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► **To cite this version:**

David Plouviez. The Maintenance, repair and construction of ships in the French Empire during the eighteenth century. *International Journal of Maritime History*, 2019, 31 (3), pp.590-611. 10.1177/0843871419862159International . halshs-03362209

HAL Id: halshs-03362209

<https://shs.hal.science/halshs-03362209v1>

Submitted on 1 Oct 2021

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The maintenance, repair and construction of ships in the French Empire during the eighteenth century

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Abstract

The history of maritime trade has been the subject of considerable research since the 1950s, but the technical *artefacts* of this trade have not received the attention they deserve. While historians have paid plenty attention to ships – their features, tonnage, etc. – and port infrastructure overseas, the issues relating to naval repair and construction in the Empires have rarely attracted interest. However, this is a key factor in understanding the dynamics of trade, which encompasses the interplay between economic history, social history and the history of technology. Drawing on the example of the French Empire, this article aims to provide a first approach to this economy of maintenance, repair and shipbuilding overseas. The first step is to identify the places where these complex tasks were carried out and to establish the temporality of equipment in overseas ports. Did the French Empire offer a network of ports equipped to maintain, repair and build ships? What equipment does this include? But while the question of infrastructure is crucial, insofar as it raises other issues related to the role of the State and its relationship with economic stakeholders, it is also essential to consider that a significant share of maintenance, repair and construction tasks were not associated with any specific infrastructure. The question of knowledge, know-how and their exchange within the Empires is also important and is the subject of the second part of this article. The aim is to demonstrate that the identification and breakdown of shipbuilding workers, the establishment of their occupational mobility and the technical discussions they engaged in with other Europeans, settlers or natives, provide challenging research opportunities that may help us to understand the maintenance, repair and construction of ships in the Empires.

Keywords

French Empire, maintenance, repair, shipbuilding, worker

In France, the historiography of maritime exchanges is very rich for the modern period.¹ Characterised by European expansion in the world, this period has been the subject of a great deal of work to reconstruct the flows of a worldwide commerce that continued to grow between the sixteenth and eighteenth centuries. Under the influence of the *Annales*, the major studies produced after the Second World War adopted a serial and quantitative methodology in response to the need for analysis of thousands of economic facts. After a ‘Golden Age’ that lasted from the 1950s to the 1970s, this historiography experienced a temporary lull until the 1990s, when the study of maritime exchanges restarted, aided by digital tools and the financing of European and worldwide research programmes.

The contribution of this historiography has been fundamental to a renewed approach to this economic process, but it has to be said that the methodology adopted by these studies has tended to focus less on a qualitative approach, notably to the infrastructures. While the studies of this period may not have ignored the material elements of world trade – ships, ports etc. – their treatment of questions relating to the repair and construction of ships has appeared perfunctory. And yet, this issue is central to a better understanding of this earliest globalisation of exchanges, at the confluence of economic history, social history and technological history. Based on current research and a drawing-together of scattered studies, this article represents an attempt to identify some problematic way-markers rather than a definitive synthesis of the subject, a task that would require collective endeavour.

Networks of ports of call and infrastructure for the maintenance and repair of ships

Where could French captains find maintenance facilities for their ships outside Europe? The answer to that simple question is complex in so far as it relies upon the analysis of numerous sources – ships’ logs, correspondence between captains and the owners of their vessels, and letters between merchants and dealers, as well as the archives of the various commercial companies.

Around the Atlantic, where the maritime routes were common to all European nations, French captains preferred to use the same bases as their foreign counterparts. Before leaving Europe for the Antilles, the Canaries and Madeira were popular ports of call, as were the islands of Cape Verde on the route down to the Gulf of Guinea and the Dutch base on the Cape before entering the Indian Ocean. These places appear regularly in ships’ logs as ports of call approved by all navigators, permitting the resupply of water and provisions as well as maintenance of the vessel. This frequenting of foreign ports of call did not prevent the establishment of French trading posts and colonial ports, with the development of the slave trade, the plantations in the Antilles and cod-fishing in North America. These activities entailed the existence of operational bases whose geographical distribution spread rapidly from the 1630s until the end of the seventeenth century. In Africa, the French established themselves on the coasts of Senegal and The Gambia,

1. Silvia Marzagalli, ‘Les Échanges Maritimes à L’époque Moderne: Bilan et Perspectives de la Recherche Française’, *La Recherche Internationale en Histoire Maritime: Essai D’évaluation, Revue d’Histoire Maritime*, 1, No. 11 (2010), 31–42.

building several trading posts on the islands of Arguin, Gorée, Rufisque and Saint-Louis, all of which came under the authority of the Compagnie du Sénégal, which was created in 1679. The African coasts are difficult to access due to the bores in the estuaries and deltas and these trading posts facilitated different commercial operations. The *Répertoire des expéditions négrières françaises au XVIII^e siècle*,² the various accounts of travellers,³ and the work of the Compagnie du Sénégal,⁴ show that these trading posts were able to repair ships, but only in emergencies, as they were generally ill-equipped and only able to accept large tonnage with difficulty, as in the case of the *Aurore*, a slaver forced to stop at Gorée for repairs in 1712.⁵ On the other side of the Atlantic, the most important French ports developed rapidly, the most notable being Basse-Terre on Guadeloupe, Fort-Royal and Saint-Pierre on Martinique, Le Carénage on Sainte-Lucie, Cap-Français, Léogane – which was supplanted by Port-au-Prince in 1750 – and Cayes on Saint-Domingue. For large vessels, ports in Louisiana, such as New Orleans, were difficult, if not impossible, to access. In North America, Louisbourg soon offered an opportunity for shelter and the repair of ships, a stopping-off point before the ports of the St Lawrence River in New France.

But this inventory is misleading in that it does not take account of the numerous possible places for maintenance and repair. If one considers the Antilles alone, the coastline surveys made by the builders of fortifications revealed numerous bays, coves or breakwaters where ships over-wintered and, if necessary, hulls were careened. Some of these places evolved into ports, while others remained as sheltered moorings only for those in the know. Toponymy reveals the initial usages. Thus, the port of Castries on the island of Sainte-Lucie was not so named until 1785. Until then, it was the ‘Petit Cul-de-sac’ [Little Dead-end] or equally the ‘port du Carénage’ [port of Careening], such were the opportunities for the maintenance and repair of hulls offered by the site.

The networks of ports of call in the Indian Ocean, and on the route to China, were more complicated to establish, France having come belatedly to the region. In the second half of the seventeenth century, the French arrived in a world where, after more than a century of Portuguese domination, the Dutch and the English were already largely installed. In fact, in establishing ports of call, the French administrators hesitated between the English and Dutch models, the first structured around the two large trading centres of Madras and Bombay, and the second relying on scattered trading posts around Batavia. The French agents were not in possession of a sufficiently accurate political and economic mapping, or a knowledge of the climatic and sanitary conditions, to be able to propose a reasoned strategy for the establishment of French ports of call in the Indian Ocean. However, the Dutch model won the day. The officials of the French East India Company wanted to create a ‘French Batavia’ with the foundation of Fort-Dauphin in

2. Jean Mettas, *Répertoire des Expéditions Négrières Françaises au XVIII^e Siècle* (Paris, 1984), 2 vols.

3. Pierre Labarthe, *Voyage à la Côte de Guinée, ou Description des Côtes d’Afrique, Depuis le Cap Tagrin Jusqu’au Cap de Lopez-Gonzalves* (Paris, 1803).

4. André Delcourt, *La France et les Établissements Français au Sénégal Entre 1713 et 1763* (Dakar-Cahors, 1952), 2 vols.; Abdoulaye Ly, *La Compagnie du Sénégal* (Paris, 2000).

