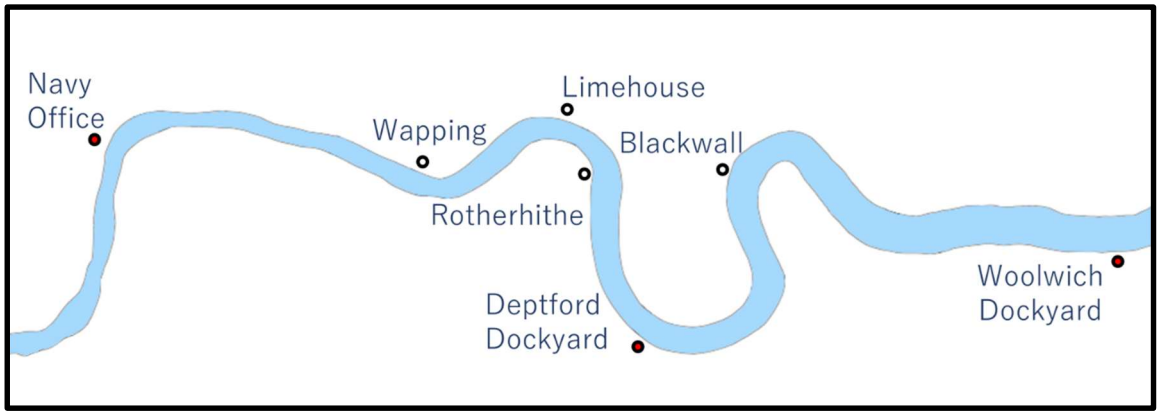
The previous section inquired into the Johnson family's warship contracts, an example of the largest contractors at the turn of the eighteenth century. By doing so, it revealed private shipbuilders' struggles and the Navy Board's support. On the other hand, the case of leading contractors alone cannot make a firm conclusion about the general traits of warship contracts. Here, this section reconstructs the interactions between the Navy and a wide

[78] ADM 106/485/392, [Benhamin Furzer and Joseph Downes to the Navy Board, 1 April 1696].
[79] ADM 106/578/3, [Edward Swallow to the Navy Board, 4 January 1703].
[80] John Taylor recorded the extreme example of the cold weather making the Thames iced. ADM 106/523/227, [John Taylor to the Navy Board, 16 February 1698].

range of contractors in the Thames and Hampshire regions to examine whether they faced resource shortages and the impressment issue and received the Board's support as Blackwall Yard did. Through the analysis, it tests how universal the Board's supportive attitude was. Presenting the results first, the section demonstrates that the Board showed a supportive attitude regardless of the size of the private yards.

Not just reinforcing the findings from the Johnsons' case, the section also attempts to highlight how the Navy's reactions to the contractors' struggles differed by the shipbuilders' traits, if it did. As the Navy Board's support was an essential element even for a large-scale and well-connected family like the Johnsons, it is likely that access to the Board's assistance was the key to completing a warship contract successfully. Here, the section takes the categorisation of warship contractors' shipbuilding capacities defined in Chapter 3.[81] 'High-capacity' contractors were those who built and rebuilt rated warships of more than 950 tons per year at maximum; 'middle-capacity' contractors had between 950 and 600 tons; and 'low-capacity' contractors had less than 600 tons. In this way, the section also tests whether the Navy prioritised shipbuilders with higher capacities of naval shipbuilding for its support, thus testing if shipbuilding capacity worked as a competitiveness to obtain warship contracts.

Image 4-1: Map of the Thames region



The Thames high-capacity contractors provide a great case to start with to test if the Board's support was a unique feature of the Johnsons. The Thames had been a centre of naval shipbuilding, and eleven high-capacity contracting families resided there at the turn of the century. Among them, the Castles of Deptford left the richest records enough to reconstruct the struggles they faced. During the Nine Years War, the Castles built nine and rebuilt one rated warship. The contracts were conducted under the joint task between John and Robert Castle. According to Rif Winfield's list, the highest number of rated warships

[81] [Ch3§2].

the family received at a time was three.[82] But a progress report of January 1696 shows that the Castles' yard was constructing two Fourth Rates alongside the works on two other Fourth Rates.[83] While the latter two ships were likely to be for repair works, the event indicates the scale of Castles' yard. The Castles had eleven contracts at the turn of the century against the Johnson family's seventeen, and their yards might be smaller than Blackwall Yard which had a large wet dock. Yet, due to its large shipbuilding capacity and long-term relationship with the Navy, the Castle family was also one of the most reliable contractors to the Navy Board.

Despite the seemingly secured place as successful warship contractors, the Castles could not escape the shortage of resources and disruptions by the Navy's practice of impressments. The letter of Jonathan Baker, the captain of the *Boyne*, from June 1692 provides a great example of the impressment issue. When he had trouble with the Castles over his impressments, Baker wrote to the Navy Board that '...if Mr Castle builder at Deptford should come to demand three men who are in his protection, they entered themselves voluntarily with me and then denied to serve the said builder any longer so that I hope you will be no stranger to this…'.[84] Since the account is from the impresser's perspective, it is difficult to judge whether the three men left the Castles' yard willingly, as the letter states. Yet, even if Baker's claim is valid, the event shows that the practice of impressments incentivised labourers to abandon their business with warship contractors. Thus, impressments remain a hindrance to shipbuilding at private yards.

Against intensifying impressments, the Navy Board provided protection tickets to various contractors, not only to the Johnsons. Unlike the Castles and Johnsons, who mostly contained warship contracts in one area, Edward Snelgrove, another high-capacity contractor, utilised various shipbuilding sites along the Thames for his naval shipbuilding. As shown in Chapter 3, Snelgrove seemingly engaged in the timber trade, including ones with the Baltic traders. Owing to the volume of his timber transports, Snelgrove asked the Board to issue protection frequently.[85] On the other hand, it is difficult to come to a firm conclusion about his struggle with warship contracts since not many records indicate how Snelgrove conducted his naval shipbuilding. What is explicit is that the Board attempted to secure Snelgrove's swift business with the Navy by guaranteeing the safety of his workers' voyages.

However, the Navy Board's protection brought limited advantages for warship

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[82] Winfield, *British Warships in the Age of Sail (1603-1714)*.
[83] ADM 106/489/12, [Purnell to the Navy Board, 3 January 1696].
[84] ADM 106/415/242, [Jonathan Baker to the Navy Board, 8 June 1692].
[85] For his timber contracts, for example, see: ADM 106/480/28, [Robert Smith to the Navy Board, 11 February 1695]. ADM 106/523/37, [Edward Snelgrove to the Navy Board, 28 February 1698].

contractors, as we saw in the Johnsons' case. The Wells family of Rotherhithe exemplifies the impressment issue that the Thames high-capacity contractors faced outside of Blackwall Yard. In December 1709, the family petitioned the Board to order the release of two pressed shipwrights. Richard Wells complained about the invalidity of the Board's protection as the impresser was 'Notwithstanding Your Honours' protection laid before him'.[86] He continued, 'if not will it so intimidate the workmen that they will leave my business I shall not be able to comply with Your Honours' contract'. The Wells family's struggle with the impressment issue further underlines that sea officers and press gangs undermined the Board's attempt to secure contractors' workplaces.

As the labour market tightened, the Navy Board provided various support for the Castle family to make it comply with the agreed launching dates. A letter of September 1696 shows that the Castles' yard was having a shortage of caulkers, and Captain Charles Guy asked for 'the use of six caulkers for 2 or 3 days from the King's yard at Deptford by which he will be able to comply with the first spring' tide.[87] In addition, the Board provided the required equipment to the family. Robert Castle's letter of August 1693 exemplifies the practice of borrowing bilgeways. He asked to borrow bilgeways and wrote, 'And I do hereby oblige to return themself into Their Majesties' stores and if any damage shall befall them, I will make satisfaction'.[88] The Castles' case points out that the support was not limited to the Johnsons, but the Board also assisted other contractors, at least high-capacity ones in the Thames region.

There are several letters from other contractors expressing the Navy Board's assistance with the launches for high-capacity contractors in the Thames. George Fowler of Limehouse built and rebuilt countable warships for the Navy. He did not take multiple contracts at a time but had joint contracts to build the Third-Rate *Grafton* at Limehouse with Edward Swallow and to rebuild the Third-Rate *Orford* with the Johnsons. For the latter work, Fowler asked the Navy to borrow 'dagger screws' which he promised to return 'in the same order as they are received by me'.[89] Additionally, other contractors' cases show that providing tools was not the only way to assist the contractors with a launch. The Burchetts of Rotherhithe joined the business of naval shipbuilding in 1700, and John, Richard, and Robert Burchett built and rebuilt ten rated warships ranging from the Third to Six Rates by the end of the War of the Spanish Succession.[90] John's letter of July 1709

[86] ADM 106/649/165, [Richard Wells to the Navy Board, 14 December 1709].
[87] ADM 106/487/305, [Charles Guy to the Navy Board, 4 September 1696].
[88] ADM 106/429/218, [Robert Castle to the Navy Board, 16 August 1693].
[89] ADM 106/652/321, [George Fowler to the Navy Board, 1 December 1710].
[90] ADM 106/613/143, [John Quallet to the Navy Board, 7 August 1706]. ADM 106/638/198, [Richard Burchett, 21 March 1709].

indicates that the agreed date for the launch, likely of the *Gloucester*, turned out not to be on a spring tide and needed to reschedule the launching date.[91] Despite being a way of quality control for the Navy, having fixed completion date in the agreements was somewhat troublesome, and contractors frequently demanded the Board's pardon.[92] The Board often showed understanding of such troubles and spared the contractors from the deduction of the final payment. As such, the Board regularly showed its supportive attitude towards the Thames' high-capacity contractors.

Such cases of high-capacity contractors need to be compared with those of middle- and low-capacity ones to test the universality of the difficulties and the Board's support. It was plausibly impressers' interest to target places with a heavy concentration of able men, like at high-capacity contractors' yards. However, the Thames region's middle- and lower-capacity contractors were equally victims of the impressment issue. The low-capacity contractors at the Thames were Graves, Gressingham of Limehouse, Dalton, Rolfe, Smith of Rotherhithe, and Dummer at Blackwall. Not many records relating to them survived, but the remaining letters show some aspects of the impressment of their workers. While the remaining documents of Thames middle- and low-capacity contractors do not talk much about whether they received labour and material supplies, they at least obtained protection for their workers from the Navy's impressments. For example, documents relating to the protection of workers of Graves, Fowler, and Yeames are preserved.[93] However, the Board's efforts were only undermined by impressers. According to James Yeames of Ratcliffe, a warship contractor of auxiliary vessels and likely to be William Yeames' relative, his shipwright was pressed into the Woolwich dockyard and then onboard the next day despite protection.[94] As Yeames stated well that impressments 'interrupted in building the said shallops, and thereby Their Majesties' business', the Navy's structural weakness to enforce protection was an obstacle for its own strategic concern as well.

These surviving documents indicate the Navy Board's efforts to secure contractors' workplaces, even for low-capacity contractors.[95] As high-capacity contractors widely demanded the Board's support, it is evident that the Board's assistance was another essential factor for the rapid expansion of warship contracts. On the other hand, if the Navy supplied resources only to high-capacity contractors, it would imply that shipbuilding

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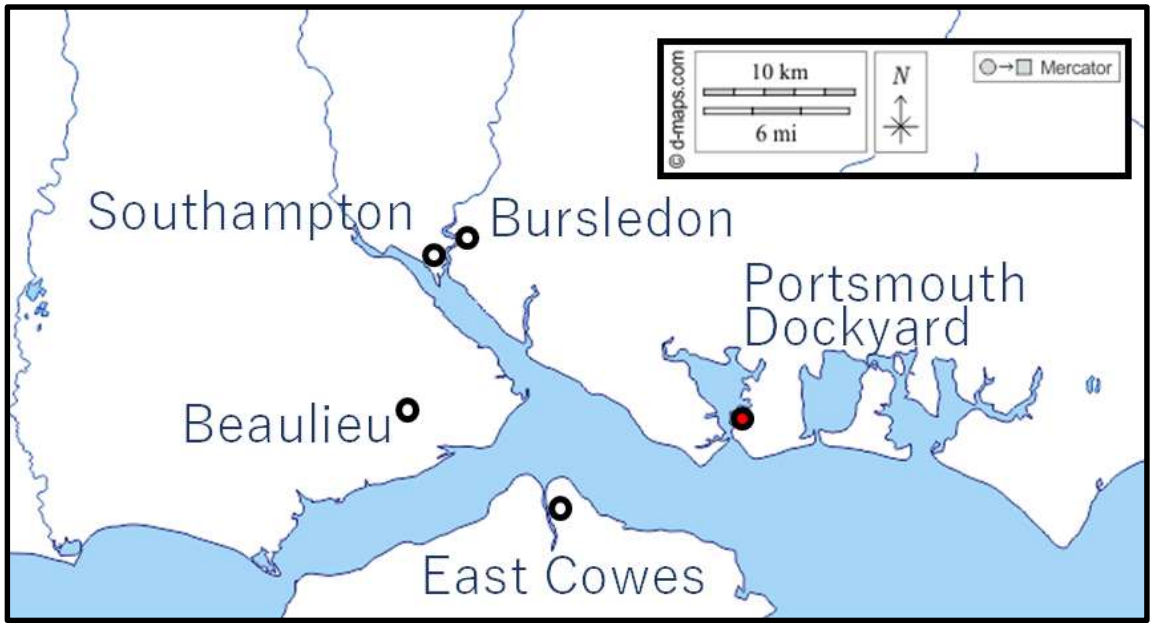
[91] ADM 106/638/307, [John Burchett to the Navy Board, 1 July 1709]. ADM 106/638/310, [John Burchett to the Navy Board, 6 July 1709].
[92] As the rebuilding of two Third Rates completed in 1709 was for the Establishment of 1706, the family contributed well to the experiment of naval architecture for the Navy.
[93] ADM 106/397/163, [John Graves to the Navy Board, 10 January 1690]. ADM 106/420/42, [John Haydon to the Navy Board, 18 March 1692]. ADM 106/427/142, [John Brooks to the Navy Board, 28 March 1694].
[94] ADM 106/428/159, [James Yeames to the Navy Board, 18 April 1693].
[95] ADM 106/449/143, [William Graves to the Navy Board, 21 December 1694].

capacity was a source of competitiveness for successful warship contractors. This aspect needs to be tested further with the cases of non-Thames shipbuilders.

Image 4-2: Map of Hampshire[96]



Against the findings about the Thames contractors, the section now investigates warship contracts in Hampshire. Hampshire is a rare case in which the activity of warship contractors has been revealed in great detail. This is primarily owed to Holland's *Ships of British Oak*.[97] Hampshire had been a centre of shipbuilding with its easy access to timber like oak and elm, and King Henry VII (reign: 1485-1509) constructed the first royal dockyard at Portsmouth already in 1495 for the repairing and sheltering of warships from storms.[98] Nevertheless, despite the rapid naval constructions of 1666, the region did not receive warship contracts because of the spreading plague there, according to Holland.[99] Warship contracts reached Hampshire when the demand for warships increased with the opening of the war with France while the strategic importance shifted towards the south coast of England. Instead of chronologically tracing the Navy Board's interactions with the warship contractors in Hampshire, which is already revealed by Holland's dedicated work, this section focuses on two points: the contractors' struggles and the Board's support.

The Winter and Wyatt families were the largest warship contractors and were the only high-capacity contractors in Hampshire during the Nine Years War. The Winters built six Third and Fourth Rates, while the Wyatts constructed three Third Rates and one Fourth

[96] Based on: 'Hampshire (United Kingdom)', *d-maps.com*, <https://d-maps.com/carte.php?num_car=95848&lang=en>, [accessed on 14 October 2024].
[97] Holland, *Ships of British Oak*.
[98] Holland, *Ships of British Oak*, pp. 65-67. Coad, *The Royal Dockyards*, p.90
[99] Holland, *Ships of British Oak*, pp. 72, 76.

and Fifth Rate each. This makes the Winters the fifth and the Wyatts the seventh biggest contractors at the turn of the eighteenth century in total built tonnages. However, a simple ranking might be misleading because the Navy did not extend the contracts outside the Thames region during the War of the Spanish Succession, except one for Suffolk and another for the Southwest coast. The fact that the Winters and Wyatts were the only shipbuilders who provided Third Rates and monopolised the contracts in Hampshire up to 1694, when the warship contracts saw a rapid expansion after the Smyrna convoy disaster, reflects the two families' influence in the region.[100]

Despite the Navy's reliance on the Winters and Wyatts in Hampshire, the Navy's assessments of their contracted warships were not always positive.[101] William Wyatt might utilise his acquaintance with Dummer to start his contract as Holland suggested.[102] However, the opening of contracts already did not go swiftly. William wrote to the Navy Board that the required draft was being delayed because he was 'wholly busy in a buying of timber'.[103] Owing to the repeated reports of the poor performances, the Winters and Wyatts were even summoned to the Navy Office in London.[104] When John Winter was troubled with a launching process, Thomas Wilshaw even judged that he was not 'acquainted with launching ships of such burthen'.[105] Thus, the Navy's criticisms of the quality of privately built frigates stretched to high-capacity contractors in Hampshire.

One reason for Hampshire contractors' struggle was again the Navy's practice of impressments. James Parker of Southampton left abundant letters that show the disruptions caused by the impressment issue. Parker provided one Fourth and one Fifth Rates between 1695 and 1698. His letter of March 1696 proposes to launch the Fifth Rate *Scarborough* and asks for the protection of workers for the new Fourth-Rate *Dartmouth*.[106] Parker wrote his concern to the Navy Board that 'at sometimes here is such pressing which will put the men of the work except I have a protection'.[107] Parker further noted his fear that the workers would desert from their fears of impressment since the Navy's warship was

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[100] Ibid., p. 90.
[101] ADM 106/430/123, [Joseph Downey and Robert Watson to the Navy Board, 27 August 1693]. ADM 106/441/68, [William Wyatt to the Navy Board, 18 March 1693]. ADM 106/441/7, [John Winter to the Navy Board, 4 January 1693]. ADM 106/446/155, [Edmund Dummer to the Navy Board, 18 July 1694]. ADM 106/516/186, [Joseph Downes and Robert Watson to the Navy Board, 2 January 1698]. Holland, *Ships of British Oak*, pp. 84-87. As a navy officer complained that a certain Mr Okey kept employing a caulker with less than fourteen months of experience, the letter seemingly gives one aspect of a gang who managed workers relating to shipbuilding. ADM 106/516/191, [Joseph Downes and Robert Watson to the Navy Board, 9 January 1698].
[102] Holland, *Ships of British Oak*, pp. 81-82.
[103] ADM 106/411/370, [William Wyatt to the Navy Board, 30 April 1691].
[104] Holland, *Ships of British Oak*, p. 84.
[105] ADM 106/425/61, [Thomas Willshaw to the Navy Board, 24 April 1692].
[106] ADM 106/489/127, [James Parker to the Navy Board, 12 March 1696].
[107] ADM 106/453/209, [James Parker to the Navy Board, 2 August 1694].

present nearby.[108] As the captain of the *Berwick* wrote to the Board that he understood now that two pressed men of Parker were for the royal service, it is evident that Parker's fear of impressments came true. Even though the men were released within five days, such an event could be harmful enough for private yards' businesses. The event shows that impressments were not limited to the Thames region, the centre of the cluster of seafaring population. The Board tried to secure contractors' working environment even in an area remote from the London office, which, again, was undermined by impressers. Nevertheless, the events show that the Board's assistance in the impressment issue reached outside the Thames region. Therefore, as the Johnson family's case implied, the Board's active support evidently took an indispensable role in sustaining the expanding scale of warship contracts at the time.

It is fair to note that there was an occasion when warship contractors might have benefited from impressments. In April 1692, Wilshaw wrote his intention to press more men to supply labour for two Third Rates at Southampton and Bursledon, likely to be those being built by the Winters and Wyatts.[109] However, this is only a rare case, and the lack of the Navy Board's authority to enforce its protection usually undermined warship contractors' business.

Against such troubles, warship contractors in Hampshire also received some support from the Navy Board. For instance, when the Winters requested to borrow caulkers in February 1692, Wilshaw considered sparing some from the royal dockyards for fourteen to twenty days.[110] Dummer and John Hill eventually recorded the agreement to send four more caulkers from the dockyard, likely to be Portsmouth, and eight more from the Wyatts' yard as the launch of his contracted ship was expected soon.[111] Yet, it is uncertain if the Winters received caulkers from the Wyatts as the launch was dragged into May.[112] In the same letter, Wilshaw also wrote to 'order the Master Shipwright to serve the rest of the gun deck beams for the new Third Rate building here, as you direct since they cannot be otherwise provided in time'.[113] Thus, the Winters evidently received additional workers from the royal yard. As such, the Winters' case shows that the Board was dedicated to making shipbuilders complete their contracts swiftly also in Hampshire.

Moreover, vivid shipbuilding in Hampshire brought another degree of competition for labour. In August 1692, the Winters lamented that their men left the service because the

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[108] ADM 106/493/206, [James Parker to the Navy Board, 13 February 1696].
[109] ADM 106/425/61, [Thomas Willshaw to the Navy Board, 24 April 1692].
[110] ADM 106/425/28, [Thomas Willshaw to the Navy Board, 6 February 1692].
[111] ADM 106/430/25, [Edmund Dummer and John Hill to the Navy Board, 20 February 1693].
[112] ADM 106/424/253, [William Wyatt to the Navy Board, 6 April 1692].
[113] ADM 106/425/28, [Thomas Willshaw to the Navy Board, 6 February 1692].

Duke of Bolton offered protection for all shipwrights for his privateer shipbuilding.[114] Under this circumstance, the Winters needed to ask the Navy Board for fifteen workers from the Portsmouth dockyard to compensate for deserted shipwrights.[115] It is important to note that the Board did not always provide the support needed. In the following month, the Winters asked to borrow bilgeways to prepare for a launch, but Wilshaw turned it down and told the contractor to 'must provide himself'.[116] Nevertheless, procuring resources and launching a hull was the shipbuilders' responsibility in the first place, and there was a case where navy officers rejected the Johnsons' petitions, as seen in the previous chapter. Therefore, the Board's support for the high-capacity contractors in Hampshire was not different from that for Thames contractors.

