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Published in:
Social history of medicine

DOI:
[10.1093/shm/hkx062](https://doi.org/10.1093/shm/hkx062)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Veluwenkamp, J. W., & Scheltjens, W. (2018). Baltic Drugs Traffic, 1650-1850. Sound Toll Registers Online as a Source for the Import of Exotic Medicines in the Baltic Sea Area. *Social history of medicine*, 31(1), 140-176. <https://doi.org/10.1093/shm/hkx062>

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Baltic Drugs Traffic, 1650–1850. Sound Toll Registers Online as a Source for the Import of Exotic Medicines in the Baltic Sea Area

Jan Willem Veluwenkamp* and Werner Scheltjens†

Summary. The analysis of the shipping of five key Asian, African and American drugs through the Danish Sound in the period 1650–1850 suggests that the Baltic Sea area absorbed exotic medicinal drugs in significant quantities only from the second half of the eighteenth century—at least about a century later than northwest Europe. This may be an indication that the area differed significantly from northwest Europe in the development of medical services. We have analysed the shipping of five medicinal drugs: china root, sarsaparilla, rhubarb, senna and benjamin. The main source for this analysis is the Danish Sound Toll Registers (STRs), accessed via Sound Toll Registers Online, the STRs electronic database at www.soundtoll.nl.

Keywords: international medicine trade; early modern Europe; Baltic Sea area; Sound Toll Registers Online; rhubarb; sarsaparilla

Introduction

While discussing the European reception of eye-witness accounts of the availability and use of medicinal herbs in early modern indigenous American societies, Mary Lindemann argues that it is still unclear to what extent knowledge of these plants influenced European medicine.¹ The same is true for the knowledge of Asian herbal drugs, even if contacts with India and China were much older and some relevant Asian commodities—Lindemann lists coffee, tea, camphor and opium—were applied as medicinal drugs in Europe.² Indeed, the supply and availability of drugs seem to be taken for granted or simply ignored in many a textbook, monograph and collection of articles on the history of medicine—perhaps because the medicines were so desperately ineffective.³ This does

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¹Mary Lindemann, *Medicine and Society in Early Modern Europe* (Cambridge: Cambridge University Press, 1999), 114.

²*Ibid.*, 116.

³See, for example, Mark Jackson, ed., *The Oxford Handbook of the History of Medicine* (Oxford: Oxford

not mean that historians lack an interest in exotic—non-European—medicines and their supply and use in early modern Europe. The issue has been discussed in many other books and articles dealing with more specific topics. A few examples may illustrate this.⁴ Shaw and Welch have written a critical retail business history of a late fifteenth-century Florence apothecary establishment which sold, among other things, medicines which regularly featured ingredients with exotic simples such as pudding pipe (cassia fistula), rhubarb and senna.⁵ Peter Borschberg and Anna Winterbottom have studied the China root. Borschberg focuses on the European supply of this Asian drug by the Dutch East India Company and its medicinal use in Europe.⁶ Winterbottom more broadly discusses the spread of China root from China over the rest of the world and into Europe in the course of the sixteenth, seventeenth and eighteenth centuries and its replacement by sarsaparilla as a remedy against syphilis in eighteenth century Europe.⁷ Jarcho presents a history of peruvian bark and its introduction and spread in Western Europe in the seventeenth and eighteenth centuries.⁸ Maehle extensively discusses the empirical testing of opium and peruvian bark in the eighteenth century.⁹

These studies are mainly based on qualitative information from literary sources such as the discussion of medicines in learned books and reports.¹⁰ But there are also quantitative analyses based on sources of a more serial character, mainly involving international trade. Wallis' discussion of the import of exotic drugs into England is based on English port and customs books.¹¹ Foust studies several aspects of the history of rhubarb, including the relevant London trade, on the basis of figures from English and Russian customs books.¹²

University Press, 2011); Roy Porter, ed., *The Cambridge History of Medicine* (Cambridge: Cambridge University Press, 2006); Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge, MA: Harvard University Press, 2004); Roy Porter, *Blood and Guts. A Short History of Medicine* (London etc.; Penguin Books, 2003); Roy Porter, ed., *Medicine in the Enlightenment* (Amsterdam and Atlanta GA: Rodopi, 1995); Roy Porter, ed., *The Popularization of Medicine 1650–1850* (London and New York: Routledge, 1992). A glimpse of medicines is offered by Miles Weatherall, 'Drug Treatment and the Rise of Pharmacology', in Porter, ed., *The Cambridge History of Medicine*, 211–37, 214–17. On the ineffectiveness of drugs see Edward Shorter, 'Primary Care', in Porter, ed., *The Cambridge History of Medicine*, 103–35, 116–17.

⁴Alfons M. G. Rutten, *Dutch Transatlantic Medicine Trade in the Eighteenth Century under the Cover of the West India Company* (Rotterdam: Erasmus Publishing, 2000) does not study the import of medicines into Europe but into the Dutch colonies and settlements in Africa and the Americas.

⁵James Shaw and Evelyn Welch, *Making and Marketing Medicine in Renaissance Florence* (Amsterdam and New York: Rodopi, 2011), 237, 240, 245, 256.

⁶Peter Borschberg, 'The Euro-Asian Trade and Medicinal Usage of Radix Chinae in the Early Modern Period (ca. 1535–1800)', *Review of Culture*, 2006, 20, 102–15.

⁷Anna E. Winterbottom, 'Of the China Root: A Case Study of the Early Modern Circulation of Materia Medica', *Social History of Medicine*, 2015, 28, 22–44.

⁸Saul Jarcho, *Quinine's Predecessor. Francesco Torti and the Early History of Cinchona* (Baltimore and London: The John Hopkins University Press, 1993).

⁹Andreas Holger Maehle, *Drugs on Trial: Experimental Pharmacology and Therapeutic Innovation in the Eighteenth Century* (Amsterdam: Rodopi, 1999).

¹⁰Jarcho, *Quinine's Predecessor*, and Winterbottom, 'Of the China Root', for example, refer extensively to these kinds of sources. But Shaw and Welch use the detailed quantitative data included in the apothecary shop records.

¹¹Patrick Wallis, 'Exotic Drugs and English Medicine: England's Drug Trade, c. 1550– c.1800', *Social History of Medicine*, 2011, 25, 20–46.

¹²Clifford M. Foust, 'Customs 3 and Russian Rhubarb. A Note on Reliability', *The Journal of European Economic History*, 1986, 15, 549–62; Clifford M. Foust, *Rhubarb. The Wondrous Drug* (Princeton: Princeton University Press, 1992). See below for details.

Wallis stresses the value of the history of the drug commerce for medical history arguing that the quantitative development of the import of medicinal drugs into a country could serve as a gauge of the development of the consumption of drugs there and, consequently, as an indication of the development of the country's medical services.¹³ His own study involves the import of exotic drugs from other continents into England but his observation is, no doubt, also true for the intra-European distribution of these medicines. Indeed, a weak spot in the knowledge of the use of exotic drugs in Europe concerns the development of the geographical and social spread of these substances. Research into the intra-European drugs trade in general and into the distribution of exotic drugs within Europe in particular would certainly contribute to the development of that knowledge.¹⁴

Conventional intra-European commercial history is not of much help here as it is overwhelmingly dominated by the study of the great staples—grain, timber, fish, wine, salt and textiles—and hardly mentions medicines at all.¹⁵ Wallis' article mentioned above, on 'England's drug trade' hardly tackles the problem either but is a better starting point. Wallis argues that imports of drugs into English expanded substantially in both the seventeenth and eighteenth centuries, that the increase in the seventeenth century was mainly absorbed by growing demand in the domestic market and that the continued increase during the eighteenth century coincided with a marked rise of re-export and was therefore driven by foreign demand. Consequently, the greatest growth of English drugs consumption occurred in the seventeenth century but had ended by 1700.¹⁶

Most imported drugs, according to Wallis, came to England from Asia and the Americas, either directly or via the Dutch Republic, which re-exported Asian drugs imported by the Dutch East India Company, and from southern European countries re-exporting imports from the Levant and South and Central America. Wallis does not mention or discuss the composition and the destinations of England's re-export of drugs. His analysis suggests that it gained momentum only by the end of the seventeenth century.¹⁷ If this is true and indicative of the re-export by other colonial powers, we may expect that European countries with no direct commercial links with Asia and America began to import drugs only in the late seventeenth century and, by implication, began to consume exotic drugs to a substantial extent only in the eighteenth century.

Foust's studies on rhubarb, too, provide useful stepping stones for the study of the internal European distribution of medicines.¹⁸ Foust shows that there were roughly three routes by which rhubarb, a popular cathartic in early modern Europe, came from China to Western Europe in the seventeenth century: via the Levant, via Cape of Good Hope and via Russia. The ancient Asian overland routes and the connected sea routes to the Levant were the oldest and were used for this purpose from at least the late Middle Ages.¹⁹ The Venetians shipped the merchandise further into Europe.²⁰ The sea route via

¹³Wallis, 'Exotic Drugs', 22–5, 28, 36–7.

¹⁴*Ibid.*

¹⁵See, for example, Jan Thomas Lindblad, *Sweden's Trade with the Dutch Republic 1738–1795* (Assen: Van Gorcum, 1982); Jonathan I. Israel, *Dutch Primacy in World Trade, 1585–1740* (Oxford: Oxford University Press, 1989); David Ormrod, *The Rise of Commercial Empires. England and the Netherlands in*

the Age of Mercantilism, 1650–1770 (Cambridge: Cambridge University Press, 2003).

¹⁶Wallis, 'Exotic Drugs', 22–5, 28, 36–7.

¹⁷*Ibid.*, 28, 32.

¹⁸Foust, 'Customs 3; Foust, *Rhubarb*.

¹⁹Foust, *Rhubarb*, 79.

²⁰John H. Parry, 'Transport and Trade Routes', in: E. E. Rich and C. H. Wilson eds, *The Cambridge Economic History of Europe*, IV, *The Economy of Expanding*

Cape of Good Hope had been used since its opening in about 1500.²¹ The way overland via Siberia and European Russia to the ports of Reval, Riga and, predominantly, Archangel and further across the sea was exploited from the beginning of the seventeenth century.²²

Foust's intriguing monograph on 'the wondrous drug' is—as far as figures are concerned—hard to follow and not very precise. He focuses his argument on the trade of London. Due to a lack of available sources he is almost silent about the rhubarb business of other parties, such as the Dutch—apart from their Russia trade—French, Danes and Swedes. He argues that relatively small quantities of rhubarb were imported into Britain throughout the seventeenth century and into the first three decades of the eighteenth century. Most of that rhubarb came via the Levant while only small quantities were shipped in via Cape of Good Hope with a brief flurry in the first decade of the eighteenth century. Direct imports of rhubarb from Russia to London probably did not occur before 1698 and after that only in small amounts into the 1720s.²³ Throughout the seventeenth century, export from Archangel was dominated by Dutch merchants, who sent the rhubarb mainly to Amsterdam, the hub from where it was distributed to the rest of Europe, including, in any case in the early eighteenth century, England.²⁴

The big change began in the early 1720s, when the rhubarb supply from the Levant suddenly ceased almost completely, perhaps as a consequence of the disruption of the Asian caravan route by regional political and military turmoil.²⁵ London's rhubarb imports were at a low ebb for a few years but picked up when the average annual amount of rhubarb imported into London directly from Russia jumped to nearly 9,500 pounds in the four years 1728–1731 and 4,500 pounds in the years 1732–1735.²⁶ By that time the rhubarb was no longer exported from Russia via old Archangel but, since about 1720, via newly-founded St Petersburg.²⁷ The London's rhubarb imports from Russia wilted after 1735 once again to almost nil but this interruption coincided with an increase of London rhubarb imports from the Dutch Republic to an annual average of about 2,500 pounds.²⁸ It may be assumed, as Foust reasons, that much of this was 'Russian' rhubarb. Apparently, the route of direct Russian rhubarb exports shifted from London to Amsterdam.²⁹

The increase of direct and indirect imports into London of Russian rhubarb coincided with a rapid rise of imports by the East India Company up to an annual average of 4,700 pounds in 1728–1731, after which it dropped to an annual average of over 1,000 pounds for the rest of 1730s.³⁰ This was just a modest foreboding of things to come, the

Europe in the Sixteenth and Seventeenth Centuries (Cambridge: Cambridge University Press, 1967), 155–219, 164.

²¹Rutten, *Dutch Transatlantic Medicine Trade*, 22; Foust, *Rhubarb*, 79.

²²Foust, *Rhubarb*, 46–7.

²³*Ibid.*, 51–2, 80–1, 85–90.

²⁴*Ibid.*, 46–7, 57, 85; Jan Willem Veluweekamp, *Archangel. Nederlandse ondernemers in Rusland, 1550–1785* (Amsterdam: Balans, 2000), 67–8.

²⁵Foust, *Rhubarb*, 87. Compare Jan Willem Veluweekamp and Joost Veenstra, 'Early Modern

English Merchant Colonies: Contexts and Functions', in Victor N. Zakharov, Gelina Harlaftis and Olga Katsiardi-Hering, eds, *Merchant Colonies in the Early Modern Period* (London: Pickering & Chatto, 2012) 11–30, 20.

²⁶Foust, *Rhubarb*, 56, 65, 87.

²⁷*Ibid.*, 56–7, 64; Veluweekamp, *Archangel*, 179–81.

²⁸Foust, *Rhubarb*, 56, 65, 87–8, but compare 64.

²⁹*Ibid.*, 64, 87–8.

³⁰*Ibid.*, 87. Foust's figures on pages 56 and 87 do not seem completely consistent.

beginning of 'rhubarb mania' and the rise of a mass market in Europe in the second half of the eighteenth century.³¹ Throughout the 1740s, the Company imported more than 10,000 pounds on average per year—almost 80 per cent of the total rhubarb imports.³² The rise continued and London imported an annual average of more than 18,000 pounds in the 1750s and double that amount in the 1760s. In the 1750s more than 93 per cent of rhubarb in London markets was supplied by the East India Company, the rest coming from Russia, the Dutch Republic—probably supplying Russian rhubarb—and the Levant. In the 1760s the East India Company's portion decreased to slightly over 80 per cent as direct Russian exports to London picked up, amounting to an annual average of 6,000 pounds (15 per cent of the total imports)—and 4,500 pounds between 1762 and 1780. The rest—Russian rhubarb, too—came from Amsterdam.³³

In the 1770s, London rhubarb imports suddenly declined to about 10,000 pounds per year on average, of which, again, 83 per cent was supplied by the East India Company and 16 per cent came from Russia.³⁴ More than 13,500 pounds a year on average were re-exported—evidently partly from the stockpiles accumulated in the preceding years. Holland and Flanders together took 40 per cent, German ports about 20 per cent and the Mediterranean, mainly Italy, 35 per cent. In the 1780s and 1790s London rhubarb imports seems to have picked up again to a level of about 40,000 pounds per year.³⁵

By the 1740s Great Britain re-exported about half of its rhubarb imports—mainly to the continent. The East India Company, Foust asserts, had become the leading rhubarb dealer of both Great Britain and the continent. In the 1750s Great Britain re-exported 73 per cent of its rhubarb imports—mainly to the Mediterranean markets and Holland and Flanders, and small quantities to the German lands and Ireland. In the 1760s re-export amounted to 63 per cent, mainly destined, again, to the Mediterranean countries and, more than half, to Amsterdam, which continued to be the leading distributor of rhubarb to Western Europe.³⁶

Some general conclusions from Foust's and Wallis' studies could be that Europe, or, at any rate, England, imported increasing quantities of exotic drugs throughout the seventeenth and eighteenth centuries. The import increases accelerated in the eighteenth century, apparently because it was only at that point in time that countries with no direct commercial links to Asia and America began to import drugs from countries that had those links. Both Foust's and Wallis' studies do not discuss the composition and the destinations of the re-export of exotic drugs in any detail. But they make it very evident that further quantitative research into the intra-European drug trade will make a valuable contribution to the study of medical and commercial history.