5. Mettas, *Répertoire des Expéditions*, 15.

Madagascar in 1668, but the project was quickly abandoned. Against this background, the company officials advised their ships to sail directly after a port of call at Cape Verde on the way out and in Brazil on the way back. But under these conditions, the wear and tear of ships posed substantial problems, especially on the Europe-India leg in so far as the trading posts were not always able to provide maintenance and repair. The network of ports of call was not really fixed until the beginning of the eighteenth century. These settlements took account of the places of production of Indian commodities, of the best location in the geography of trade and of the ability to take advantage of the flows of intra-Asiatic commerce, a complex equation. Within this context, three regional sub-spaces emerged, slowly: the Mascarene Islands – Île Bourbon and Île de France; the Indian trading posts organised around the three poles of Pondicherry, Chandernagore and Mahé; and, finally, the trading post of Canton, but in this last case it was the mooring of Whampoa that served as a port of call for the French. In 1719, the French East India Company had tried to establish itself at Poulo Condor, which would have been an ideal naval base for the ships on the China route, as well as being strategically placed with control of the straits of Malacca, Banka and Sunda. The cost of the infrastructure, however, was so high that the project was abandoned in 1721.

With regard to their capacity for the maintenance and repair of ships, these ports of call were of varying utility. The available infrastructure at the Indian trading posts and those in China barely allowed major repairs. In contrast, Île de France and Port-Louis became, after their enhancement by Mahé de La Bourdonnais in 1735, the port of call for all French ships in the Indian Ocean.⁶ Following the example of businesses at trading posts where the infrastructure was poor, it was a colonial business modelled on the economics of the plantations of the Antilles that developed in the Mascarenes. Demographic growth was high between 1735 and 1788, from 8,509 inhabitants to 45,800 for the Île Bourbon and from 1501 to 42,828 for the Île de France, and was accompanied by growth in infrastructure, notably in harbours.

The development of a network of ports of call was the first step in the plan to establish and defend militarily trade routes, but had to be followed by the setting up of the necessary infrastructure and the organisation of a system for supplying basic materials. On the appearance of colonial ports, we have very little information. The urban history of the French empire has bypassed the harbour districts of the towns and it is very difficult to find an inventory of the infrastructure (quays, workshops, warehouses) and of the available equipment (cranes, capstans etc.) used for the maintenance and the building of commercial vessels or warships. But this acknowledgement is not necessarily due to a historiographical deficiency. If historians are so little interested in the infrastructure of colonial harbours in the modern period, it is partly because it was very under-developed before the end of the eighteenth century.

6. The report produced by Mahé de La Bourdonnais is striking: 'Il est certain que dans toute l'Inde la Compagnie n'a pas un port où radouber et mettre en sûreté ses vaisseaux contre les vents et l'ennemi' [For certain the Company does not have in the whole of India a port in which to repair its ships and make safe from the winds and the enemy], cited by Étienne Taillemite, 'La Stratégie Navale dans L'océan Indien au XVIIIe Siècle', in Philippe Haudrère, ed., *Les Flottes des Compagnies des Indes, 1660–1857* (Vincennes, 1996), 320.

In any event, the development of overseas ports must be interpreted within the terms of the colonial politics of France. Without exception, and even if it became more and more permissive in the eighteenth century, the *Exclusif colonial* prevented a steady development of ports in the empire. The monarchy had not developed an imperial mindset and if it measured the importance of protecting commerce,⁷ this awareness manifested itself in the building of defences rather than harbour equipment. At Louisbourg, which was nevertheless a strategic port of call for cod-fishing and the France-Canada and Canada-Antilles routes, the port had no wharfs – important facilities for the careening of ships – before 1740. The bulk of the financial support agreed for the improvement of this town was for its fortification rather than the improvement of the harbour. The same was true in the Antilles. The shallow waters around Point-à-Pitré on Guadeloupe only permitted the careening of small vessels, larger ships being careened further out in the bay from floating pontoons brought alongside the ships.⁸ In the busy colonial ports, the building of infrastructure came no earlier. Although Cap Français was the most important destination in the Antilles from France – approximately 320 ships were sent there from France in 1788 – the first careening basin was not opened until 1781.⁹ One generally had to wait until the end of the eighteenth century for such facilities to be built throughout the Antilles, one by one. The view of the dockyard of the ‘Cul-de-Sac’ on Martinique by Nicolas Ozanne gives a glimpse of the harbour equipment available at the end of the Ancien Régime (see Figure 1). The drawing of 1780 shows a ship undergoing maintenance, firmly tethered to the quay, and floating pontoons equipped with treadwheel cranes used for caulking and dismasting as well as the handling of heavy loads.

Only Port-Louis and Quebec benefitted from a broad and partly coordinated plan for development. The French East India Company and the Navy were the sponsors of this infrastructure, which they envisaged for their own use, even if it also benefitted commercial vessels. These two installations were contemporaneous as the first works at Port-Louis began in 1735 while the reopening of the royal shipyards took place in 1738. Without going into the details of the different development plans, they concerned ‘complete’ harbours, capable of simultaneously maintaining and repairing ships but equally of constructing vessels. The two projects enjoyed very different histories, however. On the route to the Indies, the ships had two bases at which to carry out extensive refits, France and Port-Louis on Île-de-France, and this port of call continued to be equipped throughout the eighteenth century. In Quebec, the development of the royal shipyards was more chaotic. After initial development at the Palais yard, which was used continuously by

7. The case was made, for example, by Maurepas in his important memoir of 1745: ‘Le soutien et la conservation des colonies éloignées, qui ne pouvant se maintenir par elles-mêmes ont un besoin indispensable de l’appui et du secours des États de qui elles dépendent. Cet appui et ce secours ne peuvent leur être fournis que par le moyen des forces navales’ [The support and preservation of the far-off colonies, which being unable to support themselves rely upon the backing and help of the states on which they depend. This support and help can only be provided to them by naval forces]. Archives Nationales, Marine, G/222 f^o 17, 1745.

8. Anne Pérotin-Dumon, *La Ville aux Îles, la Ville dans l’île: Basse-Terre et Pointe-à-Pitre, Guadeloupe, 1650–1820* (Paris, 2000), 205–6.

9. Moreau de Saint-Méry, *Description Topographique, Physique, Civile, Politique et Historique de la Partie Française de l’isle Saint-Domingue* (Paris, Librairie Larose, 1958), vol. 1, 466–7.

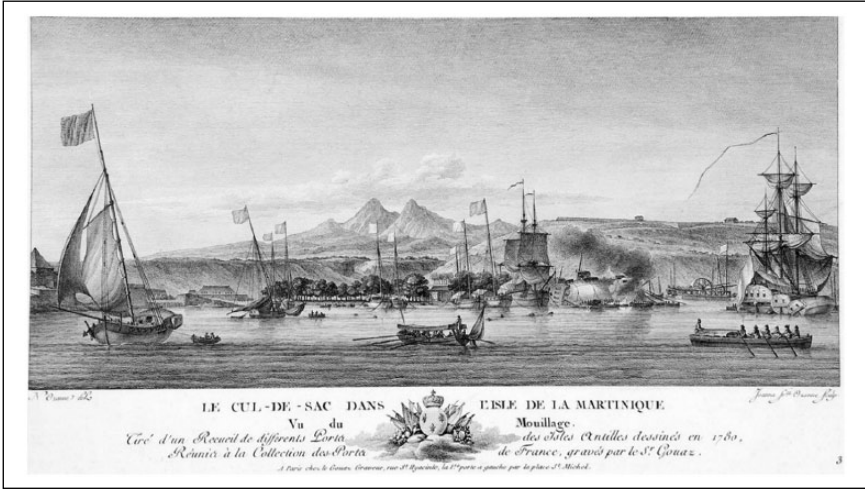


Figure 1. View of the ‘cul-de-sac’ on Martinique in 1780 by Nicolas Ozanne.

