

SHIPPING ROCKS AND SAND: BALLAST IN GLOBAL HISTORY

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I. Introduction

When you walk along the East River Esplanade in Lower Manhattan you will, at one point, stand on British soil. I am not talking about the British Consulate or some obscure British exclave that you have never heard about. No, it is British soil in the very sense of the word. The neighborhood around Waterside Plaza has also been called Bristol Basin, and there is a historical reason for that. Even before the United States officially entered the Second World War in 1941, they supported the British war effort with substantial transatlantic supply shipments. A significant share of this American supply fleet cleared its load at the important British port of Bristol – which in turn became a major strategic target for the Luftwaffe air raids. Bristol was hit severely by German bombs. Many of the city's buildings were basically reduced to rubble. When the American supply ships were due to sail back to the U.S., they loaded war debris from the city of Bristol as cargo and shipped it back across the Atlantic. On their return, the Bristol rubble was dumped into the East River as landfill to support the construction of a section of East River Drive (renamed FDR Drive in 1945). This is why Waterside Plaza, the United Nations international school and parts of FDR Drive have quite literally been built on British soil.

Already in 1942, the English-Speaking Union of the United States had a plaque mounted to commemorate this unusual British contribution to the history of New York City. In 1970, the plaque had to be temporarily removed due to the area's redevelopment into today's Waterside Plaza. When it was put back in place after construction was finished, Bristol-born actor Cary Grant gave a moving speech at the rededication ceremony. Grant's family had lived in Bristol during the bomb raids and the actor famously said that he had “a deep-seated emotion about this ceremony.”



Figure 1: Cary Grant with the Bristol Basin Plaque at Waterside Plaza, 1974. Courtesy of Waterside Plaza.

II. Ships' ballast

While Cary Grant's involvement adds a nice Hollywood touch to the tour guide version of this story, it is less relevant for the purpose of this article. I am much more interested in the role that the transport of ballast played in this context. Overall, the transshipment of British war debris served a triple purpose. It was a win-win-win

situation. First, the construction of East River Drive in New York required huge amounts of landfill. The parkway could not run through densely populated Manhattan, so sections of the East River had to be filled in for the purpose. Landfill material in such large quantities was in short supply in New York and had to be brought in from afar and at high cost. Thus the debris from Bristol came in quite handy. Second, the situation in Bristol was the exact opposite. The city had sustained substantial bomb damage. Its streets and infrastructure were blocked with debris for which there was no place to go. Loading the rubble on American ships was a more than welcome option to dispose of it. Third, the ships needed cargo anyway. They had crossed the Atlantic loaded to the brim with war supplies. But in wartime Britain, there was no suitable return load, no merchandise or anything that Britons could spare at that moment. At the same time, however, the ships could not sail back empty for reasons of stability and trimming. They needed some form of cargo and the rubble did the trick.

This is quite an extraordinary story. But of course, it was not the first time in history that ships had to be loaded with rocks, stones, bricks, sand or other material of little trade value. Seafarers had to ballast their vessels from ancient times. There were certain ship designs that worked without ballast, but most vessels needed ballasting for stabilization in the water. For this purpose, heavy materials were loaded into the lowest part of the ship's hold. Ballast determines how deep a ship lies in the water. In non-nautical terms, one could say that it acts as a counterweight against the forces of the wind and the waves. It improves the speed and

navigational capacity of a vessel and ultimately keeps it from capsizing in adverse conditions.