While the surviving documents are much scarcer, the navy records show that the Navy Board assisted middle-capacity contractors in Hampshire. As the Thames high-capacity contractors did, Parker asked to borrow bilgeways to launch the *Dartmouth*.[117] In addition, the letters by James and Richard Herring of Beaulieu show they faced unique trouble with Buckler's Hard. To obtain the workforce needed, the family had to have the permission of Lord Montague, who was leasing his shipbuilding facility to promote local maritime business.[118] Montague confiscated the Herrings' ship due to their slow progress, and the Board needed to step in to settle the matter to make the Herrings finish the contract. Additionally, while the family was struggling with launching in March 1698, Commissioner Henry Greenhill asked the Board to send men and materials to let the Herrings finish the contract.[119] Although the Herrings petitioned the Board to delay the due date because of the lack of workers, the ship was launched in April 1698, soon after the Board's evident support with resources.[120] With the end of the Nine Years War approaching, this became the Herring family's last contract. However, the Herrings' case shows the Board's efforts, even with middle-capacity contractors, to make them complete the contracts within the agreed launching dates.[121]

Examining the interactions between the Navy Board and warship contractors at the

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[114] ADM 106/425/274, [Winter to the Navy Board, 23 August 1692]. While Winter's wage was 3s or 3s and 6p per day, Bolton offered 4s.
[115] ADM 106/425/291, [Winter to the Navy Board, 9 September 1692].
[116] ADM 106/425/49, [Thomas Willshaw to the Navy Board, 22 March 1692].
[117] ADM 106/521/226, [James Parker to the Navy Board, 27 January 1698].
[118] ADM 106/522/174, [Joseph Allin to the Navy Board, 23 January 1698]. Holland, *Ships of British Oak*, pp. 93-95.
[119] ADM 106/522/41, [Henry Greenhill to the Navy Board, 6 March 1698]. ADM 106/522/47, [Henry Greenhill to the Navy Board, 11 March 1698].
[120] ADM 106/519/222, [James Herring to the Navy Board, 15 January 1698].
[121] It is worth adding that Richard Herring launched the *Salisbury* with a contract at Beaulieu, and the Navy purchased the *Seaford* built by an individual with the same name but at Bursledon. Although the nature of purchasing obscures the details of the launch date, Herring might build the two ships at different locations simultaneously.

two centres of the contracts revealed the following two points. First, shipbuilders faced similar troubles during naval shipbuilding regardless of the size of their shipyards, or at least the shipbuilding capacities spared for the Navy. The Navy's impressments equally struck all private yards, and contractors struggled with procuring resources and launching widely across the Thames and Hampshire regions. Secondly, the Board attempted to secure all contractors' workers from impressment and assisted in the launching process. As even high-capacity contractors in the centres of warship contracts could not complete naval shipbuilding without the Navy Board's support, it is evident that the Board's assistance played a key role in expanding warship contracts. However, the supply of resources might be concentrated on high-capacity contractors. It is not counterintuitive that the Navy wanted to focus its efforts on a contractor who could spare more shipbuilding capacity. Yet, high-capacity contractors left more records compared to others, thus leaving more descriptions about assisting them as well. There are a few examples in which the Navy supplied resources to mid- and low-capacity contractors, too. Thus, it is reasonable to conclude that the difference in the access to the Board's support by their shipbuilding capacities was only that of frequency. More strikingly, the result of this section's analysis indicates that the Board showed a supportive attitude towards a wide range of shipbuilders, without which Britain could not achieve the dramatic increase of warship contracts at the turn of the century. However, the statement needs to be reinforced by the cases of warship contracts in the remote regions from the naval centres, too, before drawing a general conclusion.

4.4: Warship Contractors Away from the Naval Centres

Sections 2 and 3 looked at the centres of warship contracts, the Thames and Hampshire regions. These cases showed that the Navy Board attempted to counter the wide range of contractors' troubles. This section examines the cases of Hull, Southwest coast, Shoreham, and Suffolk, the regions remote from naval centres of the time. By doing so, the section tests whether the shared traits of warship contracts in the centres of naval shipbuilding apply to wider regions. Moreover, it also examines if the locations of shipyards altered the Board's support. In this way, the section demonstrates that the geographic distance from the Navy was the biggest barrier to swift and successful warship contracts in the age of slow and expensive transportation and communication.

Before examining the interactions between the two parties, it is important to note that naval historians have highlighted some traits of warship contracts remote from the London headquarters. Hampshire is in great contrast to the Thames case in this matter. Despite the

relatively easy access to the Navy Board's support from the nearby dockyard at Portsmouth, their distance from the Navy Office in London seemingly caused various communication issues. As warship contractors and their overseers dispatched from the Board often inquired into the Navy Office, the distance might be an obstacle to flawless communication. For instance, while the Thames builders dealt with draughts and signatures on warship contracts in person, the Wyatts needed to send a draught to London.[122] Similarly, the Winters also had to ask the Navy to send the contract to Northam to sign it and send it back again.[123] In attrition to the communication issue, Coats mentioned the barrier of geographic distance with the cost of personnel as the Navy Board sent overseers to contractors' shipbuilding sites.[124] The fact that the Board had only a single contractor at Hull and Bristol each, both prosperous mercantile shipbuilding centres, points out that the oversight of construction was primarily dictated by the infrastructure and communication technologies of the time. Considering these cases, the Thames builders might have had a geographic advantage that allowed them more accessible communication with navy officers to ask for assistance. The understanding in existing studies thus points to the difficulty in warship contracts far away from naval centres.

Table 4-1: Regional shares of warship contracts in number (ordered: 1689-1697)[125]

Region	**Third Rates**	**Fourth Rates**	**Fifth Rates**	**Sixth Rates**	**Total**
Thames	6	21	18	4	49
Hampshire	6	7	4		17
Shoreham			11	3	15
Suffolk	2		3	1	6
Hessle	2	1	1		4
Southwest		2	1		3
Total	**16**	**31**	**38**	**9**	**94**

Moreover, the distance to the royal dockyards might play a key role for private shipbuilders in successfully receiving warship contracts repeatedly. Table 4-1 presents the

[122] ADM 106/411/370, [William Wyatt to the Navy Board, 30 April 1691]. William alternatively suggested to show the draught to Tippetts, the Surveyor of the Navy, when he would visit the Portsmouth dockyard.
[123] ADM 106/441/153, [John Winter to the Navy Board, 8 June 1693].
[124] Coats, 'Efficiency in Dockyard Administration', pp. 420, 424.
[125] Nye and Moore of East Cowes only had joint contracts until their partnership fell apart. And Briggs and Burgess of Shoreham only had a single joint contract. The table does not count them separately.

number of warship contracts by each region during the Nine Years War. This geographic distribution pattern implies that yards' proximity to the royal dockyards was critical in having repeated contracts with the Navy. The Thames was home to Deptford and Woolwich yards, while Hampshire had the increasingly important dockyard of Portsmouth. Indeed, Suffolk had the Harwich dockyard. However, its strategic importance declined, and the Navy sold the yard to a private hand after the War of the Spanish Succession. On the other hand, although the Southwest coast had the Plymouth dockyard, it was a newly constructed facility, and its operation might not have been stable yet. As such, Table 4-1 implies that shipbuilders near the royal dockyards had competitive advantages in obtaining warship contracts. This is not counterintuitive as the Navy sent resource supplies from the nearby royal dockyards.

The comparison between the Thames and Hampshire regions further reinforces the importance of geographic proximity. While the Thames had eleven high-capacity contractors, Hampshire only had three. The proximity to the Navy Office and the Deptford and Woolwich royal dockyards evidently contributed to the Thames region dominating with 50% of the total warship contracts in tonnage just during the Nine Years War. Nevertheless, despite its relative weakness in geographic advantage, Hampshire became the second leading region with 25% of the contracts for the same period. These assumptions demand a proper examination through empirical studies of how the Navy and private shipbuilders interacted with each other and conducted naval shipbuilding far from the naval centres.

Presenting the conclusion first, the analysis of the letters from contractors in remote areas shows that the distance from the royal dockyards imposed a heavy burden on the contractors. Warship contracts in Hull provide a great sample to test the impact of geographic distance. The Northeast coast of England was an emerging centre of mercantile shipbuilding and remote from any royal dockyards. Despite its ascension to the leader of Britain's mercantile shipbuilding over the course of the eighteenth century, the Northeast coast only had a single warship contractor at the turn of the century.[127] John Frame was a high-capacity contractor who originated in London but had his naval shipbuilding at Hessle, the upper stream of the River Humber from the city centre of Hull. A copy of his tendering preserved in the Admiralty record shows that Frame was also building the auxiliaries for the Navy in Scarborough, further north from Hull.[128] He could be the same

[127] There was another contractor for an auxiliary vessel in the region. William Boswell mentions refitting the *Burlington* pinnace in November 1696. ADM 106/482/335, [William Boswell to the Navy Board, 18 November 1696].
[128] ADM/A/1771/143, [The Admiralty to the Navy Board, 26 January 1691].

individual as John Frame, who launched the Fifth-Rate *Hawk* in April 1690 at Wapping, but again, it is difficult to prove the connection between these two. However, as a certain John Frame proposed the Board to build a Third Rate either at 'Hull or Harwich' in November 1690,[129] and Frame of Hessle's contract was signed in May 1694, it is most likely that these two individuals are identical. For the extension of the Nine Years War, Frame of Hessle built four new rated warships, including two Third Rates, making him a high-capacity contractor. The Board tried to establish new sites to build warships where naval stores were available, and Hessle was one of the examples. The Admiralty letter of April 1693 mentions that the site had 'white sound timber in those parts sufficient for the building a ship of sixty guns, or one of the Third Rate'.[130] Thus, it is plausible that the Board started the contracts at Hessle with its presumed accessibility to naval stores.

The Navy Board did not leave Frame unsupported in a remote area, either from the Navy Office or any royal dockyards. Likely because naval shipbuilding in such a remote area was a challenging attempt, the members of the Trinity House in Kingston upon Hull assisted Frame's contracts to a great degree. For instance, the deputy of the House, Robert Cawood, noted in April 1691 that they helped Frame, 'a master builder from London', to survey Hessle and concluded the site was suitable for building Third Rates as it was 'much easier place to get his timber to near both the rivers of Owes & Trent', the tributaries to the River Humber.[131] Together with providing knowledge of the locality, the Trinity House also supported Frame in the troublesome phase of launching as the wardens of the House recorded in March 1695.[132] The wardens' letter also shows that it was the Board that asked the Trinity House to assist Frame. Such help from the locals should be a great advantage in completing contracts during the experimental period of warship contracts in remote areas.

Nevertheless, despite the support from the local hands, Frame could not avoid material shortages. As the Navy and the Trinity House letters noted, Hessle might have had easy access to timber sources. However, timber was not the only material used to construct wooden warships. In May 1695, Overseer William Boswell wrote that Frame almost used up his stock of nails, and the refill was not arriving in time due to contrary winds.[133] Contractors near royal yards could receive naval stores in time of need. However, Frame needed to raise money to purchase available nails in the local market in Hull. The event supports the hypothesis that the distance from the royal yards imposed a difficulty to

[129] ADM/A/1770/132, [The Admiralty to the Navy Board, 8 November 1690].
[130] ADM/A/1794/59, [The Admiralty to the Navy Board, 7 April 1693].
[131] ADM 106/411/110, [The Trinity House of Hull to the Navy Board, 21 April 1691]. ADM 106/411/111, [The Trinity House of Hull to the Navy Board, 21 April 1691]. The direct quote is ADM 106/411/110.
[132] ADM 106/477/195, [The Trinity House of Hull to the Navy Board, 5 March 1695].
[133] ADM 106/460/164, [William Boswell to the Navy Board, 1 May 1695].

access the Board's support of resource supplies.

Frame and Boswell's frequent letters point to another aspect of the troubles in building a warship in a remote area. While warship contractors near the royal dockyards could ask the Navy to tow their launched hulls to royal yards to get masted, this was not a practice in Frame's contracts. First, Captain Andrew Pedder needed to ask the Board for permission to master men on site to carry down Frame's hull to Hull to be masted because the men Pedder prepared in London had not arrived yet.[134] Moreover, Boswell recorded his attempt to fix the arrived mast on the site in his letter of May 1693.[135] During the process, the mast fell and damaged the ship. The events show that warship contracts in remote areas could be troublesome even for the Navy with regard to fitting and masting processes.

On the other hand, Frame might avoid the impressment issue at remote Hessle. Despite being an emerging shipbuilding centre, the site was far from any naval bases and the leading theatres of the English Channel and the Western Approaches. Additionally, Boswell was constantly present on the site, while overseers in other regions usually moved around several shipyards. Thus, either impressers did not reach Hessle, or even if they did, there were the Board's eyes who could impose its authority on site.

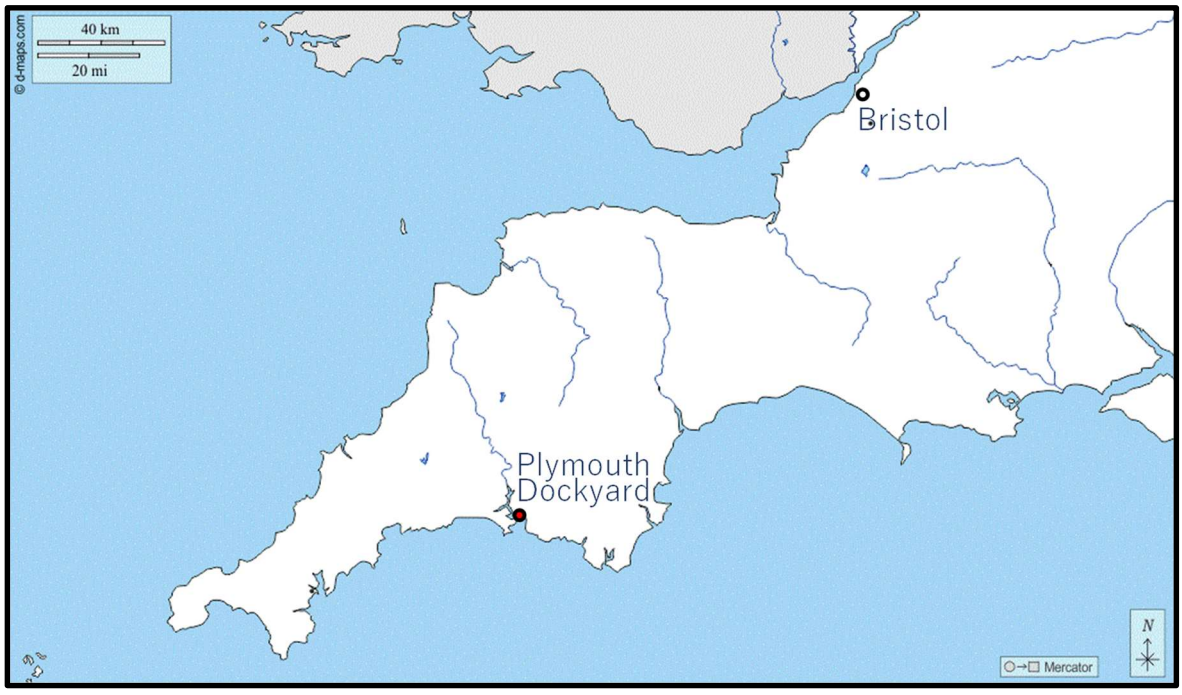
Nevertheless, considering the revealed troubles of resource procurement and the launching process, the advantage of fewer impressments had little effect compared to the lack of assistance from a nearby royal yard. The fact that Frame was the only contractor on the Northeast coast, which was the growing shipbuilding centre producing large colliers, reflects the disadvantage of the region in taking warship contracts. Moreover, despite Frame's capability to build Third Rates and the monopoly of the contracts in the region, Hessle's location limited him to being only the ninth contractor with 3,646 tons of total output. The qualitative analysis of how warship contracts were conducted in Hull points out that geographic distance prevented such a developed shipbuilding centre from taking many warship contracts. The distance from the royal dockyards was a great barrier for the contractors to receive the Navy's resource supplies, thus imposing a critical disadvantage for warship contracts. In other words, the existence of military entrepreneurs surrounding the royal dockyards was a key to the rapid expansion of warship contracts at the turn of the eighteenth century.

While Frame's contracts at Hessle provide a great example of warship contractors' troubles in a remote area, the argument needs to be reinforced by the contracts in other remote regions. Accompanying the construction of the Plymouth dockyard, warship

[134] ADM 106/509/137, [Andrew Pedder to the Navy Board, 7 March 1697].
[135] ADM 106/427/241, [William Boswell to the Navy Board, 10 May 1693].

contracts were also handed to the Southwest coast. The two contractors at Plymouth could seemingly receive the Board's support quickly from the newly established royal yard. Several letters from Plymouth contractors, Joseph Bingham and a certain Mr Flint, survived, but no documents relating to the difficulty similar to Frame's case are identified. Bingham, despite being a low-capacity contractor, asked the Board for support when the plank supply from his subcontractor in Hampshire was disrupted.[137] It is not certain whether Bingham could receive the support, but as he offered to supply 1,600 loads of timber to the Navy in 1709, Bingham evidently recovered from the trouble shortly.[138] Although the scarcity of documents prevents us from reconstructing a complete picture, it is plausible that the Navy's new focus on Plymouth concentrated naval resources there, which helped the nearby contractors to some degree.

Image 4-3: Map of the Southwest coast [139]



There was another contractor in the Southwest region whose case provides a great example of warship contractors' trouble in a remote area. Thomas Clements was a middle-capacity contractor in Bristol who provided the Fourth-Rate *Gloucester* between 1693 and 1695. Clements wrote to the Navy Board in June 1694 that he also had yards at Worcester along the River Severn.[140] Being at an upper stream location, these could be relatively

[137] ADM 106/626/389, [Joseph Bingham to the Navy Board, 9 November 1708].
[138] ADM 106/638/351, [Joseph Bingham to the Navy Board, 14 August 1709].
[139] Based on: 'South West England (United Kingdom)', *d-maps.com*, <https://d-maps.com/carte.php?num_car=16436&lang=en>, [accessed on 14 October 2024].
[140] ADM 106/445/128, [Thomas Clements to the Navy Board, 2 June 1694].

small facilities. Nevertheless, his familiarity with shipbuilding might help him to start a business with the Navy. His father, Baron Duddlestone, could also be familiar with shipbuilding, as Clements mentioned of his visit to London when the Board offered contracts for one or two ships in August 1691.[141] However, a further trace of the negotiation is not available, and Clements' letter next appears in the navy records when he was engaging with the Fourth-Rate *Gloucester* in 1693. What is more certain is that it was the Board that inquired into the remote area of Bristol for the shipbuilding project.

Similar to other contractors, Clements also faced material shortages during his contract. His letter of July 1694 shows that there was a shortage of timber locally in Bristol, and he needed to inquire about the London market.[142] However, his business with the London suppliers did not go without hindrance. Already in June 1693, Clements claimed that his supplier was not willing to send timber and asked the Navy Board for some assistance.[143] It is unclear to what extent the Board helped Clements with the event, but only a year later, Clements wrote another complaint regarding the same procurement issue. He again asked for the Board's support and wrote, '… to pray Your Honours' favour and countenance; otherwise I fear will be impossible for me to comply with my contract'.[144] These letters show that some shipbuilders in remote regions needed to either find resources in tight local markets or to inquire into the London market regardless of transportation costs and communication issues. Clements' endeavour in resource procurement shows that Bristol was far away from the Plymouth yard enough to prevent the contractor from reaching out the Board's support.

Clements faced a labour shortage, too. By August 1694, his complaints shifted to the point that he could not proceed with the business as local men refused to work at his yard despite offering equal wages to other merchants and having timber ready to work.[145] When Dummer inspected Clements' work in the following month, Dummer was aware of the trouble and advised to ask the Mayor of Bristol to arrange the needed workmen to finish the contract in time, which was 'the only thing he [Clements] wants and do what else we are able, for the speedy launching her'.[146] As such, knowing the Navy could not meddle with the matter directly, Clements needed to shift to the support from the local authority.

In addition to this pressing situation, impressments were equally problematic in Bristol. In June 1694, Clements claimed that his crewmen were pressed by the Vice

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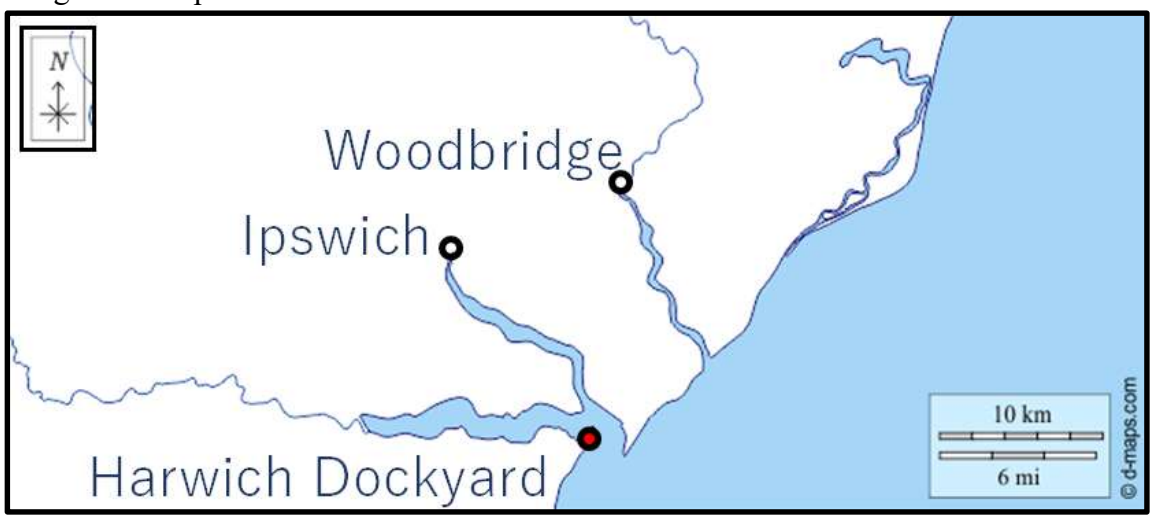
[141] ADM 106/403/324, [Thomas Clements to the Navy Board, 18 August 1691]. ADM 106/464/28, [John Duddlestone to the Navy Board, 9 February 1695].
[142] ADM 106/445/132, [Thomas Clements to the Navy Board, 28 July 1694].
[143] ADM 106/429/198, [Thomas Clements to the Navy Board, 14 June 1693].
[144] ADM 106/445/127, [Thomas Clements to the Navy Board, 16 May 1694].
[145] ADM 106/445/133, [Thomas Clements to the Navy Board, 6 August 1694].
[146] ADM 106/446/193, [Edmund Dummer to the Navy Board, 29 September 1694].

Admiral of the *Gloucestershire,* which hindered the transport of timber. Although Clements pointed to the protection for his workers, 'Sir John [the admiral] will take no notice of any protection'.[147] With these troubles, Clements' work on the Fourth Rate took nearly two years when he finally launched the *Gloucester* in February 1695.[148] Despite Clements' trouble securing resources, the Board could only advise him to seek local help. The contrast between Bristol and Plymouth further underlines that geographic proximity to the royal dockyards was crucial in completing warship contracts swiftly. Therefore, the analysis here supplements the argument in Chapter 3 that military entrepreneurs needed to be concentrated around the royal dockyards as a requisite for the expansion of warship contracts at the turn of the century.

To claim the universality of the Board's supportive attitude, how naval shipbuilding was conducted in Suffolk and Shoreham must be consulted, too. These two regions were in between the close regions of the Thames and Hampshire and the remote areas of Hessle and Bristol. Suffolk was another centre of warship contracts near a royal dockyard and distant from the Navy Office. However, while the strategic importance of the Portsmouth dockyard increased, that of the Harwich dockyard declined, thus making the Suffolk case an excellent parallel to the Hampshire one.

Image 4-4: Map of Suffolk[149]



The coasts of East Anglia, surrounding Suffolk, grew into one of the shipbuilding centres in England by the mid-seventeenth century.[150] Although the weight of the

[147] ADM 106/445/128, [Thomas Clements to the Navy Board, 2 June 1694].
[148] ADM 106/463/60, [Thomas Clements to the Navy Board, 6 February 1695]. ADM 106/464/28, [John Dundlestone to the Navy Board, 9 February 1695].
[149] Based on: 'Suffolk (United Kingdom)', *d-maps.com*, <https://d-maps.com/carte.php?num_car=110974&lang=en>, [accessed on 14 October 2024].
[150] [Ch3§1].

mercantile shipbuilding shifted to the northeast coast by the turn of the century, Suffolk remained a partner of the Navy Board to receive naval shipbuilding. Yet, besides Nicholas Barret of Harwich, all three other contractors built only Fifth Rates, which might reflect the shadowing industry in East Anglia.[151] Despite the seemingly declining maritime population and its relative distance from the major theatres of the English Channel and the Western Approaches, Suffolk was also a victim of impressments. William Hubbard's letter to the Navy Board represents the impressment issue well. In January 1703, Hubbard wrote his complaints against Captain Aldred, who was insisting on pressing Hubbard's caulker regardless of the protection, which 'hinder me in launching according to contract'.[152] Thomas Bois, a naval sailor who acted as the Board's overseer for warship contracts at Harwich, also noted his concerns about his impressments across Ipswich and Woodbridge and some disputes with shipbuilders there.[153] Thus, sea officers were still active in East Anglia regardless of the declining shipbuilding industry, and warship contractors were equally troubled by the lack of manpower in the region.