Source: Nicolas Ozanne, *Nouvelles vues perspectives des ports de France, dessinées pour le roi* (Paris, 1791).

private constructors, the tonnage of ships projected by the Navy necessitated the building of a second shipyard at the ‘Cul-de-Sac’ on the Île d’Orléans. In both cases, the overwintering and big refits of vessels were difficult, but the state infrastructure benefitted the Canadians.

Beyond these two installations, a lack of maritime infrastructure was evident and the term ‘harbour’ could be understood as little more than a mooring point given how little maritime equipment was available on the coasts. However, this fact was even more evident on the African coast or in the Indian Ocean, where it was a question of an archipelago of trading posts supported by an urban port. The Indian trading posts were unable to carry out major work on large commercial vessels. Chandernagore, built in the Ganges delta, was situated 35 leagues from its mouth on the Hooghly, one of its tributaries, where the outer harbour of Balasore was established. For a long time, Chandernagore was considered a graveyard for ships because of the difficulties of navigation. Merchandise was transferred onto vessels of between 20 and 100 tons at Balasore and then taken upstream to the trading post. From 1728 onwards, a pilot service was put in place to allow large merchant ships to sail upstream to Chandernagore, but the navigation was still difficult. Situated on a low sandy slope, Pondicherry was a no more welcoming trading post for the ships that had to make do with a port without shelter, making perilous any repair work.

How can this lack of harbour infrastructure be explained, even at those ports of call that were vital to commerce? The world of trade and merchants had an interest in owning the infrastructure to repair their vessels, the principal tool of their trade, but the cost of construction of these installations was off-putting. However, this investment quickly proved itself profitable in reducing the time taken for maintenance. Beyond the costs, Anne Pérotin-Dumon points to disputes about jurisdiction on the coast to explain the lack of development. The coastline was open to public access, but the colonial authorities

were able to grant a part of it in the form of concessions that allowed traders or journey-men to set themselves up.¹⁰ At any moment, these concessions could be legally revoked by the sovereign power, which limited the attempts by the economic players to build lasting infrastructure. In this context, only state powers could undertake works, which then had to be of use to the state. Consequently, it was not by chance that many careening docks were built in the Antilles from the 1770s onwards. The taking of Martinique and Guadeloupe by the British Navy during the Seven Years War had been made possible by its ability to dock on a long-term basis in the Antilles, a facility not available to the French navy, due to the lack of equipment in the ports. The building of docks and careening basins was therefore due in part to this realisation by the French maritime and colonial administrations.

The shortage of harbour infrastructure was accentuated by the difficulties colonial ports had in obtaining sufficient basic materials for re-exchange. The cry of alarm from Clugny, intendant of Saint-Domingue in 1762, reveals the situation:

Qu'il me soit permis de vous dire un mot sur la manière dont on arme dans les ports de France les bâtiments destinés pour les colonies. On retranche autant qu'on peut sur les objets les plus nécessaires et les plus indispensables [...] Un bâtiment arrive dans un port de Saint-Domingue ses voiles en mauvais état, ses manœuvres hors de service, ses vergues rompues sans en avoir de rechange, ses approvisionnements épuisés et enfin hors d'état d'entreprendre le voyage d'Europe si on ne lui fournit tous les remplacements dont il besoin. Le Roy n'ayant point de magasins remplis, point d'argent et peu de crédit pour faire ces remplacements [...] je vois avec douleur que tous les vaisseaux qui arrivent en France sont dans le même état.¹¹

[Let me inform you of the manner in which ships destined for the colonies are supplied in the ports of France. The most basic and necessary things are cut back on as much as possible [...] A ship arrives in the port of Saint-Domingue with its sails in poor condition, its rigging out of service, its yards broken without having been replaced, its supplies exhausted and in no state to make the crossing to Europe without being supplied with all the replacements it needs. As the King has no well-supplied depots, no money and little credit to make these replacements [...] I am sad to see that all the vessels arriving in France are in a similar state.]

The dependence of the French colonies on mainland France prevented the setting-up of networks of provisioning within America and India. For basic materials, the colonial hinterlands were not worked systematically, with the exception of New France where forest visits and tree-marking were organised. In the Antilles, the French ports were regularly subject to a lack of wood, due to the failure to establish lines of supply and develop commercial relations with the other French colonies and neighbouring empires. A trade in wood existed between North America (New France, the Thirteen Colonies) and the Antilles but it was neither heavy nor regular.¹² At the same time, the Spanish were

10. Pérotin-Dumon, *La Ville aux Îles*, 207.

11. Archives Nationales D'outre-mer (ANOM), C⁹ A113, the intendant Clugny to Choiseul, 22 September 1762.

12. Jacques Mathieu, *Le Commerce Entre la Nouvelle-France et les Antilles au XVIII^e Siècle* (Montreal, 1981), 162–4.

exploiting American forests to supply their colonial ports and those of the mother country, while the English were doing the same with their resources in New England, South Carolina and Georgia to feed their islands in the Antilles.¹³ Such networks of supply did not exist in the French empire of the eighteenth century. From the 1630s–50s until the end of the Ancien Régime, the home country played a dominant role in the supply of strategic provisioning.¹⁴ The supply of tools, essential for the industry of naval construction, was typical because it depended almost entirely on products from the home country. The ironworks of Saint-Maurice in New France, with several smelting furnaces, was the only large metallurgical company in the empire, but was far from being able to supply local needs. The make-up of the various cargoes that left France show that the colony was still very dependent on iron and tools made in the businesses run by Pierre Babaud de la Chaussade in the Nivernais and Leblanc de Marnaval in Berry.¹⁵

This initial assessment of the capacity of overseas ports to maintain and repair ships appears poor. Apart from undertaking these operations in foreign ports, not necessarily better equipped, French captains found it difficult to provide the optimum maintenance of their vessels. One of the consequences could have been the overall dilapidation of French ships. It is very difficult to document this accurately, but the officials of the French East India Company and the Navy sometimes indicated in their correspondence the inability of certain ships to put to sea again. They were then sold privately to be repaired or stripped down for their materials and parts. On this point, the official documentation could be complemented by the reports of captains to their vessels' owners.

These features open up areas of research into the market for second-hand ships and the economics of recycling in the empires, two exciting component themes of the general problem of the construction and maintenance of ships overseas. If a tally of the ships unable to put to sea again is difficult, a look at those that traded from Bordeaux and Nantes would provide a good idea of the phenomenon. During the period 1730–1789, 5.6 per cent of ships engaged in trade were not able to put to sea again in the Antilles, condemned by the maritime authorities, which represents 86 vessels descending into the second-hand or scrap market (see Table 1). To this number should be added the slave-trade ships whose captains had doubtless anticipated their condemnation by the marine authorities. In 1734, the crew of the *Saint-Michel* contested the decision of their captain 'd'avoir vendu le navire 90 sterling à la Jamaïque alors qu'il n'était pas condamné' [to sell the ship for £90 to Jamaica when it hadn't been condemned].¹⁶ These facts are not

13. Jennifer L. Anderson, 'Forest Resources', in Joseph C. Miller, ed., *The Princeton Companion to Atlantic History* (Princeton, 2015), 207–11.

14. For logistics during the time of the earliest commercial companies, see Éric Roulet, 'Mousquets, Piques et Canons... La Défense des Antilles Françaises au Temps de la Compagnie des Îles (1626–1648)' in David Plouviez, ed., *Défense et Colonies dans le Monde Atlantique, XV^e-XX^e Siècle*, Enquêtes et Documents (Rennes, 2014), 201–17; for the logistics of supply to the colonies from the dockyard of Rochefort in the eighteenth century, see Sébastien Martin, *Rochefort, Arsenal des Colonies au XVIII^e Siècle* (Rennes, 2015).