The Sound Toll Registers

One of the main sources available to study the intra-European drug trade are the Sound Toll Registers (STRs), which are kept at the Danish National Archives in Copenhagen and contain detailed records of the tolls levied by the king of Denmark in the town of Elsinore on ships passing through the Sound, the strait between Denmark and Sweden

³¹*Ibid.*, 91, 93–5.

³²*Ibid.*, 90, compare 69.

³³*Ibid.*, 75, 91–2.

³⁴*Ibid.*, 92, compare 75.

³⁵*Ibid.*, 93–4.

³⁶*Ibid.*, 91–2.

connecting the North and Baltic Seas.³⁷ Holding information on about 1.8 million passages executed between 1497 and 1857, when the toll was abolished, the STRs constitute one of the great sources of European commercial history.

Their size and detail make the STRs virtually impossible to handle; as a result they are hardly used. As a partial solution to this problem, in the first half of the twentieth century, Ellinger Bang and Korst published a monumental abridged version of the STRs, which is commonly known as the Sound Toll Tables (STT).³⁸ Since then, these seven large volumes of tabular summaries of STRs data have been used in most major studies of early modern European trade. Their enormous significance, however, should not conceal their shortcomings, which have been amply discussed in the historiography.³⁹ The STT only cover the years 1497–1783 and do not include the period 1784 to 1857. Data are presented only at a high level of aggregation; individual passages, shipmasters and cargoes have disappeared from sight.⁴⁰ Information on complete transport routes is missing, even though the STRs provide this information for every passage from 1669 onwards. Commodities are combined in arbitrary, often useless categories.⁴¹ As a result, the STT are useless as an instrument for the study of both the trade in individual medicines and the traffic of drugs in general.

Since 2009, the University of Groningen and Tresoar, the Frisian Historical and Literary Centre in Leeuwarden, have been engaged in a groundbreaking effort to make the STRs available for direct and easy use in an electronic database containing the complete data of all 1.8 million passages through the Sound. The database, Sound Toll Registers Online, or STRO, is instantly accessible for all via the internet: www.soundtoll.nl.⁴²

Of course, both the STRs and STRO may not be used uncritically. As always, the researcher must be aware of the limitations of the source.⁴³ First, there were other routes to the Baltic, including the Little Belt, the Great Belt, overland routes, the route to Russia via North Cape and, from 1784 on, the Schleswig-Holstein Canal. Individually, each of these routes may not have offered a serious alternative for the Sound, but taken together they should not be omitted. Traffic through the Little Belt is largely unknown, but seems

³⁷For a more extensive source criticism of the Sound Toll Registers, the Sound Toll Tables, and Sound Toll Registers Online, see: Jan Willem Veluwenkamp, 'Die "Sound Toll Registers Online" als Instrument für die Erforschung des frühneuzeitlichen Ostseehandels', in Peter Rauscher and Andrea Serles, eds, *Wiegen—Zählen—Registrieren. Handelsgeschichtliche Massenquellen und die Erforschung mitteleuropäischer Märkte (13–18. Jahrhundert)* (Innsbruck, Wien, Bozen: StudienVerlag, 2015), 365–84; Maarten Draper and Jan Willem Veluwenkamp, 'Sound Toll Registers Online and the Eighteenth Century Baltic Coffee Commerce', *Groniek*, 2014, 200, 279–94; Werner Scheltjens and Jan Willem Veluwenkamp, 'Sound Toll Registers Online. Introduction and first Research Examples', *International Journal of Maritime History*, 2012, 24, 301–30.

³⁸Nina Ellinger Bang and Knud Korst, *Tabeller over skibsfart og vaertransport gennem Oeresund 1497–1783*, 7 vols (Copenhagen and Leipzig: Gyldendal, Nordisk Forlag and Harrassowitz, 1906–1953).

³⁹See, e.g., Erik Gøbel, 'The Sound Toll Registers Online Project, 1497–1857', *International Journal of Maritime History*, 2010, 22, 305–324; Pierre Jeannin, 'Les comptes du Sund comme source pour la construction d'indices généraux de l'activité économique en Europe (XVIe–XVIIe siècle)', in Pierre Jeannine, ed., *Marchands du Nord: Espaces et trafics à l'époque moderne* (Paris: Presses de l'École Normale Supérieure, 1996) 1–62.

⁴⁰Gøbel, 'The Sound Toll Registers', 321.

⁴¹Jeannin, 'Les comptes du Sund', 9–10.

⁴²For more information about STRO see Gøbel, 'The Sound Toll Registers'; Scheltjens and Veluwenkamp, 'Sound Toll Registers Online', 301–30.

⁴³Gøbel, 'The Sound Toll Registers', 319–21; Jeannin, 'Les comptes du Sund', 4–6, 12, 21, 33, 37–40; Milja van Tielhof, *The 'Mother of all Trades': The Baltic Grain Trade in Amsterdam from the Late 16th to the Early 19th Century* (Leiden, Boston, Cologne: Brill, 2002), 42.

to have been significant only for local transport.⁴⁴ The Great Belt was used only by a minor regional group of shipmasters predominantly connecting Lübeck and Rostock with Danish and Norwegian ports. Like the Little Belt, it was much harder to navigate than the Sound while the same toll tariffs were applied in both straits.⁴⁵ Overland routes to the Baltic Sea area were only relevant for the transportation of low-volume and high-value commodities.⁴⁶ The Schleswig-Holstein Canal between Tönning on the North Sea and Kiel on the Baltic was opened in 1784, but it never attracted a lot of traffic, because only small ships could pass through it.⁴⁷ Lastly, the sea route to Russia via the White Sea port of Archangel was the main gateway to Russia during the long seventeenth century, when Russia had been pushed back from the Baltic coast by the Swedes. Archangel was the preferred alternative for Russia's transit trade via the Swedish and other possessions lying between the Baltic Sea and Russia. Vital as it was to Russia, it usually involved well below 10 per cent of the Sound traffic.⁴⁸

The second issue regarding the reliability of the STRs involves fraud. It is widely accepted that all ships passing the Sound in the years covered by the STRs are recorded in it.⁴⁹ But shipmasters certainly evaded payment of the total toll due by making false declarations of the commodities carried on board. Comparisons with other sources, especially customs accounts of individual ports, which suffer from the same issue of reliability, has shown that the information on cargoes in the STRs is generally correct but not complete.⁵⁰ In particular, small volumes of expensive commodities were always subject to fraud.⁵¹

A third reason for handling the STRs with care lies in the toll exemption that was applied throughout to Danish ships and goods and Swedish vessels and commodities between 1650 and, practically, 1710.⁵²

Alternative routes, fraud and exemptions cannot alter the fact that the STRs are a great source for trade and transport. Even to the highly critical historian, they are a very rich starting point for the analysis of European trade and transport in the period they cover.⁵³

Despite all its general merits it remains to be seen to what extent the STRs are a reliable source for studying the movement of drugs. Medicines may generally be regarded as low-weight, low-volume and expensive commodities and therefore may have been transported to the Baltic Sea area overland and may have been smuggled through the Sound. It is therefore, almost by definition, hard to assess to what extent this happened, but Foust's fine article on 'Russian rhubarb' published in 1986 and referred to in the previous section of the article may serve as a starting point to find out if the STRs can be used as a source for the study of Baltic drugs traffic at all.⁵⁴ Foust compares figures from—among other places—two separate sources for the rhubarb traffic between St Petersburg and London in the period 1753–1804. The first source involves the British *Inspector General's*

⁴⁴Gøbel, 'The Sound Toll Registers, 319–20—Gøbel mentions that toll registers of the Little Belt have been preserved for the years 1816–1857; Jeannin, 'Les comptes du Sund', 12.

⁴⁵Gøbel, 'The Sound Toll Registers', 319; Jeannin, 'Les comptes du Sund', 12.

⁴⁶Jeannin, 'Les comptes du Sund', 4, 6, 12.

⁴⁷Gøbel, 'The Sound Toll Registers', 319–20.

⁴⁸Jeannin, 'Les comptes du Sund', 4–5.

⁴⁹Gøbel, 'The Sound Toll Registers Online', 319.

⁵⁰*Ibid.*, 320–1.

⁵¹Jeannin, 'Les comptes du Sund', 21, 33, 37–9; Van Tielhof, *The 'Mother of all Trades'*, 42.

⁵²*Ibid.*, 39–40.

⁵³Gøbel, 'The Sound Toll Registers', 319; Jan Willem Veluwenkamp, *Sound Toll Registers: Concise Source Criticism*, www.soundtoll.nl (2011), 3.

⁵⁴Foust, 'Customs 3'.

Ledgers of Imports and Exports for the years 1697–1780 (Customs 3). The other source is a list published by Joshua Jepson Oddy, a member of the British Russia and Levant Companies and is most likely based on the customs ledger books of St Petersburg which do not seem to have survived. The relevant figures are included here in [Figure 1](#) which is basically a repetition of the graph that Foust presents.⁵⁵ With Foust we observe that both time series all but coincide, except for the year 1765. Foust discusses the 1765 difference at length and concludes that the high British figure must be right and that—‘wild speculation’—Oddy’s low figure could be the result of a ‘scribal error in a single digit in the original Russian customs register’.⁵⁶

To test the reliability of the STRs with respect to the drugs traffic, we may now assess the volume of the rhubarb traffic from St Petersburg to London in the period 1753–1780 as recorded in the STRs ([Table 1](#)) and compare them with the figures presented by Foust and included in graph 1.⁵⁷ The comparison is presented in [Figure 2](#), where two things stand out.

⁵⁵*Ibid.*, 549, 554–7, 559, 561.

⁵⁶*Ibid.*, 561.

⁵⁷We downloaded the passages and cargoes tables from www.soundtoll.nl on 25–27 June 2013 and worked with that database to produce the relevant graphs and tables in this article. The database includes all passages and cargoes of the period 1670–1856. We first standardised all variants of the designations for rhubarb and sarsaparilla. Subsequently, for all records involving rhubarb and sarsaparilla, we standardised the names of the ports of departure and destination. The conversion of the original measures into metric tons demanded additional scrutiny. The quantities of rhubarb and sarsaparilla are usually measured in pounds in the STRs. We equate a pound of rhubarb shipped from St Petersburg to London, for example, with 0.4094 kilogram, and a pound of Sarsaparilla shipped from Boston to St Petersburg with 0.45355 kilogram. We used the following method to realize this. Cargo items in the Sound were registered on the basis of freight letters. The toll officials translated cargo items and their measures into Danish, copied registered quantities and calculated the customs amount due separately for each cargo item. The customs were calculated according to a number of rules described in various customs treaties, but there is no mention of any conversion of weights and measures used in the freight letters to local (Danish) equivalents. On the contrary, several tax treaties indicate that the measure of goods upon which custom payments are due is that of the place where the good had been loaded. This means that the registered point of departure of the ship is the point of reference for establishing the metric equivalents of the weights and measures declared at the Sound customs office. Conversion of STRO data into metric equivalents was achieved by converting combinations of good, measure and port

of departure of the good. The original ‘raw’ data of the STRO were prepared accordingly. The amount of variation in the ‘raw’ data was reduced by means of a process of homogenisation; complex cargo descriptions in STRO were simplified by dividing them into their constituent parts, with the isolation of the main product denominator as its aim. The homogenisation of weights and measures and of quantities in the ‘raw’ STRO data was dealt with in a similar way. In the case of quantities, descriptions written in full text, roman numbers, fractions or a combination of these, were converted to their decimal equivalent. Any variations in the weights and measures were removed via a dual process. First, variant spellings were homogenised; then, denominations of equivalent weights and measures in different languages were linked with each other. The process of adding metric equivalents to all product–measure–origin combinations in the STRO data consisted of several consecutive matching procedures between STRO and the metric data in Horace Doursther, *Dictionnaire universel des poids et mesures anciens et modernes* (Antwerp 1840). The consecutive matching procedures were: Boolean matching; matching based on identical measure and location, with product similarity (using type of good as matching category); matching based on identical measure and product, with geographical similarity (using region as matching category); matching based on an identical measure, with location selected according to a predefined set of rules and product specifications either missing, similar or considered irrelevant; matching based on measurement similarity; standardization and conversion of non-weights and non-measures. With regard to the latter, certain results are clearly open to debate, since they require specialist knowledge that has proven to be extremely hard to find.

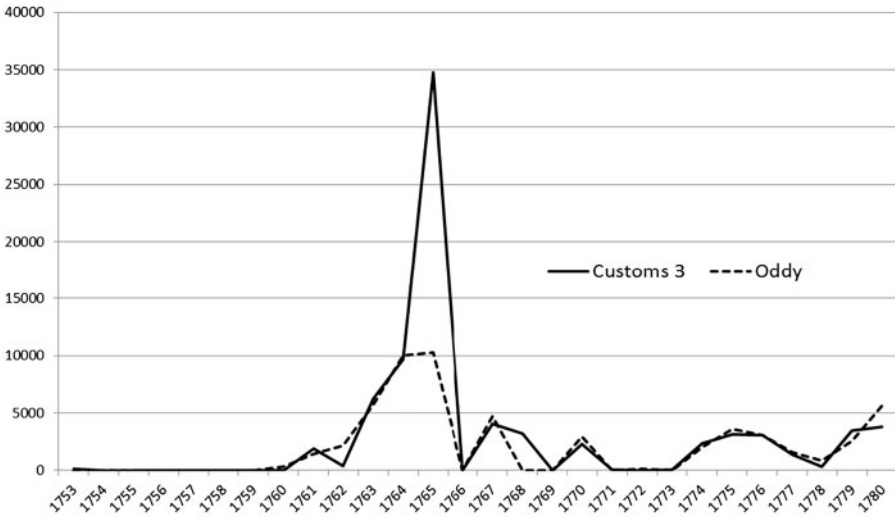


Fig. 1. Volumes of rhubarb exported from St Petersburg to London (Oddy) and imported in London from St Petersburg (Customs 3), 1753–1780, in pounds avoirdupois.

Source: Foust, ‘Customs 3’, 556–7.

