
Customs 3 and Russian Rhubarb *A Note on Reliability* *

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As recently as 1979, Phyllis Deane wrote that the Inspector General's Ledgers of Imports and Exports for the years 1697-1780 (Customs 3) are "all the more important for eighteenth-century Britain" and she might have added for Europe "and the New World Plantations as well because the overseas trade statistics are" the only reliable *annual* records of an overall kind¹. All students of eighteenth-century economic statistics have agreed on the actual or potential importance of this series but not a few have found it flawed, perhaps to the point of uselessness, because of unpredictable under-reportage as a result of massive smuggling, bribing of customs officials, and/or faulty book-keeping². To be sure it has drawbacks. The ledgers are large and heavy volumes which list commodities imported (by country of origin) and exported (by country of destination and divided into English manufactures and foreign products), and provide quantities as well as values, the

* I am immensely grateful to my colleague Prof. JOHN J. McCUSKER for guidance and well-suited advice in matters of trade statistics and archival material. I do not hold him responsible for any flaws in reasoning, however.

¹ PHYLLIS DEANE, *The First Industrial Revolution* (2d ed., Cambridge: Cambridge University Press, 1979), p. 61. The ledgers are preserved in The Public Record Office, Customs 3/1-82. See also EDWARD CARSON, "Customs Record as a Source for Historical Research", *Archives*, 13, no. 58 (Autumn 1977), pp. 74-80; and W. E. MINCHINTON and C. J. FRENCH, *British Records Relating to America in Microform: Customs 3 1696-1780 in The Public Record Office, London*. Introduction (East Ardsley: EP Microform Ltd., 1974).

² See, for example, R. G. WILSON, *Gentleman Merchants. The Merchant Community in Leeds, 1700-1830* (New York, Augustus M. KELLEY, 1971), p. 38: "The customs accounts are perhaps the more unreliable or at least bewildering", as compared with a production series for woollen cloth of the West Riding, Yorkshire.

latter which became fixed early on and therefore do not reflect actual purchase or sale prices. The heft and detail of these volumes discouraged many otherwise praiseworthy scholars from tallying the many figures, until Elizabeth Schumpeter accomplished the painstaking work for most major commodities³. But even her tallies, although widely used, have been challenged and should be used probably as a crutch rather than a healthy leg⁴.

The principal criticisms of Customs 3, however, have focused on smuggling and the bribery of customs clerks or officials to misrepresent actual imports or exports, either of which, if substantial, would leave these registers little more than lists of licit commodities of relatively low value and/or of low customs duty such as not to tempt merchants trading in them to evade customs declaration. Unless some measurement or sound estimate could be made of these evasions, Customs 3 figures could serve, in the words of L. M. Cullen, only "as an acceptable general indication of the extent of trade" rather than the basis of close analyses of economic change⁵.

The first and path-breaking attempt to quantify what was commonly believed to have been an immense amount of smuggling to, through, and from England in the eighteenth century was that of W. A. Cole, who used tea as a case study because of its high value relative to its bulk, its high rate of customs duty prior to 1784 ("which often doubled the legal price"), and its extensive and expanding market in England⁶. He concluded that during certain periods, the early 1740s and the 1770s and early 1780s, the smuggler marched if not outsold the British East India Company, and, more important, there may have been "a causal relationship between fluctuations in tea smuggling and movements in the illicit trade as a whole". Much more recently the Muis have sharply challenged Professor Cole's reasoning and empirical data, leading them to ask, "Must we conclude that the quantitative importance of smuggling during the eighteenth century is

³ E. B. SCHUMPETER, *English Overseas Trade Statistics, 1697-1808* (Oxford: Clarendon Press, 1960).

⁴ See especially JOHN J. MCCUSKER, "The Rum Trade and the Balance of Payments of the Thirteen Continental Colonies, 1650-1775" (unpubl. Ph.D. dissertation, University of Pittsburgh, 1970), p. 991, n. 24. Also his "Current Value of English Exports, 1697-1800", *William and Mary Quarterly*, 3d ser., 28 (Oct. 1971): 607-28, and Deane, *The First Industrial Revolution*, pp. 63-5.

⁵ L. M. CULLEN, *Anglo-Irish Trade, 1660-1800* (Manchester: Manchester University Press, 1968), p. 218, and see also H. E. S. FISHER, *The Portugal Trade, A Study of Anglo-Portuguese Commerce, 1700-1770* (London: Methuen & Co., Ltd., 1971).