15. Roch Samson, *Les Forges du Saint-Maurice: Les Débuts de l'industrie Sidérurgique au Canada, 1730–1883*, (Sainte-Foy, 1998).

16. Archives départementales de Loire-Atlantique, B/4585, f^o 142 v^o.

Table 1. Destinations of slave ships from Bordeaux and Nantes, 1730–1789.

Period	Number of slaving voyages	Unarmed ships	Ships condemned	Ships sold	Ships wrecked	Ships captured
1720–1729	111	0	9 (8.3%)	5 (4.6%)	6 (5.5%)	0
1730–1739	156	0	9 (6.2%)	6 (4.2%)	9 (5.8%)	0
1740–1749	235	1 (\pm 0%)	22 (9.4%)	10 (5.2%)	6 (3.1%)	23 (9.8%)
1750–1759	197	13 (6.6%)	18 (9.2%)	4 (2%)	7 (3.5%)	21 (10.7%)
1760–1769	235	5 (2.1%)	18 (7.7%)	4 (1.7%)	8 (3.4%)	–
1770–1779	228	14 (6.2%)	4 (1.7%)	1 (0.4%)	6 (2.6%)	4 (1.7%)
1780–1789	374	24 (6.4%)	6 (1.6%)	2 (0.5%)	6 (1.6%)	2 (0.5%)
Total	1536	57 (3.7%)	86 (5.6%)	32 (2%)	48 (3.2%)	50 (3.3%)

Source: Jean Mettas, *Répertoire des Expéditions Négrières Françaises au XVIIIe Siècle*, vol. 1: Nantes, vol. 2: Ports Autres que Nantes (Paris, 1984).

unimportant and question the general state of ships engaged in other commercial circuits (direct trade between France and her colonies, cabotage etc.).

Table 1 raises other reasons for reflection: between 1730 and 1789, the proportion of ships that were condemned reduced significantly. What is the explanation for this? The use of a newer fleet is one hypothesis, but this decrease in condemnations took place in the 1770s and 1780s, a period during which colonial ports equipped themselves with the tools necessary for the maintenance of ships. Some correlation between these two facts seems possible.

The construction of ships overseas

The history of shipbuilding in France's overseas territories remains to be written. Wherever the French installed themselves, there existed locally-built fleets. Generally small – few being more than 80–100 tons – these ships were used for local commercial operations across the numerous regional trading routes in America, along the coasts of Africa and in the Indian Ocean. In this last area, for example, the directors of the trading posts built a fleet that was able to distribute merchandise along the coasts and up the rivers. However, this shipbuilding is very difficult to document. Administrative correspondence is largely silent on the subject and only a detailed analysis of notarial archives would perhaps identify the players, constructors as well as purchasers, and the places where they practised their craft. But unlike the maintenance and repair of ships, which required specific infrastructure that acted as a marker in the colonial space, shipbuilding was a technical process that required a small space on the shore, modest tools and a small labour force for a relatively short period of time. It needed neither a permanent location nor significant productive resources.

The need for a coastal shipping capacity quickly surfaced in the colonies. Commercial companies establishing settlements in America sent from the motherland small, prefabricated boats. This was the case in Guadeloupe, which received its first 'kit' of a small craft built at Dieppe in 1640 and then a second in 1642.¹⁷ A century later, the Compagnie

17. Roulet, 'Mousquets, Piques et Canons', 209–10.

du Sénégal had hulls built in France and escorted by a vessel to their trading posts.¹⁸ Such circumstances either represented the beginnings of colonisation or else occurred in regions where shipbuilding was difficult. Elsewhere, the French adopted local boats, the Caribbean pirogue, to travel between islands, in the Americas. The size and range of local fleets is difficult to assess, but it is a factor that must be taken into account.

In Asia, maritime connections existed long before the arrival of the Europeans, and afterwards local fleets continued to develop while adapting to the new players present in the region. The work of Om Prakash reveals the extent to which the flow of movement within Asia increased between the arrival of the Portuguese and English colonisation, rendering essential the establishment of an Indian shipbuilding industry.¹⁹ The French trading posts in India therefore soon relied heavily on the local industry, complemented with ships built in the Mascarenes from the 1740s onwards. However, we have no details of the relationship between the French underwriters and the Indian builders. Did the French buy ships already built to Indian standards? Did technical decisions result from exchanges between French and Indian shipbuilders?

Shipbuilding in the settlement colonies followed a different trajectory. From the seventeenth century on, the State had wished to encourage shipbuilding overseas but had run up against its own contradictions. Apart from the problem of manual labour considered below, the development of this industry was as difficult as the organisation of adequate maintenance of vessels within the constraints of the *Exclusif colonial*. The shortage of basic materials and absence of sustainable metal- and canvas-making capacity were obstacles. In 1705, Raudot, a merchant based in Quebec, wrote to the king about the opportunities for encouraging shipbuilding in Canada:

[...] Il ne faut pas songer à construire des vaisseaux dans la colonie, parce que tout, à part le bois, y était d'une extrême cherté [...] Les marchands qui s'y étaient livrés s'étaient ruinés. À l'avenir, si les mines de fer des Trois-Rivières s'ouvrent, que l'on fasse dans le pays des cordages et de la toile à voile, tout le monde se mettra à construire et il n'y a que le temps qui puisse faire cet effet.²⁰

[One must not think of building vessels in the colony, because everything, except wood, is extremely expensive there [...] The merchants who have bought there have been ruined. In the future, if the foundries at Trois-Rivières open, and rope and canvas are made in the country, everyone will begin to build but only time can bring that about.]

This account illustrates the situation in which all French colonies found themselves at the time. The trafficking of merchandise, legal and illegal, between the French colonies and their foreign counterparts, notably English and Spanish, did not permit regular construction

18. Between 1720 and 1758, 48 ships were built in France, mainly at Lorient, for the Senegal fleet: Jean-Bernard Lacroix, *Les Français au Sénégal au Temps de la Compagnie des Indes de 1719 à 1758* (Vincennes, 1986), 139–42.

19. Om Prakash, 'The Impact of the Indian Local Fleets in the Development of Trade in the Indian Ocean', in Christian Buchet and Gérard Le Bouëdec, eds., *The Sea in History: The Early Modern World* (Woodbridge, 2017), 88–99.

20. ANOM, C¹¹ A 24, f^o 86–97, letter from Radot the elder to Louis XIV, 1705.

to be maintained. The need for ships was dictated by a binary second-hand market, as previously discussed, that of basic and worked materials reused in new constructions, and that of ships from the motherland sold locally. Also important was the purchase of new ships in foreign colonies, notably New England, which was an important centre of shipbuilding in North America.

Despite Raudot's words, Canada was without doubt the French colony, with the Mascarenes, that had the best developed shipbuilding industry, but it is also the colony where the contradictions of mercantile politics were most evident. Jean Talon, the first intendant to go to New France, noted during his stays from 1665 to 1668 and from 1669 to 1672 the opportunity and need to support this sector. Of all the French territories, New France was the only one to have at its disposal such a distinguished inheritance. Jean Talon imported the same measures to help commercial shipbuilding that Colbert had simultaneously put in place in France. The Canadians therefore were able to get 4 *livres* per ton in the case of buying a ship or 6 *livres* per tonne for those building locally. It is very difficult to assess the effects of this incentive, particularly as Talon's successors did not continue his measures. There was a small shipbuilding industry until the 1710s, but it appears to have been limited. At the end of the War of the Spanish Succession, several merchants from Quebec got together to restart shipbuilding. Between the connections with the Antilles, France and navigation of the Saint Lawrence River, the needs were great. Once again, a tally is impossible but the initiatives were numerous: in 1713, Lefèvre launched a 200-ton vessel; in the same year, Lamarque and Gamelin built two others, one of which was 150 tons, on the island of Montreal. At the same time, Acadia and the Île Royale became a major shipbuilding site, even if the number of ships bought in New England always exceeded the number of those built locally.²¹

To reduce foreign purchases, the system of subsidies was reintroduced by the intendant Hocquart from 1732 onwards: 3 *livres* per ton for ships between 40 and 60 tons, 4 *livres* for those between 60 and 90 tons and 5 *livres* for those of more than 90 tons. Initially this expensive measure appeared efficient, but it occurred in parallel with the building of the royal shipyards in the same year (see Table 2).