Table 1. Volumes of rhubarb passing through the Sound from St Petersburg to London, 1753–1780, in pounds avoirdupois

Year	Year	Year
1753	1762	1771
1754	1763	1772
1755	1764	1773
1756	1765	1774
1757	1766	1775
1758	1767	1776
1759	1768	1777
1760	1769	1778
1761	1770	1779
		1780

Source: www.soundtoll.nl (see note 57).

First, Foust’s feeling that the Customs 3 figure for 1765 is correct and Oddy’s figure is wrong seems to be confirmed by the Danish figure. Second, all three time series tally very nicely. It seems safe to conclude that the STRs figures as extracted from STRO are—making due allowance for all necessary source criticism—reliable for the study of the rhubarb traffic through the Sound. By extension, it may be maintained that the STRs can give an indication of the development of the transport of other drugs, too. This does not mean that the figures presented here reflect all rhubarb traffic. The correspondence of the three time series does not prove that there was no fraud. It is conceivable that all figures are based on the same bills of lading or other commercial papers. Moreover, the extent

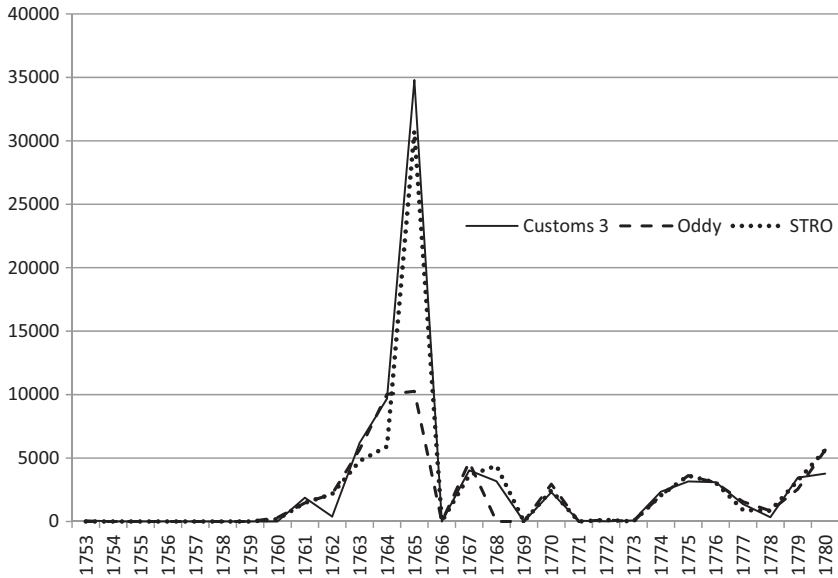


Fig. 2. Volumes of rhubarb exported from St Petersburg to London (Oddy), passing the Sound, departing from St Petersburg and destined to London (STRO) and imported in London from St Petersburg (Customs 3), 1753–1780, in pounds avoirdupois.

Sources: Foust, 'Customs 3', 556–7 for Customs 3 and Oddy; Table 1 for STRO.

to which rhubarb was transported overland remains unknown. The same reservations must be applied when analysing STRs figures for the traffic in other medicines.

The Baltic Drug Traffic

With all this in mind, STRO would indeed allow us to scrutinise the development of the size and the structure of the export and import of medicinal drugs by the Baltic Sea countries—to the extent that they were transported via the Sound—and to test the assumption that European countries with no or little direct commercial links with Asia and America began to import drugs only in the late seventeenth century and, by implication, began to consume exotic drugs to a substantial extent only in the eighteenth century. To keep this endeavour to a manageable size, we limit the analysis to china root, sarsaparilla, rhubarb, senna and benjamin. These five stand out among the drugs imported into England in the greatest quantities, measured by value as listed by Wallis; they are the ones which occurred in at least six of the eight periods between 1566 and 1774 Wallis distinguishes.⁵⁸

China root is generally identified as the dried root of a creeper known as *smilax chinensis*. It was imported from China and applied in Europe as a medicine to treat syphilis throughout the sixteenth, seventeenth and early eighteenth centuries.⁵⁹ Import into

⁵⁸Wallis, 'Exotic Drugs,' 31.

⁵⁹Winterbottom, 'Of the China Root', 23, 36; Harold J. Cook and Timothy D. Walker, 'Circulation of

Medicine in the Early Modern Atlantic World', *Social History of Medicine*, 2013, 26, 337–51, 340; Rutten, *Dutch Transatlantic Medicine Trade*, 47, 92; Denis

Europe and, by implication, its medicinal use, had virtually ceased by the beginning of the nineteenth century.⁶⁰

Sarsaparilla is generally considered to be the dried root of several vines of the genus *smilax* indigenous to Middle America, akin to China root. It was imported into Europe from the West Indies throughout the early modern period.⁶¹ It was used within Europe as a medicine to cure syphilis and rheumatism and as a blood purifier.⁶² Sarsaparilla was a sought-after alternative for China root and had superseded it in England by the mid-eighteenth century and probably displaced it on the continent, too, by the nineteenth century.⁶³

Rhubarb involves the dried roots and rhizomes of *rheum officinale*, a rhubarb variant the highest quality of which was grown in China. In Europe, processed to a powder, it was a sought-after and very expensive effective but mild cathartic for the treatment of many afflictions.⁶⁴

Senna was a purgative prepared from the leaves of *cassia acutifolia* and *cassia angustifolia*.⁶⁵ The currently accepted name of both species is *senna alexandrina*, indicating a perennial non-climbing shrub.⁶⁶ The *cassia acutifolia* senna came from the upper Nile territories and was shipped to Europe via Alexandria.⁶⁷ The *cassia angustifolia* senna originated from Somalia, the Arabian peninsula and South India.⁶⁸ It came to Europe probably via the Cape of Good Hope.

Benjamin or benzoin was the fragrant resin of *styrax tonkinensis* and *styrax benzoin*, grown, respectively, in Thailand and Java and Sumatra. Due to its apparently antibiotic qualities, it may have been used to treat bronchitis. It was also used as a perfume.⁶⁹

Before we dive again into the STRs we should have a closer look at the historiography on the matter which, as mentioned above, does pay some attention to the import of medicinal drugs from Asia and America into Europe but barely touches upon the intra-European drugs trade. Discussions of the foreign trade of the Baltic Sea countries hardly mention the 'Wallis five'. The seventeenth-century pound-toll registers of Elbing as published by Thomas Lindblad do not mention any of the drugs listed by Wallis, including

Leigh, 'Medicine, the City and China', *Medical History*, 1974, 18, 51–67, 56. Chinaroot is *smilax china* according to www.henriettesherbal.com. Winterbottom, 'Of the China Root', discusses the problematic identification of China root with individual species.

⁶⁰Borschberg, 'The Euro-Asian Trade', 104.

⁶¹Cook and Walker, 'Circulation of Medicine,' 340; Rutten, *Dutch Transatlantic Medicine Trade*, 21, 28, 38, 53, 58, 60, 113, 120; Winterbottom, 'Of the China Root,' discusses the problematic identification of Sarsaparilla with individual species.

⁶²Timothy D. Walker, 'The Medicines Trade in the Portuguese Atlantic World: Acquisition and Dissemination of Healing Knowledge from Brazil (c. 1580–1800)', *Social History of Medicine*, 2013, 26, 403–31, 430; Rutten, *Dutch Transatlantic Medicine Trade*, 19, 22, 36, 120.

⁶³Winterbottom, 'Of the China Root', 39–40.

⁶⁴Parry, 'Transport,' 164; G. B. Masefield, 'Crops and livestock', in E. E. Rich and C. H. Wilson eds, *The*

Cambridge Economic History of Europe, IV, *The Economy of Expanding Europe in the Sixteenth and Seventeenth Centuries* (Cambridge: Cambridge University Press, 1967) 275–301, 275; Foust, *Rhubarb*, xv, 4–5, 14, 16–17.

⁶⁵'Senna', in *Encyclopaedia Britannica* (9th edn, Edinburgh: A & C Black, 1886); Rutten, *Dutch Transatlantic Medicine Trade*, 36, 54.

⁶⁶<<http://www.ildis.org>>, accessed 8 October 2015.

⁶⁷'Senna', in *Encyclopaedia Britannica*; 'Senna', in *Chambers's Encyclopaedia* (new edn, London: George Newnes, 1959); Rutten, *Dutch Transatlantic Medicine Trade*, 36, 54.

⁶⁸'Senna', in *Encyclopaedia Britannica*; 'Senna', in *Chambers's Encyclopaedia*.

⁶⁹'Bejoin', in *La Grande Encyclopédie* (Paris: H. Lamirault, 1886–1902); *Nederlandsche reizen tot bevordering van den koophandel*, volume 1 (Amsterdam: Petrus Conradi, 1784), 303–4; <<http://en.wikipedia.org/wiki/Styrax>>, accessed 8 October 2015.

sarsaparilla, china root, rhubarb, senna and benjamin. Nor do these registers include any commodities which might be associated directly with drugs. Only the sundry categories of 'kramerey' and 'kaufmanschaft' might have included medicines.⁷⁰ Arnold Soom has used the Reval records of duty payments to analyse the town's export to and import from Western Europe in the seventeenth century. These registers include medicinal drugs much more decisively.⁷¹ Commodities that may be identified as medicinal drugs were not exported from Reval but they certainly appear among the town's imports. Soom does not provide any relevant time series but briefly touches on the import of the small category of 'pharmacist wares, dyes and chemicals'. He observes that individual medicinal drugs as 'Galgant', 'Zitfer Saat und wurzeln', 'Violen Wurzeln', 'Scheidewasser', 'Driakel' and 'Jeres Wurzeln' are seldom mentioned in the toll registers. Medicines were usually hidden in categories as 'Apothekereien und Materialien', 'trockene Kreuter', 'Balbirer Sachen und medicamenten' and 'Drogereyen, Farbereyen und Apothekereyen'.⁷² Soom does not discuss the broad categories of pedlary and general merchandise and is silent on the question of whether these categories do or do not occur in the Reval toll registers. He only mentions 'Riselse Krämerei', which he identifies as textile pedlary of the town of Lille.⁷³ We may conclude that in the Reval toll registers individual medicinal drugs are only sparsely mentioned in the seventeenth century and usually included in broader categories of commodities. Reval clearly imported drugs in the seventeenth century but nothing decisive can be said about the volume, the composition and the development of this business. This conclusion remains unaffected by the evidence produced by Foust and Kotilaine. As mentioned above, Foust points out that Russia exported rhubarb overland to Reval and Riga from the beginning of the seventeenth century. And Kotilaine shows that the Reval and Narva transit trade in the middle of the seventeenth century included imports of rhubarb from Russia—apparently over land from Moscow, Novgorod and Pskov.⁷⁴ This suggests that rhubarb was consumed in Narva, Reval, Riga and—by extension—Estonia and Livonia and may have been re-exported to other Baltic Sea destinations. But we do not know how large and regular this consumption and the related trade were.

On the admittedly narrow basis of the literature on Elbing, Reval—and although there is even less documentation—Narva and Riga, it may be concluded that Baltic Sea countries with no direct commercial links with Asia and America did import exotic drugs in the seventeenth century but that it seems unlikely that this happened in significant quantities. There are, in any case, hardly any drugs visible in the relevant sources.

⁷⁰Jan Thomas Lindblad and Fredrik C. Dufour-Briët, *Dutch Entries in the Pound-Toll Registers of Elbing 1585–1700* (Den Haag: Instituut voor Nederlandse Geschiedenis, 1995) at <www.historici.nl>, accessed 8 October 2015 > Bronnen > Pondtolregisters Elbing 1585–1700, 493–498.

⁷¹Arnold Soom, *Der Handel Revels im Siebzehnten Jahrhundert* (Wiesbaden: Otto Harrassowitz, 1969), 25–45.

⁷²*Ibid.*, 43.

⁷³*Ibid.*, 38, 43.

⁷⁴Jarmo T. Kotilaine, *Russia's Foreign Trade and Economic Expansion in the Seventeenth Century. Windows on the World* (Leiden and Boston: Brill, 2005), 317–20.

The same observation is true for eighteenth-century Sweden. Lindblad analyses Sweden's imports in great detail for the years 1738, 1765 and 1792 on the basis of contemporary official Swedish statistics. Among the Swedish imports, the value of the category of 'oils and drugs' amounted to less than 5 per cent while that category was heavily dominated by vegetable oils such as linseed-oil. Of the Wallis five, only senna was registered with a tiny total value varying from 39 to 108 rix-dollars per year (about 0.1 promille of the total import value).⁷⁵ The famous Swedish botanist Carl Linnaeus (1707–1778) may have advocated the production of exotic herbal medicines like opium and rhubarb at home but this Cameralist inclination can hardly have been a reaction to any large-scale Swedish importing and consumption of these drugs.⁷⁶

Accepting the reliability of the STRs, we may explore its potential for the study of the Baltic drugs traffic and assess how volumes of the Wallis five transported through the Sound developed. It turns out that only sarsaparilla and rhubarb occur regularly in the STRO, 1124 and 915 times respectively in the period 1670–1849. Benjamin (as *benzoin*), china root (as *radix chinae*) and senna barely appear. This can hardly be attributed to the possibility that these commodities may be found under alternative designations in the STRs. *Chinawurzel*, *pockenwurzel* and their variants, names under which china root was also known, are absent in the STRs too.⁷⁷ Senna's modern scientific names, *cassia acutifolia* and *cassia angustifolia* do not appear either. *Cas(s)ia fistula* and *cas(s)ia lignea* do appear, but they are not the shrub *senna alexandrina* and, therefore, are not senna. *Cassia fistula* is a tree native to Southeast Asia that grows to ten meters tall and is today commonly known as 'golden shower'.⁷⁸ Its legumes were used to prepare a laxative in the early modern period, and still are today.⁷⁹ *Cassia lignea* is the bark of *cinnamomum aromaticum*, which is also called *cinnamomum cassia*, a medium-sized tree cultivated in tropical and subtropical South and Southeast Asia, the dried bark of which is used as a cinnamon-like spice.⁸⁰

The virtual absence of senna, benjamin and china root may be theoretically explained in several ways. First, these commodities may have been registered after all—under names we have not yet identified. Secondly, their absence may reflect an actual situation, as they might have passed through the Sound only very rarely. In that case either there was very little relevant Baltic traffic or it was carried out via overland routes. Thirdly, their absence may obscure an other situation where there was substantial traffic through the Sound but where the commodities mentioned were not recorded at all or were included in general terms such as 'medikamenten' and 'medicin(alien)' (medicines), 'drogerien' (drugs), 'apotekerveren' (pharmacist wares) or even—less likely—'kramery' (pedlary) and

⁷⁵Lindblad, *Sweden's Trade*, 64, 156.

⁷⁶On Linnaeus' relevant ideas see Lisbet Koerner, *Linnaeus: Nature and Nation* (Cambridge, MA, and London: Harvard University Press, 1999) in particular 2 and 128–9.

⁷⁷For the alternative designations, including *radix chinae*, see Borschberg, 'The Euro-Asian Trade', 103.