⁶ W. A. COLE, "Trends in Eighteenth-Century Smuggling", *Economic History Review*, 10 (April 1958) pp. 395-409. See also G. D. RAMSEY, "The Smugglers' Trade: A Neglected Aspect of English Commercial Development", *Transactions of the Royal Historical Society*, 5th ser., 2 (1952) pp. 131-57.

⁷ COLE, *Economic History Review*, 10 (April 1958) pp. 404-05, 407.

irretrievably lost?" and to answer, "In a precise way, yes⁸." Nonetheless they promise a future treatment of the *continental* tea trade which could provide a statistical foundation they found lacking in English sources. It remains up in the air as to whether or not we shall be able to quantify smuggling.

The second major analysis of the Customs 3 statistics has been to compare them with figures extracted from extant port books. R. G. Wilson, for example, in his study of Leeds merchants compared the figures for two woollens - kerseys and northern dozens - exported from Hull with the "national" figures summed from London and outports listings in Customs, for seven scattered years between 1702 and 1783⁹. He found that in six of the seven, the figures from the Hull port books alone *exceeded* total English exports, suggesting to him substantial smuggling, false entries, etc. In the absence of the quarterly reports from the outports to the Inspector General of Customs whose office compiled Customs 3, "it is impossible," Wilson concludes, "to place much reliance on either the national figures or those for individual ports."

More recently Donald Woodward, using Bristol port books, has cautioned that these books must not be accepted as "accurate records of trade," for he too found the national ledgers lower on occasion than the local accounts¹⁰. Yet he observed that large - scale evasion of customs duties and fraudulent recording in the ledgers, national and local, was "limited to a relatively narrow range of commodities." Both Wilson's and Woodward's comparisons are between Customs 3 and English port books, but such comparison can be only be suggestive. The port books are too fragmentary for the eighteenth century to allow more than spotcheck and we know even less about the processes of their compilation than we do of the national ledgers.

Thus an immensely important contribution to this confused picture was made by Sven-Erik Åström's comparison for the year 1685 of the port books for London, Hull, and Newcastle with the Sound Toll Register and assorted Swedish and Baltic customs accounts¹¹. Unfortunately his comparison was for but a single year and he too had to lean on a single commodity - iron. In spite of considerable research difficulties, Åström finds the English Port Books "may be considered to

⁸ Hoh-Cheung and LORNA H. MUI, "Trends in Eighteenth-Century Smuggling' Reconsidered," *Economic History Review*, 2d ser., 28 (Feb. 1975) p. 43. See also Cole's rejoinder, "The Arithmetic of Eighteenth-Century Smuggling", *ibid.*, pp. 44 - 9. Further, ROBERT C. NASH in his "The English and Scottish Tobacco Trades in the Seventeenth and Eighteenth Centuries: Legal and Illegal Trade", *ibid.*, 2d ser. 35 (Aug. 1982) pp. 354-72. concludes that *tobacco* smuggling especially in the first half of the century was not great in comparison with the total English tobacco trade but was nonetheless important in the home market, particularly Scotland, and thus skewed the market in Britain.

⁹ WILSON, *Gentleman Merchants*, p. 38.

¹⁰ DONALD WOODWARD, "The Port Books of England and Wales", *Maritime History*, 3 (Sept. 1973) pp. 160-61.

¹¹ SVEN-ERIK ÅSTRÖM, "The Reliability of the English Port Books", *Scandinavian Economic History Review*, 16 (1968) pp. 125-36.

be fairly reliable;" he finds relatively good agreement on the number of ships involved, although he has greater problem with cargoes¹². To be sure Åström's contribution does not reflect directly on Customs 3, rather on the earlier port books but it did direct our attention, quite properly, to the continental and other non-British accounts crucial for *outside* verification of the customs figures.