French ambition to make Canada a colony with both military and civil shipyards was a dead-end given its socio-economic composition. From the time of Jean Talon and the merchant Raudot, the fur trade predominated and very little capital was invested in the mills, forges and numerous other industrial activities necessary for shipbuilding. The royal shipyards stifled private construction to the point that the latter had to abandon its projects. In 1743, a group of Quebec merchants and the intendant of Martinique proposed building five or six large vessels and 25–30 to service trade in the Antilles, but the shipyard was abandoned.²² Royal shipbuilding consumed most of the colony's materials and employed her entire workforce. The year 1743 marks a break in the construction of commercial vessels. Under French control, shipbuilding in New France never recommenced, but became a very dynamic activity under British rule.²³

21. Between 1715 and 1754, 180 ships were built on the Île Royale, while 374 were bought in New England. John Robert McNeill, *Atlantic Empires of France and Spain: Louisbourg and Havana, 1700–1763* (Chapel Hill, NC 1985), 149.

22. ANOM, C¹¹ A 71, f^o 125, letter from the intendant Hocquart to Maurepas, 22 September 1739.

23. Pierre Dufour, 'La Construction Navale à Québec, 1760–1825: Sources Inexplorées et Nouvelles Perspectives de Recherches', *Revue d'Histoire de l'Amérique Française*, 35 (1981), 231–51.

Table 2. Civil shipbuilding in Quebec, 1723–1743.

Year	Number of vessels constructed	Tonnage		
		Min.	Max.	Average
1723	8	20	95	45
1724	7	–	–	–
1729	6	–	–	–
1732	10	40	100	73.4
1733	10	14	90	35.3
1734	8	18	192	68.25
1735	11	20	144	78
1736	6	–	–	–
1737	2	78.5	96	87.25
1738	4	61	300	183.75
1739	8	–	–	–
1740	6	–	–	–
1741	9	–	–	–
1742	12	–	–	–
1743	3	80	80	80
Total	110	14	300	81.4

Note: The shaded area corresponds to the period of granting of subsidies for construction)

Source: List drawn up from Series C11/A of the archives of Canada, Jacques Mathieu, *La Construction Navale Royale à Québec, 1739–1759* (Quebec, 1971), 103–5.

The demography and mobility of journeymen across the Empire

The establishment of a network of stable and sufficiently equipped ports in the French empire was difficult, but the issues associated with the overseas construction and maintenance of ships were not due just to problems of infrastructure. The availability in each of the colonies of a trained and experienced workforce, its mobility and the resulting spread of technical know-how are as much the keys to a more general understanding of these matters. If the history of work in France and in Europe is now in mid-revival, the colonial dimension of this rich historiography is still fragmentary, particularly for a craft such as shipbuilding. Currently, it is difficult to take a socio-professional reading of the different colonial territories in so far as there are no indicators for measuring the movements of journeymen (carpenters, caulkers, piercers) when the mobility of this workforce clearly played a role in the circulation of know-how between the home nation and the colonies, and equally between colonies themselves, French and foreign.²⁴ The issues of

24. For Europe, the link between mobility of work and circulation of knowledge and know-how is the subject of an important historiography, whose methodology and conclusions support an imperial approach to these matters: Steven R. Larry Epstein, 'Journeyman Mobility and the Circulation of Technical Knowledge in Europe, 14th–18th Centuries' in Liliane Hilaire-Pérez and Anne-Françoise Garçon, eds., *Les Chemins de la Nouveauté: Innover, Inventer*

overseas shipbuilding and maintenance suppose therefore to decrypt the mechanisms of the colonial labour markets, fed by men either emigrating or more temporarily mobile, or else trained locally, this last factor leading to the question of apprenticeships in the colonies. Finally, the regulatory frameworks within which labour was organised, which were not simply transposed from the mother country, had to be adapted to the geographical, urban and sociological specifics of each colony.

Did the French colonies have available to them the professional skills necessary for the construction and repair of ships? The answer to this question is complex in so far as it would be necessary to have at one's disposal an evolving socio-professional picture of each of the colonies. Peace, war, the dynamism or, in contrast, lifelessness of certain commercial routes, and the voluntarism of the various colonial administrations, all constitute factors that have influenced the demography of the occupations of the colonies. Thus far, our knowledge extends to a few studies of parish registers, censuses, deeds, contracts of employment, legal documents and the archives of religious communities. Such research reveals the presence of carpenters, caulkers and sailmakers in all the colonies of the empire. In Guadeloupe, at Basse-Terre and Pointe-à-Pitré, at least 68 people in 1797 were engaged in occupations related to shipbuilding; that is, 1.8 per cent of the total population of the two towns.²⁵ In New France, Leslie Choquette lists 755 men under the heading 'Construction and wood crafts' in her distribution of Canadian migrants by activity, from the second half of the seventeenth century to the transfer of the colony to the English in 1763 (see Table 3).

For its trading posts, the *Compagnie du Sénégal* regularly recruited ships' carpenters, caulkers and sailmakers who signed three-year contracts of employment. In 1741, these men represented 20 of the 110 French people settled there (see Table 4).

Given the wish to make the ports suitable for the repair of passing ships and, where applicable, for the construction of a fleet, there is nothing surprising about the presence of these men. In any event, these facts do not necessarily reflect the ability of the different colonies to undertake this type of work; in other words, was the workforce big enough? In the case of Guadeloupe or New France, the suggested socio-professional categories result in historical typologies that make it difficult to assess the actual numbers of men available to work in a shipyard. Choquette's category 'Construction and wood crafts' encompasses the occupations related to shipbuilding, but also those related to the town. The case of carpenters is one such example because the boundary between those who worked in a shipyard and those occupied in urban work was fluid. The same ambiguity existed with coopers who were to be found equally in shipyards helping with the construction of ships' frames.²⁶ In her typology, Anne Pérotin-Dumon indicates that

au Regard de l'Histoire (Paris, 2003), 411–30; Liliane Hilaire-Pérez and Catherine Verna, 'Dissemination of Technical Knowledge in the Middle Ages and the Early Modern Era: New Approaches and Methodological Issues', *Technology and Culture*, 47(2006), 536–65.

25. Anne Pérotin-Dumon, 'Population, Travail et Urbanisme dans les Villes de l'Amérique Atlantique au XVIII^e Siècle: Basse-Terre et Pointe-à-Pitré, Guadeloupe', *Bulletin du Centre d'Histoire des Espaces Atlantiques*, 6 (1991), 191–208.

26. Jean-Pierre Hardy and David-Thierry Ruddel, *Les Apprentis Artisans à Québec, 1660–1815* (Montreal, 1977), 25.

Table 3. Distribution of Canadian migrants by activity.

Sector	Number of emigrants	Percentage of emigrants
Army	3,655	30.5
Transport and other services	1,208	10.1
Construction and wood crafts	755	6.3
Seafarers	658	5.5
Textile and clothing	595	5
Church	444	3.7
Agriculture	409	3.4
Commerce	345	2.9
Iron workers	297	2.5
Food	292	2.4
Health	156	1.3
Administration and judiciary	153	1.3
Luxury crafts	23	0.2
Other artisans	49	0.4
Miscellaneous	2,951	24.6
Total	11,990	100

Source: Leslie Choquette, *De Français à Paysans: Modernité et Tradition dans le Peuplement du Canada Français* (Paris, 1997), 98.