Not only the issue relating to procuring workers but also material shortage equally struck Suffolk. In August 1693, Bois reported that there was a shortage of knee timber, for example, and the Mundy family of Woodbridge needed to have special support.[154] As the difficulties in procuring naval stores universal among warship contractors, Dummer's report on Barret's work also clearly noted the disadvantages of shipbuilding in the region. Dummer wrote the reason for the troubles as follows:

> …the first, by the spent time to get in materials especially by transporting from Sussex (in this time of war) those that were provided there, for the county about Harwich being not readily capable to furnish sufficient quantities, there was a necessity of so doing, while what was to be had near, did require time of felling, conversion and carriage for the same end, nothing being upon the place at the time of the contract[155]

Thus, Suffolk faced shortages of readily available materials, and imports from remote areas were essential for warship contractors there. Dummer's assessment might reflect one aspect of the declining shipbuilding industry in East Anglia.

Under this circumstance, Suffolk contractors also received various support from the

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[151] This Nicolas Barret might be related to a warship contractor with the same name in Shoreham. But it is difficult to prove it for sure.
[152] ADM 106/572/14, [William Hubbard to the Navy Board, 15 January 1703].
[153] ADM 106/428/183, [Thomas Bois to the Navy Board, 20 May 1693].
[154] ADM 106/428/263, [Thomas Bois to the Navy Board, 5 August 1693]. ADM 106/428/274, [Thomas Bois to the Navy Board, 15 August 1693]. The letters also show that Barrett owed money to Mundy, but the exact relationship between the two is unclear.
[155] ADM 106/404/52, [Edmund Dummer to the Navy Board, 24 November 1691].

Navy Board. Hubbard's abundant letters record such aspects well. He built the Fifth-Rate *Milford* during the Nine Years War and another Fifth-Rate *Greyhound* during the War of the Spanish Succession at Ipswich, and the latter was the only contract during the war in the region. Hubbard's letters are concentrated on the period of the launching of the *Greyhound*. One from February 1703 shows that Hubbard acquired materials needed for the completion of his contract, such as pitch and tar, from London.[156] The *Greyhound* was launched in March, and Hubbard urged for the payments and materials for fitting.[157] Similarly, Isaac Betts of Woodbridge, who launched a Fifth Rate in 1698, also left enough letters to reconstruct the Board's support. In April 1698, when the launch of the *Hastings* approached, Betts asked the Board to borrow bilgeways from the Harwich dockyard.[158] The crews and stores started arriving by the 10th, and the ship was eventually launched on 17 May.[159] Although the low tide prevented its swift completion, the *Hastings* sailed off in the next month.[160] The events show that the Board equally assisted low-capacity contractors in launching processes in Suffolk.

Warship contracts in Suffolk had some distinctive characteristics due to their unique geographic traits. For example, fitting and rigging might be conducted at private yards in the region. Betts completed the *Hastings* by June 1698, but John Stow noted that some works on the ship were not done on the Navy's part. Alongside the lack of materials, the reason was that 'Mr Betts would not allow nails for cleating the yards and setting the masts so that carpenter of the ship was forced to use his store for that service.'[161] Thus, rigging and fitting took place at warship contractors' yards despite the nearby royal yard at Harwich.

Such a practice of bypassing the closest royal dockyard might reflect the declining naval activity at the Harwich dockyard. The fact that the Admiralty allowed the use of the royal yard for Barret's contracts further underlines it. The Admiralty letters approved Barret's contracts for building two Third Rates, later known as the *Ipswich* and *Yarmouth*, in January 1691.[162] The common reason for warship contracts was royal dockyards' overcapacity and the mobilisation of private yards.[163] However, in the case of Harwich, the

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[156] ADM 106/572/54, [William Hubbard to the Navy Board, 13 February 1703].
[157] ADM 106/572/92, [William Hubbard to the Navy Board, 11 March 1703]. ADM 106/572/107, [William Hubbard to the Navy Board, 19 March 1703].
[158] ADM 106/515/255, [Isaac Betts to the Navy Board, 14 April 1698].
[159] ADM 106/515/322, [Isaac Betts to the Navy Board, 9 August 1698]. ADM 106/523/75, [John Stow to the Navy Board, 10 May 1698]. Stow's letter also shows he did not get along with Betts.
[160] ADM 106/521/77, [Henry Morgan to the Navy Board, 19 May 1698]. ADM 106/523/101, [John Stow to the Navy Board, 14 June 1698].
[161] ADM 106/523/101, [John Stow to the Navy Board, 14 June 1698].
[162] ADM/A/1771/7, [The Admiralty to the Navy Board, 3 January 1691]. ADM/A/1771/93, [The Admiralty to the Navy Board, 17 January 1691].
[163] [Ch2§2].

situation was different. The Admiralty's decision to outsource the construction of Third Rates and to allow the use of the dockyard facility indicates that the prime concern was a lack of personnel to oversee and manage naval shipbuilding rather than the capacity of the dockyard. It is not certain whether the Navy had a definitive policy to cover the lack of personnel at the Harwich dockyard. Nevertheless, Barret might be the only contractor whom the Navy Board could rely on in the region for larger warships. Even though the initial agreements in January 1691 for the contracts were to complete the *Ipswich* and *Yarmouth* by October and December of the year, the vessels were launched in 1694 and 1695, respectively. The Navy's continuation of the contracts despite his significant delay in building the two Third Rates implies that there was no replacement for Barret in the region. In fact, as mentioned, Barret became the only contractor in Suffolk who produced Third Rates while the other three contractors built only Fifth Rates. Suffolk's case thus highlights the unique geographic constraint of warship contracts in the declining centre of naval shipbuilding. Therefore, it further reinforces the importance of large-scale shipbuilding acting around the royal dockyards for the Navy's attempt to expand its contracts.

Alongside the unique traits of contracts in Suffolk, Shoreham's case needs proper care to fully highlight the impact of geographic characteristics on warship contractors' success. Shoreham did not have a royal dockyard inside the region, but relatively close to the royal yard at Portsmouth compared to other remote regions. While Shoreham is only about 60 km from Portsmouth, Hull has nearly 230 km to its closest dockyard at Harwich, even in direct lines at sea lanes.[164] It is difficult to make a firm conclusion about the transportation costs only with distance because more detailed geographic traits like straits and shallow waters determine navigability. Therefore, the kinds of troubles the Shoreham contractors faced need to be identified through the examination of the correspondence again. By doing so, it attempts to further deepen our understanding of how geographic traits impacted the success of warship contractors.

Like the Thames and Hampshire regions, Shoreham of Sussex was another area that received numerous warship contracts and produced sixteen rated warships during the Nine Years War. Nevertheless, all sixteen vessels were either Fifth or Sixth Rates, and the sizes of yards of 'high-capacity contractors' in Shoreham could be smaller than those in the Thames and Hampshire. Thomas Ellis was the leading contractor at Shoreham, and abundant documents can show his troubles. He was a high-capacity contractor, constructed nine frigates for the Navy during the Nine Years War, and engaged in a wide range of

[164] Google, 'Google Map', <https://www.google.com/maps>, [accessed on 7 June 2024].

business with the Navy, such as timber contracts.[165] Henry Tilden and Benjamin Furzer left strict weekly reports of Ellis' activity, stretching from January 1690 to November 1694. Ellis faced a delay in launching due to the Navy's slow action. In March 1690, Tilden informed the Navy Board of the possible launch in the next spring tide.[166] Even though Ellis successfully launched the ship on 15 April, the Board could not receive it since no officers and crews had arrived there.[167] The issue of communication and transportation with the Portsmouth dockyard continued in 1696 until Ellis finished his contracts with the Navy.[168] The events show that the structural weakness of the Navy in dispatching officers to needed places in time also hindered the swift business of warship contractors. During the age of slow communication and the limitation of the Navy's structural weakness, proximity to the royal dockyards and the Navy Office was also essential for a swift contract for private shipbuilders.

It is essential to add that Shoreham suffered equally, or possibly more severely, from the impressment issue. The opening of the Second Hundred Years War meant that the strategic weight of the Navy shifted from the North Sea to the English Channel, from the Netherlands to France.[169] As France introduced the policy of trade destruction, the southern coasts of England needed to face further enemy threats. Additionally, perhaps more impactfully, this also brought a concentration of impressment with the Navy's focused operations there. Despite some distance from the Portsmouth dockyard, the location of Shoreham, facing the strategic theatre of the English Channel, made warship contractors there vulnerable to the impressment issue. For example, Ellis petitioned the Navy Board to order the release of his pressed caulker, who was the only workman caulking his contracted ship, according to Ellis.[170] The Board might have helped with the situation successfully, judging from the numerous warship contracts by Ellis at the end. However, the impressment issue further struck the region as Captain Poole recorded that he received a press warrant of fifty men in the region in April 1694.[171] As such, some distance from the Navy Office but the proximity to the strategic theatre, contrary to the Hessle case, led large-scale impressments while the Board could not impose its authority strictly. In other words, the Shoreham case indicates that access to the Board's support was not the sole geographic barrier.

The analysis here shows that the Navy Board had some supportive attitude towards the

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[165] [Ch3§4].
[166] ADM 106/401/95, [Henry Tilden to the Navy Board, 17 March 1690].
[167] ADM 106/396/246, [Edmund Dummer to the Navy Board, 15 April 1690].
[168] ADM 106/485/109, [Thomas Ellis to the Navy Board, 2 October 1696].
[169] [Ch2§1].
[170] ADM 106/430/256, [Thomas Ellis to the Navy Board, 28 June 1693].
[171] ADM 106/447/115, [Benjamin Furzer to the Navy Board, 14 April 1694].

contractors in remote regions, such as issuing protection tickets and promoting local support. However, the distance from the royal dockyards was a barrier to receiving resource supplies from the Navy. Warship contractors far from the royal yards needed to find resources by themselves, and it imposed a burden on the Navy with masting and fitting on site as well. Additionally, the reconstructed correspondence between the two parties highlights the recognised communication issue. Despite the rising importance of the Portsmouth and Plymouth dockyards, the headquarters of the Navy remained in London. As the contractors needed to inquire to the Board, the distance to London imposed additional burdens on private shipbuilders. Moreover, the examination highlights the different degrees of impressments by regions. The rising strategic importance of the south coast also meant the increasing dangers it faced. Warship contractors in the regions were exposed to heavy impressments and enemy privateering to a greater degree than the contractors in eastern England. These factors underline the Thames contractors' advantages in obtaining repeated business with the Navy. The Board evidently attempted to assist all contractors who demanded support, but such efforts were only undermined by its lack of authority and geographic barriers. Thus, the emergence of large-scale shipbuilders surrounding the royal dockyards was an essential factor that enabled Britain to see the dramatic expansion of warship contracts at the turn of the eighteenth century.

4: Chapter Conclusion

The present chapter reconstructed the interactions between the Navy and private shipbuilders to grasp how private yards conducted the colossal projects of naval shipbuilding and how the Navy's actions and reactions impacted warship contracts. The analysis has revealed the following two points. Firstly, almost all warship contractors faced similar troubles of resource shortages, impressments, and launching problems universally, regardless of their sizes and locations. Only John Frame in Hull might avoid the impressment issue because of its sheer distance from the main strategic theatre. But for all other regions, regardless of the degree, every contractor needed to navigate through the universal issues.

Secondly, the examination of the correspondence revealed the Navy Board's supportive attitude towards warship contractors, contrary to the traditional image of the Navy's reluctance. Although contracted warships received critical assessments, it is important to stress that warship contractors equally suffered from the pressing material and labour markets as the royal yards did.[172] The analysis here made the importance of the

[172] Haas, 'Work and Authority', p. 420.

Navy's assistance with warship contracts more explicit. Even the Johnsons, the largest contracting family at the time, could not complete shipbuilding of rated warships alone. The signed contracts clarify that warship contractors were responsible for various aspects, from resource procurement to the hull launch. Nevertheless, the Navy often assisted the contractors beyond its contractual obligations to make the shipbuilders comply with the set launching dates. To demonstrate the mutually beneficial relationship between the RAC and the Navy, Helen Paul summarised the Board's support for the company as the following three aspects: protection from impressments, access to the royal dockyards and their supplies, and providing convoy protection.[173] The result of the present chapter reinforces that these were exactly the kinds of the Navy's support for its contractors, thus marking the Navy's active role as a part of the 'contractor state'.

One may stress the negative side of the Navy's presence in private shipyards' business. This chapter also revealed that the Navy's practice of impressments was not just a social matter, as historians often depicted, but also had an economic impact. As Hiono Yuichi demonstrated that naval store contractors often faced impressments during their voyages, this section reconstructs that warship contractors equally faced the issue.[174] It was a part of the reason for warship contractors' struggles to secure a workforce, thus undermining the Navy's own shipbuilding project as well. However, such self-contradictory action was owed to the Navy Board's structural weakness rather than its negligence in the management of warship contracts. The Board clearly saw the impressments of the contractors' workers as problematic and issued protection tickets for them. However, sea officers needed more sailors as the wars with the continent intensified and disregarded the protection. In terms of the contract relationship, therefore, the lack of the Board's authority to strictly enforce its power was a more direct hindrance than the recognised Navy's critical view against outsourcing. Again, the civilian and military sectors of the Navy were not in alignment. The Board's reaction to the impressment issue rather reinforces its supportive attitude towards warship contractors.

Additionally, the results of this chapter's analyses indicate the following two characteristics. Firstly, geographic traits played a crucial role in warship contracts. The cases of Frame of Hessle and Clements of Bristol show that sheer geographic distance from the royal yards, the reserve of the Navy's resources, meant difficult access to the Navy's assistance. As the contemporaries also recognised the importance of access to resources as the 'bottleneck' of naval shipbuilding,[175] the geographic proximity to the

[173] Paul, 'Suppliers to the Royal African Company', pp. 133-134.
[174] Hiono, '18-seiki Igirisu Kaigun', p. 99.
[175] [Ch3§3].

naval centres secured the Thames shipbuilders' advantage in warship contracts. When they received an order to dock the *Woolwich* at the Taylors' yard at Rotherhithe for repair, Woolwich officers wrote that the ship 'should be refilled from Deptford, whence by reason of its nearness the materials wanting may be furnished with less charge'.[176] Even inside the Thames region, transportation costs were a significant concern for the Navy. Support across the regions should be much more costly and risky during slow communication and frequent hostile raiding, as well as unruly impressers.

Secondly, the findings here further reinforce the argument in Chapter 3: while shipbuilders with some business and personal connections might have an advantage in obtaining warship contracts, the contract relationship cannot be labelled solely as nepotism. We saw that various contractors had broader business connections to the Navy; some even had relatives in the Navy, and some others were officers themselves.[177] On the other hand, in this chapter, a closer look at the interactions between the Navy and shipbuilders revealed that the Navy assisted a wide range of shipbuilders universally. It also indicates that the Navy Board did not explicitly patronise warship contractors who spared more shipbuilding capacities. Roger Knight and Martin Wilcox hinted at the corruption because some contractors got exempted from and eased with the penalty for late delivery.[178] However, the analysis here shows that all sizes of contractors, from low-capacity to high-capacity, received similar support from the Board. This nature instead reinforces Knight and Wilcox's other statement that the turn of the century marked the transition 'from a relational to a transactional approach' in the British contractor state.[179]

In the end, the numerous accounts of naval officers' criticisms towards the quality of privately built warships should not cloud the private actors' contributions. Naval historians often stressed the French upper hand in the quality of warships. The French navy, for example, established the education system of master shipwrights with a theoretical design of warships by 1741. Haas stated that 'French warships as a result were better designed, although perhaps not better built, than British warships'.[180] Albion went further and even claimed that 'England's shipwrights deserve no great credit for the success of the Royal Navy, during the eighteenth century at least' by highlighting the poor quality of the British fleet.[181] Nevertheless, as the technological development during the sailing era was relatively slow, Harding argued that Britain's naval 'Dominance was partly assured by out-

[176] ADM 106/480/118, [Woolwich officers to the Navy Board, 13 June 1695].
[177] [Ch3§3].
[178] Knight and Wilcox, 'War, Government and the Market', pp. 179-180.
[179]Ibid., p. 178.
[180] Haas, *A Management Odyssey*, p. 24.
[181] Albion, *Forests and Sea Power*, p. 78.

building the enemy', as previously noted.[182] Thus, naval officers' criticisms should not cloud the strategic importance of the sheer number of privately built warships. When France focused on the destruction of enemy trade, numerous frigates built by warship contractors certainly played a decisive role in defending and promoting Britain's maritime efforts.[183]

Collectively, the chapter's findings highlight that the Navy Board's commitment to warship contracts was one reason for the rapid expansion of warship contracts at the turn of the eighteenth century. Even the largest private yard at the time, Blackwall Yard, could not complete naval shipbuilding without close support from the Navy. The Board's supportive attitude, revealed in this chapter, points to cooperative aspects between the royal and private yards. The support allowed the shipbuilders to complete their naval shipbuilding and incentivised them to sign warship contracts one after another during pressing labour and material markets. The Board needed the contractors to finish their work to keep up with the rising demand for warships. Though the Board might have been reluctant to outsource its shipbuilding at first, once it was outsourced, completing the contract was firmly in the Navy's own interest. Thus, when the contractors' yards faced difficulties, the royal yards often sent needed supplies despite the fact that the signed contracts clearly defined the shipbuilders' responsibility for resource procurement. The traditional negative image of the Navy was more due to the structural weakness of the Board rather than deliberate policy.

As such, the existence of military entrepreneurs alone was not sufficient for the expansion of warship contracts. Without the Navy's commitment and close assistance, the private shipyards could not catch up with the large project of naval shipbuilding. The Navy Board's commitment to warship contracts was also an indispensable part of how Britain rapidly expanded warship contracts at the turn of the eighteenth century. The present chapter demonstrated that warship contracts were not an easy business for private shipbuilders. Based on this finding, the next chapter questions why private shipbuilders engaged in the troublesome business of warship contracts in the first place. In other words, it examines the incentives that drove military entrepreneurs to warship contracts despite the universal issues of resource shortage and impressments.

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[182] Harding, *The Evolution of the Sailing Navy*, p. 135.

[183] It is worth adding that Henry Snr's early works served in Britain's naval operations in the War of the Spanish Succession, and some participated in the capture of Gibraltar in 1704. Thus, warship contracts played a key role in Britain's amphibious expeditions as well. Green and Wigram, *Chronicles of Blackwall Yard*, p. 21.

Chapter 5: Shipbuilders' Incentives for Warship Contracts

5: Chapter Introduction

Chapter 3 tackled the question of who warship contractors were and shed light on their characters as military entrepreneurs. And Chapter 4 demonstrated that while the Navy Board showed supportive attitudes, warship contracts remained a troublesome business for shipbuilders. These findings raise additional questions about why these individuals chose the naval shipbuilding business. Against this background, this chapter seeks to understand shipbuilders' incentives to enter warship contracts.

Due to the lack of private accounts, it is difficult to reconstruct the decision-making and prospects of the contractors empirically. Nevertheless, the incentives for warship contracts make an unignorable part of the contract relationship between the Navy and shipbuilders. Even though the Navy had the potential to mobilise private shipbuilding capacity, it also needed to have some hooks to motivate private shipbuilders to join the naval shipbuilding business to achieve the rapid expansion of warship contracts. It is possible to reconstruct a broad picture of the circumstances in which warship contractors were acting through a careful examination of contemporary records alongside existing studies in naval history and the history of shipbuilding and shipping. The analysis in this thesis has already elevated our understanding of warship contractors, which were previously unknown. Therefore, the time is right to investigate another uncharted field: warship contractors' incentives. By combining scholarly understandings and contemporary records, the present chapter highlights the factors that motivated private shipbuilders to shift their focus to warship contracts.

This chapter approaches the incentives for warship contracts with the contractors' prospects for profits and business promotion, as well as wartime changes in the shipbuilding market. Before analysing the incentives, it is important to underline that warship contractors were actually willing to take the naval shipbuilding business. It is generally recognised in naval history that the Navy was not a good customer for its contractors. Due to the Navy Board's chronic shortage of funds, contractors frequently experienced payments in arrears. Ralph Davis, Bernard Pool, and R. V. Saville all demonstrated the payment issue in the Board's contracts both for naval stores and naval shipbuilding.[1] Considering the high risk of the business, one might think that the Navy forcibly conscripted private yards for wartime demand, as they did for sailors. Contrarily,

[1] Davis, *The Rise of the English Shipping*, p. 331. Pool, 'Some Notes on Warship-Building'. Saville, 'The Management of the Royal Dockyards', p. 96. Pool, *Navy Board Contracts*, p. 142.

the correspondence between the two parties indicates that shipbuilders were often willing to provide warships and actively tendered for additional contracts. Section 1 first highlights the contractors' motivation for such a risky business as the general prerequisite for the debate over their incentives for warship contracts. More precisely, it investigates how impactful the recognised payment in arrears was for warship contractors. Then, it reinforces the image of warship contractors' active entry into the naval business. Although Chapter 3 already demonstrated that warship contractors frequently wrote the Navy to get contracts subsequently, this section further reinforces military entrepreneurs' motivations by examining their tenders directly.

While Section 1 draws the general setting of the contractors' risks and motivations, the latter part approaches three hypothetical factors of incentives to drive the entrepreneurs to naval shipbuilding in turn. The early half of Section 2 discusses the possibility that warship contracts yielded higher profits than mercantile shipbuilding. It compares the prices of warship contracts against those of mercantile shipbuilding. The latter half explores the possibility that warship contracts provided shipbuilders with future business opportunities. Countable scholars emphasised social promotion as an incentive to participate in state or military activities, but it needs to be tested whether the same is true for warship contracts.[2] Chapter 3 underlined that warship contractors were not simply shipbuilders but engaged in a wide range of maritime businesses.[3] The section here goes one step further and examines the extent to which business with the Navy helped contractors promote their mercantile shipbuilding and other sorts of enterprises. The archives' nature again limits us from observing the social and private lives of most warship contractors, and it is difficult to prove how the naval business led to the social promotion of warship contractors empirically. Here, the section attempts to overcome the lack of in-house records by highlighting the circumstances in which they were involved. In particular, the flourishment of enterprises after the contracts can imply a wealthier afterlife. In this way, the section explores the possibility that the prospects for profits and business promotion drove shipbuilders to warship contracts.

Lastly, Section 3 analyses the association between naval and mercantile shipbuilding to seek the possibility that changing markets during wartime motivated shipbuilders to take warship contracts. Chapter 2 explored the factors behind the rising demand for warship contracts at the turn of the eighteenth century from the Navy's perspective. Chapter 4 revealed the difficult situation of private yards during wartime, especially because of the

[2] Hiono, '18-seiki Igirisu Kaigun', pp. 96-97. Parrott, *The Business of War*, pp. 20, 251.
[3] [Ch3§2].

lack of resources and ever-intensifying impressment issue. Based on this knowledge, the section first attempts to reconstruct the transition of the output of mercantile shipbuilding through existing studies of shipbuilding and shipping. By cross-examining the numerical trend with the letters relating to warship contractors' struggles in shipbuilding during wartime, the section examines how the changes in the mercantile shipbuilding market influenced private shipbuilders' choices between the two shipbuilding businesses. Collectively, the chapter analyses what stimulated private shipbuilders, or military entrepreneurs, to enter the large project of naval shipbuilding despite the Navy's reputation for being a bad customer.