Today, most vessels are equipped with large tanks in order to use water as ballast. Up until the early twentieth century, however, other heavy material had to be used to weigh ships down. Usually, there was some form of permanent ballast on board – e.g. massive pig-iron bars that were stowed near the keel at the lowest possible part of a ship. Whether or how much ballast was required also depended on the cargo. A vessel packed with coal or timber, for instance, usually did not need any additional weight. The heavy cargo doubled as ballast. Ships that were running empty or had only very light cargo – such as tea, for example – did need additional ballasting. Rocks, stones, gravel, wet sand or other heavy materials were then loaded into the bottom of the hold to guarantee stability. Unfathomably large quantities of such ballast were loaded, transported and eventually unloaded elsewhere in the global history of shipping, as ships were running empty or half-empty much more often than one would casually assume. On many shipping routes, profitable cargo was abundantly available in one direction and ship owners often specialized on a particular cargo. But then, no suitable return cargo could be procured – or at least not in sufficient quantities. There are many examples for this. In the nineteenth century, countless colliers shipped coal from northern England to London but had no load to take back. Timber from the Baltic was in great demand in Britain, but many ships had to return in ballast. And despite its bird's-eye description as a triangular trade system, transatlantic trade was in practice subject to similar imbalances. Between the seventeenth and nineteenth centuries, there were many commodities that needed shipping from North America to Europe – cotton, timber or rice, to name but a few examples. But there was not always a suitable return cargo for the countless ships that plied the North Atlantic. Many of these vessels had to sail in ballast.

Hence, ships sailing in ballast were not a rare sight – quite the contrary: they were much more numerous than one would assume. For ship owners, merchants and captains alike, this situation was burdensome in at least two ways. First, when there was no sellable cargo to be had, one leg of the journey remained unprofitable and incurred running costs. Second, the need to load ballast, pay for it and later dispose of it substantially added to these costs. Therefore it is not surprising that captains tried to load such materials as



Figure 2: Chalmers Street in Charleston, South Carolina. Wikimedia Commons, CC-BY-SA-3.0.

ballast that had at least some use at the ship's destination. Sometimes, captains managed to substitute parts of the ballast with coal or salt. In other cases, they specifically chose rocks and stones as ballast that could be used as building material elsewhere. The Bristol Basin landfill is an example of that. And in the transatlantic trade of earlier centuries, British ballast stones were found suitable to pave the streets of North

American cities. Chalmers Street in Charleston, South Carolina, is a particularly well-known example in this context. In other cases, certain commodities were specifically produced in order to be used as ballast. My hometown of Salzburg, Austria – a place famous for music but so far without a prominent role in global shipping – provides an example of that. In the vicinity of the town, broken and largely worthless small pieces of marble from the nearby quarries were ground to make large quantities of marble balls which were then shipped all over the globe as a form of sellable ballast.

There are many examples of ships' ballast that had some subsequent use and, thus brought at least some money for those involved. Mostly, however, ballast was of no value and had to be discharged at the end of a journey. In both cases, the transshipment of ballast was an unintentional, often unwanted by-product of globalization. A by-product, however, that caused many a headache for ship owners, merchants, captains, sailors and harbor officials alike. Ballast had to be procured, handled, loaded and secured. Every so often, it contained biological matter that eventually decomposed and contaminated the ship's hold. Then it had to be unloaded somewhere near the anchorage. Captains often tried to dispose of it the easy way. Harbor officials, however, were concerned about the silting of harbors and shipping channels and implemented strict de-ballasting regulations. Hence, ballasting required a massive global infrastructure. It created a set of unintentional but nevertheless powerful global connections that had very concrete ramifications for a large number of people. Globally transshipped ballast left its traces in the cobbled streets

of port cities, in the harbor basins and in all sorts of local legislation. In short, ballast is an extremely interesting global commodity with very peculiar qualities that deserves our attention as historians.

III. Researching ballast

Historiography has developed very limited interest in ships' ballast to date. Somewhat surprisingly, neither maritime history nor global history, with its scrutiny of global connectivity, have studied ballasting practices in a substantial way. Among the historical sciences, only archaeology nurtures a longstanding fascination with ballast, examining ballast stones and rocks from many different regions and epochs – from ancient times to the late nineteenth century, from Scandinavia to the Caribbean. Accordingly, the only book-length study of ships' ballast that I know of was written by archaeologist Mats Burström of Stockholm University. In his book, Burström follows the discovery and historical uses of ballast over many centuries, and he was the first scholar to highlight the historical significance of ballasting.¹ In doing so, he built on the work of several other archaeologists who have analyzed ballast found at shipwreck sites or along important trade routes. Often, ballast stones are literally all that remains of a wrecked ship when its wooden structure and all perishable contents have long gone. Therefore, to archaeologists, ballast can provide important clues about the routes, origins and destinations of ships. They are used to working with material sources and have gained amazing insights through the study of ballast. However, with very few exceptions – Burström among them – archaeologists are not really interested in the historical significance of ships' ballast itself, but rather use it as a proxy to answer a different set of questions about historical trade routes and exchange practices. Such work is admirable in many ways, but leaves us with very little knowledge about the economic, social or cultural significance of ballast; about the consequences that the need to ship ballast had for the many actors and regions involved.