Table 4. Positions held by the personnel settled in the trading posts of Senegal in 1741.

Position	Effectif
Seafarers	36
Maritime workers	20
Construction workers	25
Other workers	20
Military personnel	9
Total	110

Source: Jean-Bernard Lacroix, *Les Français au Sénégal au Temps de la Compagnie des Indes de 1719 à 1758* (Vincennes, 1986), 153–312.

she had used an ‘arbitrary’ division of the workforce between the port and the town for carpenters, coopers and blacksmiths, not knowing obviously where these men really worked.²⁷ Even if we had precise figures for the different occupations represented in the colonies, we could not consider these categories as completely hermetic. Could a carpenter engaged in house-building not also build small boats or make repairs inside a ship? In the spring of 1671, the intendant Jean Talon engaged numerous domestic carpenters in New France to accelerate the construction of a vessel on the Saint Charles River in the hope that some of them would in future prefer to remain at the port.²⁸ Despite the fact that

27. Pérotin-Dumont, *La Ville aux Îles*, 64.

28. ANOM, C¹¹ A 3, f^o 115, letter from Jean Talon to Colbert, 1671.

the occupations involving carpentry gradually distinguished themselves from each other during the sixteenth and seventeenth centuries, there remains even today a certain permeability, at least for the smallest constructions.

Finally, sources remain relatively silent on the employment of the native population, slaves and free blacks, in the ports. However, they were an important workforce in the colonies of the Antilles and Indian Ocean and were not confined to hard labour. When Mahé de La Bourbonnais arrived at the Île de France, he indicated 'que les deux tiers des ouvrages se font avec des noirs' [that two thirds of the work was done by the blacks].²⁹ It is clear that wherever the colonies included a servant workforce, a proportion of it was employed in the ports to carry out the maintenance, careening and towing of ships. But equally there were members of the native population and free blacks who gradually obtained professional qualifications, as also happened in the English and Iberian empires, and about which we have very little information.

The correspondence between colonial administrators and the home country does not reveal chronic shortages of workers except in Canada. At certain periods, the search for carpenters or caulkers proved more difficult, but these shortages were short-lived. In the development of Port-Louis on the Île-de-France, the question of the workforce was never fundamental even if it was mentioned as an important element. Officials were all too preoccupied with securing supplies and materials and building the necessary harbour infrastructure to worry about having sufficient numbers of workers. Mahé de La Bourdonnais had built, among other things, 'boutiques pour les voiliers, menuisiers, tonneliers, des logements pour les charpentiers, calfats et matelots' [workshops for the sail-makers, joiners, coopers, lodgings for the carpenters, caulkers and sailors].³⁰ The problem was not so much one of having sufficient workers, but rather of providing decent living and working conditions for them. Analysis of the employment contracts for the trading posts of Senegal between 1722 and 1758 show that the French East India Company had little difficulty in recruiting the necessary men (see Figure 2), who were taken on for three years, renewable, with annual salaries higher than those in the home country, between 400 and 800 *livres* depending on age and qualifications.

In the Antilles, the sporadic stationing of military squadrons may have produced an increased paucity of workers, but these situations, as crippling as they were for the navy,³¹ never lasted long. Canada was a particular case in as far as the letters from the colony's intendants and officials never failed to stress the shortage of carpenters, caulkers, sailmakers and blacksmiths in Quebec or Montreal from the 1670s until the loss of the colony in 1763. Successive secretaries of state for the Navy attempted to remedy this problem by intermittently sending workers: four carpenters in 1663, six carpenters and three blacksmiths in 1670, 12 carpenters in 1739, 150 in 1743, 50 others in 1750 etc. In

29. ANOM, X14/6/3/45, letter from La Bourdonnais to the French East India Company, 20 November 1739, cited by Prosper Eve, 'Les Ébauches Urbaines dans les Mascareignes au XVIII^e Siècle' in Martine Acerra, Guy Martinière, Guy Saupin and Laurent Vidal, eds., *Les Villes et le Monde du Moyen-Âge au XX^e Siècle* (Rennes, 2011), 63.

30. Prosper Eve, 'Les Ébauches Urbaines', 64.

31. Christian Buchet, *La Lutte pour l'Espace Caraïbe et la Façade de l'Amérique et du Sud, 1672–1783* (Paris, 1991).

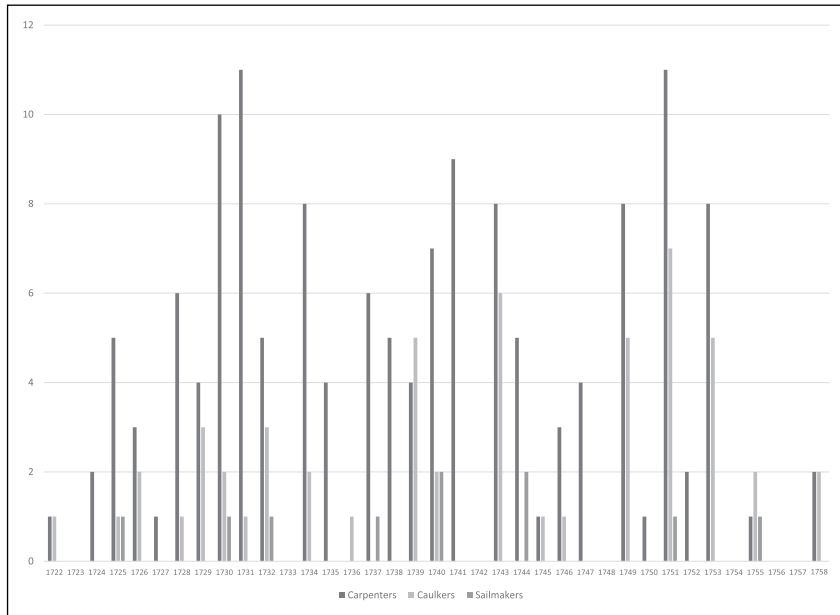


Figure 2. Carpenters, caulkers and sailmakers employed in the trading posts of Senegal, 1722–1758.

Source: Lacroix, *Les Français au Sénégal*, 153–312.

1731, as well as lacking workmen, the intendant Hocquart added that these men often lacked the necessary skills:

Les charpentiers de ce pays ont une facilité extraordinaire à s'instruire et à se perfectionner, mais ils sont accoutumés à faire des ouvrages imparfaits. Il me paraît donc nécessaire que vous m'envoyiez un bon sous-constructeur et deux ou trois bon contremaîtres pour leur donner le bon goût du travail et leur apprendre que ce n'est pas assez d'aller vite, car ils sont très expéditifs. J'ai vu construire près du Palais un bâtiment de 130 tonneaux par six charpentiers qui avaient fait l'entreprise pour 2500 francs. Ce bâtiment n'a été que six mois sur le chantier.³²

[The carpenters of this country have an extraordinary ability to learn and perfect their skills, but they are used to producing sub-standard work. It therefore seems to me necessary that you send me a good sub-constructor and two or three good foremen to instil in them all the taste for good work and to teach them that it is not enough just to work fast, as they are very expeditious. I have seen a vessel of 130 tonnes being built near the Palace by six carpenters who had undertaken the project for 2,500 *francs*. That vessel was only six months in the shipyard.]