⁷⁸<<http://www.ntbg.org>>, accessed 8 October 2015.

⁷⁹VOC glossary at <<http://resources.huygens.knaw.nl/pdf/vocglossarium/VOCGlossarium.pdf>>; <http://www.ntbg.org>>, accessed 8 October 2015.

⁸⁰J. Seidemann, 'Beitrag zur mikroskopischen Untersuchung der Rinde von *Cassia lignea*', *Zeitschrift für Lebensmittel-Untersuchung und Forschung*, 1961, 116, 24–6, 24; *Flora of China* at <<http://www.efloras.org>; http://en.wikipedia.org/wiki/Cinnamomum_cassia>, accessed 8 October 2015; VOC glossary at <<http://resources.huygens.knaw.nl/pdf/vocglossarium/VOCGlossarium.pdf>>; http://en.wikipedia.org/wiki/Cinnamomum_cassia>, accessed 8 October 2015.

'købmandskab' (general merchandise). Provisionally, we would suppose that senna, benjamin and china root passed the Sound very rarely. There seems to be no reason why rhubarb and sarsaparilla would have been transported through the Sound and explicitly registered in Elsinore while other drugs passing in comparable volumes were not.

The Baltic Rhubarb Traffic

The STRs do enable us to expand the statistics Foust provides on the rhubarb traffic. [Table 2](#) and [Figure 3](#) make clear that the east to west rhubarb flow through the Sound showed hesitant and intermittent beginnings from 1681 and picked suddenly up in the late 1720s.

From that point onwards and throughout the first half of the nineteenth century the flow usually oscillated between zero and five tons annually with an increasing trend and peaks far exceeding that general level in 1729, 1764–1765 and 1839. More than 90 per cent of the rhubarb was shipped from St Petersburg, founded during the Great Northern War (1700–1721), while more than half of the rest had been loaded in Riga—predominantly after it had become a Russian port in that same war. The remainder came from eleven other ports. The main destinations were London (66 per cent) and—mostly in the 1720s, 1730s and 1760s—Amsterdam (27 per cent), the remaining 7 per cent being distributed among 47 other ports. Accordingly, the main routes along which rhubarb was shipped westward through the Sound went from St Petersburg to London (65 per cent) and Amsterdam (20 per cent) ([Table 3](#) and [Figure 4](#)).

All this seems to be in line with some important notions that have been put forward by Foust. The rhubarb coming westward through the Sound was almost exclusively Russian re-export after this had been redirected from Archangel to St Petersburg following the Peace of Nystad of 1721. Initially, the St Petersburg re-export was predominantly directed to Amsterdam just as the Archangel re-export had been before the war. Only after the middle of the eighteenth century did London gain structural importance and replace Amsterdam as the dominant destination.

The eastward counter flow of rhubarb through the Sound was relatively small but not negligible, amounting to about 13 per cent of the total volume of the westward flow. It gained significance in the middle of the eighteenth century and reached its highest volume mainly in the 1780s and 1790s, more or less matching the westward flow from 1787 to 1804 ([Table 2](#) and [Figures 3](#) and [5](#)). Overall, most rhubarb transported eastward through the Sound was destined for Stettin (36 per cent), a proportion to Copenhagen, Königsberg, St Petersburg, Stockholm and Danzig (in that order, together 56 per cent) and the rest (9 per cent) to 24 different places ([Table 4](#)).

The rhubarb drug had been shipped mainly from London (68 per cent) and to a much lesser degree from Gothenburg (18 per cent)—the rest coming from 15 other ports ([Table 5](#)).

Accordingly, the main routes which rhubarb followed eastward through the Sound were those from London to Stettin (36 per cent), from London to Copenhagen, Königsberg and Danzig (together 20 per cent) and from Gothenburg to Stockholm (9 per cent) ([Table 6](#) and [Figure 5](#)). The 57 other routes—the 'rest to rest'—amounted 35 per cent.

Table 2. Total volumes of rhubarb passing through the Sound eastward and westward, 1681–1849, in tons

Year	E-W	W-E	Year	E-W	W-E	Year	E-W	W-E	year	E-W	W-E
1681	0.123	0	1723	1.570	0	1765	18.521	0	1807	0.917	0.085
1682	0	0	1724	0	0	1766	0	0	1808	0	0
1683	0.381	0	1725	0	0	1767	4.265	0.133	1809	0	0
1684	0.205	0	1726	0	0	1768	2.022	0.094	1810	0.046	0
1685	0	0	1727	0	0	1769	0.112	0.088	1811	0	0.058
1686	0	0	1728	4.460	0	1770	1.181	0.087	1812	0	0
1687	0	0	1729	25.068	0	1771	0	0.051	1813	0	0.050
1688	0	0	1730	7.218	0	1772	0.055	0.200	1814	0.129	1.126
1689	0	0	1731	4.702	0	1773	0.033	0.005	1815	0.338	0.015
1690	0	0	1732	0	0	1774	0.934	0.161	1816	3.243	0.056
1691	0	0	1733	0.614	0	1775	0	0	1817	0.311	0.081
1692	0	0	1734	0.505	0	1776	1.391	0.0614	1818	2.801	0.314
1693	0	0	1735	2.343	0	1777	0.701	0.0424	1819	0.575	0.067
1694	0	0	1736	1.740	0	1778	0.382	0.4396	1820	3.424	0.037
1695	0	0	1737	0.491	0	1779	1.602	0.0042	1821	2.769	0.441
1696	0	0	1738	2.795	0	1780	3.385	0.1213	1822	2.895	0.124
1697	0.050	0	1739	1.474	0.021	1781	3.152	0.3043	1823	2.500	0.128
1698	0.175	0	1740	0.620	0	1782	1.785	0.0827	1824	0	0
1699	0	0	1741	0	0.021	1783	3.509	0	1825	2.489	0
1700	0	0	1742	0	0	1784	0.002	0.306	1826	0.057	0.167
1701	0	0	1743	0	0	1785	0.521	0.097	1827	1.175	0.057
1702	0	0	1744	0	0	1786	1.619	0.349	1828	1.650	0.298
1703	0	0	1745	0	0	1787	4.277	1.704	1829	7.115	0.197
1704	0	0	1746	2.436	0	1788	0.870	1.587	1830	0.083	0.132
1705	0	0	1747	0	0	1789	1.344	1.386	1831	3.534	0.376
1706	0	0	1748	0	0.017	1790	0.816	1.022	1832	0.252	0.347
1707	0	0	1749	1.275	0	1791	1.858	0.453	1833	3.653	0.124
1708	0.085	0	1750	0	0	1792	0.547	0.622	1834	3.279	0.851
1709	0	0	1751	1.007	0	1793	0.246	0.186	1835	4.950	0.094
1710	0	0	1752	0.328	0.059	1794	0.204	0.289	1836	4.437	0.122
1711	0.601	0.138	1753	0	0.108	1795	0.364	0.283	1837	2.779	0
1712	0	0	1754	0.004	0.021	1796	1.411	3.655	1838	0.165	0.062
1713	0.042	0	1755	0	0.021	1797	0.538	2.486	1839	26.706	0.237
1714	0	0	1756	0	0.008	1798	4.268	1.616	1840	3.691	0.180
1715	0	0	1757	0	0.060	1799	1.404	0.071	1841	1.232	0.067
1716	0.164	0	1758	0	0.017	1800	0.007	0.107	1842	1.602	0.119
1717	0	0	1759	0	0	1801	0	0.118	1843	4.005	0.858
1718	0	0	1760	0.082	0.008	1802	0.692	0.301	1844	1.367	1.066
1719	0	0	1761	0.706	0.169	1803	1.411	0.026	1845	1.566	0.891
1720	0	0	1762	1.148	0.158	1804	1.426	1.332	1846	1.511	0.351
1721	0	0	1763	3.586	0.234	1805	1.403	0.142	1847	1.998	0.079
1722	0	0	1764	13.499	2.039	1806	1.026	0.530	1848	4.056	0.780
									1849	8.374	0.687

Source: www.soundtoll.nl (see note 57).

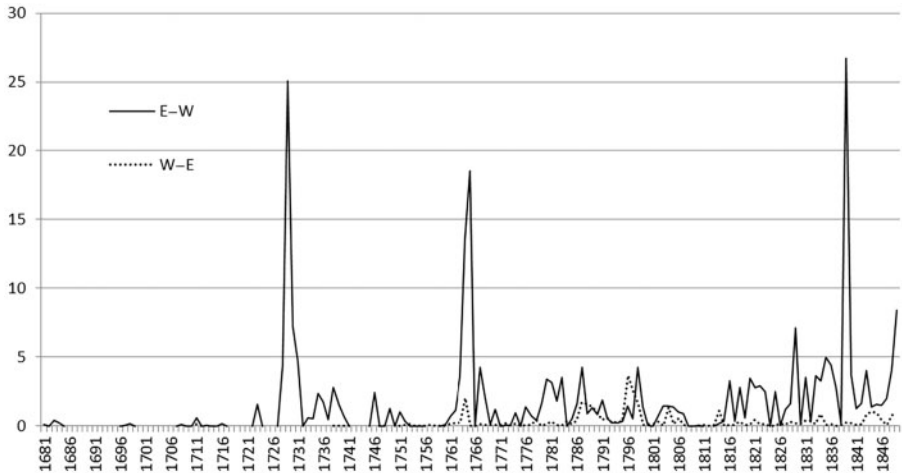


Fig. 3. Total volumes of rhubarb passing through the Sound eastward and westward, 1681–1849, in tons. Source: Table 2.

The London to St Petersburg and New York to Copenhagen routes stand out in the rest-to-rest category, of which, taken together, they constitute almost one half (47 per cent). These two routes, nevertheless, appear in only a few isolated years—London–St Petersburg mainly in 1764, New York–Copenhagen only in 1796.⁸¹

One might be tempted to conclude from the combination of data of the westward and the eastward flows through the Sound that rhubarb arrived in the Baltic Sea area only after the Archangel epoch, that is from the 1720s, and that hardly any rhubarb reached the area before that. After all, it was only from the 1720s did Russia begin to export rhubarb westward via the Sound, while significant quantities of rhubarb were not shipped eastward through the Sound until the 1750s onwards. We have, however, already seen that some Baltic Sea ports—Reval, Narva, Riga—imported rhubarb overland from Russia long before that, in the seventeenth century. It seems very likely that these ports re-exported the drug to other Baltic Sea ports and that this transit and distribution business would have been concentrated in St Petersburg and to a much lesser extent in Riga after the Great Northern War. The Sound Toll Registers are silent about trade and shipping within the Baltic Sea area. It will remain impossible to make firm assessments about the volume of that business before relevant information has been extracted from other sources.

To summarise, we may conclude that rhubarb arrived overland from the east to at least some Baltic Sea ports throughout the seventeenth and eighteenth centuries and that these ports probably re-exported it to other Baltic Sea ports. From the 1750s rhubarb began to be shipped to non-Russian Baltic Sea ports via the Sound. This was most likely an additional flow.

⁸¹Source: www.soundtoll.nl (see note 57).

Table 3. Main westward rhuubarb routes through the Sound, 1681–1849, in tons

Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward	Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward	Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward
1681	0	0	0.123	1737	0	0.491	0	1793	0.229	0	0.017
1682	0	0	0	1738	0	2.795	0	1794	0.196	0	0.008
1683	0	0	0.381	1739	0	1.474	0	1795	0.354	0	0.010
1684	0	0	0.205	1740	0	0	0.620	1796	1.365	0	0.046
1685	0	0	0	1741	0	0	0	1797	0.452	0.082	0.004
1686	0	0	0	1742	0	0	0	1798	4.029	0.100	0.139
1687	0	0	0	1743	0	0	0	1799	1.404	0	0
1688	0	0	0	1744	0	0	0	1800	0	0	0.007
1689	0	0	0	1745	0	0	0	1801	0	0	0
1690	0	0	0	1746	0.642	1.310	0.483	1802	0.327	0	0.365
1691	0	0	0	1747	0	0	0	1803	0.751	0.655	0.005
1692	0	0	0	1748	0	0	0	1804	1.310	0	0.117
1693	0	0	0	1749	0	0.368	0.907	1805	1.236	0	0.166
1694	0	0	0	1750	0	0	0	1806	0.985	0	0.041
1695	0	0	0	1751	1.007	0	0	1807	0.917	0	0
1696	0	0	0	1752	0	0.328	0	1808	0	0	0
1697	0	0	0.050	1753	0	0	0	1809	0	0	0
1698	0	0	0.175	1754	0	0	0.004	1810	0	0	0.046
1699	0	0	0	1755	0	0	0	1811	0	0	0
1700	0	0	0	1756	0	0	0	1812	0	0	0
1701	0	0	0	1757	0	0	0	1813	0	0	0
1702	0	0	0	1758	0	0	0	1814	0	0	0.129
1703	0	0	0	1759	0	0	0	1815	0	0.098	0.239
1704	0	0	0	1760	0.082	0	0	1816	3.080	0	0.164
1705	0	0	0	1761	0.664	0	0.0419	1817	0	0	0.311
1706	0	0	0	1762	0.985	0.164	0	1818	2.489	0	0.312
1707	0	0	0	1763	2.160	0.998	0.428	1819	0	0.104	0.471
1708	0	0	0.085	1764	2.682	2.113	8.703	1820	2.904	0	0.520
1709	0	0	0	1765	13.952	4.569	0	1821	2.235	0.532	0.002

Continued

Table 3. *Continued*

Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward	Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward	Year	St Petersburg - London	St Petersburg - Amsterdam	Rest - rest westward
1710	0	0	0	1766	0	0	0	1822	2.846	0.049	0
1711	0	0	0.601	1767	1.650	1.858	0.757	1823	2.029	0.472	0
1712	0	0	0	1768	1.990	0.033	0	1824	0	0	0
1713	0	0	0.042	1769	0	0	0.112	1825	1.923	0	0.566
1714	0	0	0	1770	1.112	0.016	0.053	1826	0	0.008	0.049
1715	0	0	0	1771	0	0	0	1827	1.175	0	0
1716	0	0	0.164	1772	0.055	0	0	1828	1.650	0	0
1717	0	0	0	1773	0	0.033	0	1829	4.426	0.754	1.935
1718	0	0	0	1774	0.931	0	0.003	1830	0	0	0.083
1719	0	0	0	1775	0	0	0	1831	3.282	0	0.252
1720	0	0	0	1776	1.391	0	0	1832	0	0.168	0.084
1721	0	0	0	1777	0.409	0	0.292	1833	3.551	0	0.102
1722	0	0	0	1778	0.382	0	0	1834	3.263	0	0.017
1723	0	0.528	1.042	1779	1.451	0	0.151	1835	4.918	0	0.033
1724	0	0	0	1780	2.553	0.688	0.144	1836	4.338	0.016	0.084
1725	0	0	0	1781	3.152	0	0	1837	2.616	0	0.164
1726	0	0	0	1782	1.752	0	0.033	1838	0	0.085	0.079
1727	0	0	0	1783	3.275	0.233	0	1839	26.625	0.081	0
1728	0.911	1.692	1.858	1784	0	0	0.002	1840	3.516	0	0.175
1729	4.730	19.416	0.922	1785	0.518	0	0.002	1841	0.655	0	0.577
1730	2.607	3.349	1.262	1786	1.617	0	0.002	1842	1.569	0	0.033
1731	0.749	3.754	0.199	1787	4.113	0.165	0	1843	3.964	0	0.041
1732	0	0	0	1788	0.870	0	0	1844	0.605	0	0.763
1733	0.614	0	0	1789	0.637	0.396	0.311	1845	0.221	0	1.268
1734	0	0	0.505	1790	0.212	0	0.604	1846	0.747	0	0.764
1735	1.228	1.115	0	1791	0.843	0	1.015	1847	1.998	0	0
1736	0	1.740	0	1792	0.352	0	0.195	1848	3.083	0	0.973
								1849	3.888	0	4.485

Source: www.soundfoll.nl (see note 57).