The shakeout of all of these tests is that the port books of England are inadequate, especially for the period after 1697, to lend themselves to establishing conclusively the reliability of the Customs 3 series, although for certain specific commodities at certain times they can rouse suspicions that the national series is flawed by under-reportage. Yet there is no accepted technique for measuring that under-reportage nor apparently for deciding which commodities were so affected (with the exception of a few highly visible contraband items) or which outports were scrupulous in reporting and which not. On the other hand, following Åström, some commodities (those of low value per bulk, low tariff rate, or otherwise not attractive to smugglers) may very well have received more or less accurate recording, even in Customs 3. This suggests that what is necessary above all is that Customs 3 needs more testing by foreign, especially continental, customs series, as Donald Woodward noted in 1973: "A comparison of English and continental customs accounts is still in its infancy and the work is hampered by the extremely fragmented survival of customs materials for many areas on the continent"¹³.

Nearly fifty years ago G. N. Clark asked how far it were possible to authenticate, "by comparison with complementary foreign and colonial statistics," the quantities of goods entering and leaving London and outports for the years 1697-1780¹⁴. He tentatively answered that, except for "the famous Sound Toll Register," the prospects were slim indeed. Unfortunately his answer was reasonable then, for even those Registers have not over the year lent themselves to ready comparison, if for no other reason than they recorded transit duties - not cargoes as such - from which some countries were wholly or partially exempt¹⁵.

The present note provides a comparison, such as Woodward suggests, from a neglected sector of Europe - St. Petersburg - for which survive printed lists (broadside sheets or single publications) which summarize quantities of exports of leading commodities for the years 1753-91 and, for the decade 1792-1801, provide far more detailed annual statements identifying commodities by destination. These eleven printed lists are preserved in Goldsmiths' Library, University of London (see Table 1).

¹² *Ibid.*, p. 134.

¹³ WOODWARD, *Maritime History*, 3 (Sept. 1973), pp. 159-60.

¹⁴ SIR GEORGE NORMAN CLARK, *Guide to English Commercial Statistics, 1696-1782* (London: Royal Historical Society, 1938), p. 39.

¹⁵ N. H. W. BANG & K. E. P. KORST, *Tabeller over skibsfart og varetransport gennem w.f. resund, 1661-1783, og gennem Storebaelt, 1701-1748*, 4 vols. (Copenhagen: Gyldendalske boghandel, Nordisk forlag (etc.), 1930-1952).

TABLE I

*Lists of Exports from St. Petersburg, 1753-1801,
Preserved in the Goldsmiths' Library*

List of the principal Russian products exported from St. Petersburg in the following thirty-nine years by British ships 1753-91.

Goods exported from St. Petersburg Anno 1792.

Goods exported from St. Petersburg 1793.

Liste d'exportation de St. Petersbourg 1794.

Liste des marchandises principales, exportées de St Petersbourg 1795.

Liste des marchandises exportées de St. Petersbourg 1796

List of principal Russia products, exported from St. Petersburg 1797.

List of principal Russia products exported from St. Petersburg 1798.

Account of goods exported in the British ships from St. Petersburg Anno 1799.

Verzeichniss der vorzüglichsten russischen Produkte, welke von St. Petersburg 1800 ausgeschift worden sind.

Merchandises exportées de St. Petersbourg 1801.

Note: None of these lists bears publication data, although the bibliographic assumption is that all were published in St. Petersburg and in the year following that covered by the list, except the first one for 1753-91 which was published probably in 1794.

The 1753-91 list and the annual list for 1799 are limited to exports in British ships only; the others provide figures for other European destinations and the United States. These very valuable export lists appear to have ceased publication with the beginning of the long-lived and well-known annual *Survey of the Foreign Trade of Russia Across European and Asiatic Borders*, initiated by Minister of Commerce N. P. Rumiantsev¹⁶. At least no later ones have yet been found.

The St. Petersburg export lists, published evidently in several European languages, would seem to have been compiled from customs ledger books of that port, probably for the purpose of stimulating interest in Russian exports and making Russian trade appear to be vigorous and healthy. Such ledgers must have been also the source for another compilation published in 1805 by Joshua Jepson Oddy, distinguished member of the Russia and Levant Companies¹⁷. Oddy's statistics which appear in a detailed and informed book on European commerce serve as a most useful check on the Goldsmith's lists, in the absence of what must have been the common source of them both, the original customs record.

Finally, both Oddy and the Goldsmiths' lists may be spot tested by two other snippets derived certainly from the same records: figures in the papers of two Western visitors to Russia, Edmund Charles Genêt and Francisco de Miranda. Genêt, while on diplomatic assignment in St. Petersburg for the French Government between 1787 and 1792, acquired among other things two exports accounts for 1788 and 1791¹⁸. In addition Miranda during his visit there in 1786-87, barely overlapping Genêt, came into possession of a printed "Extract of Goods exported from St. Petersburg" for the years 1779-84¹⁹.