5.1: Financial Risks & Warship Contractors' Tenders

Before exploring potential factors that worked as incentives for signing warship contracts, it is important to review that warship contracts were not coercive mobilisation of private yards. Undertaking naval shipbuilding was not an easy business for the contractors. As mentioned above, the Navy had perpetual financial troubles and frequently could not pay its contractors on time. Nevertheless, the contractors often made active tenders to obtain more business with the Navy Board. This section first reviews the extent to which the Navy's notorious practice of late payment was impactful on the contractors' businesses. Then, it underlines that these shipbuilders nonetheless took the initiative to sign warship contracts. By doing so, the section highlights that military entrepreneurs were motivated enough to overcome the troublesome business with the Navy.

The Navy Board did not prioritise reliable contractors for payments. It is important to review here that payment for warship contracts was in instalments, and the Board usually paid with bills. However, the Navy was often incapable of exchanging the bills on time to the extent of distributing the South Sea Company's shares to pay off its contractors, i.e. when the company was established in 1711.[4] Like the other aspects, the Johnson family of Blackwall provides great detail of contractors' struggles with the Navy's late payments. Although the Board reduced the number of naval shipbuilding towards 1709, William Johnson's contracts continued. He was engaging with the rebuilding of the Second-Rate *Neptune* between 1708 and 1710.[5] Apparently, the payment for the *Neptune* did not go swiftly. In August, William even offered discounts for the prices of his works 'so that when that is taken out it will be much lower then ever a ship of that burden was sold for in

[4] Flinn, Michael W., 'Sir Ambrose Crowley and the South Sea Scheme of 1711', *The Journal of Economic History*, 20: 1 (1960): 51-66, pp. 59-60. Paul, 'Suppliers to the Royal African Company', p. 132.
[5] ADM 106/629/172, [William Johnson to the Navy Board, 16 April 1708]. ADM 106/659/151, [Jacob Acworth to the Navy Board, 27 April 1710]. ADM 106/654/29, [William Johnson to the Navy Board, 2 May 1710].

the river of Thames'.[6] Yet, the payment for the *Neptune* was not completed until William's death. In 1719, his widow requested the Board to pay for the two remaining bills dues dated in May 1708 and February 1709.[7] The event indicates that the Navy's problem with the payments for contractors was equally applicable even to the leading contractors with long business and personal connections.

As the Navy did not pay in time even to reliable families like the Johnsons, it is no surprise that other warship contractors equally experienced the payment in arrears. Thomas Ellis of Shoreham provides another great case of the Navy's weak finances. Already at the beginning of 1690, when Ellis was building his first frigate for the Navy, he complained to the Navy Board that he had not received three instalments due, and without them, he could not comply with the agreement.[8] Despite his repeated petitions, the situation did not improve, and the issue continued until 1693.[9] Hampshire contractors also experienced the same issue. In July 1693, for example, Anne Wyatt wrote to the Board that she had not received the agreed payment and demanded a swift transaction, without which 'it will hinder my proceeding on the said ship according to agreement'.[10] These letters show that the issue of payments was widely apprehended among warship contractors across England. The contractors often petitioned for immediate payments by expressing their difficulty in continuing the large project of naval shipbuilding.

One may think that the contractors' stress on financial difficulties could be a gesture to get cash quickly. Nevertheless, records relating to bankruptcy indicate that many contractors faced difficult financial situations from the Navy's late payments in fact.[11] *London Gazette* is the oldest newspaper in England, lasting to this day. As an official newspaper, *London Gazette* contains news relating to the declaration of bankruptcy. When the Commissioners of Bankruptcy found debtors incapable of repaying debts, they summoned the debtors to Guildhall for a specified date and time. Again, the nature of extant records makes it difficult to judge whether two individuals with the same name are identical.[12] Yet, *London Gazette* reports the names, locations, and occupations of those bankruptees, which allows us to make a somewhat firmer conclusion as to their identities. Among those declared bankruptcies, Richard Burchett of Deptford and George Fowler of

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[6] ADM 106/654/59, [William Johnson to the Navy Board, 21 August 1710].
[7] ADM 106/726/286, [A. Johnson to the Navy Board, 18 November 1719].
[8] ADM 106/396/301, [Thomas Ellis to the Navy Board, 28 January 1690]. ADM 106/396/305, [Thomas Ellis to the Navy Board,1 March 1690]. ADM 106/396/307, [Thomas Ellis to the Navy Board, 11 March 1690]. ADM 106/396/309, [Thomas Ellis to the Navy Board, 15 March 1690].
[9] ADM 106/430/271, [Thomas Ellis to the Navy Board, 2 October 1693]. ADM 106/430/257, [Thomas Ellis to the Navy Board, 6 July 1693]. ADM 106/430/274, [Thomas Ellis to the Navy Board, 24 October 1693].
[10] ADM 106/441/202, [Ann Wyatt to the Navy Board, 24 July 1693].
[11] Coats, 'Efficiency in Dockyard Administration', p. 422.
[12] [Ch3§4].

Limehouse, both labelled as shipwrights, are most likely to be identical to the warship contractors.[13] 'Edmund Dummer, of London, merchant' also seems to be Edmund Dummer, Surveyor of the Navy and warship contractor himself, who was bankrupt at the end of his life.[14] As such, warship contractors had high financial risks that could drive even the high-capacity contractors like Burchett and Fowler into bankruptcy.

Additionally, the year 1712 saw the royal pardon for many insolvent debtors, and *London Gazette* also reported the names of those individuals. Identified names are Thomas Ellis, William Graves, Henry Johnson, William Johnson, Thomas Newman, Robert Smith, and John Taylor.[15] For the articles about pardons of 1712, the information is insufficient to connect them to those of warship contractors because *London Gazette* only states their names and locations where they were imprisoned. Thus, it is difficult to give a specific number of contractors who faced bankruptcy. Moreover, bankruptcy at the time did not have a permanent effect like the one in the modern day.[16] Nevertheless, it is certain that warship contracts were risky enough enterprises to drive some contractors into financial difficulty.

The Mundy family of Suffolk provides a great example of the impact of late payments on low-capacity contractors. Andrew Mundy warned the Navy Board in June 1696 that without swift payment for his bill, he could not proceed with the work on a Fifth Rate.[17] When Andrew died, his widow Anne took over the contract. In March 1697, Dummer made a detailed survey of contracts at Woodbridge and wrote Mundy's work 'is worse, very little of fit materials on the place, and no credit whatsoever to provide more; but humbly desires this ship may be taken into the King's hands; she affirming herself utterly

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[13] *London Gazette*, issue 4960 (31 January 1711), p. 2, <https://www.thegazette.co.uk/London/issue/4960/page/2>, [accessed on 25 July 2024]. *London Gazette*, issue 4961 (2 February 1711), p. 2, <https://www.thegazette.co.uk/London/issue/4961/page/2>, [accessed on 25 July 2024].

[14] *London Gazette*, issue 5011 (29 May 1712), p. 2, <https://www.thegazette.co.uk/London/issue/5011/page/2>, [accessed on 25 July 2024]. MacDougall, Philip, 'Dummer, Edmund (*bap*. 1651, *d*. 1713)', *Oxford Dictionary of National Biography* (January 2008), <https://doi.org/10.1093/ref:odnb/60947>, [accessed on 15 January 2024].

[15] *London Gazette*, issue 5046 (26 August 1712), p. 7, <https://www.thegazette.co.uk/London/issue/5046/page/7>, [accessed on 25 July 2024]. *London Gazette*, issue 5047 (30 August 1712), p. 4, <https://www.thegazette.co.uk/London/issue/5047/page/4>, [accessed on 25 July 2024]. *London Gazette*, issue 5048 (2 September 1712), p. 6, <https://www.thegazette.co.uk/London/issue/5048/page/6>, [accessed on 25 July 2024]. *London Gazette*, issue 5066 (4 November 1712), p. 2, <https://www.thegazette.co.uk/London/issue/5066/page/2>, [accessed on 25 July 2024]. *London Gazette*, issue 5088 (20 January 1712), p. 2, <https://www.thegazette.co.uk/London/issue/5088/page/2>, [accessed on 25 July 2024]. *London Gazette*, issue 5101 (7 March 1712), p. 3, <https://www.thegazette.co.uk/London/issue/5101/page/3>, [accessed on 25 July 2024]. Holland also noted John Winter's bankruptcy in his monograph. Holland, *Ships of British Oak*, p. 96.

[16] Holland, *Ships of British Oak*, p. 96.

[17] ADM 106/492/181, [Andrew Mundy to the Navy Board, 16 June 1696].

incapable to go through with it'.[18] In the letter, Dummer even suggested cooperation between the royal yards and Mundy to complete the contract. From June onwards, the support for Mundy was assigned to Overseer Benjamin Furzer.[19] While the Navy provided swift payments to assist Mundy, the low credit of the notes brought another layer of the issue. Furzer complained that he had trouble exchanging notes from the Navy Board and Victualling Office there and desired to have ready money instead to complete the Fifth Rate.[20] But the financial situation kept pressing Mundy's work apparently. In March 1698, a certain J. Hearn, evidently the mediator of Mundy's contract, wrote to the Navy that 'I am now in great want of more to carry on close works according to agreement with the workmen and others, and if I be not speedily supplied with money, that work will be at a stand.'[21] As such, warship contracts could be fatal for relatively small-scale shipbuilders due to the Navy's chronic money shortage. The financial risk further reinforces the implication in Chapter 3 that only shipbuilders from wealthy backgrounds could engage in warship contracts.

One way to ease the financial burden was entering a partnership and signing a joint contract with another shipbuilder. George Moore and Joseph Nye's contract for the Fourth-Rate *Jersey* at East Cowes exemplifies some benefits of a joint contract. Although Moore 'became dissatisfied with his management and willing to be off from the partnership' in the middle of the contract, he continued to intervene in the shipbuilding.[22] As Nye used up the paid instalments to acquire naval stores, he could not pay his shipwrights' wages. The Board was concerned about Nye's potential bankruptcy and considered bringing the matter to the royal court to avoid an outcome whereby 'the King's money shall be lost or Moore and Barton who are not able to pay such a sum be ruined and the nation be disappointed of the ship'.[23] In the end, Moore intervened between Nye and his shipwrights, and the work resumed by the following March.[24] Barton, the guarantor of the contract when Moore left, also stepped in and supplied the rest of the naval stores, and the *Jersey* was launched in November 1698.[25] As such, a joint contract was a way for warship contractors to counter the financial risks. However, few contractors decided to have joint contracts, and the risks surrounding the Navy's practice of late payments remained a real challenge to warship

[18] ADM 106/502/71, [Edmund Dummer to the Navy Board, 10 March 1697].
[19] ADM 106/503/174, [Benjamin Furzer to the Navy Board, 8 June 1697].
[20] ADM 106/506/207, [J. Hearn to the Navy Board, 17 June 1697].
[21] ADM 106/519/273, [J. Hearn to the Navy Board, 8 March 1698].
[22] ADM 106/515/223, ['Deputation concerning George Moore and Thomas Barton', 1698].
[23] Ibid.
[24] ADM 106/521/44, [George Moore to the Navy Board, 3 March 1698]. ADM 106/521/49, [George Moore to the Navy Board, 11 March 1698]. ADM 106/521/156, [Abraham Northrop to the Navy Board, 12 March 1698].
[25] ADM 106/521/103B, [George Moore to the Navy Board, 7 September 1698].

contractors. The lack of in-house records prevents us from giving a specific input cost for a warship contract. But Geoffrey Scammell estimated that a certain Thames yard had a total stock of £800 while constructing a 300-ton vessel cost around £1,500.[26] Thus, combined with the evidently costly naval shipbuilding project, warship contracts were a risky business that considerably pressed shipbuilders' finances. If warship contracts were not coercive mobilisation of private yards, there must be higher returns for the contractors to overcome the negative aspects of the business.

Despite the high risk of warship contracts, many entrepreneurs took the initiative to sign the contracts. As the Navy did not practice standing contracts like the ones for naval stores, shipbuilders needed to tender for each warship contract. Some high-capacity contractors of the Thames provide a great example of shipbuilders' tenders to take repeated contracts. Edward Snelgrove, for instance, was the second biggest contracting family after the Johnsons in terms of tonnage built for the Navy and capable of producing three rated warships at a time. The Admiralty letter of October 1694 mentions a launch of a Fourth-Rate 60-gun ship and approves Snelgrove's offer 'to set up another in her [the launched ship's] room on the same terms of this and the former'.[27] The Castle family of Deptford also shared the traits of active tendering for warship contracts. In August 1695, when the completion of the Fourth-Rate *Harwich* approached, John Castle asked the Board to build another 60-gun at the same price.[28] In the following month, the Admiralty approved building two Fourth Rates in the same dimension as the previous ones.[29] These Fourth Rates were launched in August 1696 as the *Nonsuch* and *Warwick*.[30] The Admiralty letter of October 1694 shows that the Castles 'offered to contract for a ship of any rate from a 6th to a 3rd', among which the Admiralty directed the Board to build a Fourth-Rate 50-gun ship.[31] Snelgrove and the Castles' cases indicate that warship contractors frequently appealed to the Board to undertake additional warship at the same price as the ongoing one when its completion was approaching. These examples show that shipbuilders were willing to take warship contracts despite the potential financial risks.

Although there was a concentration of warship contracts in the Thames region, contractors from other regions also shared the trait of active tendering. 18 out of 43 contracting families have been identified with their tenders to the Navy Board. These are namely, the Barret of Shoreham, Bingham, Burges, Castle, Chatfield, Collins, Ellis, Frame

[26] Scammell, 'British Merchant Shipbuilding', p. 46.
[27] ADM/A/1812/232, [The Admiralty to the Navy Board, 19 October 1694].
[28] ADM 106/479/134, [John Castle to the Navy Board, 4 August 1695].
[29] ADM/A/1823/208, [The Admiralty to the Navy Board, 16 September 1695].
[30] ADM/A/1833/69, [The Admiralty to the Navy Board, 10 August 1696].
[31] ADM/A/1812/232, [The Admiralty to the Navy Board, 19 October 1694].

of Hessle, Herring, Johnson, Moore and Nye, Parker, Pett, Smith, Snelgrove, Wells, Winter, and Wyatt families.[32] And such letters stretched across all six regions of the contracts: the Thames, Hampshire, Hull, Shoreham, Suffolk, and Southwest regions. The sheer volume of tenders indicates the competitive nature of warship contracts among shipbuilders. In fact, John Frame wrote that even though he was planning to have another contract of a Third Rate, 'before I could get to London they had let one third rate to Mr Barret to build there, which gave him opportunity to engross all the timber, plank and workmen in those parts into his hands, all which hindered me from building there'.[33] This letter reflects the emerging 'transactional' contract relationship,[34] as well as the geographic barrier in contemporary warship contracts. Military entrepreneurs saw business opportunities in warship contracts, and most of them willingly renewed their contracts soon when the launches of their previous works approached. This indicates warship contractors' efforts to run their owned or rented yards to their full capacity.

With these examples of warship contractors' tendering, it is safe to conclude that many contractors were motivated to undertake naval shipbuilding and took the initiative to sign a contract. The Navy's late payments often imposed a delay in shipbuilding and even drove some contractors into bankruptcy. Yet, the abundance of the contractors' tenders shows that warship contracts were far from being the Navy's coercive mobilisation of private yards. The highlighted initiatives of warship contractors further underline that the contractors were entrepreneurs who mobilised their shipbuilding capacities to exploit the Navy's demand. For such a risky business, it is plausible that either warship contracts were a high-risk and high-return business or there was another significant driving force to shift shipbuilders' focus from mercantile to naval shipbuilding. Based on this background, the rest of the chapter questions what the expected benefits, or at least background forces, were to drive these shipbuilders towards the risky business of naval shipbuilding.

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[32] ADM 106/402/146, [Thomas Willshaw to the Navy Board, 4 November 1690]. ADM 106/430/233, [Thomas Ellis to the Navy Board, 20 March 1693]. ADM 106/441/68, [William Wyatt to the Navy Board, 18 March 1693]. ADM 106/441/113, [John Winter to the Navy Board, 19 April 1693]. ADM 106/444/133, [Richard Barrett to the Navy Board, 26 October 1694]. ADM 106/446/92, [James Parker to the Navy Board, 3 May 1694]. ADM 106/447/126, [Benjamin Furzer and William Collins to the Navy Board, 29 April 1694]. ADM 106/447/127, [Benjamin Furzer to the Navy Board, 29 April 1694]. ADM 106/451/70, [Henry Johnson Jnr to the Navy Board, 12 November 1694]. ADM 106/479/134, [John Castle to the Navy Board, 4 August 1695]. ADM 106/489/107, [Richard Herring to the Navy Board, 27 February 1696]. ADM 106/492/189, [George Moore and Joseph Ney to the Navy Board, 25 June 1696]. ADM 106/540/115, [John and Richard Wells to the Navy Board, 2 August 1700]. ADM 106/628/249, [Joseph Bingham to Henry Greenhill, 10 May 1708]. ADM/A/1771/143, [The Admiralty to the Navy Board, 26 January 1691]. ADM/A/1812/232, [The Admiralty to the Navy Board, 19 October 1694]. ADM/A/1822/77, [The Admiralty to the Navy Board, 9 August 1695]. Some letters were not written by the contractors because they approached the dispatched navy overseers, and then the officers informed it to the Navy Board or the Admiralty. It counts Moore and Nye as one because they only had joint contracts together and not separately.

[33] ADM/A/1771/143, [The Admiralty to the Navy Board, 26 January 1691].

[34] Knight and Wilcox, 'War, Government and the Market', pp. 177-178.

5.2: Profit-seeking & Business Promotion Motives

Since it is clearer now that shipbuilders eagerly took the initiative to sign warship contracts, the chapter next moves on to what incentivised these entrepreneurs to engage in naval shipbuilding over other businesses. The early half of this section considers perhaps the most straightforward source of a business incentive, a profit-seeking motive. To examine this aspect, the section compares the prices of naval and mercantile shipbuilding. The section then investigates the contractors' broader business lives to test how their achievements in large-scale shipbuilding with the Navy helped them flourish in their future businesses. By combining these measures, the section examines whether opportunistic prospects could incentivise private shipbuilders to join the business of warship contracts. Showing the result in advance, the section underlines that while warship contracts could bring handsome profits and future business promotions, these motives are more ambiguous for the contracts of smaller rated warships, which consisted of 43% of the contemporary contracts in number.

Considering that shipbuilders actively sought warship contracts regardless of the Navy's frequent late payment, a warship contract might be more profitable than mercantile shipbuilding. However, estimating a return from a single warship contract is extremely difficult due to the scarcity of private records. D. C. Coleman once noted that contracts with the Navy could be profitable, but it was 'dependent upon them to make the scale of his buying worthwhile'.[35] In fact, it is difficult to know the exact cost of shipbuilding even at a royal dockyard at the turn of the eighteenth century. The Navy Board informed the ship's design to be built to a royal dockyard, and the master shipwright took the business afterwards. Dockyard officers conducted the construction without reporting the details to the Board, and Jonathan Coad claimed that the Board's attempt to introduce a detailed accounting in 1734 ended in failure.[36] Despite such restraints by the nature of surviving records, several indentures of naval and mercantile shipbuilding contracts allow us to compare the prices.

Before starting the analysis, it is fair to note that shipbuilding itself might not be the most profitable business at the time. Chapters 2 and 3 explored that a shipyard required a significant size of labour force, and the previous section here reviewed that financial risks were real. Samuel Pepys described this nature well:

> ...and if any, whether in the merchants' service or the King's, where the greatest artists have always been; and reckon up instances of the poor families

[35] Coleman, 'Naval Dockyards under the Later Stuarts', p. 150.
[36] Coad, *The Royal Dockyards*, p. 24. MacDougall, *Shire Album No. 231*, p. 11. Haas, *A Management Odyssey*, pp. 4-5.

> of the best; and what is to be said herein of Sir H. Johnson, who, however he has got it, was never famous for building the best or biggest ships; whilst on the contrary how many attorneys, etc., have got great estates[37]

Therefore, even though shipbuilding was the largest manufacturing of the time, it is evident the return was relatively small compared to the high input cost. Nevertheless, this section aims to examine whether the prospect of profits incentivised shipbuilders to take warship contracts over mercantile shipbuilding. Thus, the comparison between prospective profits in naval and mercantile shipbuilding is sufficient for the context.

As the studies of the royal dockyard management revealed, the Navy offered lower wages to its workers compared to private yards.[38] One may think this nature is reflected in warship contracts as the lower prices for naval shipbuilding. Indeed, there is some correspondence that points to the Navy's efforts to reduce the price as much as possible. For instance, Joseph Bingham of Plymouth started directing the work of breaking up the *Harwich* at the end of July 1692, but the contract was not officially signed yet.[39] The Navy considered that the price Bingham offered was high, and Henry Greenhill noted, 'I will do what I can to reduce Mr Bingham to a lower price for breaking up the *Harwich* and to take less money in hand, and shall cause and contract to be drawn up, obliging him to employ a sufficient number of men therein, and remit the same to you for your approval'.[40] Greenhill finally sent a copy of the contract in February 1693.[41] However, Bingham refused to agree with this lower price and insisted 'rather to give him four hundred and fifty pounds in nine payments, of fifty pounds each every month'.[42] Bingham finally signed the contract at the end of the month, and Greenhill asked the Navy Board to pay him for the first three instalments.[43] Another example comes from Phineas Pett's letter of July 1691. He offered to build a Third Rate at £14 7s 6d and a Fourth Rate at £13 6s per ton.[44] When the Board lowered the price to £11 5s and £10 2s 6d respectively, Pett complained that 'prices are so low for the building of them in the river of Thames, workmen wages, and all sorts of provisions, being at such excessive rates that no man can build them so cheap and perform them as he ought, without being a very great lose thereby', although he accepted the

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[37] Tanner and Litt (eds.), *Samuel Pepys's Naval Minutes*, p. 163.
[38] Haas, 'Work and Authority', pp. 419-421.
[39] ADM 106/418/305, [Henry Greenhill to the Navy Board, 15 July 1692]. ADM 106/418/310, [Henry Greenhill to the Navy Board, 22 July 1692].
[40] ADM 106/432/272, [Henry Greenhill to the Navy Board, 7 February 1693].
[41] ADM 106/432/273, [Henry Greenhill to the Navy Board, 10 February 1693]. ADM 106/432/277, [Henry Greenhill to the Navy Board, 14 February 1693].
[42] ADM 106/432/279, [Henry Greenhill to the Navy Board, 19 February 1693].
[43] ADM 106/432/281, [Henry Greenhill to the Navy Board, 23 February 1693].
[44] ADM 106/409/72, [Phineas Pett to the Navy Board, 9 July 1691].

term.[45] It was clearly the Navy's interest to reduce the price of the contracts as much as possible.

Nevertheless, the price of warship contracts generally became much higher than that of mercantile shipbuilding. Historians have considered the higher yield of naval shipbuilding over mercantile shipbuilding; thus, some examples of prices for mercantile shipbuilding are available in studies of contemporary shipbuilding and royal dockyards. For example, Coleman already compared the price of a hoy to that of a rated warship.[46] According to him, an 80-ton hoy scored around £340 while Christopher Pett's Second Rate was £9,176 and Third Rate £6,844 in the 1660s. Thus, the profit from a single contract of a rated warship could be much greater than that of a merchantman.