I suggest that these consequences were quite substantial on a number of different levels and deserve to be studied more diligently. There are many historical contexts in which ballasting played a significant, sometimes decisive role. In the following sections, I will single out a few particularly interesting contexts and dive a little deeper into the domain of ballasting. I will try to shed some light on the economic dimension of the necessity to ballast ships. I will

1 Mats Burström, *Ballast: Laden with History* (Lund, 2017).

sound out some of the social ramifications of the practice, and I will also touch briefly on some of the more obvious environmental issues connected with ballasting. Finally, I will connect all of these strands to offer a few conceptual considerations regarding the study of ships' ballast. First, however, the economy.

IV. The economies of ballast

From a mercantile perspective, the nautical need for ballast was quite a nuisance. For ship owners, merchants or investors, it was already bad enough when a ship had to sail with an empty or half-empty cargo hold. It produced heavy costs and practically no return. The necessity to ballast empty vessels did not make things any better since it cost valuable time – and often also money. Therefore, captains tried to ballast and de-ballast their ships as quickly and cheaply as possible. This could have consequences for route planning as ship owners had an interest to ballast their vessels with material that had at least some marginal value. Regions or ports where such sellable ballast could be procured easily were attractive ports of call. In Liverpool, for instance, coal and salt could usually be loaded as ballast. In Glasgow, it was coal and iron.² At other hubs, however, and particularly in or near the big metropolises with their insatiable hunger for imported goods, sellable ballast was often hard to find. The principal example of this is the British capital. London had a massive demand for all sorts of commodities and raw materials but not much profitable cargo to offer in return. Clearing cargo in the port of London, therefore, often meant that the vessel had to be loaded with stones, gravel, sand or sometimes chalk as ballast for the return journey. In the nineteenth century, London had one of the busiest ports in the world. Where did all this ballast come from? Before I address that question, let us take a brief but instructive look at the numbers. How many ships were actually concerned by this practice and how much ballast did they need? Was ballasting really an economic factor?

Let us look at the year 1804, for which we happen to have compatible numbers for different aspects. In that year, about 8,000 British and about 4,000 foreign ships entered English ports. That's around 12,000 ships in total with a combined tonnage of about 1.75 million. Of these, 3,513 vessels arrived in England in ballast, i.e. with practically empty cargo holds. In the same year, about 12,500 cleared English ports. Of these, about 2,428 left in ballast. I'll spare you the

² House of Commons Parliamentary Papers, "Thames Conservancy Report" (1863), 18.



details of how this was distributed among British and foreign ships. Suffice it to say that foreign vessels often came with cargo and left in ballast, while British ships more often came empty and left with cargo.³ In any case, the number of ships in ballast entering and clearing English ports was substantial at the beginning of the nineteenth century.