This account, like those of the administration of Jean Talon that decried the lack of a workforce, must be seen in terms of the ambitions that the colonial authorities had for

32. Cited by Joseph-Noël Fauteux, *Essai sur l'Industrie au Canada sous la Régime Française* (Quebec, 1927), 245.

Canada: to make it the overseas dockyard of France. As far as building naval ships of 500 tons or more was concerned, the local constructors and carpenters were certainly of insufficient numbers and lacked knowledge of the technical specifications of the architecture of warships and frigates.³³ On the other hand, as we have seen previously, local shipbuilding produced many small boats for local traffic around the Antilles, and would have built many more were it not for the stubborn determination of France to build warships there.³⁴

However, this desire had ambivalent consequences. The arrival of constructors from the mother country allowed the spread of the knowledge and skills of shipbuilding, even if their influence is difficult to measure.³⁵ Analysis of the composition of the carpenters' families is an interesting means of glimpsing this influence. As Brisson describes,³⁶ Jean and Noël Langlois arrived from France in 1663 and started to build rowing boats and small craft. They produced larger vessels as time went on, with the construction taking place in the shipyards, which put Jean and Noël Langlois in contact with the carpenters contracted by the King. This professional promiscuity was decisive, as was the matrimonial strategy that assured the preservation of knowledge within a tight family circle. The Langlois family allied itself with the Badeau family and forged links with the Levitre and Corbin families, also naval carpenters, thus forming a strong professional clan. These families became famous during the successful period of private shipbuilding between 1715 and 1740 while pursuing their 'apprenticeship' alongside the craftsmen sent by the King to work in the Navy's shipyards. By becoming a foreman in the royal shipyards, David Corbin exemplified the bridges that were built between public and private shipbuilding. But while facilitating the dissemination of skills, the main problems associated with the workforce in Canada suddenly appeared when the Navy started construction of its vessels. These projects required the mobilisation of all local workers, leaving the private shipyards without a workforce. The carpenters were not only summoned to the shipyards but they were also sent into the forests to supervise the choice and felling of the finest trees, sometimes far from the St Lawrence River. The period 1742–1745 witnessed a crisis in the private shipbuilding market, together with a shortage of workers employed in the royal shipyards (see Table 5).

Beyond the example of Canada, Hocquart's letter poses a more general question about the mobility of workers. Was it solely reliant upon the will of the State or was there an empire-wide professional mobility that followed different principles? In France, the theme of 'people of the sea and coastal societies' has become a standard field of historiographical activity, fed by a substantial bibliography since the 1960s.³⁷ So far, workers engaged in shipbuilding have generated little interest within this academic output, which

33. Mathieu, *Le Commerce*, 55.

34. The census of 1716 indicates the presence of 42 carpenters/joiners working in the port of Quebec, a sufficient number to build the fleet of coasters of the time according to Mathieu, *Le Commerce*, 55–6.

35. Mathieu, *Le Commerce*, 57.

36. Réal Brisson, *Les 100 Premières Années de la Charpenterie Navale à Québec, 1663–1763* (Québec, 1893).

37. Gilbert Buti and Jacques Péret, 'Gens de Mer et Sociétés Littorales en France à l'Époque Moderne', *Revue d'Histoire Maritime*, 10–11 (2010), 135–58.

Table 5. Warships built in New France.

Name	Type	Date launched
<i>Canada</i>	Flûte	1743
<i>Abénakise</i>	Frigate	1756
<i>Caribou</i>	Ship	1745
<i>Fleuve Saint-Laurent</i>	Ship	1748
<i>Orignal</i>	Ship	1749
<i>Algonkin</i>	Ship	1752

Source: Gérald Smolla, 'La Construction Navale au Canada Français Jusqu'en 1763', *Chronique d'Histoire Maritime*, 48 (2002), 67–76.

focuses almost exclusively on sailors, whether they were engaged aboard commercial vessels or warships. And yet, across the empire as a whole, workers in shipbuilding moved about and this mobility maintained a permanent circulation of shipbuilding know-how throughout the French colonies and added to the globalisation of innovations, all the more so as these men were in contact with different techniques and methods of organisation of work working as they did alternatively for commerce and for the Navy.³⁸ Ships' crews always included carpenters, caulkers or even sailmakers, who would be able to carry out maintenance and repairs of the ships at sea. Arrival in an overseas port was an opportunity for exchanges with their counterparts based there who were often called upon to help as reinforcements for the crew. These periods were crucial for trading technical know-how, but also for the adaptation to the constraints imposed by the spatial restriction of the colonial port. The nature of the available resources, equipment and infrastructure presented the need for interpretation and adaptation by each of the players. But what appears unusual is that a substantial proportion of these men did not depart and stayed on temporarily to work for several months or even years. Such stopovers were a response to logistics and personal professional opportunities, and while the State encouraged such temporary stays, it had no control over how they ran or their frequency.

The case of the carpenters and caulkers at the port of Saint-Malo between 1764 and 1784 is a good illustration of this particular professional mobility for which we have as yet no general indicators. Throughout the period, 17.5 per cent of the carpenters, and between 23.7 per cent and 24.5 per cent of the caulkers of Saint-Malo, undertook a sea voyage outside Europe, which represents 55 carpenters and caulkers between 1765 and 1775, and 54 between 1776 and 1785 (see Figure 3).

When they sailed outside Europe, these men had the opportunity to travel to all parts of the French empire (see Figure 4). Aged 19 in 1780, François Bataille, caulker of Saint-Malo, was taken that year to go and work in the dockyard of Brest. The rest of his career was spent at sea, first for the fishing season off Terre Neuve in 1784 aboard the *Jeanne Louise*, then in 1785 as master caulker aboard a naval frigate leaving for the Indian

38. After the establishment of categories of work under Colbert's administration, carpenters, caulkers, piercers, makers of pulleys and rope were the five crafts included in the same category as sailors. As such, these men owed service to the State in the form of a period of work either in the dockyards or aboard warships.

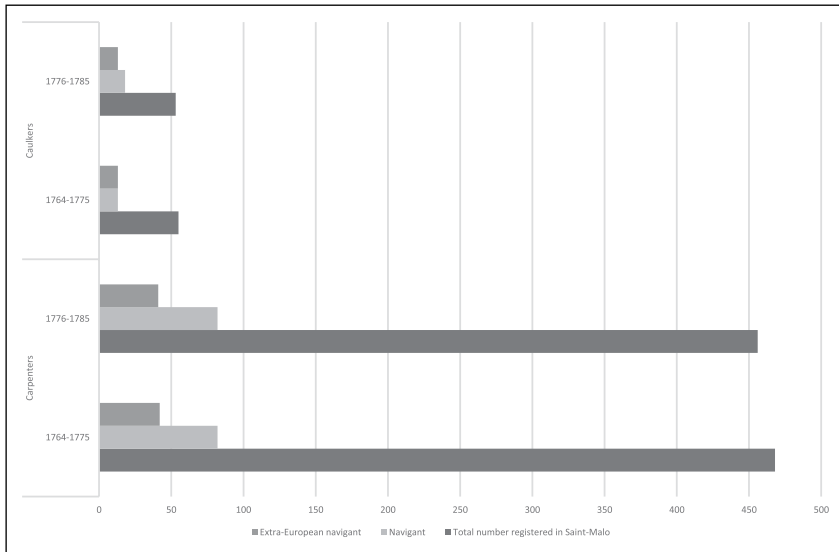


Figure 3. The seagoing carpenters and caulkers of Saint-Malo, 1765–1785.

Source: SHD, Marine, Brest, 1 P³ 70, 71, maritime quarter of Saint-Malo, workers, 1764–1785.