Yet, a simple comparison between the prices of warships and merchantmen could be misleading. The construction of a larger vessel costs more for its materials and wages. The expense for wages was especially significant for shipbuilders to the extent that J. M. Haas claimed that around sixty to seventy per cent of a ship's price was for its wages, as noted.[47] As Chapter 3's examination of the transition of Blackwall Yard's workforce size indicated, it is evident that a larger vessel required more workers, thus higher costs.[48] The second biggest portion of shipbuilding costs was for raw materials, especially for timber. The lack of private yards' in-house records again prevents us from calculating input costs. But some descriptions regarding the financial burden of procuring resources for naval shipbuilding are extant. For instance, the Mundy family of Woodbridge petitioned the Navy in August 1698, saying that even with their payments in advance, they were in debt due to the costs of naval stores.[49] Judging from available information, it is plausible that larger warships required more input cost naturally, as discussed in Chapter 2.[50] Therefore, if the profit-seeking motives worked as an incentive for taking warship contracts, they needed to yield higher income against inputs compared with their mercantile shipbuilding counterparts.

Considering these aspects, comparing prices per ton would make a more proper assessment than comparing the final prices of ships to test profit-seeking motives in warship contracts. Contemporary shipbuilding contracts, both for warships and merchantmen, determined the product's value in price per tonnage, conveniently. The Johnson family left abundant documents in its mercantile shipbuilding as well. For example, Henry Snr contracted shipbuilding for Captain John Paine in June 1675.

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[45] ADM 106/409/74, [Phineas Pett to the Navy Board, 22 July 1691].
[46] Coleman, 'Naval Dockyards under the Later Stuarts', p. 138.
[47] Haas, *A Management Odyssey*, p. 3.
[48] [Ch3§3].
[49] ADM 106/521/96, [Elizabeth Mundy to the Navy Board, 11 August 1698].
[50] [Ch2§3].

Although the tonnage of the ship is uncertain in the indenture, the dimension of the ship was clearly defined as such: '...in length by the keel to the bark of the main stern post seventy and five foot, and to rake fore and aft nineteen foot, and in breadth from outside to outside of plank twenty and four foot, and in depth in the hold from plank to plank ten foot and an half…'.[51] Judging from the dimensions, the ship was smaller than a rated warship but larger than a general merchantman. The size was almost identical to the *Saint Albans's Prize*, an 18-gun French privateer which was added to the English navy in October 1691.[52] They agreed the merchantman's price should be £7 2s 6d per ton. In addition, Henry Snr's shipbuilding contract with the RAC from the same year sets the price to £5 17s 6d for a ship of 'fifty foot by the keel and sixteen foot at or by the beams from outside to outside and eight foot under the deck from the upper most part of the timber…', which is closer to his fireship *Blast* of 1695, 50 feet 6 inches, 23 feet, and 10 feet.[53] The comparison here shows that the price of mercantile shipbuilding per ton was higher for a larger vessel.

Similar to mercantile shipbuilding, the prices of warship contracts per ton were often proportionate to their sizes. Table 5-1 gives examples of prices per ton for each major rate of contracted warships. The prices per ton for warship contracts could be more expensive than mercantile shipbuilding simply because Fourth Rates and above were larger than most merchantmen. Therefore, shipbuilders could expect higher incomes from warship contracts exactly because of their bigger dimensions.

Table 5-1: Prices of warship contracts per ton for each rate (Third Rate and below)[54]

Rate	Price per ton	Year of the launch	Ship name	Builder
3	£11 2s 6d	1693	*Norfolk*	John Winter
4	£9 3s 0d	1706	*St Albans*	Richard Burchett
5	£7 2s 6d	1690	*Speedwell*	Thomas Gressingham
6	£6 4s 0d	1695	*Penzance*	Thomas Ellis

Some cautions are needed for the price comparison as the price of shipbuilding could vary significantly across time and regions. For example, in 1689, 253-ton Fifth Rate was handed at £6 10s per ton to Shoreham while 270-ton vessels of the same rate were

[51] Add Ch 13679, [Henry Johnson Snr's shipbuilding contract for Captain John Paine, 28 June 1675].
[52] Winfield, *British Warships in the Age of Sail (1603-1714)*, p. 741.
[53] Add Ch 13678, [Henry Johnson Snr's shipbuilding contract for the Royal African Company, 18 May 1675]. Winfield, *British Warships in the Age of Sail (1603-1714)*, p. 824.
[54] ADM 106/3070, [A collection of signed contracts of warship contracts].

contracted at £7 2s 6d to the Thames region, to John Taylor.[55] As wages occupied the biggest portion of the final price for shipbuilding, it is evident that shipbuilding costs were highly sensitive to regional labour markets. Additionally, the prices of warships increased throughout the period as Pepys was concerned.[56] For instance, while William Johnson offered his 40-gun Fifth Rate at £8 7s 6d per ton in 1708, James Taylor and John Quallet built 24-gun ships for £8 15s per ton in 1739.[57] Thus, it is likely that the availability of resources and degree of competition in the local market of each region dictated the prices. Nevertheless, the concern here is whether naval shipbuilding could bring more income than mercantile shipbuilding for an individual shipbuilder in a given time and space. The construction of a larger vessel had a greater price, and the massive size of rated warships evidently attracted various shipbuilders.

Therefore, profit-seeking could be one motive for shipbuilders to shift their business to naval shipbuilding during wartime. The management of colossal vessels like Third and Fourth Rates certainly yielded more income in a given time and space. The size of regular merchantmen was minuscule to that of rated warships, and even the largest mercantile vessels could just reach the size of Sixth and Fifth Rates, only except for East Indiamen.[58] One may argue that the ratio between the increasing input costs and prices of shipbuilding by increasing sizes is not certain, thus making it difficult to conclude the higher return for warship contracts. While such concerns remain, the lack of in-house records means a lack of means to calculate the input costs at private yards. Despite the limitations of documents, what is explicit in the analysis here is that warship contracts were certainly bigger businesses than mercantile shipbuilding. Thus, the section simply argues that shipbuilders could prospect for larger incomes from warship contracts because of the scale of naval shipbuilding. Despite being a risky business, it was certainly a bigger, if not the biggest, business that a single entrepreneur could afford at the time.

Nevertheless, the explanation by profit-seeking is only valid for warship contracts of larger rates. The analysis also indicates that prices for mercantile shipbuilding sometimes could be higher than those of warship contracts between similar dimensions of vessels. For example, the price for the above-mentioned merchantman for Captain John Pain was £7 2s 6d. Although the size was similar to that of a Sixth Rate, the ship's price matched that of a Fifth Rate, as Table 5-1 shows. Since there were 57 warship contracts for Fifth and Sixth

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[55] Banbury, Shipbuilders of the Thames, p. 149. Her Majesty's Stationary Office, *The Manuscripts of the House of Lords, Vol. 5, 1702-1704* (London, 1965), p. 471.
[56] Tanner, J. R. (ed.), *A Descriptive Catalogue of the Naval Manuscripts in the Pepysian Library, Vol. I* (London, 1903), p. 230.
[57] ADM 106/629/217, [William Johnson to the Navy Board, 14 September 1708]. Pool, 'Some Notes on Warship-Building', p. 106.
[58] [Ch3§1].

Rates out of the total of 134, it is likely that warship contractors were not hesitant to take frigates of lower rates. Therefore, profit-seeking alone cannot definitively explain the reason behind shipbuilders' rapid entry into naval shipbuilding at the turn of the eighteenth century. This finding demands further consultations on other reasons that motivated military entrepreneurs for warship contracts.

Here, the section now turns to the possibility that the prospect of business promotion could work as an incentive for taking warship contracts. Examining the contractors' business after signing warship contracts can highlight whether their experience in naval shipbuilding promoted broader businesses afterwards. The construction of an East Indiaman is one great measure of warship contractors' shipyard business after their naval shipbuilding. East Indiamen were the only mercantile vessels that could compete with Third and Fourth Rates in size, and shipbuilders could utilise their experience and know-how to build a rated warship for their new business with the EIC. Prior to the warship contracts during the Nine Years War, there were only four warship contracting families who produced East Indiamen: The Castle, Graves, Johnson, and Shish families of the Thames.[59] With the flood of warship contracts after 1689, seven new families joined the business of the East Indiaman building. The existence of such newcomers highlights that warship contracts provided them with the experience and reputation to engage in large-scale shipbuilding, even for the mercantile ones; thus, warship contracts could promote shipbuilders' business opportunities.

Table 5-2: New builders of East Indiamen after their warship contracts (1689-1713)[60]

Family	First Warship	First East Indiaman	Largest Rate
Burchett	1701	1709	3
Popley	1701	1706	3
Swallow	1703	1705	3
Snelgrove	1690	1695	3
Taylor	1665	1694	3
Wells	1698	1697	3
Winter	1692	1695	3

[59] Hackman, Rowan, *Ships of the East India Company* (Gravesend, 2001).
[60] The Dataset (See [Appendix II]). Hackman, *Ships of the East India Company*, pp. 15-49. According to Hackman's list, Robert Winter's *East India* was the only East Indiaman launched in Hampshire at the turn of the eighteenth century.

A closer examination of East Indiaman shipbuilding can reinforce this image. Table 5-2 presents the names of the newcomer families of East Indiaman shipbuilding, the years their first warship contracts were launched, the years their first East Indiaman was launched, and the rates of their largest contracted warship. While the Wells family first launched East Indiaman in 1697, a year before that of the warship contract, the construction of its first warship, the Fourth-Rate *Winchester*, was ordered in 1695, thus likely starting the warship contract before the East Indiaman. What is more certain is that the Wells were already building bomb vessels for the Navy at the beginning of 1695.[61] The table shows that all seven families engaged in either building or rebuilding Third Rates. Considering the scale of East Indiaman shipbuilding, the table reinforces that warship contracts could be proof of the ability to build large vessels.

While East Indiamen were the largest kind of merchantmen, however, there were other sorts of prosperous mercantile shipbuilding businesses as well. Chapter 3 demonstrated that West Indiamen, colliers, and large fishing and coastal vessels also matched rated warships in size.[63] Without comprehensive records like the EIC's, it is difficult to identify the builders of these vessels. Nevertheless, the East Indiaman shipbuilding gives one example of the experience in warship contracts, the largest kind of shipbuilding at the time, promoting their future business of mercantile shipbuilding.

A closer look at individual families can highlight if warship contracts could promote business in various fields outside of shipbuilding, too. Among these successful warship contractors, the Wells family of Rotherhithe was one of the most prominent examples. The family's warship contracts started at the very end of the Nine Years War.[64] But the origin of its shipbuilding business was probably dated earlier as a certain Thomas Wells held positions of Assistant and Warden of the Court of the Worshipful Company of Shipwrights from 1659 to 1669.[65] The family had two contractors at the turn of the eighteenth century, John and Richard Wells. They tendered for rebuilding three Third Rates and completed the works during the interwar period.[66] As John's letter mentions of the Wells family's 'new yard', it is evident that the family saw the recent expansion of the shipbuilding facility as a good opportunity to join the naval shipbuilding. In addition, they asked the Navy to dock the Third-Rate *Grafton* in a dry dock in May 1699.[67] These events indicate that the Wells family's yard was a large facility with at least one dry dock and could contain multiple

[61] ADM 106/474/191, [Cornelius Purnel and John Quallet to the Navy Board 11 January 1695].
[63] [Ch3§1].
[64] ADM 106/521/427, [John Quallet to the Navy Board, 23 February 1698].
[65] Banbury, *Shipbuilders of the Thames*, p. 139.
[66] ADM 106/524/154, [John Wells to the Navy Board, 13 July 1698].
[67] ADM 106/532/85, [John Wells to the Navy Board, 1 May 1699].

Third Rates at a time. John and Richard utilised this large-scale facility for their warship contracts for the coming War of the Spanish Succession. By capitalising on its shipbuilding capacity, the Wells family came to produce nine East Indiamen by 1714 and retained its position in warship contracts down to the late eighteenth century.[68]

When the Wells family first signed a warship contract in 1695, the year of high volume of contracts, its enterprises sprung even outside shipbuilding. The construction of the Howland wet dock at Rotherhithe reflects the flourishing of the family's business. The plan for the wet dock is preserved in the series relating to the Duke of Bedford's estates preserved at the London Metropolitan Archives.[69] The Wells invested in the construction and took the lead in designing the wet dock. The dock was completed in 1699, and the Wells family participated in repairing and refitting East Indiamen there in the name of Bedford until the family purchased it in 1763. By that time, the Wells family's business had achieved its height, which Philip Banbury judged that they produced a 74-gun Third Rate nearly every year together with 'one or two East Indiamen a year, as well as smaller warships and merchant ships.'[70] As such, the Wells family came to possess the shipbuilding capacity that could compete with Blackwall Yard by the beginning of the eighteenth century.[71] It is difficult to pinpoint exactly whether success in warship contracts or mercantile shipbuilding was the source of the Wells family's flourishing enterprises. However, it is plausible that its achievements in naval shipbuilding contributed to fostering the mercantile shipbuilding business, and the fame in the latter brought more opportunities in warship contracts. Therefore, the Wells family's case seemingly points out that the prospect of business promotion could incentivise military entrepreneurs to join the naval shipbuilding business.

On the other hand, the success of warship contracts alone could not guarantee the success of the family's enterprises. The abundant records left by the Johnsons also allow us to reconstruct some images of their businesses after warship contracts. Both Henry Jnr and William were retreating from the shipbuilding business at the beginning of the eighteenth century. William's activity between 1712 and 1718 is more traceable than his brother's. The year 1712 marked the end of his shipbuilding with the Navy. A report indicates that William engaged with the repair of the Third-Rate *Orford* and Fourth-Rate *Assistance* in April 1712.[72] According to R. D. Merriman, these repair works took place at Limehouse as

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[68] Hackman, *Ships of the East India Company*.
[69] E/BER/S/T/II/C/003/001-011, [Wet and dry docks at Rotherhithe, purchased from the Duke and Duchess of Bedford by Mrs Howland, 1703. Including draft and copy act of Parliament for making the wet dock 1696, lease to John Wells, shipwright, for making the docks, 1696, etc].
[70] Banbury, *Shipbuilders of the Thames*, pp. 139-140.
[71] Hobhouse (ed.), 'Blackwall Yard: Development'.
[72] ADM 106/671/162, [J. Bourn to the Navy Board, 14 April 1712].

Phillip Perry had already taken the management of Blackwall Yard.[73] The same report states that William sent his 'Bricklayer and house carpenter from Blackwall to Limehouse to see what was necessary to be done in repairing the fence'.[74] William's business at Limehouse was likely with George Fowler, who rebuilt one Fourth and Third Rate each as joint contracts. The event implies that the family was already shifting away from the Blackwall Yard business when the end of the War of the Spanish Succession approached.

As the demand for warships declined towards 1710, William's ascension to the Elder Brother of the Trinity House in 1709 reflects the beginning of the divergence of his effort from shipbuilding to maritime trade.[75] In 1714, after the conclusion of the war, William was appointed as the governor of Guinea under the RAC and became the Agent-General in the following year.[76] The turn of business focus represents a highly sensitive demand for warships in the long eighteenth century with the continuous transitions between war and peace.[77] William left England at the end of 1716. However, before achieving another success in Africa, he died at Cape Coast Castle in 1718.[78] William's case shows the possibility of an arbitrary end of a business when overseas trade could easily be a fatal venture.

The fragments of Henry Jnr's activity after his warship contracts can be observed through patchy records. After he retreated from the Blackwall Yard business, Henry Jnr seemingly strengthened his tie with Thomas Pitt of the EIC, as frequent exchanges of presents are recorded in late 1700.[79] Additionally, about a year after, a certain trader left a letter to appreciate Henry Jnr's recommendation of him to the governor of Fort St George, as previously mentioned.[80] The records are too fragmentary to draw a complete story like his brother William's afterlife. Yet, it is clear that both Henry Jnr and William shifted their weights from shipbuilding to overseas trade. The Johnson family presents an interesting case of military entrepreneurs' retreat from the shipbuilding business despite their success in warship contracts.

What is more certain is the end of the Johnsons' business at Blackwall Yard, in which the succession of the family played a crucial role. In 1718, likely noticing his declining

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[73] Merriman (ed.), *Queen Anne's Navy*, pp. 365-366.
[74] ADM 106/671/162, [J. Bourn to the Navy Board, 14 April 1712].
[75] Henning (ed.), 'JOHNSON, William (c.1660-1718)'.
[76] Henige, '"Companies Are Always Ungrateful"', pp. 31-32. Henning (ed.), 'JOHNSON, William (c.1660-1718)'. Hobhouse (ed.), 'Blackwall Yard: Development'.
[77] [Ch2§2].
[78] Hobhouse (ed.), 'Blackwall Yard: Development'. William left his will before departing for Guinea. Add MS 22187 219, [William Johnson's will, 6 December 1716].
[79] Add MS 22186 120, [J. Hiller to Henry Johnson Jnr, 28 September 1700]. Add MS 22186 124, [Thomas Pitt to Henry Johnson Jnr, 20 September 1700]. Add MS 22186 125, [Thomas Pitt to Henry Johnson Jnr, 14 October 1700].
[80] Add MS 22186 132, [Feveningham to Henry Johnson Jnr, November 1701].

health, Henry Jnr agreed to leave the management of the yard to three individuals after his death.[81] He died of gout in 1719, and the Earl of Strafford, the husband of Henry Jnr's daughter Anna, took over the ownership of Blackwall Yard. However, Strafford apparently had difficulty running the yard from his remote estate and sold it in 1724 before another major war broke out with the continent in 1739.[82] Blackwall Yard was passed to the Perry family, who would engage in the yard business up to 1810.[83] Thus, the Johnson family's warship contracts, alongside other enterprises, faced a sudden end when Henry Jnr died without a male heir. As such, regardless of the business success after their warship contracts, the business with the Navy did not necessarily mean a secured position of a family business.

Holland's descriptions of the Winters and Wyatts also point to the importance of succession for contemporary family businesses.[84] John and Robert Winter eventually moved back to London after the closure of the Nine Years War. In 1704, John obtained another contract for rebuilding the *Defiance*, but the work was halted by John's bankruptcy. Nevertheless, the event did not affect the family's shipbuilding business, and it continued the enterprise there together with land leasing in Southampton. On the other hand, the Wyatt family's shipbuilding business was terminated because of the 'lack of male [heir] issue'.[85] The remaining family members enjoyed a wealthy status, which Holland described as a 'rising gentry', until the South Sea Bubble of 1720.

Therefore, warship contracts could bring business opportunities, but they were not the critical factor in guaranteeing a lasting family business. The Johnsons and Wells' aftermath exemplifies the importance of succession to the family businesses in the seventeenth and eighteenth centuries. One may frame it as the Johnsons being successful in their social promotion with the marriage to Earl of Strafford. And William's son, another Henry, became a traveller and translator and even worked with the South Sea Company to explore South America.[86] Yet, the family's enterprises that carried down from Henry Snr's time, or even from the Pett dynasty, were terminated with Henry Jnr's death. On the other hand, the Wells family successfully kept the line of its businesses. The family's purchase of half of the share of Blackwall Yard ownership in 1798 represents the demise of the Johnsons and the rise of the Wells.[87] It was a time before the emergence of trademarks or even what we

[81] Green and Robert, *Chronicles of Blackwall Yard*, p. 24.
[82] Hobhouse (ed.), 'Blackwall Yard: Development'. Green and Robert, *Chronicles of Blackwall Yard*, p. 24.
[83] Banbury, *Shipbuilders of the Thames*, pp. 117-118.
[84] Holland, *Ships of British Oak*, pp. 96-98.
[85] Ibid., pp. 97-98.
[86] Martins, Luciana de Lima, 'Johnson Henry (1698/9-1760)', *Oxford Dictionary of National Biography* (September 2004), <https://doi.org/10.1093/ref:odnb/14885>, [accessed on 23 December 2023].
[87] Banbury, *Shipbuilders of the Thames*, p. 117. Hobhouse (ed.), 'Blackwall Yard: Development'.

generally perceive as a firm today. Private enterprises could face their ends rather arbitrarily.

The analysis in this section shows that prospects of profits and business promotion cannot adequately explain the rapid entry of military entrepreneurs into the naval shipbuilding business. Indeed, warship contractors could profit from the naval business. Although the prices per ton between mercantile and naval shipbuilding were not significantly different, shipbuilders could expect higher incomes because of the sheer size of rated warships. Moreover, the success in warship contracts could stimulate the contractors' other businesses, as some even attained shipbuilding with chartered companies. Such flourishment in various enterprises implies that shipbuilders could expect some degree of social promotion with the signing of warship contracts. Nevertheless, only the builders of higher-rate warships could be certain of these benefits. Again, as 57 out of 134 contracts were for Fifth and Sixth Rates, the reasons alone are evidently not influential enough to attract such a large number of shipbuilders, especially relatively small-scale ones, to warship contracts. Additionally, the analysis of the 'Dataset' can highlight some trends about the duration of warship contractors' business with the Navy.[88] Even though there were seventeen families who started warship contracts before the high concentration years between 1693 and 1695, only the Johnsons and Taylors continued the business to the War of the Spanish Succession period. Indeed, almost all contracts were concentrated in the Thames region during the second war. But the fact that the Castles and Snelgroves did not take warship contracts during the war despite being high-capacity contractors at the Thames implies the temporality of the naval shipbuilding business. Answering why so many shipbuilders entered the contracts even for a short period of time thus requires further investigation.

5.3: Wartime Changes in the Shipbuilding Market

Section 2 left some ambiguity about whether prospects of profit and business promotion worked enough as incentives to cause shipbuilders' rapid entry into warship contracts. Thus, another force that drove shipbuilders towards warship contracts must be considered. The changes in the mercantile shipbuilding industry might be one factor in expanding warship contracts. A couple of intuitive assumptions can be made. First, the growing size of mercantile vessels allowed shipbuilders to build rated warships increasingly. Second, as the industry grew, so did the competition among shipbuilders. Third, the intensifying trade destruction during wartime imposed difficulties on mercantile shipbuilding. The first

[88] The Dataset (See [Appendix II]).

hypothesis is weak as an explanation because Chapter 3 demonstrated that the contracted warships were generally much larger than the biggest types of merchantmen.[89] And the third explanation is more plausible as John Brewer also assumed the impact of war on the recession of shipping.[90] In either the second or third way, warship contracts could be an alternate choice for mercantile shipbuilding. Shipbuilding was a 'highly cyclical industry', as Haas stated, and sensitive to the context of war and peace.[91] But these hypotheses demand an empirical examination to make a firm conclusion about the influence of the changes in the shipbuilding market on warship contracts. By testing the trends in the mercantile shipbuilding industry, this section argues that the wartime recession of mercantile shipbuilding was the most impactful factor that drifted shipbuilders to warship contracts.

Again, the biggest barrier to this examination is the scarcity of contemporary records on the shipbuilding industry. Statistical data on new constructions and ship registrations did not appear until the late 1770s. Although an early form of shipping insurance emerged in the seventeenth century, it is difficult to collect information about the origins of the vessels since insurance was on cargoes rather than on an individual vessel.[92] Therefore, the history of shipbuilding prior to the late eighteenth century can only be reconstructed with limited records, such as occasional surveys of merchantmen tonnage across ports.[93] For this reason, the shipbuilding industry from up to the late eighteenth century has mainly appeared only as a prelude to the later history or limited to the assessments of the government's policy relating to shipping in the existing studies.[94]

There have been several attempts to estimate the amount of newly constructed tonnages. For example, considering that the life span of an English-built merchantman was about 20 to 25 years, Anthony Slaven estimated that the maintenance of the 200,000 tons of the 1660s would have required new constructions of 8,000 to 10,000 tons per year to replace the decays.[95] In addition, 15,000 tons per year would have been needed to maintain the 300,000 tons of year 1700, then 21,000 tons per year for the 421,000 tons of 1750. Thus, the replacement alone placed a great demand on the shipbuilding industry. However, Slaven's calculation concerns the required replacement to sustain the total amount of the owned tonnage at the given time. For the present research, it is necessary to highlight the transition of newly constructed tonnages in England.