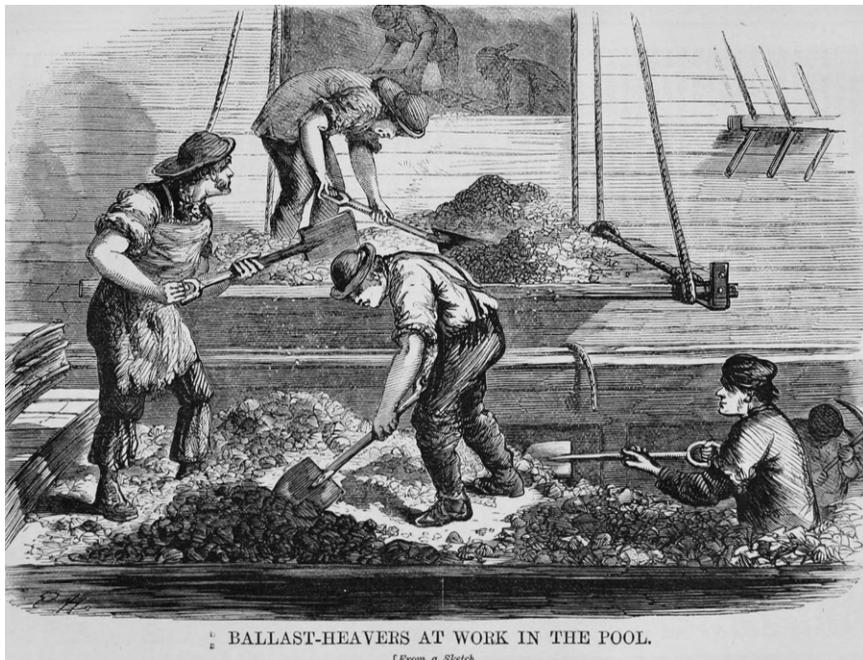
By the middle of the century, global trade and along with it the volume of maritime shipping had increased further. In 1856, almost 45,000 vessels with a total tonnage of more than ten million arrived at UK ports from outside the United Kingdom. Of these, almost 15,000 ships came in ballast. In the same year, almost 47,000 vessels cleared UK ports for the wider world. About 5,500 of them sailed in ballast.⁴ The numbers are not completely comparable over the decades as those for 1856 include all UK ports, while those for 1804 are for England only. Nevertheless, the figures convey the general idea: about a quarter to a third of the ships calling at English or UK ports sailed in ballast. Every eighth to fifth ship left in ballast.

These figures do not include shipping within the UK such as the burgeoning coal trade from the north of England to the metropo-

Figure 3: John Francis Salmon, *A Collier on the Thames*. National Maritime Museum, Greenwich, London. Oil on Canvas, 1874. © National Maritime Museum Collections.

3 House of Commons Parliamentary Papers, "Account of Number of Vessels inwards and outwards at Ports of Great Britain" (1802-11), 65.

4 House of Commons Parliamentary Papers, "Annual Statement of Trade and Navigation of United Kingdom with Foreign Countries and British Possessions" (1856), 38.



1 BALLAST-HEAVERS AT WORK IN THE POOL.

[From a Sketch.]

Figure 4: Ballast-Heavers at work in the Pool. Illustration from Henry Mayhew, *London Labour and the London Poor*. Vol. 3 (London, 1851), 277. Public domain.

5 Royal Museums Greenwich. [last accessed December 3, 2020], from <https://collections.rmg.co.uk/collections/objects/111921.html>

6 Henry Mayhew, *London Labour and the London Poor*. Vol. 3 (London, 1851), 275.

7 John R. MacCulloch, *Universal-Lexikon für Kaufleute und Fabrikanten; oder vollständiges Handbuch des Handels-, Fabrik- und Manufakturwesens, der Schiffahrt und der Bankgeschäfte, mit besonderer Rücksicht auf National-Oekonomie und Finanzen* (Augsburg, 1835), 53.

lis, for instance. Contemporary estimates state that near the middle of the nineteenth century around 600 colliers could be seen in the Pool of London every day.⁵ These coal transports tried to meet London's need for fuel but had nothing to bring back to the North. Colliers were comparably small, flat-bottomed vessels built for coastal navigation. But even these ships needed considerable amounts of ballast. In his famous report, *London Labour and the London Poor*, journalist and social reformer Henry Mayhem wrote about the ballast heavers of London and described the ballasting of one such collier. "The ballast heavers had established themselves alongside a collier, to be filled with 43 tons of ballast."⁶ That's 43 tons of stones, gravel and sand for one collier alone, when there were hundreds of them in port. Bigger ships clearing port in ballast would take on much more weight. Contemporary ballast charts suggest that big warships, for instance, would need more than 400 tons.⁷ With this in mind, it is not surprising that 253,651 tons of ballast were shipped out of London in 1804.⁸ By 1862, volume had increased to 868,615 tons. For the procurement

8 House of Commons Parliamentary Papers, "Account

of Quantity of Ballast taken out of Vessels entering

Port of London by Trinity House" (1775-1804), 2.

of ballast captains had to pay a total of over 44,000 Pounds Sterling in so-called “ballastage.”⁹

As the patchiness of the figures that I have just presented to you already suggests, there is no consistent source base on ballasting. I have collected these numbers from very different sources. They are not entirely comparable and much is lacking. However, I believe that from this first glimpse alone it has become clear that ballasting was a considerable economic factor to reckon with as a merchant or captain. Most numbers and examples quoted so far come from nineteenth-century London, where the demand for ballast was particularly high. It could only be stilled with the help of a dependable infrastructure that had a substantial impact on the functioning of the port. Outside of London and the United Kingdom, ballasting quantities might have been smaller, but the principle remained the same.