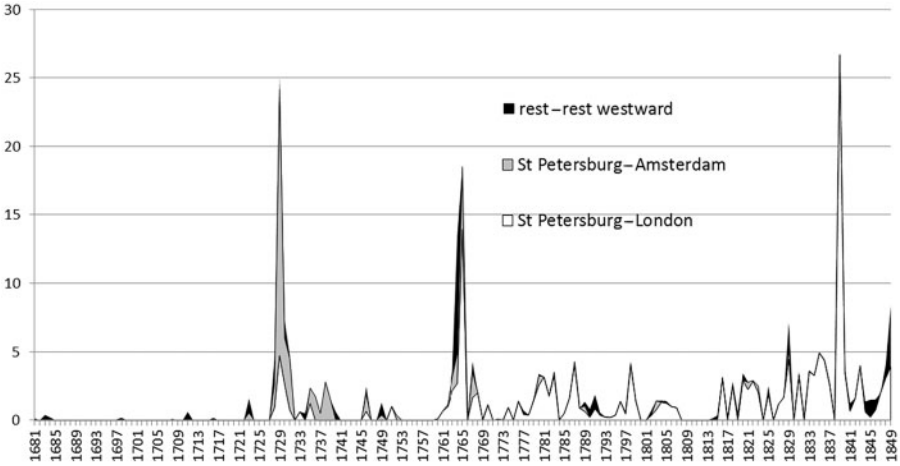


Fig. 4. Main westward rhubarb routes through the Sound, 1681–1849, in tons.
 Source: Table 3.

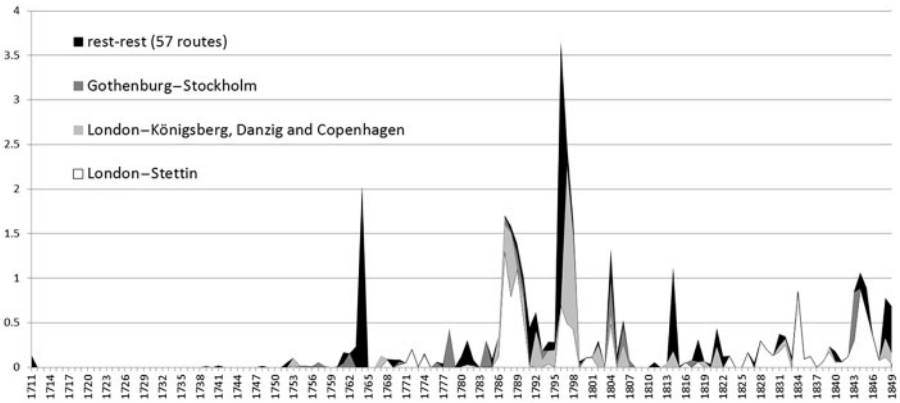


Fig. 5. Main eastward rhubarb routes through the Sound, 1711–1849, in tons.
 Source: Table 6.

The Baltic sarsaparilla traffic

Sarsaparilla seems to offer a better case for studying the supply of exotic drugs to the Baltic Sea area. Sarsaparilla reached Europe via the Atlantic Ocean and probably mainly arrived in the Baltic Sea area via the Sound. Table 7 and Figure 6 show the development of both that flow and the flow in the opposite direction from 1670 to 1849.

Four things stand out. First, the east–west traffic of sarsaparilla was indeed negligible. Second, in the long period from 1671 up to and including 1788, the west–east traffic

Table 4. Rhubarb transported eastward through the Sound according to ports of destination, 1711–1849, in tons and percentages

Decades	To Stettin in tons	To Stettin (%)	To Copenhagen in tons	To Copenhagen (%)	To Königsberg in tons	To Königsberg (%)	To St Petersburg in tons	To St Petersburg (%)	To Stockholm in tons	To Stockholm (%)	To Danzig in tons	To Danzig (%)	To rest (24 places) in tons	To rest (24 places) (%)	Total in tons	Total (%)
1711–1720	0	0	0.601	81.3	0	0	0	0	0	0	0.138	18.7	0	0	0.740	100
1721–1730	0	0	0	0	0	0	0	0	0	0	0	0	0.100	100.0	0.100	100
1731–1740	0	0	0	0	0	0	0.195	90.2	0.021	9.8	0	0	0	0	0.216	100
1741–1750	0.017	44.3	0	0	0	0	0	0	0.021	55.7	0	0	0	0	0.038	100
1751–1760	0.025	8.4	0	0	0	0	0	0	0.119	39.4	0.091	30.1	0.067	22.1	0.302	100
1761–1770	0.116	3.9	0	0	0.042	1.4	2.274	75.7	0.245	8.2	0.327	10.9	0	0	3.005	100
1771–1780	0.410	37.8	0	0	0.125	11.5	0	0	0.496	45.7	0.042	3.9	0.013	1.2	1.086	100
1781–1790	3.949	57.7	0	0	0.919	13.4	0.392	5.7	0.700	10.2	0.505	7.4	0.376	5.5	6.841	100
1791–1800	1.840	18.8	3.237	33.1	2.695	27.6	0.726	7.4	0.367	3.8	0.292	3.0	0.611	6.3	9.767	100
1801–1810	0.661	26.1	0.642	25.3	0.252	10.0	0	0	0.867	34.2	0	0	0.112	4.4	2.534	100
1811–1820	0.118	6.6	0.233	13.0	0.253	14.1	0	0	0.161	9.0	0	0	1.023	57.2	1.789	100
1821–1830	0.922	59.7	0.000	0	0.167	10.8	0	0	0.142	9.2	0.175	11.3	0.138	8.9	1.544	100
1831–1840	1.800	75.2	0.107	4.5	0.190	7.9	0	0	0.068	2.8	0.229	9.6	0	0	2.394	100
1841–1849	2.735	55.8	0.324	6.6	0.161	3.3	0.352	7.2	0.538	11.0	0.126	2.6	0.663	13.5	4.899	100
Total	12.594	35.7	5.144	14.6	4.804	13.6	3.938	11.2	3.746	10.6	1.925	5.5	3.103	8.8	35.254	100

Source: www.soundtoll.nl (see note 57).

Table 5. Rhubarb transported eastward through the Sound according to ports of departure, 1711–1849, in tons and percentages

Decades	From London in tons	From London (%)	From Gothenburg in tons	From Gothenburg (%)	From rest in tons	From rest (%)	Total in tons	Total (%)
1711–1720	0	0	0	0	0.138	100	0.138	100
1721–1730	0	–	0	–	0	–	0.000	–
1731–1740	0	0	0.021	100	0	0	0.021	100
1741–1750	0	0	0.017	44.3	0.021	55.7	0.038	100
1751–1760	0.167	55.3	0.127	42.0	0.008	2.7	0.302	100
1761–1770	2.521	83.9	0.393	13.1	0.090	3.0	3.005	100
1771–1780	0.410	37.8	0.663	61.1	0.012	1.1	1.086	100
1781–1790	5.758	84.2	1.077	15.8	0.003	0.0	6.839	100
1791–1800	6.493	66.5	1.005	10.3	2.269	23.2	9.767	100
1801–1810	1.194	47.1	1.190	47.0	0.150	5.9	2.534	100
1811–1820	0.559	31.0	1.059	58.7	0.186	10.3	1.804	100
1821–1830	1.154	74.8	0.085	5.5	0.305	19.7	1.544	100
1831–1840	2.054	85.8	0.119	5.0	0.220	9.2	2.394	100
1841–1849	2.905	59.3	0.538	11.0	1.456	29.7	4.899	100
Total	23.216	67.5	6.295	18.3	4.859	14.1	34.370	100

Source: www.soundtoll.nl (see note 57).

exceeded one ton per year only once—in 1695.⁸² Third, the traffic increased considerably from 1789 onwards, but up to and including 1813 it exceeded eight tons per year only in 1796, 1804 and 1805; and, fourth, sarsaparilla began a spectacular and persistent—only very occasionally interrupted—rise from 1814 onwards to levels over 20, 40 and 60 tons per year with peaks of over 100 tons in 1829, 1842, 1843 and 1844.

The large figures of the nineteenth century make the small levels before that seem negligible. They are not. Table 8 illustrates this point, comparing imports of sarsaparilla in England and in the Baltic Sea region via the Sound. We have interpreted the measure 'lb' in Wallis as *pound avoirdupois* of 0.454 kilogram.

It is clear that sarsaparilla imports in the Baltic Sea region were tiny compared to those of England for a long time. But it also appears that they picked up in the second half of the eighteenth century to a level of about one-third of England's imports. And that level was probably twice as high in net figures. After all, if we may conclude from Wallis' figures that England consumed perhaps half of its imported medicinal drugs and re-exported the other half in the second half of the eighteenth century, and if this is true for the single case of sarsaparilla, too, we can propose that the level of the Baltic Sea region's consumption of sarsaparilla amounted to about two-thirds of that of England in the second half of the eighteenth century—if, indeed, the Baltic Sea region did not re-export the medicine.⁸³ We may, in any case, conclude that the Baltic Sea region only began to

⁸²The figure for 1695 includes '1325 lb salsaparilla og foli' (www.soundtoll.nl, passage id 659155). Assuming that half of that shipment consisted of sarsaparilla, the total for the year 1695 would be 1.2

tons in stead of the 1.5 tons we have used in the analysis.

⁸³Wallis, 'Exotic drugs,' 28.

Table 6. Main eastward rhubarb routes through the Sound, 1711–1849, in tons

Year	London– Stettin		Gothenburg– Stockholm		Rest–rest (57 routes)		Year	London– Stettin		Gothenburg– Stockholm		Rest–rest (57 routes)		Year	London– Königsberg, Danzig and Copenhagen		Gothenburg– Stockholm		Rest–rest (57 routes)		
	London– Königsberg, Danzig and Copenhagen	London– Stettin	London– Königsberg, Danzig and Copenhagen	London– Stettin	London– Königsberg, Danzig and Copenhagen	London– Stettin		London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Stettin	London– Königsberg, Danzig and Copenhagen	London– Stettin	London– Königsberg, Danzig and Copenhagen		London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen	London– Königsberg, Danzig and Copenhagen
1711	0	0	0	0.138	1757	0	0	0.060	0	1803	0	0	0.026	0	0	0.091	0.026	0	0	0	0
1712	0	0	0	0	1758	0	0	0.017	0	1804	0.495	0	0.394	0	1804	0.091	0.394	0.352	0	0	0.352
1713	0	0	0	0	1759	0	0	0	0	1805	0	0	0.051	0	1805	0	0.051	0.091	0	0	0.091
1714	0	0	0	0	1760	0	0	0	0.008	1806	0	0.243	0.219	0	1806	0.243	0.219	0.068	0	0	0.068
1715	0	0	0	0	1761	0	0	0.042	0.127	1807	0	0	0.085	0	1807	0	0.085	0	0	0	0
1716	0	0	0	0	1762	0	0	0.158	0	1808	0	0	0	0	1808	0	0	0	0	0	0
1717	0	0	0	0	1763	0	0	0	0.234	1809	0	0	0	0	1809	0	0	0	0	0	0
1718	0	0	0	0	1764	0	0	0	2.039	1810	0	0	0	0	1810	0	0	0	0	0	0
1719	0	0	0	0	1765	0	0	0	0	1811	0	0	0	0	1811	0	0	0.058	0	0	0.058
1720	0	0	0	0	1766	0	0	0	0	1812	0	0	0	0	1812	0	0	0	0	0	0
1721	0	0	0	0	1767	0	0.133	0	0	1813	0	0.050	0	0	1813	0	0.050	0	0	0	0
1722	0	0	0	0	1768	0.084	0	0.011	0	1814	0	0.181	0.946	0	1814	0	0.181	0.946	0	0	0.946
1723	0	0	0	0	1769	0	0	0	0.088	1815	0	0	0.015	0	1815	0	0	0.015	0	0	0.015
1724	0	0	0	0	1770	0.030	0	0.034	0.024	1816	0.056	0	0	0	1816	0.056	0	0	0	0	0
1725	0	0	0	0	1771	0.051	0	0	0	1817	0	0	0.076	0	1817	0	0	0.076	0	0	0.076
1726	0	0	0	0	1772	0.200	0	0	0	1818	0.063	0	0	0	1818	0.063	0	0	0	0	0.005
1727	0	0	0	0	1773	0.005	0	0	0	1819	0	0.067	0	0	1819	0	0.067	0	0	0	0.251
1728	0	0	0	0	1774	0.145	0	0.003	0.012	1820	0	0	0	0	1820	0	0	0	0	0	0.037
1729	0	0	0	0	1775	0	0	0	0	1821	0	0.233	0	0	1821	0	0.233	0	0	0	0.208
1730	0	0	0	0	1776	0	0	0.053	0.008	1822	0	0	0	0	1822	0	0	0	0	0	0.124
1731	0	0	0	0	1777	0	0	0	0.042	1823	0.128	0	0	0	1823	0.128	0	0	0	0	0
1732	0	0	0	0	1778	0	0	0.440	0	1824	0	0	0	0	1824	0	0	0	0	0	0
1733	0	0	0	0	1779	0	0	0	0.004	1825	0	0	0	0	1825	0	0	0	0	0	0
1734	0	0	0	0	1780	0.009	0	0	0.112	1826	0.167	0	0	0	1826	0.167	0	0	0	0	0
1735	0	0	0	0	1781	0.032	0	0	0.273	1827	0	0	0	0	1827	0	0	0	0	0	0.057
1736	0	0	0	0	1782	0.011	0.009	0	0.062	1828	0.298	0	0	0	1828	0.298	0	0	0	0	0
1737	0	0	0	0	1783	0	0	0	0	1829	0.197	0	0	0	1829	0.197	0	0	0	0	0