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[89] [Ch3§1].
[90] Brewer, *The Sinews of Power*, p. 192.
[91] Haas, *A Management Odyssey*, p. 33. [Ch2§2].
[92] Davis, *The Rise of the English Shipping*, p. 318.
[93] Slaven, *British Shipbuilding, 1500-2010*, pp. 1-2.
[94] Tsunoyama, 'Jusho-shugi to Igirisu', p. 205.
[95] Slaven, *British Shipbuilding, 1500-2010*, pp. 4-6.

Against this background, the early half of the section attempts to reconstruct the tonnage of newly constructed merchantmen in England from the 1650s to the 1770s by combining the fragmentary descriptions in existing studies. It especially refers to Ralph Davis and Lawrence Harper's estimates of the total tonnage of English-owned merchantmen. The section then subtracts ships built outside of England, such as vessels acquired through purchases and captures, from the estimated total owned tonnage.[96] Because of the lack of comprehensive statistics on British shipbuilding, Davis and Harper's data are mostly hypothetical. However, the purpose of this section is not to identify the exact amount of newly constructed tonnage. This section aims to examine the association of mercantile shipbuilding with warship contracts and to present the general trend of mercantile shipbuilding is sufficient for the analysis.

To estimate the tonnages of newly built ships in the said manner, total owned tonnages need to be revealed first. Historical studies of shipping have underlined the overall trend of the rising tonnage of English-owned vessels between the seventeenth and eighteenth centuries. Davis estimated that, according to the wartime survey records, there were 150,000 tons of merchant fleet in 1640 and 200,000 tons in 1660 in England.[97] On the other hand, based on survey records in London in 1662 and 1664, together with the value that London's ownership was 31.7% of the total owned ships in England in 1702, Harper estimated the tonnage in the 1660s was 161,619 tons.[98] Both scholars gave higher numbers for 1702, with growth to 323,000 tons by Davis' calculation and 267,444 tons for 3,504 ships even in Harper's more modest measurement. Thus, both estimates indicate about a 60% increase in English merchantmen between 1660 and 1702.[100] Richard Brown also noted that it had increased to 421,000 tons by the mid-eighteenth century, which indicates a growth of roughly 100,000 to 150,000 tons from 1702.[101] In addition, Joseph Goldenberg's study with the *Lloyd's Registry* of 1776 presents that the total tonnage was 532,398 tons, an increase of more than 111,000 tons from the mid-eighteenth century.[102] By combining these fragmented estimates, it is possible to recreate a broad trend of English owned merchantmen.

Against such data, the proportion of non-English-built vessels in the total owned tonnages needs to be identified. Many English-owned vessels were of foreign manufacture throughout the seventeenth and eighteenth centuries. Davis estimated that during the period

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[96] Davis, *The Rise of the English Shipping*. Harper, *The English Navigation Laws*.
[97] Davis, *The Rise of the English Shipping*, pp. 10, 15.
[98] Harper, *The English Navigation Laws*, pp. 327-329.
[100] Slaven, *British Shipbuilding, 1500-2010*, p. 4.
[101] Brown, Richard R., *Society and Economy in Modern Britain, 1700-1850* (London, 1991), p. 164. Slaven, *British Shipbuilding, 1500-2010*, p. 5.
[102] Goldenberg, 'An Analysis of Shipbuilding Sites', p. 424.

between 1654 and 1657, foreign-built ships accounted for about one-third of all ships in the registry and that the proportion increased to one-half by the end of the century.[103] Despite having some variation, John Clapham also estimated that approximately one-fourth to one-third of all English-owned ships were foreign-built in the 1660s, and one-fourth were built outside of England in the 1680s.[104] In 1750, Slaven suggested, about one-third to half of the tonnage were of the colonial or continental European built.[105] More precise figures would be available by the end of the eighteenth century. In 1776, of the 1,132,517 tons of British ships registered, only 561,563 tons or 49.6%, were built within the British Isles.[106] 18.5% of the ships were built in foreign countries, such as Norway, modern-day Germany, and the Low Countries.[107] As such, various estimates point out that even after prohibiting the purchase of foreign-built vessels in 1662,[108] these ships took a significant portion of English-owned vessels.

Table 5-3: Number of captured ships to the British fleet (1652-1763)[109]

Year	War	Captured
1652-1654	First Anglo-Dutch War	1,000-1,700
1655-1660	War with Spain	400
1664-1667	Second Anglo-Dutch War	522
1672-1674	Third Anglo-Dutch War	500
1689-1697	Nine Years War	1,279
1702-1713	War of the Spanish Succession	2,203
1739-1748	War of the Austrian Succession	1,499
1756-1763	Seven Years War	1,855

A mass capture of enemy ships during wartime was one of the reasons for the high proportion of foreign-built vessels despite the restriction of purchases. In fact, between

[103] Davis, *The Rise of the English Shipping*, p. 52.
[104] Clapham, *A Concise Economic*, p. 235.
[105] Slaven, *British Shipbuilding, 1500-2010*, p. 6.
[106] Goldenberg, 'An Analysis of Shipbuilding Sites', p. 435.
[107] Davis, *The Rise of the English Shipping*, 53. Goldenberg, 'An Analysis of Shipbuilding Sites', p. 435.
[108] Davis, *The Rise of the English Shipping*, p. 53.
[109] Based on: Davis, *The Rise of the English Shipping*, pp. 51, 68.

1806 and 1815, during the Napoleonic Wars, ships built in Britain counted 375,000 tons while that of captured ships was 101,000 tons.[110] It is difficult to put a figure on the exact number of vessels added to the English fleet in this way since there was a cycle of release with a ransom and re-capture.[111] However, the trend of the number of prizes relative to that of the English fleet provides some indication. England enjoyed fifteen years of peace from 1674, and the number of foreign-built vessels decreased to 131 out of 1,532 between 1686 and 1687.[112] Comparing the figures to Table 5-3 implies that the majority of foreign-built vessels were acquired as wartime prizes.

Additionally, the proportion of vessels constructed in the colonies cannot be ignored when estimating the non-English-built tonnage. As more records survived from later periods, more exact numbers of foreign-built proportions are available. Goldenberg showed that 2,343 ships of 361,435 tons in 1776, or 31.9% of the total, were built in the New World, especially the North American colonies.[114] According to Tsunoyama Sakae's estimate, the North-American-built had already grown to amount to one-sixth of all British ship registers by the 1730s.[115] Compared to their home-built counterparts, ships built in the North American colonies were not cheaper to operate. Their popularity was due to the low cost of construction owing to the abundance of forest resources, regardless of some criticism of the unsophisticatedness of colonial-built vessels like loose fixing of planks.[116] Regardless of such criticisms, the colonial-built vessels gradually increased the share in transatlantic trade and dominated the unignorable portion of English-owned vessels.

By combining these figures together, approximate tonnages of newly constructed merchantmen can be reconstructed. Table 5-4 shows the results of synthesising the proportions of the tonnages built outside England and subtracting them from the total English tonnages between 1650 and 1770. The estimates are averages of available figures from a given decade, not the total output through the decade. The table also gives the periods when England/Britain was involved in major wars with the continent to highlight the impact of wars on the shipbuilding industry. Mercantile shipbuilding in England experienced a marked decline from 1680 to 1700 with the opening of the Second Hundred Years War. The mercantile shipbuilding seemingly recovered somewhere in the early eighteenth century. However, the data for the important period of the thirty-year peace in Britain is missing. Thus, it is difficult to evaluate how the shift from peacetime to the War

[110] Knight, 'Devil Bolts and Deception?', p. 35.
[111] Davis, *The Rise of the English Shipping*, p. 315.
[112] Ibid., p. 52.
[114] Clapham, *A Concise Economic*, p. 236. Goldenberg, 'An Analysis of Shipbuilding Sites', p. 435.
[115] Tsunoyama, 'Jusho-shugi to Igirisu', p. 230.
[116] Scammell, 'British Merchant Shipbuilding', p. 41. Özveren, 'Shipbuilding, 1590-1790', p. 42.

of the Austrian Succession impacted the shipbuilding industry. What is more explicit is that the end of wars often brought a quick surge in mercantile shipbuilding, or at least in total owned tonnage, as the ends of the Third Anglo-Dutch War (1680) and Seven Years War (1760) indicate. Although the lack of contemporary records about the shipbuilding industry prevents us from making a firm conclusion about the correlation, the analysis here points to some association between the wars and declining mercantile shipbuilding. Thus, wartime change in the mercantile shipbuilding market could incentivise shipbuilders to take an alternative choice of naval shipbuilding.

While it is difficult to prove the impact of wars on the shipbuilding industry precisely in a numerical manner, historians have recognised some qualitative aspects regarding the impact of war. First, it is important to stress that Britain was mostly dependent on imports for naval stores. Forestry resources could be found in the south-east of England, particularly in Essex, but these were severely depleted by the late seventeenth century.[117] Although forestry resources survived outside the river network, it was expensive to transport them overland and they could not compete with cheaper imports, especially from the Baltic region where rich forest resources were available and could be transported cheaply overland by sledge because of abundant snow.[118] The matter was not limited to timber, but a report of May 1710 notes a price increase in pitch and tar because of the trade disruption by the war between Denmark and Sweden.[119] The Navy explored the production of timber, hemp, and other necessities in the North American colonies since the First Anglo-Dutch War and established a formal policy during the War of the Spanish Succession.[120] Owing to the reliance on imported goods, it is not hard to imagine that the wartime trade disruption could severely harm private shipbuilders' businesses, too. If the wartime recession of mercantile shipbuilding truly happened, it could be a strong reason to shift shipbuilders' focus from mercantile to naval shipbuilding so that they could evade losses from having their shipyards empty.

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[117] Albion, *Forests and Sea Power*, pp. 33-34, 137, 206, 345. Pool, *Navy Board Contracts*, p. 16.
[118] Albion, *Forests and Sea Power*, pp. 104, 115. Pool, *Navy Board Contracts*, p. 21.
[119] ADM 106/654/27, [Charles Joye, George Behrens, and John Nieman's letter to the Navy Board, 1 May 1710].
[120] Carton, William, R., 'New England Masts and the King's Navy', *New England Quarterly*, 12:1 (March 1939): 4-18, p. 6. Hiono,'Supein Keisho-senso-ki'. Pool, *Navy Board Contracts*, p. 26.

Table 5-4: Estimated tonnages of new merchantmen built in England (1650-1770)[121]

Year	Estimate of new constructions (t)	Total English tonnage (t)	Foreign built proportion	War	Warship contracts (t)
1650	110,000	165,000	One-third	First Anglo-Dutch War (1652-1654)	
1660	126,000	180,000	One-fourth to one-third	Second Anglo-Dutch War (1665-1667)	
1670	156,000	260,000	One-third to half	Third Anglo-Dutch War (1672-1674)	
1680	255,000	340,000	One-fourth		
1690	-	320,000	-	Nine Years War (1689-1697)	54,722
1700	150,000	300,000	Half	War of the Spanish Succession (1702-1713)	26,622
1750	268,000	448,000	One-third to half	Seven Years War (1754-1763)	49,628
1760	-	543,000	-		
1770	295,000	589,000	Half	American Revolution (1776-1783)	109,931

Warship contractors' letters vividly record their troubles in shipbuilding during wartime. William Johnson's tender shows that even the largest private yard of the time

[121] Based on: Brown, *Society and Economy*. Clapham, *A Concise Economic*. Davis, *The Rise of the English Shipping*. Goldenberg, 'An Analysis of Shipbuilding Sites'. Harper, *The English Navigation Laws*. Knight, 'Devil Bolts and deception?'. Özveren, 'Shipbuilding, 1590-1790'. Scammell, 'British Merchant Shipbuilding'. Slaven, *British Shipbuilding, 1500-2010*. The Dataset (See [Appendix II]). Tsunoyama, 'Jusho-shugi to Igirisu'. When different figures for total owned tonnages are given from the same decade, the table gives the averages of different estimates. The years given for the wars are the period when England/Britain participated in the wars.

sometimes needed to have its docks empty, and shipbuilders turned their eyes to naval shipbuilding as an opportunity to fill their yards.[122] In particular, the difficulty in transports because of the presence of hostile ships was a frequently appearing matter. Such notes were most visible in the letters of the contractors on the south coast of England due to their proximity to Britain's prime rival, France. George Moore's letter shows that French privateering could be a real threat to shipbuilders' business in Hampshire. In June 1694, Moore petitioned the Navy Board to send a frigate when two French privateers were present and damaging fishing boats.[123] In his letters of May 1695 and March 1697, Moore further underlined the importance of convoys.[124] He lamented:

> I humbly beg of Your Honours that Your Honours will be pleased to order convoys to take care of the said vessels for Plymouth and Chatham for the Men of War begins to be so careless of merchantmen that it makes me much concern to think of the greatness of the many hazards…[125]

While Hampshire was the second leading region of warship contracts during the Nine Years War, the increasing tension with France and its privateering undermined the shipbuilders' business.

Shoreham was another centre of warship contracts exposed to French privateering due to its geographic location. Already in April 1690, Thomas Ellis wrote to the Navy Board that he was waiting for a convoy to send stores from London to finish his work.[126] When the war with the continent inflamed, and the demand for warships surged, Ellis offered in March 1693 to build a Fifth Rate, later known as the *Shoreham*, which he promised to complete by October.[127] While Ellis mentioned in October that he would be able to launch the ship at the end of the month or the following month, this did not come true.[128] Even though masts and other stores for the *Shoreham* were loaded at Portsmouth, Ellis could not receive them as there was a delay in the arrival of a convoy.[129] As Overseer Benjamin Tymewell asked the Board to convince the Admiralty to send a convoy immediately, the issue was evidently related to the communication and order between the two departments as well.[130] The hoy with the stores was finally at Shoreham in mid-January 1694, and the

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[122] ADM 106/629/208, [William Johnson to the Navy Board, 23 August 1708].
[123] ADM 106/452/113, [George Moore to the Navy Board, 9 June 1694].
[124] ADM 106/508/255, [George Moore to the Navy Board, 6 March 1697].
[125] ADM 106/473/166, [George Moore to the Navy Board, 11 May 1695].
[126] ADM 106/396/306, [Thomas Ellis to the Navy Board, 10 March 1690].
[127] ADM 106/430/233, [Thomas Ellis to the Navy Board, 20 March 1693].
[128] ADM 106/430/271, [Thomas Ellis to the Navy Board, 2 October 1693].
[129] ADM 106/430/288, [Thomas Ellis to the Navy Board, 27 December 1693]. ADM 106/446/254, [Thomas Ellis to the Navy Board, 2 January 1694].
[130] ADM 106/456/1, [Benhamin Tymewell to the Navy Board, 3 January 1694].

Shoreham was soon launched with the next spring tide.[131] Similar to Ellis' case, other Shoreham contractors experienced difficulty in shipbuilding due to the enemy raiding. William Briggs and Thomas Burgess built the Fifth-Rate *Fowey* between 1695 and 1696 as a joint contract. The stores for the contractors became ready by the end of April, but they needed to wait for a convoy for the transports.[132] The Hampshire and Shoreham cases express the difficulties that shipbuilders faced during wartime.

It is worth adding that while the proximity to primary rival France increased the strategic importance of the Plymouth dockyard, it meant that the region could face immediate danger simultaneously. Greenhill wrote about the threat from the French presence in October 1694:

> I have received yours of the 19th instant with an enclosed order to the officers for causing strict watch to be kept in Their Majesties' yard and ships in this port for preventing any attempt of the enemy or designs of wicked and villainous persons, which is delivered to them[133]

The fact that Hampshire and Shoreham did not build rated warships during the War of the Spanish Succession, despite their contribution in the earlier war, might reflect the difficulty with required convoys to transport naval stores. Such a situation on the south coast of England caused a delay in shipbuilders' business, and warship contracts were concentrated mostly in the Thames region at the beginning of the eighteenth century. Thus, these cases represent how impactful wars were for shipbuilders' businesses.

The analysis of the section indicates that declining maritime trade during wartime was impactful enough to drive shipbuilders from mercantile to naval shipbuilding. The numerical data implies the declining shipping and shipbuilding in the commercial sector during wartime. And warship contractors' petitions for the Navy to send convoys underline that the presence of enemy privateers and trade destruction were real hindrances to shipbuilders' business. Judging from these backgrounds, it is safe to conclude that wartime circumstances damaged shipping and imposed a burden on private shipbuilders. On the other hand, the demand for warship contracts dramatically increased during wartime, especially because it was the Navy's practice to rapidly rally frigates in time of need and quickly dispose of them when peace arrived.[134] Thus, shipbuilders evidently sought warship contracts as an alternative to fill their yards during the difficult time for mercantile shipbuilding. The result of the analysis here reinforces the view to recognise the impact of

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[131] ADM 106/446/253, [Thomas Ellis to the Navy Board, 13 January 1694]. ADM 106/446/258, [Thomas Ellis to the Navy Board, 17 January 1694].
[132] ADM 106/487/169, [Henry Greenhill to the Navy Board, 27 April 1696].
[133] ADM 106/449/310, [Henry Greenhill to the Navy Board, 23 October 1694].
[134] [Ch2§2].

the government's military contracts on its private industry for creating job opportunities.[135] Just as privateering was a wartime business for merchants, warship contracts were wartime business for shipbuilders.[136] Collectively, the changing market situation of shipbuilding during wartime, rather than its general growth, was the influential driving force to shift shipbuilders' focus to warship contracts.

5: Chapter Conclusion

The present chapter examined three potential incentives for private shipbuilders to engage in warship contracts: the higher prices for naval shipbuilding, prospects of future business opportunities, and the pressing situation of the mercantile shipbuilding market. The analyses here show that although opportunism could motivate shipbuilders to take warship contracts, the wartime change in the shipbuilding market was the most impactful factor. The recession in mercantile shipbuilding drove private yards to engage in naval shipbuilding to fill up their docks and slips. In the context of provisioning to the Navy, Rafael Sánchez rightfully described 'private business with the navy was a way of offsetting the loss of activity due to the closure of markets and the risks and increasing costs of navigation.'[137] The same picture is applicable to warship contracts. Large-scale shipbuilders like the Johnsons had considerable sunk costs for their shipyards which were valued to be the most capital-intensive facilities of the time.[138] Even those who did not own shipyards themselves, contractors often piled up naval stores before they started naval shipbuilding, as shown in Chapter 3.[139] Therefore, warship contracts provided those military entrepreneurs with the means to cut losses when mercantile shipbuilding experienced recessions during wartime.

Furthermore, the pressed markets of labour and naval stores meant that warship contracts were a more attractive choice. Chapter 4 demonstrated that the Navy Board often provided private yards with resources to make them comply with the agreed launching dates. It is plausible that the Board's close assistance created shipbuilders' incentives to engage in warship contracts over mercantile shipbuilding because shipbuilders could expect resource supplies from the Navy. Therefore, the wartime market situation was the biggest driving force for private shipbuilders to engage in naval shipbuilding. In his dedicated research on military entrepreneurs, David Parrott noted that 'the social – and

[135] Félix, 'Victualling Louis XV's armies', p. 116.
[136] Aga Yujiro, 'Kinsei Furansu no Kaigun to Shakai: Kaiyou sekai no "kokumin-ka"', in Kanazawa Shusaku (ed.), *Umi no Igirisu-shi: Toso to Kyosei no Sekaishi* (Showado, 2013): 243-258, p. 248.
[137] Sánchez, *Military Entrepreneurs and the Spanish*, p. 133.
[138] [Ch1§3].
[139] [Ch3§3].

perhaps also political – potential of the contracts outweighed strict economic calculations about maximizing profit.'[140] Warship contracts at the turn of the century might not be the way for shipbuilders to 'maximise profit', but it certainly appeared to be an option to 'minimise losses' in the difficult time of war.

The wartime situation of the shipbuilding market revealed in this chapter further reinforces that warship contracts stood in the balance between the Navy and shipbuilders' interests. As the Navy sought extra shipbuilding capacities for private yards, private shipbuilders also wanted an alternative to fill their shipyards. The balanced power between the two parties can be underlined in their negotiations, too. In his letter of August 1694, Snelgrove of the Thames finally agreed to undertake the Navy Board's suggestion to build a Third Rate offered in January.[141] The interactions may point to a somewhat stronger position of the private side in negotiation for warship contracts, but the Wells family of Rotherhithe provides a contrary case to Snelgrove's. John and Richard Wells offered two ships they were building as Sixth Rates to the Navy in May 1702.[142] Apparently, they could not receive a positive reply and sent their offers again a week later.[143] As the Navy did not acquire any Sixth Rates from the Wells family that year, their offers were likely to have been turned down. One can interpret this as the difficulty in entering the naval shipbuilding business without notable connections with the Navy. On the other hand, since the Wells family had high shipbuilding capacity and soon became one of the long-lasting contractors up to the late eighteenth century, it is unlikely that the Navy was reluctant to do business with the family in particular. Again, even the Johnsons, the most reliable contracting family, sometimes got their offers rejected by the Board. This implies that the Navy side also had a certain bargaining power. Even though the Board was desperate to acquire more warships, it always had the option to either construct at the royal dockyards or commission out to other competitors at private yards.

These findings can provide a new insight into the contractor state debate. Roger Knight and Martin Wilcox argued that the British state had the advantage of mobilising private resources by commissioning numerous contractors.[144] However, it was not only the Navy that benefited from warship contracts. As shown in Chapter 1, scholars also

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[140] Parrott, *The Business of War*, pp. 222-223.
[141] ADM 106/455/92, [Edward Snelgrove to the Navy Board, 6 August 1694].
[142] ADM 106/564/169, [John Wells to the Navy Board, 6 May 1702]. ADM 106/564/173, [John Wells to the Navy Board, 6 May 1702].
[143] ADM 106/564/186, [Richard Wells to the Navy Board, 11 May 1702]. ADM 106/564/189, [John Wells to the Navy Board, 11 May 1702]. As John and Richard wrote letters separately, thus appealing to the Navy four times, the event also reflects the family's entrepreneurial spirit in entering warship contracts.
[144] Knight, Wilcox, *Sustaining the Fleet*, pp. 4-5.

questioned the impact of the enormous state expenditure on its society.[145] The analyses here indicate that the Navy's shipbuilding projects provided job opportunities to private shipbuilders during the difficult time of the shipbuilding industry. Therefore, this chapter's findings further underline that warship contracts stood on the mutually beneficial relationship between the Navy and private shipbuilders.

All in all, the present chapter sheds light on the reasons behind private shipbuilders' active entry into warship contracts at the turn of the eighteenth century. The examination highlighted that the changes in the shipbuilding market during wartime drove shipbuilders from mercantile to naval shipbuilding. Nevertheless, the importance of profit-seeking and business promotion should not be ignored either. Owning to the highly cyclical nature of the naval shipbuilding business, military entrepreneurs evidently took advantage of the Navy's demand and considered warship contracts as a temporary source of income. The lack of in-house records of private yards limits the conclusion to point out the existence of the three possible incentives and different degrees of importance among them. Yet, judging from the repeated tendering, the findings here as a whole express that warship contracts were beneficial to private shipbuilders as well, especially because of the wartime situation. Therefore, a somewhat contingent wartime context aligned the Navy and private shipbuilders' interests and created the ground for the rapid expansion of warship contracts at the turn of the eighteenth century.

[145] [Ch1§3].

Chapter 6: Conclusion – Contractor State as an Institution

6.1: Contractor State as a Resource Mobilisation System

What allowed the rapid expansion of warship contracts in Britain at the turn of the eighteenth century? The present study approached this question by analysing warship contractors' characteristics, competencies, and incentives. More specifically, the chapters inquired into three questions: Who were warship contractors, and what were their traits? How did warship contractors conduct naval shipbuilding, and what was the Navy's role in it? And what drove warship contractors towards the business with the Navy? This section reviews the findings from preceding chapters and highlights how these new findings change our understanding of contemporary naval shipbuilding, as well as the existing framework of the contractor state.