V. Ballasting infrastructure and workforce

Let us now return to the question where ballast in such large quantities came from. How was it procured? And how did it find its way into the bellies of so many ships? It is evident from the few figures I have given so far that many hands were necessary in the ballasting and de-ballasting of ships in the nineteenth century. In larger ports – and especially in ports with little return cargo on offer – this led to the development of a veritable ballasting infrastructure that provided the necessary technical means and secured the availability of manual labor in sufficient quantities. Ballasting was, therefore, an important social factor with great significance regarding the organization of labor in the bigger port cities. In the following section, I will briefly examine this for the port of London, where a particularly interesting form of ballasting organization emerged and left at least a basic paper trail that we can follow. For other ports, the source base is even more fragmentary. Piecing together their ballasting history will be a challenging but also a rewarding task. Currently, however, I am only able to present a few hints beyond the port of London.

The Corporation of Trinity House held a monopoly on ballasting in the port of London until the middle of the nineteenth century. Trinity House had been incorporated by Royal Charter under Henry VIII in 1514 to regulate pilotage on English rivers and along the coast. It was charged with ensuring their safety and navigability and secured these at its own cost. This entailed, for instance, the installation

9 House of Commons Parliamentary Papers, “Thames Conservancy Report” (1863), 18.

and maintenance of buoys, beacons or lighthouses. In turn, the corporation was entitled to charge fees for its services. In 1594, Trinity House's newly established Ballast Office took over the ballasting monopoly by another Royal Charter. In the London area, practically all ballast material came from a single source: the bottom of the River Thames. The Ballast Office held the exclusive right to dredge the Thames for ballast and supply it to the vessels in the Pool of London. In doing so, it improved the river's navigability by deepening and broadening it wherever necessary and at the same time it procured enough ballast to meet the demand of the port (and even provide building material, e.g. for the embankment of the river).

In the early years of the nineteenth century, around 240 so-called ballastmen were employed by the Ballast Office.¹⁰ They lifted stones, gravel, and sand from the bottom of the river, loaded it onto ballast lighters and then transferred it from the lighters to the vessels that needed ballasting. All of this was done manually. It was extremely demanding physical labor. The ballastmen were paid by the ton, but their wages were barely sufficient to make a living. There is evidence that in the last decades of the eighteenth century, ballastmen asked Trinity House on several occasions to increase their wages – always unsuccessfully. In 1797, ballastmen even went on strike but had little bargaining power as Trinity House held the ballasting monopoly and there were no competitors that would hire them. Also, refusal to work for the Ballast Office meant that ballastmen lost the only real privilege of their profession, namely that they were exempt from being press-ganged into the Royal Navy. In 1797, Britain was at war with France. The fear to be press-ganged into this conflict was probably one of the reasons why ballastmen eventually returned to work without having been able to improve their working conditions.

These conditions had not changed much by the middle of the nineteenth century. In *London Labour and the London Poor*, from which I have already quoted, Henry Mayhew described the work of ballastmen – and particularly that of the so-called ballast heavers who manually handled the ballast – as backbreaking and in urgent need of reform. Mayhew's detailed account embeds the practice of ballasting in a broader social history of labor and poverty in London. It becomes clear that the subject of ballasting stands at the interface of the global, the regional and the local and allows us to study some hitherto neglected local manifestations of regional and global maritime trade. As such, it deserves much more attention from maritime and global historians.