Continued

Table 6. Continued

Year	London– Stettin		London– Königsberg, Danzig and Copenhagen		Gothenburg– Stockholm		Gothenburg– Stockholm (57 routes)		Year		London– Stettin		London– Königsberg, Danzig and Copenhagen		Gothenburg– Stockholm		Gothenburg– Stockholm (57 routes)		Rest–rest (57 routes)
	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	Stettin	Königsberg, Danzig and Copenhagen	
1738	0	0	0	0	0	0	0	0.296	0	1830	0.132	0	0	0	0	0	0	0	0
1739	0	0	0	0.021	0	0	0	0	0.093	1831	0.178	0.062	0	0	0.136	0	0	0.136	0
1740	0	0	0	0	0.226	0	0	0	0.003	1832	0.255	0.063	0	0	0.029	0	0	0.029	0
1741	0	0	0	0.021	0.288	0	0.089	0	0.019	1833	0	0.069	0	0	0.055	0	0	0.055	0
1742	0	0	0	0	0.703	0	0.022	0	0.064	1834	0.851	0	0	0	0	0	0	0	0
1743	0	0	0	0	0	0	0.173	0	0.111	1835	0.094	0	0	0	0	0	0	0	0
1744	0	0	0	0	0.198	0	0.119	0	0.145	1836	0.122	0	0	0	0	0	0	0	0
1745	0	0	0	0	0.005	0	0.010	0	0.424	1837	0	0	0	0	0	0	0	0	0
1746	0	0	0	0	0.404	0	0.001	0	0.218	1838	0.062	0	0	0	0	0	0	0	0
1747	0	0	0	0	0.077	0	0.108	0	0	1839	0.177	0.060	0	0	0	0	0	0	0
1748	0	0	0	0	0.146	0	0	0	0.102	1840	0.061	0	0.013	0	0.107	0	0	0.107	0
1749	0	0	0	0	0.194	0	0	0	0.089	1841	0.063	0	0	0	0.005	0	0	0.005	0
1750	0	0	0	0	0	0	0	0	2.955	1842	0.119	0	0	0	0	0	0	0	0
1751	0	0	0	0	1.709	0	0.069	0	0.215	1843	0.301	0	0.538	0	0.019	0	0	0.019	0
1752	0	0	0	0	1.039	0	0	0	0.149	1844	0.885	0	0	0	0.180	0	0	0.180	0
1753	0.017	0.09	0	0	0	0	0.031	0	0.040	1845	0.620	0	0	0	0.271	0	0	0.271	0
1754	0	0	0	0.021	0	0	0	0	0	1846	0.351	0	0	0	0	0	0	0	0
1755	0	0	0	0.021	0	0	0	0	0.005	1847	0.079	0	0	0	0	0	0	0	0
1756	0	0	0	0	0.252	0	0	0	0.049	1848	0.118	0.210	0	0	0.451	0	0	0.451	0
										1849	0.044	0.114	0	0	0.529	0	0	0.529	0
										Total in tons		12.299	6.915	3.201	11.954				
										Total per cents		35.8	20.1	9.3	34.8				

Source: www.soundtoll.nl (see note 57).

Table 7. Total volumes of sarsaparilla passing through the Sound eastward and westward, 1670–1849, in tons

Year	W–E	E–W	Year	W–E	E–W	Year	W–E	E–W	Year	W–E	E–W
1670	0	0	1715	0.177	0	1760	0	0	1805	11.485	0.137
1671	0.074	0	1716	0.148	0	1761	0	0	1806	5.846	3.426
1672	0.012	0	1717	0.336	0	1762	0.052	0	1807	1.699	0
1673	0	0	1718	0.235	0	1763	0.097	0	1808	0	0
1674	0.049	0	1719	0.078	0	1764	0	0	1809	1.230	0
1675	0.099	0	1720	0.040	0	1765	0	0	1810	1.318	0
1676	0.148	0	1721	0.059	0	1766	0.247	0	1811	1.322	0
1677	0.245	0	1722	0.037	0	1767	0.007	0	1812	5.034	0
1678	0.124	0	1723	0.051	0	1768	0	0	1813	4.121	0
1679	0.198	0	1724	0.052	0	1769	0.454	0	1814	15.466	0
1680	0.148	0	1725	0.124	0	1770	0	0.219	1815	10.728	0.499
1681	0.296	0	1726	0.025	0	1771	0.650	0	1816	22.050	0
1682	0.395	0	1727	0.025	0	1772	0.390	0	1817	44.376	0.211
1683	0	0	1728	0	0	1773	0.713	0	1818	15.507	0
1684	0.124	0	1729	0	0	1774	0.509	0	1819	24.637	0
1685	0.049	0	1730	0.049	0	1775	0.149	0	1820	53.565	0
1686	0.025	0	1731	0	0	1776	0	0	1821	59.109	0
1687	0.049	0	1732	0	0	1777	0.651	0	1822	17.242	0.341
1688	0.074	0	1733	0	0	1778	0.619	0	1823	23.333	0
1689	0.074	0	1734	0	0	1779	0.045	0	1824	1.051	0
1690	0.111	0	1735	0.049	0	1780	0.208	0	1825	50.958	0
1691	0.025	0	1736	0.001	0	1781	0.024	0	1826	34.842	0.002
1692	0	0	1737	0	0	1782	0.091	0	1827	3.181	0
1693	0.098	0	1738	0.153	0	1783	0.672	0	1828	22.266	0.134
1694	0.351	0	1739	0	0	1784	0.514	0	1829	102.253	1.311
1695	1.544	1.217	1740	0	0	1785	0.091	0	1830	23.874	0
1696	0	0	1741	0	0	1786	0.509	0	1831	58.026	0
1697	0.012	0	1742	0	0	1787	0.325	0	1832	48.904	0
1698	0.262	0	1743	0	0	1788	0.430	0	1833	61.529	0
1699	0.161	0	1744	0	0	1789	1.529	0	1834	74.647	0
1700	0.074	0	1745	0.008	0	1790	5.379	0	1835	71.194	0
1701	0.099	0	1746	0	0	1791	4.061	0	1836	56.428	0
1702	0.105	0	1747	0	0	1792	5.469	0	1837	39.660	0
1701	0	0	1748	0.097	0	1793	2.978	0	1838	47.385	0
1704	0.027	0	1749	0	0	1794	3.152	0	1839	66.632	0.969
1705	0.037	0	1750	0	0	1795	7.627	0	1840	72.255	0
1706	0	0	1751	0.184	0	1796	11.465	0	1841	21.024	0
1707	0	0	1752	0	0	1797	0	1.508	1842	121.985	0.004
1708	0.057	0	1753	0.273	0	1798	0.213	0	1843	102.717	4.775
1709	0	0	1754	0	0	1799	0.100	0	1844	122.346	2.373
1710	0.222	0	1755	0	0	1800	0.174	0	1845	53.839	0
1711	0.127	0	1756	0	0	1801	0.321	0	1846	51.996	0
1712	0.030	0	1757	0	0	1802	0.753	0	1847	44.454	0
1713	0.487	0	1758	0	0	1803	4.581	0	1848	28.281	0
1714	0.091	0	1759	0	0	1804	20.857	0.097	1849	35.958	0.363

Source: www.soundtoll.nl (see note 57).

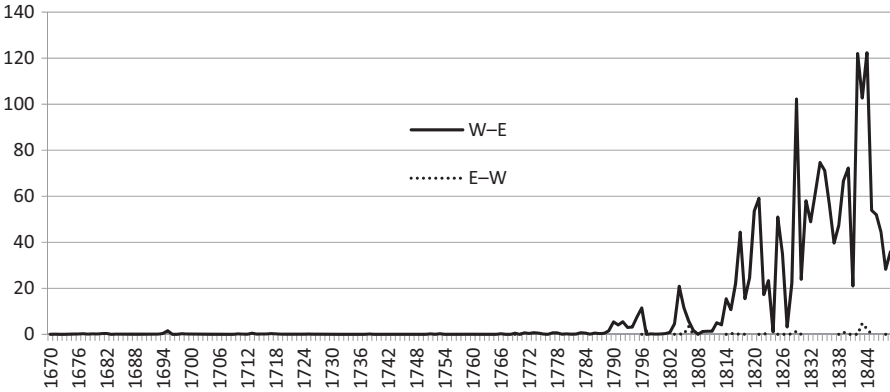


Fig. 6. Total volumes of sarsaparilla passing through the Sound eastward and westward, 1670–1849, in tons. Source: Table 7.

import sarsaparilla in any significant quantities in the second half of the eighteenth century—at least a hundred years later than England.

Before we jump to any further conclusions about the pace at which sarsaparilla conquered the Baltic Sea hinterlands, we should look at its precise destinations. Table 9 and Figure 7 indicate that, from 1788 onwards, the sarsaparilla traffic was directed to St Petersburg—and, far less, in the 1840s, to its outpost Kronstadt—to a such an overwhelming extent that it almost blocks our view of the sarsaparilla traffic to the other relevant ports. It is, nevertheless, relevant to check the structure and the development of that traffic. Its total for the entire period from 1671 to 1849 amounted 152 tons and its development is depicted in Table 10 and Figure 8.

Roughly speaking, much more sarsaparilla was shipped to the Baltic Sea region except St Petersburg and Kronstad in the nineteenth century than previously. The distribution over the destinations was quite erratic. Up to about 1820 the usually very light traffic was directed to about fifteen destinations of which Danzig, Königsberg and Riga were predominant with unusual jumps to ‘the Sound’ (‘Sundet’) in 1794, Lübeck in 1804, ‘The Baltic Sea’ (‘Østersøen’) in 1812 and Reval in 1820. Other destinations included Rostock, Stettin, Kolberg, Memel, Stockholm and Kalmar. The increased volume from 1821 onwards was concentrated in traffic to Copenhagen, Elsinore, ‘the Sound,’ Riga and Stettin and the combined destination of ‘Copenhagen and St Petersburg’ and the ‘rest’ which mainly involved, in 1823 and 1825, ‘the Baltic Sea’. Closer observation of the categories of ‘Copenhagen, Elsinore, “the Sound”’ (together: the Sound region), Riga and Stettin reveals that Riga is the only one of these destinations which structurally gained significance (Table 11 and Figure 9). Riga being a Russian port at the time suggests that this phenomenon represented a small part of the exceptional size of the Russian market for sarsaparilla which the huge size of the St Petersburg demand has already made clear.

The steep growth of the Baltic sarsaparilla traffic coincided with a dramatic change of the originating ports. Up to the middle of the eighteenth century, virtually all sarsaparilla was shipped to the Baltic Sea area from Amsterdam. Soon after that, London became dominant and remained so into the 1780s (Table 12).

Table 8. English sarsaparilla imports and sarsaparilla passing eastward through the Sound, 1685–1774, in tons

Year	E: English import	S: Eastward through the Sound	S as percentage of E
1685	7.604	0.049	0.6
1699	5.003	0.161	3.2
1700	5.003	0.074	1.5
1701	5.003	0.099	2.0
1722	0.573	0.037	6.5
1723	0.573	0.051	9.0
1724	0.573	0.052	9.1
1752	22.623	0	0.0
1753	22.623	0.273	1.2
1754	22.623	0	0.0
1772	1.539	0.390	25.4
1773	1.539	0.713	46.3
1774	1.539	0.509	33.1

Sources: English import—Wallis, 'Exotic drugs,' 42; Eastward through the Sound—www.soundtoll.nl. (see note 57).

As Table 13 and Figure 10 show, Lisbon appeared on the scene during the French Revolutionary and Napoleonic Wars and, soon, surpassed the combined traffic from the English ports of London and Liverpool—the latter had first appeared as a sarsaparilla exporter in 1804—throughout the first half of the nineteenth century. Most spectacular, however, was the rise of the American ports of Boston—from 1816—and New York—first in 1811, but significantly from 1831 on. These two ports combined dominated the shipping of sarsaparilla to the Baltic Sea area from 1825 to 1844. Given the dominance of St Petersburg as a port of destination, it is evident that the main routes for the Baltic sarsaparilla traffic were between the two English ports, Lisbon and the two American ports on the one hand and the Russian capital on the other—and that the relevant lines closely corresponded with those in Figure 10.

The more or less fivefold structural increase of sarsaparilla imports to the Baltic Sea region except Russia in the first half of the nineteenth century must have been absorbed by an increased use of the drug by existing consumers, by an increase in the number of consumers or by a combination of both. An increase in the number of consumers can, theoretically, be explained by population growth, by the spread of the use of sarsaparilla to additional segments of the population or by a combination of these two.

The population in the northern countries increased considerably between 1800 and 1850—in Denmark and Sweden by about 50 per cent, in Finland by approximately 100 per cent. Population growth in Poland was more modest and amounted to about 12.5 per cent.⁸⁴ The further increase in import levels must have been triggered by some

⁸⁴Ilja Mieck, 'Wirtschaft und Gesellschaft Europas von 1650 bis 1850', in Ilja Mieck, ed., *Handbuch der Europäischen Wirtschafts- und Sozialgeschichte*, Vol.

4, *Europäische Wirtschafts- und Sozialgeschichte von der Mitte des 17. Jahrhunderts bis zur Mitte des 19. Jahrhunderts* (Stuttgart: Klett-Cotta, 1993) 54.