Synthesising the newly revealed traits of warship contracts highlights that three factors were essential for the rapid expansion of warship contracts at the turn of the eighteenth century. These were:

1) The industrial base with large-scale shipbuilders who acted as military entrepreneurs
2) The mutually beneficial relationship between the Navy and private shipbuilders
3) The Navy's active support of the contractors beyond its contractual obligations

Firstly, the present study reinforces the notion that the existence of a mature shipbuilding industry was essential for the Navy to mobilise private shipbuilding capacity. The importance of the industrial base for Britain's naval shipbuilding efforts was long hinted at.[1] In the context of the contractor state, Roger Knight and Martin Wilcox also noted that 'More than anything, it was the strong industrial base outside the state establishments which gave the British government the means to overcome its enemies'.[2] The result of this study further reinforces this view. As Chapter 2 reviewed, the opening of the Second Hundred Years War and the growing importance of trade protection meant skyrocketing demand for naval shipbuilding. As the royal dockyards were overwhelmed by the high workload, the Navy could not meet the demands without private shipbuilding capacity.

On the other hand, this study also points out that the maturity of the 'industrial base' was not simply the general growth of the shipbuilding industry; it also stemmed from the emergence of military entrepreneurs. The analyses of contemporary records, together with the existing study of mercantile shipbuilding and shipping, revealed and reshaped warship

[1] Harding, Richard, *Seapower and Naval Warfare, 1650-1830*, (London, 1999), pp. 129-142. Morris, Roger, *The Foundations of British Maritime Ascendancy: Resources, Logistics and the State, 1755-1815* (Cambridge, 2011), p. 27. Knight and Wilcox, 'War, Government and the Market', p. 175.
[2] Knight and Wilcox, *Sustaining the Fleet*, p. 5.

contractors' characters, a simple but largely unknown aspect previously. The result indicates that warship contractors are best described as 'entrepreneurs' rather than just 'shipbuilders'. Chapter 3 showed that rated warships were much larger than most mercantile vessels, and large-scale shipbuilders were essential to the Navy's outsourcing. Moreover, many contractors engaged in various sorts of naval businesses, i.e. constructing auxiliary vessels, repairing and fitting warships, and supplying naval stores. Early modernists have called the individuals who undertook the state's war business 'military entrepreneurs', but the term lacked further definition.[3] The present thesis demonstrated that the term military entrepreneurs suits the definition of 'Kirznerian entrepreneurs' who seek a gap between demand and supply to enter a new market.[4] The concept fits to describe these influential contractors who were keen to exploit the Navy's demands by capitalising on the reach of their extensive business when the Navy Board craved additional supplies of naval stores and extra shipbuilding capacity. Thus, the existence of military entrepreneurs larger than regular shipbuilders and well-connected to naval actors was a necessary prerequisite for the rapid expansion of warship contracts.

Secondly, the dramatic surge of warship contracts was possible because both the Navy Board and private shipbuilders found the option beneficial. The close examination of contractors' correspondence with the Navy in this thesis points to military entrepreneurs' incentives for engaging in naval shipbuilding. Chapter 5 showed that while the prospects for profits and business promotion could motivate shipbuilders, the changes in the shipbuilding market during wartime were the biggest factor in driving them to warship contracts. As France launched the policy of trade destruction and Britain's impressments intensified, Britain's maritime trade stagnated. The stagnation of shipping led to a recession of mercantile shipbuilding, and shipbuilders needed to find an alternative business to fill their empty yards. Meanwhile, wars increased the demand for warships, and the Navy needed to find shipbuilding capacity outside its royal yards. Jan Glete noted, 'The navies were large-scale customers for naval stores which the mercantile groups could supply and the warships were necessary for protecting trade and colonies.'[5] While Glete's argument was made in reference to naval store contracts, a similar view is applicable to warship contracts. In short, the wartime situation made warship contracts appear to be the best option for both the Navy and private shipbuilders.

This finding underlines the importance of private interests in studying the state's mobilisation of private resources. The CSG researchers traditionally focused on the

[3] Fynn-Paul, Marjolein 't, and Vermeesch, 'Introduction', p. 2.
[4] Miyamoto, 'Kigyo-ka no Keifu', pp. 5-10.
[5] Glete, *Navies and Nations*, p. 23.

policies and administrations of military departments.[6] The weight of the private actors in this study allowed us to see a more complete picture of relationships and interactions between the Navy and warship contractors. As we saw in Chapter 1, more studies focusing on the contractors' interests have appeared in the past decade. Helen Paul, for example, highlighted that the RAC also benefited from its contracts with the Navy and perceived the Navy's operations not solely as a state project but as one in which the two parties' interests heavily intertwined.[7] The present study provides one case to reinforce that a mutually beneficial relationship is important for the government to effectively mobilise private resources, just like a business within a private sector. Davis Campbell and Donald Harris, for example, advocated that it is essential to recognise the 'consciously co-operative' nature in long-term contractual behaviour.[8] They argued that an effective long-term contract needs to have three characteristics: one party can expect higher benefits than by doing it independently, negative impacts from terminating the contractual relationship, and that the former two traits are mutually applicable to both parties. Even though warship contractors needed to sign a contract for each shipbuilding on paper, influential contractors could retain the contractual relationship over the course of the wars. Thus, a similar model is applicable to warship contracts at the turn of the eighteenth century. Again, while the Navy demanded more warships, private shipbuilders also benefited from warship contracts as a means to cut their losses during the wartime recession of mercantile shipbuilding. The present study, therefore, underlines the importance of grasping private interests to properly assess what scholars regarded as the state's mobilisation of private resources.

Thirdly, the findings highlight the importance of the state's active support of contractors to sustain the rapidly expanding warship contracts. Research on the management of the royal dockyards sometimes mentioned warship contracts, but the scope was mainly limited to a contrast between royal and private yards.[9] This study's focus on interactions between the two parties revealed some cooperative aspects of warship contracts. Chapter 4 showed that while contractors were responsible for the entire process from resource procurement to hull launch on paper, the Navy often assisted private yards beyond its contractual obligations in times of need. Additionally, it turned out that warship contractors who could obtain the contracts repeatedly shared the traits of their proximity to the Navy. The size of the facility was not the sole factor in determining who could be a successful contractor. The Navy Board's support was essential to complete their naval

[6] [Ch1§2].
[7] Paul, 'Suppliers to the Royal African Company', p. 132.
[8] Campbell, David, and Harris, Donald, 'Flexibility in Long-term Contractual Relationships: The Role of Cooperation', *Journal of Law and Society*, 20:2 (1993): 166-191, pp. 167, 183-186.
[9] [Ch2§1].

shipbuilding, even for the Johnsons with Blackwall Yard, the largest private yard at the time. During wartime, private shipyards faced recessions due to the difficulty in accessing resources, and they demanded supplies from the royal dockyards to complete the contracts. Geographic distances from the Navy Office and the royal dockyards were great hindrances to accessing such support even though the Board showed a widely supportive attitude. Despite the growing mercantile shipbuilding at the northeast and west coasts, warship contracts concentrated on the Thames region due to its geographic advantage mainly. As such, the Navy's active support of private shipbuilders, as well as the existence of large-scale military entrepreneurs nearby, was indispensable for the dramatic expansion of warship contracts.

The third aspect challenges the traditional view of the Navy's reluctance towards warship contracts. As Chapter 4 showed, naval historians often stressed the Navy's negative attitude towards warship contracts with officers' critical view of the quality of private-built warships and the conflicts between the royal and private yards for resource procurement.[10] However, not counterintuitively, after giving out a contract, the Navy's prime concern was ensuring that the contractor could hand in the vessel by the agreed time. It cannot be stressed too much that the opening of the Second Hundred Years War brought a surge in demand for warships, and the Navy needed to inquire into private shipbuilding capacity so as to keep up with its needs. Thus, the Navy spared its available materials and labourers from the royal dockyards so that contractors could complete their constructions. Even though they are not mutually exclusive, examining contract interactions sheds light on the Board's rather cooperative attitudes against the traditional accounts of the Navy's reluctance to outsource naval shipbuilding.

At the same time, however, the negative impact of the royal dockyards' presence on the surrounding private shipbuilding should not be clouded. As Chapter 1 showed, some naval and economic historians suggested that the business of the royal dockyards, the largest capital-intensive manufacturing site at the time, stimulated Britain's industrialisation.[11] Nevertheless, the recognised competition for labour and naval stores agitated by trade disruption and high volume of shipbuilding were equally burdens to private shipyards. More strikingly, the Navy's practice of impressments was a real hindrance to private yards' business. Considering that even warship contractors' workers with the Navy Board's protection frequently got pressed out, it is not hard to imagine that impressments also damaged various other private yards, perhaps more severely. This is not

[10] [Ch4§1].
[11] Coleman, 'Naval Dockyards under the Later Stuarts', p. 139. MacDougall, *Shire Album No. 231*, p. 4. [Ch1§3].

to deny private shipbuilders' benefits from the presence of the royal dockyards, such as the spillover of trained shipwrights and naval shipbuilding know-how. Yet, the relationship between the royal and private yards should best be characterised by a delicate balance between cooperation and conflict.

In summary, the present study shows that the somewhat contingent factors – the existence of military entrepreneurs surrounding the royal dockyards and the wartime situation of mercantile and naval shipbuilding markets – were the backbones of the great surge of warship contracts. At the same time, the Navy and warship contractors' commitments to fully utilise the situation were essential. These three factors all worked together to sustain the expanding warship contracts at the turn of the eighteenth century.

This study's argument highlights Britain's traits as a contractor state at the turn of the eighteenth century, even within the existing framework of the government department's mobilisation of private resources with some modification. First, it emphasises the Navy's advantage in outsourcing to private shipyards over expanding state-owned facilities. Despite the frequent criticisms of the quality of privately built warships, the Navy kept its contracts with private yards throughout the long eighteenth century. This seemingly supports the interpretation that the Navy had no choice but to rely on private yards regardless of their poor quality due to the high workload at royal dockyards.[12] The flood of demand for warships during wartime and the overcapacity of the royal yards were certainly a reason for the increasing warship contracts at the turn of the century.

In light of this aspect, it may be inferred that the Navy's mobilisation of private yards was to reduce shipbuilding costs. Knight and Wilcox explained that the reason why the state would contract out to private hands could fall into four categories: accessing markets to which the government cannot, accessing information about markets, avoiding capital investment in the large state establishments, and for the flexibility and speed in expanding means of resource procurement in time of need.[13] The result of this study reinforces that the outsourcing of naval shipbuilding was for reducing the costs of maintaining and managing the royal dockyards by limiting the size of state-owned dockyards.[14] The fact that the signed contracts clarify the contractor's responsibility to secure resources in their expenses reinforces this interpretation. Additionally, on approving the signing of a contract, the Admiralty frequently noted to the Navy Board, 'upon the best terms you can

[12] Holland, *Ships of British Oak*, pp. 49, 76.
[13] Knight and Wilcox, *Sustaining the Fleet*, pp. 10-11.
[14] Rowlands, Guy, 'Agency Government in Louis XIV's France: The Military Treasurers of the Elite Forces', in Fynn-Paul (ed.), *War, Entrepreneurs, and the State*: 215-234, p. 218. Sánchez, 'Contractor State and Mercantilism', p. 53. [Ch1§2].

for Their Majesties'.[15] Outsourcing naval shipbuilding might have been an effective option for the Navy to meet the rapidly expanding demand for warships as well.[16] Since the demand for warships was heavily concentrated on wartime, warship contracts allowed the Navy to avoid having to sustain larger state-owned dockyards in peacetime that would have entailed a sizeable and unnecessary expense.

Britain's advantage in naval shipbuilding through warship contracts can be highlighted with some comparison to the Spanish case. Rafael Sánchez made a detailed survey of the Spanish warship contracts in the eighteenth century. Although the Spanish navy also inquired about private shipbuilding capacity to rebuild its naval strength rapidly after the War of the Spanish Succession, there are several distinct differences compared to the British case. First, the Spanish navy outsourced a considerable number of ships of the line, and the contractors were responsible for the fitting even for the armaments.[17] This implies that the Spanish warship contracts lacked the division of labour between the two yards like the British ones – while private yards undertook hull constructions, the royal dockyards conducted the fitting process. Thus, it is plausible that only a few business-people with the largest kinds of shipyards could afford the contracts. Secondly, while the Spanish navy successfully rebuilt its strength through warship contracts in the early eighteenth century, it soon turned its policy to contain the contracts with a few influential individuals to strengthen its control. Sánchez described this transition as the 'trend ran in exactly the opposite direction to that of the English navy, and involved seeking exclusivity rather than complementarity.'[18] The Spanish counterparts further reinforce the view that both the British navy's deliberate practice to open the contracts to a wide range of shipbuilders and the emerging division of labour in a colossal manufacturing process allowed the effective entry of military entrepreneurs into the naval shipbuilding industry.[19]

On the other hand, the result of the present research also calls for some revision of the contractor state model. The thesis highlighted that warship contractors with familial and business connections to the Navy also played a key role in Britain, at least at the turn of the eighteenth century. The contractor state model emphasises Britain's advantage in utilising many contractors. Knight and Wilcox attributed the failures of France and Spain to moving 'away from contractors in the open market and increasingly opted for state control and purchase.'[20] Perhaps the characteristics of the 'open market' would be more visible in

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[15] ADM/A/1769/159, [The Admiralty to the Navy Board, 17 September 1690].
[16] Holland, *Ships of British Oak*, pp. 23-24. [Ch2§2].
[17] Sánchez, *Military Entrepreneurs and the Spanish,* pp. 146-147.
[18] Ibid.*,* pp. 151, 165.
[19] Parrott, *The Business of War*, pp. 302-303.
[20] Knight and Wilcox, *Sustaining the Fleet*, p. 5.

victualling contracts in the later period, the subject of Knight and Wilcox's research. But the findings of this study indicate that the model is not universally applicable to Britain's contracts in the long eighteenth century. Indeed, the British navy outsourced naval shipbuilding to a wide range of shipbuilders, seemingly fitting the contractor state model. However, contractors were not random competitors in an open market, and it is plausible that these influential figures played an indispensable role in allowing the Navy to access private shipbuilding capacity. The reliable contractors often led the Navy to outsource naval shipbuilding without making an extensive survey of private yards beforehand, thus reducing the transaction costs over the Navy's 'make-or-buy' decision-making. Knight and Wilcox also recognised the importance of networking for the Navy's contract in creating trust, but this is not well woven into their conclusion.[21] Rather than simply stressing the 'old corruption' or 'military-industry complex' decried as a feature of contemporary decision-making, it is important to recognise that these influential contractors played an effective role in expanding naval shipbuilding. Britain, at least its navy, walked a careful balance between the influential contractors and various other newcomers at the turn of the eighteenth century, a balance that became the source of the British contractor state's flexibility. Therefore, the state's decision-making to utilise both productions within government facilities and outsourcing depending on the specifics of the situation – thus the flexible uses of both 'make' and 'buy' options – contributed to the rise of Britain in the long eighteenth century.

In addition, the result of this study highlights the possibility of answering the remaining question in the contractor state debate. Knight and Wilcox, who coined the term 'contractor state', recognised that it was a universal practice across time and space for states to contract out parts of their war efforts.[22] Thus, they concluded that whether labelling Britain in the long eighteenth century as a 'contractor state' was appropriate demanded further examinations. The result of this study points to the Navy's active role enough to name it a contractor state. Most shipbuilders could not fulfil their responsibilities without the Navy Board's resource supplies and assistance in launching. Additionally, while the Navy demanded more shipbuilding capacity, private interests needed to align with this. Therefore, the close-ups between military entrepreneurs and government departments were the features that labelled contemporary Britain as a contractor state.

However, this thesis does not argue that the alignment of the Navy Board and private shipbuilders' interests is solely achieved by the contingent situation of the shipbuilding

[21] Ibid., pp. 39-40.
[22] [Ch1§2].

industry and the Board's supportive action. One should be able to find such a situation in various states across time and space, and the factors alone do not justify applying the term 'contractor state' to elevate our understanding of Britain's maritime success in the long eighteenth century sufficiently. The next section considers the findings of this study in a wider implication and calls for a reinterpretation of the contractor state model.

6.2: Contractor State as an Institution in a Political Society

The previous section argued for Britain's success in its naval shipbuilding efforts within the existing framework of the contractor state model. On the other hand, the findings throughout this research indicate the possibility of reinterpreting the contractor state as an institution among influential interest groups. The revealed characteristics of warship contractors enable us to relocate warship contracts from the context of naval history to the debate over the state's role in society. The answer to the question of what allowed the rapid expansion of warship contracts at the turn of the century was, perhaps, not counterintuitive from the perspective of contract relationships, as the previous section stressed. However, this result rather points out that warship contracts were not simply the 'state's mobilisation of private resources'. It was a contract relationship in which the private interests were also well-reflected. This section analyses the present study's argument against studies of the relationships between a central government, the naval department, and maritime interests. By doing so, it highlights this study's implications for reinterpreting the contractor state model as an institution of political society. Forecasting the conclusion first, Britain's contractor state was an institution that aligned and enhanced maritime and naval interests, which was effective in providing the public infrastructure of trade protection for maritime businesses.

As mainly consulted in Chapter 3, warship contractors were not simply private shipbuilders, but they had a wider range of business interests, especially in maritime trade. Their active endeavours in naval shipbuilding call for considering warship contracts in relation to the role of state-owned naval forces for maritime interests. Glete pointed out the effectiveness of state-owned naval forces over merchants' self-defence as a necessary requisite to create a standing navy, and the 'aggregation of domestic interests' was essential to achieve this.[23] By applying Glete's argument to this thesis' findings, another aspect of the mutually beneficial relationship between the Navy and warship contractors becomes explicit. While the Navy benefited from mobilising private shipbuilding capacity, the contractors also benefited from supporting the Navy's trade protection. Chapter 5, for

[23] Glete, *Navies and Nations*, p. 160. [Ch1§3].

example, demonstrated that shipbuilders demanded the Navy's convoy for their business against wartime trade disruption.[24] Warship contractors could have employed their ships for self-defence or even privateering purposes.[25] Yet, they gave up these possibilities and rather decided to sell their ships to the Navy as rated warships. Owing to the specialisations between merchantman and warship designs, merchants' self-defence became a less effective and more costly option.[26] Thus, together with the developing naval administration, it is plausible that the protection by the state-owned naval force became more efficient than self-defence by the late seventeenth century.

Against this background, the naval department was dedicated to maritime protection, which allowed maritime interests to focus on their business without the additional expense of self-defence. Moreover, the expanding warship contracts meant they could turn the expense of self-defence into profits by selling their shipbuilding capacities to the Navy. Therefore, expanding naval force cannot be depicted simply as the 'state's monopoly of violence', as David Parrott rightfully criticised.[27] Although it is a persistent image that the Navy strengthened its grip and private contributions faded away towards the late seventeenth century, they nonetheless actively took a crucial role in building Britain's naval power.[28] The CSG scholars have recognised military entrepreneurs' potential profit through their engagements with the state contracts.[29] However, warship contracts brought more advantages than simple financial gains and social promotion. The system of warship contracts also benefited the military entrepreneurs with maritime interests by making the state bear the costs of maritime defence. Stephen Conway and Sánchez noted that 'the true British success lay in ensuring that the taxes raised produced benefits for the society that had paid them'.[30] This study provides one case to empirically support this view.

Going one step further, the revealed traits of warship contractors point to the possibility of revising the erstwhile contrast between the 'state and society'. The contractor state model makes an explicit contrast between the 'state and society', based on the

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[24] [Ch5§3].
[25] Parrott, David, 'The Military Enterpriser in the Thirty Years' War', in Fynn-Paul (ed.), *War, Entrepreneurs, and the State*: 63-86, p. 64.
[26] [Ch2§1].
[27] Parrott, *The Business of War*, pp. 3, 324.
[28] Janžekovič, Izidor, 'The rise of state navies in the early seventeenth century: a historiographical study', *Journal of Maritime Research*, 22:1 (2020): 183-208, p. 198.
[29] Enciso, Angstin Gonzalez, 'Between Private and Public Interests: The Moral Economy of Collaboration Eighteenth-Century Spain', in Joël Félix and Anne Dubet (eds.), *The War Within: Private Interests and the Fiscal State in Early-Modern Europe* (Gewerbestrasse, 2018): 171-193, p. 173. Sánchez, Rafael Torres, 'In the Shadow of Power: Monopolist Entrepreneurs, the State and Spanish Military Victualling in the Eighteenth Century', in Fynn-Paul (ed.), *War, Entrepreneurs, and the State*: 260-283, p. 283.
[30] Conway, Stephen, and Sánchez, Rafael Torres, 'Introduction', in Stephen Conway and Rafael Torres Sánchez (eds.), *The Spending of the States. Military expenditure during the long Eighteenth Century: patterns, organisation and consequences, 1650-1815* (Saarbrücken, 2011): 9-29, p. 11.

'autonomous state' view.[31] Yet, the examinations of this study, which put more weight on private actors, depicted the rather unclear boundaries between the two. At the turn of the eighteenth century, maritime interests demanded frigates for trade protection as the French privateering became increasingly active. This circumstance stimulated the emergence of the structure in which the Navy and private shipbuilders played their roles. It was the division of labour among maritime and naval interests: one was towards the shipbuilding and trading businesses, and the other was towards the maintenance and operation of warships to secure maritime control. Thus, the practice of warship contracts was one aspect of the ecosystem of the influential interests. As Chapter 2 demonstrated, naval shipbuilding was increasingly becoming a 'national' project rather than a 'Crown' one, funded by Parliament where maritime interests came to exercise unignorable influence. Based on this historical development, it is reasonable to perceive warship contracts as a joint venture of Britain's contractor state to provide public infrastructure for trade protection. The turn of the eighteenth century was not when the state began practising contracts to mobilise private resources. Rather, the state emerged through the division of labour among the influential interest groups during the crucial period of the turn of the eighteenth century.

Therefore, this study's result suggests the possibility of reinterpreting the contractor state model as an institution for coordinating and promoting influential interests. The existence of this institution was one key factor that ensured Britain's maritime success. Various warship contractors contributed to building maritime control by providing warships, especially frigates. The Navy concentrated on its role as a supplier of protection, while maritime interests could make the state bear the cost of self-defence. In short, the institution endorsed by the representative government was the source of Britain's maritime success at the turn of the eighteenth century. Recent historians have kept a distance from the traditional view of 'Whiggish history', the emphasis on the representative and bureaucratic government for Britain's success, especially in the context of the Industrial Revolution.[32] While it is misleading to focus only on the development of the central government structure, we nonetheless should not overlook how various interest groups cooperated and sometimes compromised each other through the emerging political structure. As Nicholas Rodger noted, 'Seapower was most successful in countries with flexible and open social and political systems.'[33] The present thesis demonstrated one example of how such a structure was running with the case of Britain's warship contracts.