10 Hilary P. Mead, *Trinity House: Its Unique Record from the Days of Henry VIII* (London, 1947), 143.

I have thus far focused on London for reasons of magnitude and source availability, but of course there were countless other settings in which ballast had to be procured, mostly under adverse conditions. When there was no port infrastructure available, there were other ways to procure ballast. On some suitable shores, vessels were beached on purpose at low tide so that ballast could be shoveled into the hold directly.¹¹ On other occasions, ballast gave rise to strenuous and even dangerous working conditions even after it had been thrown overboard. Consider the Turks Islands in the Caribbean. In the nineteenth century, these islands were well-known for their salt production. Merchant ships would sail to Grand Turk, the biggest island of the archipelago, ballasted with limestone from Bermuda. They would offload the limestone at a designated point in the shallow waters around the island before refilling their holds with raked salt. Often, the limestone was then salvaged from the water by slaves and subsequently used in the construction of buildings on Grand Turk. Mary Prince was one such slave at Turks Islands, and in her account, *The History of Mary Prince*, she refers to the fact that “another of our employments was to row a little way off shore in a boat, and dive for large stones to build a wall around our master’s house.”¹²

VI. Ballast and the environment

All of these examples indicate that ballasting was a significant social and economic factor over the centuries. For some, the need to ballast their ships presented a considerable economic burden. For others, it was a business. In any case, maritime trade hubs needed a reliable ballasting infrastructure and a steady labor force that often worked under pitiable conditions with little opportunity to improve their lot. But there are further aspects of the practice that go well beyond this socioeconomic significance. Let us consider ballasting from an environmental perspective. As we have seen, over the centuries countless ships had to load and eventually unload ballast. Unsurprisingly, most captains and ship owners tried to do this as easily and cheaply as possible. Hence, in most cases ballast that was no longer needed was simply thrown overboard, as in the example from Grand Turk. Usually, this had to be done in the shallow waters close to the coast, in rivers or near (or even in) a port. And mostly – unlike in the Grand Turk example – the ballast actually remained in the water and was not salvaged. Given the sheer quantity of rocks, gravel and sand dumped in this way, this practice could have severe environmental

11 Burström, *Laden with History*, 93.

12 Mary Prince, *The History of Mary Prince, a West Indian Slave: Related by Herself* (London, 1831), 73.

consequences. In rivers, harbors, or along important waterways, such de-ballasting practices could lead to silting and sometimes created new navigational hazards through a change in maritime topography. Therefore, many port and coastal authorities enacted regulations in order to stop the disorderly disposal of ballast.¹³ They designated particular spots near the harbor or along a river where ships could de-ballast or take on new ballast.¹⁴ In many navigational charts so-called ballasting grounds off the coast were marked.¹⁵ This practice was implemented in order to safeguard the navigability of important waterways and harbor basins. Still, there could be interesting changes to the local riverine or maritime topography. Archaeologist Mats Burström mentions a small island about 200 meters off the Swedish harbor of Nyland, which has long been an important timber port. Before the Nyland port authorities built specific ballast quays in the mid-nineteenth century, most ships dumped their ballast at a particularly suitable spot, where over time a small island started to grow out of the water. As most of the ships in ballast came from Norway, the island was soon dubbed Little Norway.¹⁶

In quantities, de-ballasting could lead to significant changes in marine topography. But there were other environmental issues as well. Not all ballast was tipped overboard. Often, the stones, gravel and sand used as ballast gained a second life as building material or even gardening soil. They were brought on shore – and came with stowaways. Along with the ballast, many plants, plant seeds, small organisms or animals were loaded in the holds, traveled over shorter or longer distances and were eventually unloaded again. Therefore ballasting was a major vehicle of transregional specimen transfer. Already in the 1950s, Swedish entomologist Carl Lindroth examined such transfers between England and Newfoundland, which had been an important cod fishery destination since the sixteenth century. He found an unusually high number of introduced ground beetles which in all likelihood had traveled from South England to Newfoundland in the ballast of fishing vessels.¹⁷ The transfer of plants between ports and port cities was even more widespread, as the work of Tore Ouren, a Norwegian geographer and botanist, documents. Ouren has shown how important ballast was for trans-European plant migration. He observes that in the nineteenth century, ballast heaps and their rich flora attracted considerable attention from botanists.¹⁸ Today, practically all large ocean-going vessels take in water as ballast and pump it back into the sea at their destination – and with it a considerable amount of marine life that is dislocated and introduced

13 “Advance Australia,” Sydney Gazette. (1830, September 9). *The Sydney Gazette and New South Wales Advertiser (NSW: 1803 - 1842)*, 2. [last accessed December 3, 2020], from <http://nla.gov.au/nla.news-article2195991>

14 “Sammlung der Verordnung der Freien- und Hanse-Stadt Hamburg” (Hamburg, 1814), 85.