Table 9. Volumes of sarsaparilla passing through the Sound to St Petersburg, Kronstadt and the rest of the Baltic Sea region destinations, 1671–1849, in tons

Year	SPb	Kronstadt	Rest	Year	SPb	Kronstadt	Rest	Year	SPb	Kronstadt	Rest
1671	0	0	0.074	1731	0	0	0	1791	3.942	0	0.119
1672	0	0	0.012	1732	0	0	0	1792	5.357	0	0.112
1673	0	0	0	1733	0	0	0	1793	2.978	0	0
1674	0	0	0.049	1734	0	0	0	1794	0	0	3.152
1675	0	0	0.099	1735	0	0	0.049	1795	7.627	0	0
1676	0	0	0.148	1736	0	0	0.001	1796	11.292	0	0.173
1677	0	0	0.245	1737	0	0	0	1797	0	0	0
1678	0	0	0.124	1738	0	0	0.153	1798	0	0	0.213
1679	0	0	0.198	1739	0	0	0	1799	0	0	0.100
1680	0	0	0.148	1740	0	0	0	1800	0.174	0	0
1681	0	0	0.296	1741	0	0	0	1801	0.321	0	0
1682	0	0	0.395	1742	0	0	0	1802	0.730	0	0.023
1683	0	0	0	1743	0	0	0	1803	3.131	0	1.450
1684	0	0	0.124	1744	0	0	0	1804	14.767	0	6.090
1685	0	0	0.049	1745	0	0	0.008	1805	10.951	0	0.534
1686	0	0	0.025	1746	0	0	0	1806	5.646	0	0.201
1687	0	0	0.049	1747	0	0	0	1807	1.699	0	0
1688	0	0	0.074	1748	0	0	0.097	1808	0	0	0
1689	0	0	0.074	1749	0	0	0	1809	1.230	0	0
1690	0	0	0.111	1750	0	0	0	1810	0	0	1.318
1691	0	0	0.025	1751	0	0	0.184	1811	1.322	0	0
1692	0	0	0	1752	0	0	0	1812	0	0	5.034
1693	0	0	0.098	1753	0.011	0	0.262	1813	4.121	0	0
1694	0	0	0.351	1754	0	0	0	1814	15.166	0	0.299
1695	0	0	1.544	1755	0	0	0	1815	10.662	0	0.066
1696	0	0	0	1756	0	0	0	1816	21.416	0	0.633
1697	0	0	0.012	1757	0	0	0	1817	44.341	0	0.035
1698	0	0	0.262	1758	0	0	0	1818	15.501	0	0.006
1699	0	0	0.161	1759	0	0	0	1819	24.526	0	0.110
1700	0	0	0.074	1760	0	0	0	1820	49.475	0	4.090
1701	0	0	0.099	1761	0	0	0	1821	58.884	0	0.225
1702	0	0	0.105	1762	0	0	0.052	1822	16.530	0	0.712
1703	0	0	0	1763	0	0	0.097	1823	16.891	0	6.441
1704	0	0	0.027	1764	0	0	0	1824	1.037	0	0.014
1705	0	0	0.037	1765	0	0	0	1825	29.903	0	21.055
1706	0	0	0	1766	0.247	0	0	1826	32.234	0	2.607
1707	0	0	0	1767	0.0	0	0.007	1827	3.101	0	0.079
1708	0	0	0.057	1768	0	0	0	1828	17.796	0	4.469
1709	0	0	0	1769	0.442	0	0.012	1829	98.812	0	3.441
1710	0	0	0.222	1770	0	0	0	1830	20.233	0	3.641
1711	0	0	0.127	1771	0.493	0	0.157	1831	49.499	0	8.527
1712	0	0	0.030	1772	0.172	0	0.218	1832	46.342	0	2.562
1713	0	0	0.487	1773	0.579	0	0.134	1833	54.245	0	7.284
1714	0	0	0.091	1774	0	0	0.509	1834	70.458	0	4.189
1715	0	0	0.177	1775	0	0	0.149	1835	70.846	0	0.348
1716	0	0	0.148	1776	0	0	0	1836	47.786	0	8.643
1717	0	0	0.336	1777	0.185	0	0.467	1837	39.080	0	0.580
1718	0	0	0.235	1778	0	0	0.619	1838	46.866	0	0.519

Continued

Table 9. Continued

Year	SPb	Kronstadt	Rest	Year	SPb	Kronstadt	Rest	Year	SPb	Kronstadt	Rest
1719	0	0	0.078	1779	0	0	0.045	1839	65.952	0	0.680
1720	0	0	0.040	1780	0	0	0.208	1840	71.607	0	0.648
1721	0	0	0.059	1781	0.024	0	0	1841	11.045	0	9.978
1722	0	0	0.037	1782	0	0	0.091	1842	109.006	0.487	12.492
1723	0	0	0.051	1783	0.672	0	0	1843	96.697	1.839	4.180
1724	0	0	0.052	1784	0.514	0	0	1844	121.124	0	1.222
1725	0	0	0.124	1785	0	0	0.091	1845	48.195	2.123	3.520
1726	0	0	0.025	1786	0	0	0.509	1846	46.684	3.035	2.276
1727	0	0	0.025	1787	0.325	0	0	1847	37.605	4.562	2.287
1728	0	0	0	1788	0.145	0	0.284	1848	26.779	0	1.502
1729	0	0	0	1789	0.235	0	1.294	1849	17.415	17.358	1.185
1730	0	0	0.049	1790	5.365	0	0.015				

Source: www.soundtoll.nl (see note 57).

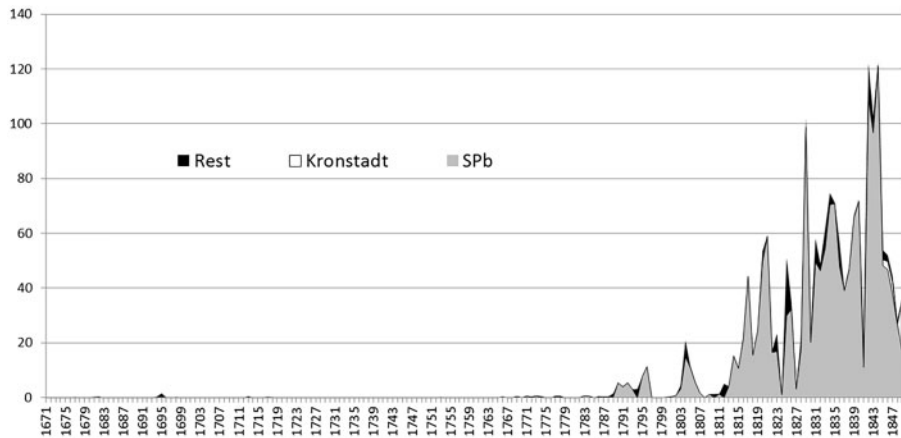


Fig. 7. Volumes of sarsaparilla passing through the Sound to St Petersburg, Kronstadt and the rest of the Baltic Sea region destinations, 1671–1849, stacked, in tons.

Source: Table 9.

threefold rise in per capita sarsaparilla consumption, induced by a concurrent social spread of the drug and/or an increase in average individual intake. This explanation seems to be more or less in line with the suggestion repeated by Ryckbosch that in the eighteenth century ‘changes in consumer habits’ in the ‘Scandinavian and Baltic areas’ corresponded more or less with those in Western Europe before that.⁸⁵

It is harder to explain why the Russian market boomed while the rest of the Baltic Sea region market developed, apparently, much more calmly. The upsurge of Russian

⁸⁵Wouter Ryckbosch, ‘Early Modern Consumption History. Current Challenges and Future Perspectives’,

BMGN—Low Countries Historical Review, 2015, 130, 57–84, 68.

Table 10. Volumes of sarsaparilla passing through the Sound to the Baltic Sea region destinations except St Peterburg and Kronstadt, 1671–1849, in tons

Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest
1671	0.074	0	0	0	1731	0	0	0	0	1791	0	0	0	0.119
1672	0.012	0	0	0	1732	0	0	0	0	1792	0	0	0	0.112
1673	0	0	0	0	1733	0	0	0	0	1793	0	0	0	0
1674	0.049	0	0	0	1734	0	0	0	0	1794	0	3.022	0	0.130
1675	0.074	0.012	0	0.012	1735	0	0	0	0.049	1795	0	0	0	0
1676	0.148	0	0	0	1736	0.001	0	0	0	1796	0	0	0	0.173
1677	0.049	0.097	0	0.099	1737	0	0	0	0	1797	0	0	0	0
1678	0.124	0	0	0	1738	0	0	0	0.153	1798	0.023	0	0	0.190
1679	0.198	0	0	0	1739	0	0	0	0	1799	0.059	0.041	0	0
1680	0.148	0	0	0	1740	0	0	0	0	1800	0	0	0	0
1681	0.296	0	0	0	1741	0	0	0	0	1801	0	0	0	0
1682	0.346	0.049	0	0	1742	0	0	0	0	1802	0	0	0	0.023
1683	0	0	0	0	1743	0	0	0	0	1803	0.023	0	0	1.427
1684	0.074	0	0	0.049	1744	0	0	0	0	1804	0	0.311	0	5.779
1685	0.049	0	0	0	1745	0	0.008	0	0	1805	0	0.383	0	0.151
1686	0.025	0	0	0	1746	0	0	0	0	1806	0	0.127	0	0.073
1687	0.049	0	0	0	1747	0	0	0	0	1807	0	0	0	0
1688	0.074	0	0	0	1748	0	0.097	0	0	1808	0	0	0	0
1689	0.074	0	0	0	1749	0	0	0	0	1809	0	0	0	0
1690	1.110	0	0	0	1750	0	0	0	0	1810	0	0	0	1.318
1691	0.025	0	0	0	1751	0.184	0	0	0	1811	0	0	0	0
1692	0	0	0	0	1752	0	0	0	0	1812	0	0	0	5.034
1693	0.049	0.012	0	0.037	1753	0.262	0	0	0	1813	0	0	0	0
1694	0.351	0	0	0	1754	0	0	0	0	1814	0	0.299	0	0
1695	1.346	0	0	0.198	1755	0	0	0	0	1815	0	0	0	0.066
1696	0	0	0	0	1756	0	0	0	0	1816	0.227	0.407	0	0

Continued

Table 10. Continued

Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest
1697	0	0.012	0	0	1757	0	0	0	0	1817	0	0	0	0.035
1698	0.188	0.025	0	0.049	1758	0	0	0	0	1818	0	0.006	0	0
1699	0.037	0.074	0	0.049	1759	0	0	0	0	1819	0.110	0	0	0
1700	0.074	0	0	0	1760	0	0	0	0	1820	0.218	0.088	0	3.784
1701	0.099	0	0	0	1761	0	0	0	0	1821	0.174	0.038	0	0.013
1702	0.080	0	0	0.025	1762	0	0	0	0.052	1822	0	0.075	0	0.637
1703	0	0	0	0	1763	0	0.097	0	0	1823	0	1.096	0	5.345
1704	0.012	0.015	0	0	1764	0	0	0	0	1824	0	0.014	0	0
1705	0.025	0.012	0	0	1765	0	0	0	0	1825	0	1.428	11.026	8.601
1706	0	0	0	0	1766	0	0	0	0	1826	0	2.542	0	0.065
1707	0	0	0	0	1767	0.007	0	0	0	1827	0	0.079	0	0
1708	0.044	0.012	0	0	1768	0	0	0	0	1828	0	0.177	4.154	0.139
1709	0	0	0	0	1769	0	0	0	0.012	1829	0.890	1.970	0.436	0.145
1710	0	0.012	0	0.210	1770	0	0	0	0	1830	0	0.434	3.208	0
1711	0.100	0	0	0.027	1771	0	0.157	0	0	1831	0	2.568	5.777	0.183
1712	0	0	0	0.030	1772	0.145	0.073	0	0	1832	0.336	0.421	1.805	0
1713	0.460	0	0	0.027	1773	0.047	0.070	0	0.017	1833	0.016	5.923	1.346	0
1714	0	0	0	0.091	1774	0.193	0.263	0	0.054	1834	0.163	2.042	1.984	0
1715	0.044	0	0	0.132	1775	0.109	0.040	0	0	1835	0.038	0.311	0	0
1716	0.025	0.012	0	0.111	1776	0	0	0	0	1836	0	5.050	3.438	0.155
1717	0.336	0	0	0	1777	0.278	0	0	0.189	1837	0	0.580	0	0
1718	0.037	0	0	0.198	1778	0.169	0.139	0	0.311	1838	0	0.519	0	0
1719	0.037	0	0	0.041	1779	0	0	0	0.045	1839	0	0.665	0	0.015
1720	0.025	0	0	0.015	1780	0.054	0	0	0.154	1840	0.058	0.298	0	0.292
1721	0.037	0	0	0.022	1781	0	0	0	0	1841	0.147	9.722	0	0.109
1722	0	0	0	0.037	1782	0.068	0	0	0.023	1842	0.173	12.319	0	0

Continued

Table 10. *Continued*

Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest	Year	Danzig	Copenhagen, Elsinore, Sound, Riga, Stettin	Copenhagen, and St Petersburg	Rest
1723	0.027	0.007	0	0.017	1783	0	0	0	0	1843	0	4.180	0	0
1724	0.015	0	0	0.037	1784	0	0	0	0	1844	0	1.102	0	0.120
1725	0	0	0	0.124	1785	0	0	0	0.091	1845	0.152	3.248	0	0.121
1726	0.025	0	0	0	1786	0.032	0.452	0	0.025	1846	0.113	0.687	0	1.476
1727	0	0	0	0.025	1787	0	0	0	0	1847	0.047	2.220	0	0.020
1728	0	0	0	0	1788	0	0.235	0	0.049	1848	0.137	1.334	0	0.031
1729	0	0	0	0	1789	0	1.175	0	0.119	1849	0	1.171	0	0.014
1730	0	0	0	0.049	1790	0	0	0	0.015					

Source: www.soundtoll.nl (see note 57).

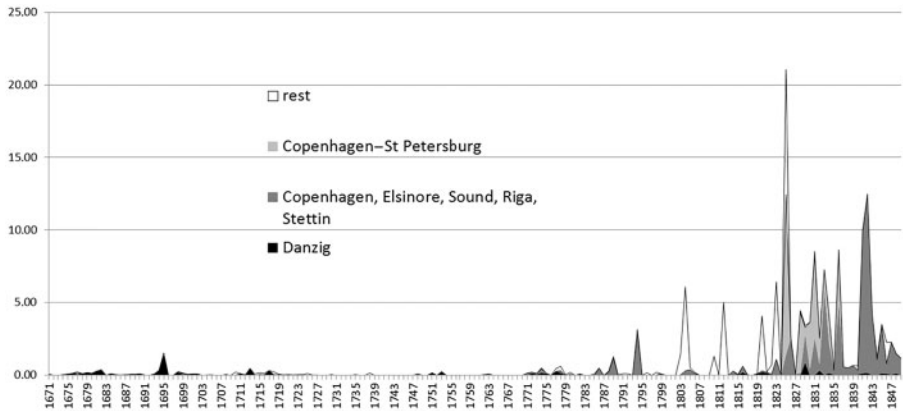


Fig. 8. Volumes of sarsaparilla passing through the Sound to the Baltic Sea region destinations except St Petersburg and Kronstadt, 1671–1849, stacked, in tons.

Source: Table 10.

Table 11. Volumes of sarsaparilla passing through the Sound to the Sound region, Riga and Stettin, 1821–1849, in tons

Year	Sound region	Riga	Stettin	year	Sound region	Riga	Stettin
1821	0.038	0	0	1836	4.805	0.164	0.081
1822	0	0.075	0	1837	0.277	0.303	0
1823	0.385	0.499	0.212	1838	0.099	0.420	0
1824	0.014	0	0	1839	0.009	0.543	0.113
1825	1.230	0.166	0.033	1840	0	0.298	0
1826	1.937	0.563	0.042	1841	0	5.451	4.271
1827	0	0.079	0	1842	1.493	1.087	9.739
1828	0	0	0.177	1843	0	0.840	3.340
1829	0	1.794	0.176	1844	0	1.102	0
1830	0	0.356	0.078	1845	0.057	0.782	2.409
1831	1.974	0.594	0	1846	0.062	0.625	0
1832	0	0.096	0.325	1847	0.025	2.195	0
1833	4.467	1.392	0.064	1848	0.369	0.832	0.134
1834	0.004	2.038	0	1849	0	1.171	0
1835	0	0.233	0.078				

Source: www.soundtoll.nl (see note 57).

sarsaparilla imports per se does not seem exceptional. It was not unusual—as is not unusual today—that consumer goods, including medicinal and other drugs, gained popularity very quickly. A few decades earlier, in the 1770s and 1780s, coffee imports in the Baltic Sea area as a whole had developed with comparable speed and dimensions. The bulk of that coffee wave, however, was not concentrated in one destination in the same way as sarsaparilla was directed to Russia but was shared by St Petersburg, Stettin, Copenhagen, Danzig and Stockholm, each of which absorbed large amounts of this new

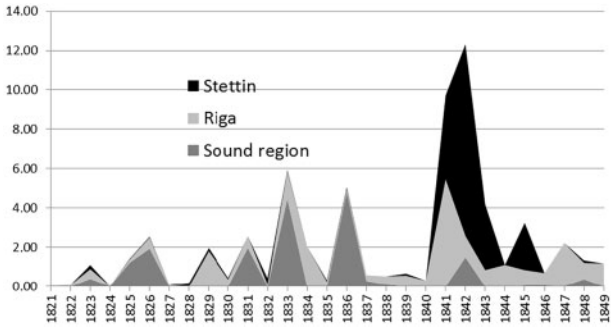


Fig. 9. Volumes of sarsaparilla passing through the Sound to the Sound region, Riga and Stettin, 1821–1849, stacked, in tons.