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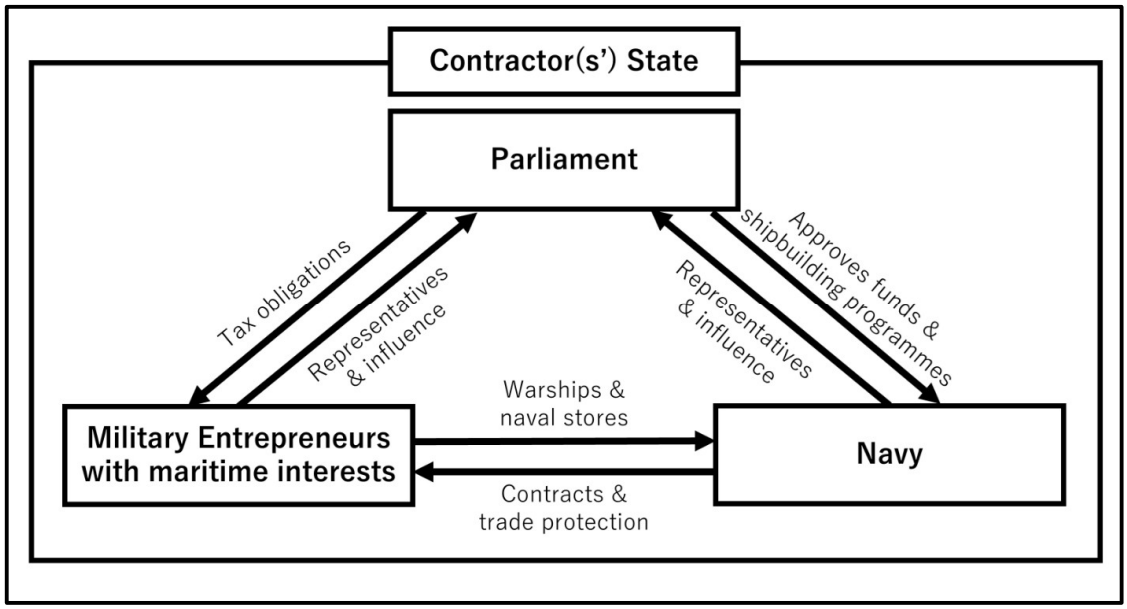
[31] [Ch1§2].
[32] Paul, 'Joint-Stock Companies', p. 282.
[33] Rodger, N. M. A., 'Social Structure and Naval Power: Britain and the Netherlands', in Christian Buchet and Gérard Le Bouëdec (eds.), *The Sea in History: The Early Modern World* (Suffolk, 2017): 679-685, pp.

Britain in the long eighteenth century was a 'contractor state' not just because the state acted as a contractor.[34] But it was rather 'contractors' state' in which various influential interests coordinated with each other and created the ecosystem based on mutually beneficial relationships.

Image 6-1: Britain's warship contracts in the reinterpreted contractor state



In summary, the theoretical examination in this section, and throughout the thesis, bridged two fields of studies: the relationship between Parliament and military departments in the fiscal-military state and the relationship between military entrepreneurs and military departments in the contractor state debate. Table 6-1 presents the image of the reinterpreted 'contractor state'. Since the present study focused on warship contracts, the argument is limited to 'military entrepreneurs' with maritime interests and the 'military department' of the Navy, as shown in the image. The thesis demonstrated the mutually beneficial relationship between the military entrepreneurs and the Navy, especially the Navy Board. By locating it amid the wider political society with the emerging representative government, an institution that coordinated and promoted the influential maritime and naval interests appeared more explicit. This is not to deny the importance of other powerful interests represented in Parliament, which sometimes competed with the maritime interests.[35] But the present research revealed how various actors in the society carried out the pro-maritime policy as one example in Britain's wider contractor state. As such, the result of this study provides a new framework to revise the erstwhile dichotomy of the

[34] Ferri, Sergio Solbes, 'The Spanish monarchy as a contractor state in the eighteenth century: Interaction of political power with the market', *Business History*, 60:1 (2018): 72-86, p. 73.
[35] Johnston, *Parliament and the Navy*, p. 469.

'state and society' and perceive an 'embedded state' as a part of the wider society, thus as the 'state in society'.

To highlight Britain's success with the new interpretation of the contractor state, a brief contrast with its counterpart is essential. As we saw in Chapter 2, the French navy inquired into private shipbuilding capacity as the British one did.[36] Nevertheless, it also left the costs of maritime defence to private hands by commissioning the role of smaller warships to privateers. Indeed, the French navy experimented to coordinate with these privateers as well, such as providing naval officers to them. However, this structure did not allow the contractors to make the state defray the cost of maritime defence. Geoffrey Symcox evaluated the French focus on privateering by concluding that 'one of the state's most crucial functions – the conduct of war – was handed over to persons and groups to whom it had been denied in the heyday of royal prestige and power.'[37] Rodger also stated that the purpose of France's shift to privateering war was to divert the financial burden to private capital in the first place.[38] The sheer difference between the British and French cases here was the existence of the reinterpreted version of the contractor state institution. In the French structure, merchants still needed to spare their resources for self-defence directly.

However, it is important to note that the 'maritime interests' who benefited from Britain's contractor state at the turn of the eighteenth century were not the whole population engaged in maritime businesses. Some dominant people maintained their influence on naval institutions from both inside and outside, i.e. the Johnsons acted as royal shipwrights, MPs, and warship contractors.[39] Although the Glorious Revolution further confirmed the dominant position of Parliament over the Crown, especially in financial matters, this did not mean that all business interests were represented. In this sense, the contractor state was an institution only for a certain group of people who could successfully enter or remain in the sphere of political society. Hence, again, Britain at the turn of the eighteenth century was a 'contractors' state'.

Thus, the contractor state institution might have benefited only a certain group of people. Nevertheless, this should not cloud the historical significance of warship contracts at the turn of the eighteenth century to Britain's maritime success. It was the experimental phase of warship contracts, as the division of labour between the naval department and the military entrepreneurs was just emerging. The Navy attempted to expand the contracts

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[36] Parrott, *The Business of War*, pp. 278, 306. [Ch2§2].
[37] Symcox, *The Crisis of French Sea Power*, p. 5.
[38] Rodger, *The Command of the Ocean*, p. 159.
[39] [Ch3§2].

widely to new regions and new individuals, which became a great trial for the practice of warship contracts. One indeed needs caution to assume the direct continuation of warship contracts in the eighteenth century. Britain experienced a relatively long period without a major war from 1713 to 1739. As the new constructions of warships mostly halted during the period, so did warship contracts. Only three families from this study's period, the Snelgrove, Taylor, and Wells families of the Thames, survived the quarter-century-long peace as warship contractors. On the other hand, the experience of warship contracts at the turn of the eighteenth century provided the know-how of contract management to the naval department. Naval historians have demonstrated the continuation of the practice of warship contracts from the 1740s to the end of the Second Hundred Years War in 1815.[40] Despite several reforms in the management of the royal dockyards from the mid-eighteenth century onward, the practice of warship contracts did not change much from the beginning of the eighteenth century. Borrowing Bernard Pool's words, the developments in the eighteenth century were mostly just 'closing up loopholes'.[41] The experience with various new regions and shipbuilders during the Nine Years War and the War of the Spanish Succession certainly helped the naval department learn the management of such quantitative contracts for the coming eighteenth-century wars. As such, the turn of the eighteenth century marked a crucial turning point in Britain's emergence as a contractor state.

All in all, the British contractor state's success, at least with regards to warship contracts, provides one example of the effective model of the embedded state. The importance of the Navy Board's support indicates that well-developed shipbuilding centres and military entrepreneurs needed to be concentrated around the Navy Office and the royal dockyards. The somewhat contingent situation of the pressed shipbuilding market also helped the Navy and private shipbuilders' interests to align with each other. At the same time, the traditionally recognised importance of Britain's representative government and growing maritime interests in the House of Commons also played a central role.[42] All these factors together created the foundation for the contractor state institution through which the maritime and naval interests found common ground and executed naval shipbuilding projects effectively. Therefore, the reinterpreted contractor state, an institution to coordinate and promote various interests, stands as one of the most effective models to achieve its political society's goals. It is difficult to give a generalised model from one study only, and further research of state contracts beyond the erstwhile dichotomy of the

[40] Knight, 'Devil Bolts and Deception?'. Pool, *Navy Board Contracts*.
[41] Haas, *A Management Odyssey*. Pool, 'Some Notes on Warship-Building', p. 115.
[42] Lambert, *Seapower States*, p. 147.

'state and society' is necessary. However, even the British navy, which emerged as the most successful globally over the course of the long eighteenth century, required an alignment between maritime and naval interests. More accurately, the exact nature of the mutually beneficial relationship allowed Britain to ascend to the 'Command of the Ocean'.[43]

[43] Rodger, *The Command of the Ocean*.

Glossary and Appendices

Glossary

- **£, s, d:** Each stands for 'pounds, shillings, pence', respectively. The currency used in Britain up to 1971. £1 = 20s, 1s = 12d. £1 in the year 1700 worth £107 in the 2017 value or eleven-day wage for a skilled tradesman in 1700.[1]
- **Admiralty:** The senior department of the Navy. It was responsible for the various aspects of the command of warships, such as assignments and management of naval officers. More detail in [Ch2§3].
- **Battleship:** Warships that specialised in naval battles between large-scale fleets.[2] 'Ships of the line' mainly took the role of battleships for the period of this study.
- **Bomb vessel:** A type of smaller warship that carried mortars as a main weapon instead of cannons on the broadside. It was specialised for bombardments rather than naval battles. Bombs often took the design of a smaller type of sailing vessel called 'ketch'.
- **Cruiser:** Warships engaged in trade protection by convoying, patrolling, and cruising.[3] For the period of this study, 'frigates' mainly took the role of cruisers.
- **EIC:** Stands for the English/British 'East India Company'.
- **Fireship:** Smaller warships that set fire to themselves and charged into the enemy line. They were mostly for disturbing the opponent's formation. Some Fifth and Sixth Rates took the role of fireships.
- **Frigate:** The terms for types of warships, especially 'frigate', are often confusing and interchangeably used. James Dodds and James Moore, for example, defined frigates as two-deckers with 20- to 60-guns, which is roughly equivalent to Fourth to Sixth Rates.[4] What is more important than the mere size difference is the purpose of the design. The frigate design was intended to be fast-sailing, manoeuvrable, and built for both its agility and firepower. Frigates were largely built by warship contractors.
- **HMS:** Stands for 'His/Her Majesty's Ship'. Although the thesis mainly deals with warships, it gives the prefix when the context requires clarification.
- **MP:** Stands for 'Members of Parliament'.
- **Navy Board:** A naval department responsible for constructing and maintaining warships. At the turn of the eighteenth century, it supervised the royal dockyards as

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[1] 'Currency converter: 1270–2017', *The National Archives*, <https://www.nationalarchives.gov.uk/currency-converter/#currency-result>, [accessed on 17 November 2024].
[2] Harding, *Seapower and Naval Warfare*, p. 188.
[3] Satsuma, 'Kaigun: "Ki no Tate"', p. 53.
[4] Dodds and Moore, *Zusetsu Eikoku no*, p. 12.

well as naval shipbuilding at private yards. More detail in [Ch2§3].

- **Rates:** The British navy classified rated warships into six levels based on the number of guns they carried, with the First Rate being the largest and the Sixth Rate the smallest. Warships carried different numbers of cannons when they were in operation and when in reserve. But the rates roughly corresponded as follows: First Rate (100 guns), Second Rate (90s), Third Rate (70s), Fourth Rate (60s), Fifth Rate (40s), Sixth Rate (20s). For the duration of this study, the Navy had 'establishments' or standardised designs of 1677, 1692, and 1706.[5] But in reality, 'every particular ship has been built according to different proposed dimensions'.[6]
- **Rebuilding:** Rebuilding is another term that is difficult to define. Brian Lavery conducted detailed studies on the Navy's rebuilding practice. He noted the term changed its meaning over time. By the 1680s, rebuilding was simply 'an extended repair' during which workers removed all planking and repaired the upper works.[7] The practice changed during the 1690s, and all defective timbers were replaced for planking. Simultaneously, rebuilding came to be used to modify the ship's dimensions for new standards. The practice greatly diverted at the beginning of the 1700s, when the term was used 'To take an old ship to pieces and use as much as possible of the old materials to produce another ship of the same or slightly larger dimensions.'[8] Thus, as the hull was dismantled during rebuilding, the tasks became almost identical to those for new construction by the turn of the century.[9] Based on this development, the present study considers new constructions and rebuilding together in most occasion as they both required comprehensive shipbuilding process. The nature of the work sometimes made rebuilding more difficult than a new construction. For example, shipwrights were obliged to rebuild 'a ship of a fixed size, regardless of the size and shape of the old one'.[10] Warship contracts labelled as rebuilding increased in number during the War of the Spanish Succession. In the contracts, the value of the reused materials from the original vessel was subtracted from the final price.[11]
- **RAC:** Stands for the 'Royal African Company'.

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[5] Lavery, 'The Rebuilding of British Warships, 1690-1740', p. 501.
[6] Lavery, *Anson's Navy*, p. 33.
[7] Lavery, 'The Rebuilding of British Warships 1690-1740: Part II', p. 126. Lavery, Brian, 'The Rebuilding of British Warships, 1690-1740', in Richard Harding (ed.), *Naval History: 1680-1850* (Hampshire, 2006): 493-502.
[8] Lavery, 'The Rebuilding of British Warships 1690-1740: Part II', p. 126.
[9] Harding, *The Evolution of the Sailing Navy*, p. 107. Lavery, 'The Rebuilding of British Warships, 1690-1740', pp. 497, 501. There was even a case of rebuilding that did not use any parts from the original ship, although this was not the Admiralty's preferred method.
[10] Lavery, 'The Rebuilding of British Warships 1690-1740: Part II', p. 115.
[11] Lavery, 'The Rebuilding of British Warships, 1690-1740', p. 498.

- **Shipbuilder vs shipwright:** These two terms were often used interchangeably. For example, the head of a royal dockyard was a ‘master shipwright’ while people who ran private shipyards in the Thames region, for example, were ‘Thames builders’. This thesis sets a clear distinction that ‘shipbuilders’ are the managers of shipyards while ‘shipwrights’ are physical labourers who built vessels, except when it refers to names of positions like ‘master shipwrights’.
- **Ship of the Line:** A type of warship used in a large-scale naval battle. The ships relied on firepower on their broadside and usually formed a linear formation.
- **Sloop:** A type of ship smaller than rated warships. Sloops could also carry cannons but less than twenty guns.
- **Victualling Board:** A subsidiary department of the Navy Board. It was responsible for preparing and distributing supplies to the sailors.

Appendix I: List of Warship Contractors (1689-1713)

The 'capacity' column indicates the categorisation of shipbuilding capacities introduced in Chapter 3 Section 1. Warship contracting families who provided more than 950 tons yearly at their highest are labelled as 'high-capacity', those between 950 and 600 tons are 'middle-capacity', and those below 600 tons are 'low-capacity'. Locations in brackets indicate the places they built warships by joint contracts.

Family Name	First Name	location	Region	Capacity
Barret	Nicholas	Harwich	Suffolk	High
Barret	Nicholas, Richard	Shoreham	Shoreham	Middle
Betts	Isaac	Woodbridge	Suffolk	Low
Bingham	Joseph	Plymouth	Southwest	Low
Briggs & Burges	William & Thomas	Shoreham	Shoreham	Low
Burchett	John, Richard, Robert	Rotherhithe	Thames	High
Castle	John, Robert, William	Deptford, (Rotherhithe)	Thames	High
Chatfield	Robert	Shoreham	Shoreham	Low
Clements	Thomas	Bristol	Southwest	Middle
Collins	William	Shoreham	Shoreham	High
Dalton	John	Rotherhithe	Thames	Low
Dummer	Edmund	Rotherhithe	Thames	Low
Ellis	Thomas	Shoreham	Shoreham	High
Flint	?	Plymouth	Southwest	High
Fowler	George, Robert	Rotherhithe, (Limehouse)	Thames	High
Frame	John	Hessle	Hull	High
Frame	John	Wapping	Thames	Low
Graves	William	Limehouse	Thames	Low
Gressingham	Thomas	Rotherhithe	Thames	Low
Haydon	John	Limehouse	Thames	Low
Herring	James, Richard	Beaulieu	Hampshire	Middle
Hubbard	William	Ipswich	Suffolk	Low
Johnson	Henry, William	Blackwall, (Limehouse)	Thames	High
Knowler	John	Southampton	Hampshire	Low
Moore & Nye	George & Joseph	East Cowes	Hampshire	Low
Mundy	Andrew, Elizabeth	Woodbridge	Suffolk	Low

Newman	Thomas	Limehouse	Thames	High
Parker	James	Southampton	Hampshire	High
Pett	Phineas	Rotherhithe	Thames	Middle
Popley	Edward	Deptford	Thames	High
Rolfe	William	Rotherhithe	Thames	Low
Shish	John, Jonas	Rotherhithe	Thames	Middle
Smith	Robert	Rotherhithe	Thames	Low
Snelgrove	Edward	Deptford, Limehouse, Rotherhithe, Wapping	Thames	High
Swallow	Edward	Rotherhithe, (Limehouse)	Thames	High
Taylor	James, John	Rotherhithe	Thames	High
Wells	John & Richard	Rotherhithe	Thames	High
Wicker	John	Deptford	Thames	High
Winter	John, Robert	Southampton, Northam	Hampshire	High
Wyatt	Anne, William	Bursledon	Hampshire	High
Yeames	William	Ratcliffe	Thames	Low

Appendix II: 'Dataset', the List of Naval Shipbuilding (1689-1714)

The Dataset consists of various information regarding the English/British navy's new constructions and rebuilding of warships both at the royal and private yards.[12] The Dataset is accessible online: <https://docs.google.com/spreadsheets/d/1N_1QB3_CecIjQwbqq1aCt7gpogjqYg9e/edit?usp=sharing&ouid=100979407547852362537&rtpof=true&sd=true>, [lasted updated on 29 November 2024].

[12] Based on: Merriman (ed.), *Queen Anne's Navy*, pp. 365-72. Banbury, *Shipbuilders of the Thames*. Barnard, *Building Britain's Wooden Walls*. Green and Wigram, *Chronicles of Blackwall Yard*. Holland, *Ships of British Oak*. Her Majesty's Stationery Office, *The Manuscripts of the House of Lords Vols. 4, 5*. Jones, *War and Economy*. Pool, 'Some Notes on Warship-Building'. Pool, *Navy Board Contracts*. Winfield, *British Warships in the Age of Sail (1603-1714)*. Winfield, *British Warships in the Age of Sail (1714-1792)*.

Appendix III: List of Civilian Officers & Commissioners of the Navy Appear in the Thesis

A list of civilian officers and commissioners of the Navy who appear in the thesis.

Name	Roles
Anthony Deane	Master Shipwright of Harwich and Portsmouth
Benjamin Furzer	Overseer
Benjamin Tymewell	Overseer
Charles Sergison	Clerk of the Acts
Christopher Pett	Master Shipwright of Deptford and Woolwich
Daniel Furzer	Master Shipwright of Chatham, Sheerness, Surveyor of the Navy
Edmund Dummer	Surveyor of the Navy
Henry Greenhill	Overseer
Henry Morgan	Master Attendant of Sheerness
Henry Tilden	Overseer
Isaac Townsend	Resident commissioner of Portsmouth
John Hill	Commissioner of the Navy
John Stow	Overseer
Joseph Lawrence	Overseer, Master Shipwright of Sheerness and Woolwich
Peter Pett	Master Shipwright of Deptford and Woolwich
Phineas Pett	Resident commissioner of Chatham
Richard Haddock	Comptroller of the Navy, Commissioner of the Victualling Board
Samuel Pepys	Clerk of the Acts, Secretary to the Admiralty
Thomas Bois	Overseer, Master Carpenter of Woolwich
Thomas Wilshaw	Resident commissioner of Portsmouth, Surveyor of the Navy
William Boswell	Overseer
William Creed	Overseer
William Keltridge	Overseer
William Lee	Master Shipwright of Sheerness and Woolwich
William Sutherland	Master Caulker of Sheerness

Appendix IV: List of Master Shipwrights of the Royal Dockyards (1688-1714)

A list of master shipwrights who held the office between 1688 and 1714.[13]

Years	Name	Location	Years	Name	Location
1681-1698	Robert Lee	Chatham	1695-1698	William Bagwell	Portsmouth
1698-1699	Daniel Furzer	Chatham	1698-1702	Elias Waffe	Portsmouth
1698-1699	J. Batt	Chatham	1702-1709	Thomas Podd	Portsmouth
1699-1705	Robert Shortis	Chatham	1709-1715	Richard Stacey	Portsmouth
1705-1727	Benjamin Rosewell	Chatham	1689-1692	Daniel Furzer	Sheerness
1689-1705	Fisher Harding	Deptford	1692-1694	Zachariah Modbury	Sheerness
1705-1715	Joseph Allin	Deptford	1694-1695	William Bagwell	Sheerness
1677-1680	Isacc Betts	Harwich	1695-1699	Robert Shortis	Sheerness
1695-1695	Robert Shortis	Harwich	1699-1700	William Lee	Sheerness
1695-1698	Thomas Podd	Harwich	1699-1700	Robert Lee	Sheerness
1702-1702	Benjamin Rosewell	Harwich	1700-1701	William Bond	Sheerness
1702-1705	John Lock	Harwich	1701-1705	Joseph Allin	Sheerness
1705-1705	Jacob Ackworth	Harwich	1705-1709	Richard Stacey	Sheerness
1705-1706	Harding Fisher	Harwich	1709-1711	John Poulter	Sheerness
1706-1709	John Poulter	Harwich	1711-1712	Benjamin Wakefield	Sheerness
1709-1711	Jon Naish	Harwich	1711-1714	John Naish	Sheerness
1711-1714	Paul Stigant	Harwich	1714-1715	John Hayward	Sheerness
1693-1698	Ellias Waffe	Plymouth	1686-1697	Joseph Lawrence	Woolwich
1698-1702	Thomas Podd	Plymouth	1697-1700	Samuel Miller	Woolwich
1702-1705	Benjamin Rosewell	Plymouth	1700-1701	William Lee	Woolwich
1705-1711	John Lock	Plymouth	1705-1705	Joseph Allin	Woolwich
1711-1720	John Phillips	Plymouth	1705-1709	Richard Stacey	Woolwich
1680-1689	Isacc Betts	Portsmouth	1709-1715	Jacob Ackworth	Woolwich
1689-1695	William Stigant	Portsmouth	1714-1715	John Naish	Woolwich

[13] Based on: 'Master Shipwright', *Three Decks - Warships in the Age of Sail*, <https://threedecks.org/index.php?display_type=show_appointment&appointmentid=10>, [accessed on 12 November 2024].

Appendix V: List of the Admiralty Titleholders (1688-1714)

A list of the First Lords of the Admiralty and the Lord High Admirals who held the positions between 1688 and 1714. The Years indicate the years of inauguration.[14]

Year	Name	Admiralty Position	Other title
1689	Arthuer Herbert	First Lords of the Admiralty	First Earl of Torrington
1690	Thomas Herbert	First Lords of the Admiralty	Earl of Pembroke
1692	Charles Cornwallis	First Lords of the Admiralty	Third Lord of Cornwallis
1693	Anthony Carey	First Lords of the Admiralty	Fifth Viscount of Falkland
1694	Edward Russell	First Lords of the Admiralty	First Earl of Orford
1699	John Egerton	First Lords of the Admiralty	Third Earl of Bridgwater
1701	Thomas Herbert	First Lords of the Admiralty	Eighth Earl of Pembroke
1702	Thomas Herbert	Lord High Admiral	Eighth Earl of Pembroke
1702	George	Lord High Admiral	Prince of Denmark
1708	Thomas Herbert	Lord High Admiral	Eighth Earl of Pembroke
1709	Edmand Russell	First Lords of the Admiralty	
1710	John Leake, Sir	First Lords of the Admiralty	Admiral of the Fleet
1712	Thomas Wentworth	First Lords of the Admiralty	First Earl of Strafford
1714	Edmand Russell	First Lords of the Admiralty	

[14] Based on: Rodger, *The Command of the Ocean*, pp. 629-630.

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