15 The British Library, Richard Owen, “Turks Islands surveyed by Captain R Owen in 1830, Admiralty Chart” (London, 1842).

16 Burström, *Laden with History*, 77-79.

17 Burström, *Laden with History*, 90-94.
Carl Hildebrand Lindroth, *The Faunal Connection between Europe and North America* (New York, 1957).

18 Tore Ouren, “The Impact of Shipping on the Invasion of Alien Plants to Norway,” *GeoJournal* 2 (March 1978): 124.

to regions where it has not been endemic before. Hence, ballasting is a considerable factor in global species migration to this very day.

Ballast could also change the environment of the ship itself. In some cases, relatively clean rocks and stones were brought on-board. Mostly, however, a large share of the ballast consisted of wet gravel, sand or simply mud. During a ship's journey, this wet mass began to foul and created a rather unpleasant climate on board and particularly below deck. At least in one documented case, fouling ballast has been identified as a factor in the spread of severe illness among passengers. In 1850, the *Lady Montague* was supposed to ship hundreds of so-called "coolies" from China to Peru in order to work in the guano mines there. The hygiene conditions onboard were horrible. Too many Chinese passengers had been cramped below deck. The wet ballast taken from a river in Shanghai started to foul and spoiled the water and provisions on board the ship. Dysentery spread among the passengers. So many Chinese died during the journey that the authorities officially investigated the matter. It was found that the wet ballast had a detrimental effect on the environment on board the *Lady Montague*.¹⁹ Hence, the environmental significance of ships' ballast has to be taken seriously in a variety of contexts – the ship itself being one of them.

VII. Ballast and the history of globalization

From large ocean-going ships down to relatively small boats – practically all waterborne vessels need ballast for stability. In part, such ballast remains in a ship's hold permanently. Vessels that carry cargo of significantly different size and weight, however, need to balance this difference with ballast that is loaded and unloaded flexibly. This is the sort of ships' ballast that this article has been concerned with. And we have seen that the sheer quantities of ballast needed in nineteenth-century maritime trade have been staggering. We have briefly examined the consequences that ballasting had on shipping costs and logistics. We have looked at the infrastructures and the labor force necessary to efficiently ballast and de-ballast ships in large ports. We have even considered the environmental impact of the practice. Many other interesting aspects could be added – the cultural significance of ballast or its legal context. And yet, the otherwise flourishing field of maritime history has neglected the subject almost completely – not to mention other branches of historiography such as global history or economic history.

¹⁹ National Archives, "CO 885/1/20, Correspondence relative to emigration of Chinese coolies" (London 1853).

Of course, the source base is difficult, to say the least. Ballasting is mentioned here and there, but almost always as a side note. Historians interested in the practice will have to piece together their work from very diverse sources and case studies. Hence, researching the history of ships' ballast is a cumbersome business. However, I think the main reason why maritime history and other fields like global or world history have so far steered clear of the subject is because they are unsure about how the history of ballast fits into the bigger picture. After all, ballast is a non-commodity. Shipping it around the globe is an unintentional and mostly unwelcome by-product of maritime trade. What to make of an odd practice like this in the larger framework of globalization and from the perspective of a constantly "shrinking world"? It's simply not a good fit and thus has not attracted much attention so far.