Ocean.³⁹ His was not an isolated example and most of the men who left Europe were young, such as Jean Dutertre who embarked at the age of 23 on several expeditions from 1769 onwards off the coast of Guinea, or Pierre Cossé, who was also in Guinea in 1768, then aged 24, then at Saint-Domingue in 1770 and once again off the coast of Africa in 1771 and from 1774 until 1776.⁴⁰

While these working voyages do not suggest that most of the men concerned settled, some of them did decide to set themselves up in the empire to practice their craft on more of a long-term basis. The instances were very varied. It could be a case of workmen who signed employment contracts with the French East India Company to work at their trading posts, or others who set themselves up alone. This was the case of Julien Petitpas who ‘travaille de son état de charpentier pendant quatre ans’ [has worked as a carpenter for four years]⁴¹ on Île-de-France before returning to the mother country, or the caulker Jean Trochu who ‘resté en Amérique’ [stayed in America]⁴² after a trade voyage in 1772, or of François Landas, also a caulker, who ‘embarqué à Nantes pour Saint-Domingue [en 1770 où il est] resté depuis quatre ans’ [embarked at Nantes for Sainte-Domingue [in 1770 where he] stayed for four years].⁴³ Setting oneself up in the colonies was subject to authorisation by the class commissioner of the maritime quarter of origin of these men, who granted it frequently. In other cases, some workers decided to desert, to vanish from

39. SHD, Marine, Brest, 1 P³ 71, f^o 52, maritime quarter of Saint-Malo, workers, 1776–1785.

40. SHD, Marine, Brest, 1 P³ 70, f^o 53, 83, maritime quarter of Saint-Malo, workers, 1764–1775.

41. SHD, Marine, Brest, 1 P³ 71, f^o 46, maritime quarter of Saint-Malo, workers, 1776–1785.

42. SHD, Marine, Brest, 1 P³ 70, f^o 159, maritime quarter of Saint-Malo, workers, 1764–1775.

43. SHD, Marine, Brest, 1 P³ 71, f^o 163, maritime quarter of Saint-Malo, workers, 1765–1775.

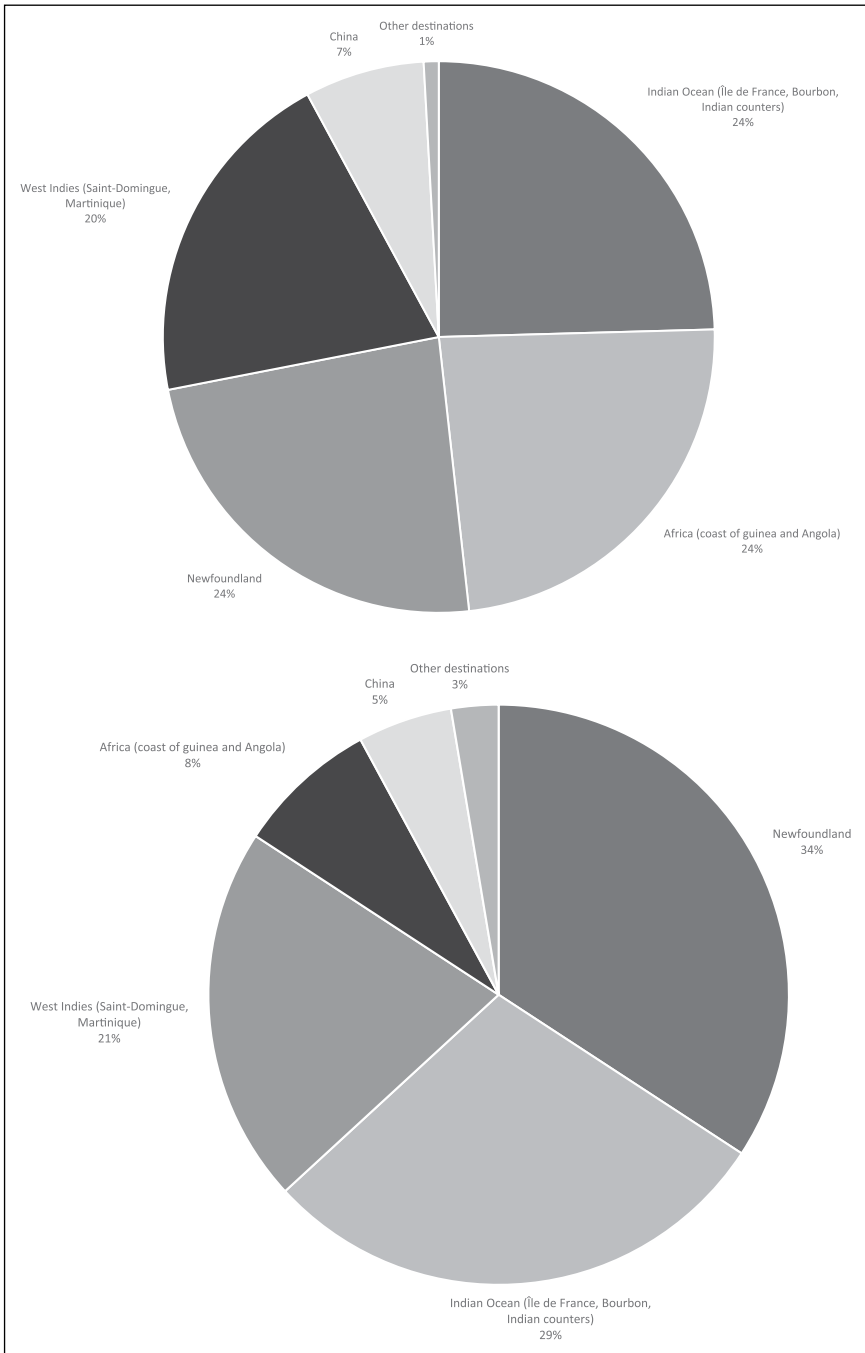


Figure 4. Extra-European destinations of Saint-Malo workers, 1764–1785.
Source: SHD, Marine, Brest, I P³ 70, 71, maritime quarter of Saint-Malo, workers, 1764–1785.

the sight of the State, in order to practice their craft overseas or to throw themselves into adventures that were difficult to track. This micro-analysis of the Saint-Malo workers opens up an exciting prospect of a trans-empire dimension in French colonial ports. The activities of these men formed part of a complex movement within the empire – indeed between the different empires. Here, the problem is not just to know if there were enough workers to carry out the repair and construction of ships across the empire, but to determine the factors that controlled these movements, that constructed these remarkable trans-empire careers.

Conclusion

In terms of this approach, it would appear that the maintenance, repair and construction of ships represented technical tasks that were difficult to undertake within the French empire. With the current state of research, it remains difficult to identify the available infrastructure in the colonial ports and to establish the chronology of the different phases of supply. But with rare exceptions, the construction of quays, the installation of equipment for lifting, maintenance and caulking did not really begin until after the Seven Years War, particularly from the 1770s onwards. If the archives consulted reveal that some of the maintenance and repair of ships took place at sheltered moorings that were either poorly or un-equipped, it remains true that the equipment of the main ports had a significant impact on the general condition of the French commercial fleet. Studies of ports should detail this process, but it seems that the articulation of the public/private must be at the heart of the consideration. In the case of France, the State kept control of the developments, which were often linked to its strategic imperatives and built with public funding. But this role of sponsor did not preclude dialogue with the world of trade and commerce, which argued its interests and priorities, nor a convergence of different points of view.

Moreover, little is known about the economy of the maintenance, repair and building of ships even though it generated large movements of materials and money. It is important to take the measure of the market of the repair and construction of ships as well as of that of the sale of second-hand ships and of materials, new or used. The number of transactions, the identification of their players and the reconstruction of the movements of material are indispensable to assessing the functions of the colonial ports and their position in the market of ship maintenance and construction. This approach is necessarily global because a captain could repair or buy a ship in a foreign port. Taking into account the level of equipment and the reputation of certain ports, one can imagine regional competition. An understanding of this economy is a first step towards understanding the practical organisation of the work of repair and construction in the colonies, in other words the labour market associated with these activities. Those details presented in the third section are an invitation to identify the workers and their mobility, but also the dialogues that started between the Europeans, the settlers and the indigenous people as the spread of knowledge and technical hybridisation began, about which little is as yet understood.

Acknowledgements

This article was enhanced by many exchanges with colleagues from the University of Nantes, in particular Éric Schnakenbourg and Bernard Michon, whom I thank warmly.

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