Explanation: The Sound region includes Copenhagen, Elsinore and ‘the Sound.’

Source: Table 11.

and popular stuff.⁸⁶ What then, explains the apparently exceptional Russian sarsaparilla boom? An answer may be found in diverging developments of per capita consumption in Russia and the rest of the Baltic Sea area. Russia’s population grew by roughly 60 per cent between 1800 and 1850—at a pace comparable to that of the rest of the area.⁸⁷ By 1850 Russia’s population was approximately 59.2 million, outnumbering the population of Denmark, Sweden and Finland, Poland and Prussia, at 32.3 million, by about 80 per cent.⁸⁸ While Russia’s sarsaparilla imports rapidly rose to a level around ten times that of the rest of the region, the remaining difference may have been caused by a per capita level of consumption in Russia exceeding the level elsewhere in the region by a factor of five or six. This high level of consumption must have been partly the result of a relatively large degree of market penetration by the drug and/or an increase in the average individual intake.

These allusions must be left unsubstantiated here. The effect of the two proposed factors might, in any case, have been mitigated by a third factor. St Petersburg may have developed into an international distribution centre for the drug. If it is true, as suggested above, that Russia re-exported rhubarb to other places in the Baltic Sea area, it may also be true that it re-exported sarsaparilla to these places. It cannot be excluded, either, that Russia re-exported sarsaparilla to other destinations, to Asia in particular. To what extent this happened cannot be underpinned with the evidence available here. It appears, in any case, that sarsaparilla did not find a ready market everywhere. There is no proof of any imports of sarsaparilla into Sweden.⁸⁹

⁸⁶Draper and Veluwenkamp, ‘Sound Toll Registers Online’, 288–9.

⁸⁷Mieck, ‘Wirtschaft und Gesellschaft Europas’, 54.

⁸⁸Mieck, ‘Wirtschaft und Gesellschaft Europas’, 54. For Prussia, see Wolfgang Köllmann, ‘Demografische “Konsequenzen” der Industrialisierung in Preussen’,

in: Otto Büsch and Wolfgang Neugebauer, eds, *Moderne Preussische Geschichte 1648–1947*, Vol. 1 (Berlin and New York: Walter de Gruyter, 1981) 447–65, 461.

⁸⁹Lindblad, *Sweden’s Trade*, 156.

Table 12. Volumes of sarsaparilla passing through the Sound eastward according to ports of departure, 1671–1785, in tons

Year	Amsterdam	London	Rest	Year	Amsterdam	London	Rest	Year	Amsterdam	London	Rest
1671	0.074	0.000	0.000	1709	0.000	0.000	0.000	1747	0.000	0.000	0.000
1672	0.012	0.000	0.000	1710	0.028	0.000	0.194	1748	0.000	0.000	0.097
1673	0.000	0.000	0.000	1711	0.127	0.000	0.000	1749	0.000	0.000	0.000
1674	0.049	0.000	0.000	1712	0.030	0.000	0.000	1750	0.000	0.000	0.000
1675	0.247	0.000	0.000	1713	0.499	0.000	0.000	1751	0.000	0.000	0.184
1676	0.148	0.000	0.000	1714	0.000	0.091	0.000	1752	0.000	0.000	0.000
1677	0.198	0.000	0.097	1715	0.177	0.000	0.000	1753	0.000	0.273	0.000
1678	0.124	0.000	0.000	1716	0.148	0.000	0.000	1754	0.000	0.000	0.000
1679	0.148	0.000	0.049	1717	0.336	0.000	0.000	1755	0.000	0.000	0.000
1680	0.346	0.000	0.000	1718	0.235	0.000	0.000	1756	0.000	0.000	0.000
1681	0.346	0.000	0.000	1719	0.078	0.000	0.000	1757	0.000	0.000	0.000
1682	0.494	0.000	0.000	1720	0.040	0.000	0.000	1758	0.000	0.000	0.000
1683	0.000	0.000	0.000	1721	0.059	0.000	0.000	1759	0.000	0.000	0.000
1684	0.124	0.000	0.000	1722	0.037	0.000	0.000	1760	0.000	0.000	0.000
1685	0.049	0.000	0.000	1723	0.051	0.000	0.000	1761	0.000	0.000	0.000
1686	0.025	0.000	0.000	1724	0.052	0.000	0.000	1762	0.000	0.052	0.000
1687	0.111	0.000	0.000	1725	0.124	0.000	0.000	1763	0.000	0.000	0.097
1688	0.173	0.000	0.000	1726	0.025	0.000	0.000	1764	0.000	0.000	0.000
1689	0.074	0.000	0.000	1727	0.025	0.000	0.000	1765	0.000	0.000	0.000
1690	0.111	0.000	0.000	1728	0.000	0.000	0.000	1766	0.247	0.000	0.000
1691	0.025	0.000	0.000	1729	0.000	0.000	0.000	1767	0.000	0.007	0.000
1692	0.000	0.000	0.000	1730	0.049	0.000	0.000	1768	0.000	0.000	0.000
1693	0.098	0.000	0.000	1731	0.000	0.000	0.000	1769	0.000	0.207	0.247
1694	0.351	0.000	0.000	1732	0.000	0.000	0.000	1770	0.000	0.000	0.000
1695	1.544	0.000	0.000	1733	0.000	0.000	0.000	1771	0.000	0.650	0.000
1696	0.000	0.000	0.000	1734	0.000	0.000	0.000	1772	0.161	0.000	0.229
1697	0.012	0.000	0.000	1735	0.049	0.000	0.000	1773	0.000	0.713	0.000
1698	0.287	0.000	0.000	1736	0.001	0.000	0.000	1774	0.000	0.509	0.000
1699	0.185	0.000	0.000	1737	0.000	0.000	0.000	1775	0.040	0.109	0.000
1700	0.074	0.000	0.000	1738	0.025	0.000	0.129	1776	0.000	0.000	0.000
1701	0.099	0.000	0.000	1739	0.000	0.000	0.000	1777	0.000	0.651	0.000
1702	0.037	0.068	0.068	1740	0.000	0.000	0.000	1778	0.062	0.557	0.000
1703	0.000	0.000	0.000	1741	0.000	0.000	0.000	1779	0.000	0.091	0.000
1704	0.027	0.000	0.000	1742	0.000	0.000	0.000	1780	0.000	0.208	0.000
1705	0.037	0.000	0.000	1743	0.000	0.000	0.000	1781	0.000	0.000	0.024
1706	0.000	0.000	0.000	1744	0.000	0.000	0.000	1782	0.000	0.091	0.000
1707	0.000	0.000	0.000	1745	0.008	0.000	0.000	1783	0.000	0.221	0.450
1708	0.057	0.000	0.000	1746	0.000	0.000	0.000	1784	0.000	0.000	0.514
								1785	0.000	0.000	0.091

Source: www.soundtoll.nl (see note 57).

Conclusion

Carrying the conclusions of Wallis' study of England's early modern drug trade a step or two further, one could hypothesise that countries with no direct commercial links to Asia and America began to import drugs to a significant extent only in the late seventeenth century and, by implication, began to consume exotic drugs on a substantial scale only in

Table 13. Volumes of sarsaparilla passing through the Sound eastward according to ports of departure, 1786–1849, in tons

Year	Boston and New York	Lissabon	London and Liverpool	Rest	Year	Boston and New York	Lissabon	London and Liverpool	Rest
1786	0	0	0.032	0.477	1819	5.511	13.650	0.000	5.476
1787	0	0	0	0.325	1820	0	38.308	4.894	10.363
1788	0	0.235	0	0.195	1821	12.121	15.877	4.033	27.078
1789	0	1.410	0.090	0.029	1822	0.272	8.811	1.486	6.673
1790	0	2.390	1.623	1.366	1823	6.298	4.662	0.341	12.031
1791	0	0.046	2.676	1.339	1824	0	0	0	1.051
1792	0	4.219	0.112	1.138	1825	22.366	17.308	6.788	4.496
1793	0	2.978	0	0	1826	20.066	7.067	0	7.709
1794	0	0	0.138	3.014	1827	0	2.386	0.715	0.079
1795	0	0	0	7.627	1828	8.187	9.317	0.168	4.594
1796	0	0	0.161	11.305	1829	8.554	10.685	28.637	54.377
1798	0	0	0.023	0.190	1830	10.723	10.628	0	2.524
1799	0	0	0	0.100	1831	25.857	12.869	7.877	11.424
1800	0	0	0.174	0	1832	12.972	19.302	0	16.630
1801	0	0	0	0.321	1833	19.144	8.345	31.876	2.164
1802	0	0.523	0.207	0.023	1834	49.360	11.134	4.736	9.417
1803	0	3.731	0.850	0	1835	37.286	10.912	15.886	7.110
1804	0	9.393	5.453	6.010	1836	48.266	0	2.892	5.270
1805	0	4.565	6.437	0.483	1837	36.559	0.829	0.840	1.432
1806	0	5.164	0.482	0.201	1838	37.400	1.267	7.349	1.369
1807	0	0	1.699	0	1839	46.713	0	18.721	1.198
1809	0	0	0	1.230	1840	59.792	1.967	5.022	5.474
1810	0	0	0	1.318	1841	0	0	2.463	18.561
1811	1.322	0	0	0	1842	56.950	1.875	14.572	48.588
1812	0	0	5.034	0	1843	58.421	21.397	8.965	13.933
1813	0	0	4.121	0	1844	63.498	34.412	4.760	19.675
1814	0	3.756	0.299	11.410	1845	8.260	23.613	15.175	6.791
1815	0	5.918	2.782	2.028	1846	4.535	22.771	16.912	7.778
1816	0.713	8.643	0	12.694	1847	2.531	29.512	6.731	5.679
1817	0	14.478	2.333	27.565	1848	7.777	7.846	10.135	3.737
1818	0	13.297	0	2.211	1849	4.494	25.432	1.808	4.223

Source: www.soundtoll.nl (see note 57).

the eighteenth century. We have tested this hypothesis by analysing the volumes of china root, sarsaparilla, rhubarb, senna and benjamin transported through the Danish Sound as they emerge from Sound Toll Registers Online. These five commodities seem relevant as they were, in terms of value, the most prominent among the drugs England imported between 1566 and 1774. The STRs reliability as a basis to test this hypothesis is established by the fact that the volume of rhubarb transported through the Sound from St Petersburg to London in the period 1753–1780 extracted from STRO tallies perfectly with the figures from English sources, partly based on Russian material, as published by Foust.

The test shows that china root, senna and benjamin hardly feature in the STRs which leads to the tentative conclusion that the hypothesis is too optimistic in these cases.

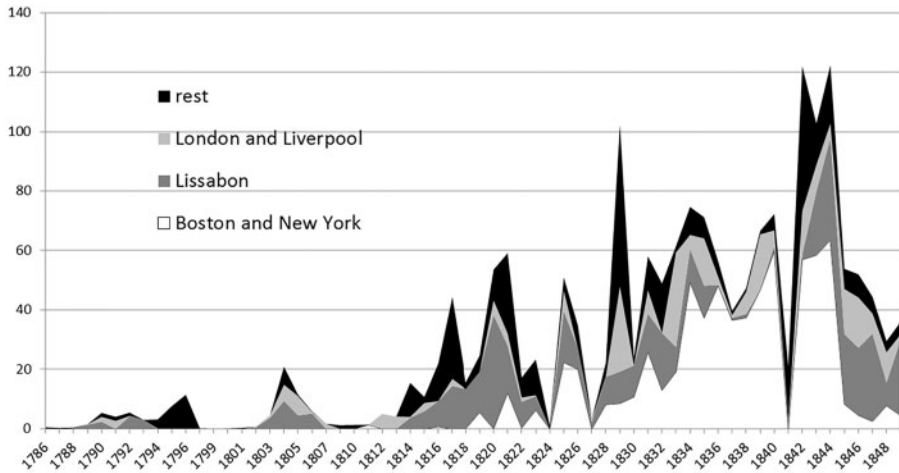


Fig. 10. Volumes of sarsaparilla passing through the Sound eastward according to ports of departure, 1786–1849, in tons, stacked.

Source: Table 13.

These three medicinal herbs did not arrive in the Baltic Sea area to any degree—at least not through the Sound and not before the middle of the nineteenth century.

Only rhubarb and sarsaparilla occur in STRO in significant quantities, and—provisionally in support of the hypothesis—they do so rather late. Limiting the analysis to the Sound Toll Registers we would conclude that rhubarb began to arrive in—Russian—Baltic Sea ports only by the late 1720s and in non-Russian ports only from the 1750s. Other evidence, however, quite decisively contradicts this conclusion. Throughout the seventeenth century and in the early eighteenth century rhubarb was shipped overland from Russia to several Baltic Sea ports and was most likely subsequently distributed to other ports east of the Sound. At least some rhubarb reached some of the Baltic Sea ports from the beginning of the seventeenth century. After the Peace of Nystad (1721) the transit trade was, quite logically, generally concentrated in Russian Baltic Sea ports and almost exclusively in St Petersburg.

Sarsaparilla went through the Sound to Baltic Sea destinations consistently but in only very small quantities for a long time—from at least as early as 1671. The Baltic Sea region only began to import sarsaparilla in any significant quantity in the second half of the eighteenth century—at least a hundred years later than England.

In summary, it may be stated that the hypothesis that countries with no direct commercial links with Asia and America began to import drugs to a significant extent much later than countries which did have those links, like England, is supported by the evidence provided by the Sound Toll registers. It is too bold to reason, on this basis, that the development of medical services in the Baltic Sea area lagged behind northwest Europe as the quality of these services may not be considered to depend on the availability of exotic drugs. But it is certainly not unreasonable to argue that the Baltic Sea area absorbed exotic medicinal drugs much later than northwest Europe by about a century. In this respect

the absorption of exotic drugs into the area seems to follow the same pattern as the development of its consumption patterns in general.

These conclusions are tentative and provisional, indeed. Medicines were low-weight, low-volume and expensive commodities. They may, therefore, have been sent to the Baltic Sea area by overland routes and also, from its opening in 1784, via the Schleswig-Holstein Canal. Detailed research in additional sources must be carried out to find out to what extent this happened. Whatever the outcome of such future research, the brief exploration of the Baltic drug traffic in the present article may illustrate that the study of medical history can greatly benefit from quantitative research into the intra-European drug trade.