I argue that this last point is precisely why global historians and others interested in globalization should take a close look at the history of ships' ballast – because doing so forces us to rethink our established narratives of globalization. It complicates things. Already two decades ago, historian of Africa Frederick Cooper criticized the term "globalization" as a one-size-fits-all denominator that suggested generalizable trajectories of global integration and glossed over the particularities of being connected (or disconnected) with the world.²⁰ Cooper's reservations reverberate in various more recent calls for a pluralization of the concept of globalization²¹ that acknowledges globalization consists of a number of different processes that evolve at different speeds and intensities²² and that work differently for different people and different regions.²³ Jürgen Osterhammel, for instance, has emphasized that speaking of globalizations in the plural renders the concept much more practicable for historians. The plural, says Osterhammel, alleviates the pressure to generalize about historical globalization, and at the same time it dampens the term's political edge. One need no longer be for or against globalization. In the words of Jürgen Osterhammel, the plural makes it possible to dislike the globalization of the drug trade while at the same time welcoming the globalization of gay rights.²⁴

Indeed, the pluralization that Osterhammel and others advocate has helped to overcome the myth of "a flat world"²⁵ and to acknowledge that different areas globalize at different paces, with different intensities and along different trajectories. From this perspective, globalization is not an automatic, binary or linear development. It is full of ambiguities and contradictions. It is, after all, a human-made process. Gradually, this complexity of processes of global

20 Frederick Cooper, "What Is the Concept of Globalization Good for? An African Historians Perspective", *African Affairs* 100, No. 399, (Oxford, 2001): 189-213; Frederick Cooper, *Colonialism in Question: Theory, Knowledge, History* (Berkeley, 2005).

21 Boris Barth et al., *Globalgeschichten: Bestandsaufnahme und Perspektiven* (Frankfurt, 2014).

22 Lynn Hunt, *Globalisation and Time, Breaking up Time: Negotiating the Borders between Present, Past and Future* (Frankfurt, 2013), 199-215.

23 Roland Wenzlhuemer and Isabella Löhr, "The Nation State and Beyond: Governing Globalization Processes in the Nineteenth and Early Twentieth Century," in *Transcultural Research - Heidelberg Studies on Asia and Europe in a Global Context* (Heidelberg, 2013), 1-23.

24 Jürgen Osterhammel, *Die Flughöhe der Adler: Historische Essays zur globalen Gegenwart* (München, 2017), 12.

25 Thomas L. Friedman, *The World is Flat: A Brief History of the Twenty-First Century* (New York, 2005).

integration is reaching a kind of academic consensus – on the theoretical level, not so much on the practical, empirical side. Much of global and world history is still fully occupied with searching for unexpected entanglements. Now it is time to put this more nuanced and adequate understanding of globalization into historiographical practice. It needs to be deployed, tested on the ground, adjusted, and potentially revised. When we study processes of global integration or the role of global entanglements, we need to make room for all those components that complicate things, that so far did not fit into the all-too-smooth narrative of a “shrinking world.”

First and foremost, this means we need to make room for the study of disconnections in global contexts,²⁶ of global connections that were disrupted or never quite worked in the way envisaged, and of connections that were cost-intensive or had unwanted side-effects. Such connections and disconnections exist practically everywhere in current as well as in historical processes of globalization. They form a central part of such processes especially as they interact closely with global connectivity. In many cases, considerable tension arises from such an interplay of connectedness and disconnectedness; it emerges when connections and disconnections conflate and conflict, when there is friction and confusion. It is this field of tension that provides one of the keys to really understand and interpret processes of globalization in their historical significance in all their complexity and contradiction that goes so far beyond the outdated narrative of the “global village.”²⁷

Ships’ ballast is a particularly interesting case in point. It reminds us of the unwanted by-products and unloved necessities of globalization, of the structures and practices that facilitated global connectivity but meant nothing but work and costs for those involved, and of the problems, detours and unexpected consequences that are an integral part of all human activity. Studying ballasting and its different contexts around the globe will allow us to sharpen our understanding of the mundane and often contradictory settings in which global connectivity was (and is) produced on a daily basis.

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26 Jeremy Adelman, “What is Global History Now?” *Aeon*, 2 March 2017 [last accessed December 3, 2020], from <https://aeon.co/essays/is-global-history-still-possible-or-has-it-had-its-moment>; Sujit Sivasundaram, *Islanded: Britain, Sri Lanka, and the Bounds of an Indian Ocean Colony* (Chicago, 2013).

27 Roland Wenzlhuemer, *Doing Global History: An Introduction in 6 Concepts* (Bloomsbury, 2019). Roland Wenzlhuemer, “Connections in Global History,” *Comparativ* 29, No. 2 (Leipzig, 2019).