¹⁶ Russia, Ministerstvo Kommertsii, *Gosudarstvennaia torgovlia... goda v raznykh eia vidakh* (St. Petersburg: Pri Imperatorskoi Tipografii, 1802-1915). Title and publisher vary for subsequent years; in time the title stabilized as *Obzor vneshnei torgovli Rossii po evropeiskoi i aziatskoi granitsam*. Also *Tableaux du commerce de l'Empire de Russie. Années 1802, 1803, 1804, 1805*, trans. Fr. Pfeiffer (St. Petersburg: F. DRECHSLER, 1808).

¹⁷ J. J. ODDY, *European Commerce, Shewing new and secure Channels of trade with the continent of Europe* (London: W. J. & J. RICHARDSON, 1805), pp. 122* and 125*.

¹⁸ *Account of Goods Exported by the British Ships from St. Petersburg Anno 1788*, Library of Congress, Broadside Collection, Portfolio 307, No. 14; and *Account of Goods Exported by the British Ships from St. Petersburg Anno 1791*, Portfolio 307, No. 17. These accounts were originally preserved in the Genêt papers but are now housed in the Broad-sides Collection. For Genêt's sojourn in Russia, see M. H. WOODRIN, "Edmond Charles Genêt", *Dictionary of American Biography*, VII (1946) pp. 207-09, and M. MINNIGERODE, *Jefferson Friend of France, 1793: The Career of Edmond Charles Genêt* (New York: G. P. Putnam's Sons, 1928), pp. 84-118.

¹⁹ *Extract of Goods exported from St. Petersburg in the following Years*, and untitled and undated manuscript account for the year 1786, both preserved in the Miranda papers. Archivo de Francisco de Miranda. Archivos de la Academia de Historia, Caracas, Venezuela. For copies of these I am indebted to Professors DAVID M. GRIFFITHS and R. WINTHROP WRIGHT. For Miranda in Russia, see W. S. ROBERTSON, *The Life of Miranda* (Chapel Hill: University of North Carolina Press, 1929), II pp. 71-82.

Only a single commodity is used here for the comparison, a commodity *not* selected for compilation from Customs 3 by Schumpeter but a highly important one nonetheless, the cathartic drug rhubarb. Rhubarb root, regarded since ancient times as a useful stomachic, came to be appreciated throughout seventeenth-century Europe as an immensely valuable purgative, valued especially in those still humoral days because of its relative mildness and its astringency²⁰. But the best rhubarb was not grown in Europe and was very expensive. Reputedly Marco Polo had brought to the West the understanding that the most medicinally efficacious root came from Tibet and Western China, and even before the mid-seventeenth century Russians by land and others by sea or land began to bring the drug back. Not until the second quarter of the eighteenth century, however, were the quantities returned so great as to amount to a genuine Europe-wide craze. Europeans seemed determined to purge themselves as therapy for a wide range of afflictions from gout to gonorrhoea.

The largest imports to London and outputs from all sources came in the 1760s, the peak year being 1768 when the Customs 3 ledgers recorded 67,764 lbs. avoirdupois arriving in London, plus a trivial amount, as it always was, in the outputs (122 lbs. avoirdupois.) Of that truly enormous quantity of the dried drug the largest portion by far was brought from China and other oriental places by the British East India Company, which over the entire period of Customs 3 accounted for 70% or so of the rhubarb imported to Britain. Russia's rhubarb, i.e. Chinese rhubarb transhipped by way of Russia directly, or indirectly through Amsterdam, constituted between 15 and 20% of total English imports. Most of the remaining root came from Turkey which was probably the less prized drug native to the Eastern Mediterranean and known as rhapsotic.

The Customs 3, Goldsmiths', and Oddy statistics are reproduced with conversion from pounds to lbs. avoirdupois in Table 2. (The Customs 3 ledgers, or registers as Walter Minchinton and Christopher French prefer, survive only through 1780, although they are thought to have been compiled for several years beyond that date. They were replaced by a later series of ledger, known as the Customs 5 series, the only volumes of which still surviving are the 1792 and 1800.)

²⁰ I am now preparing a monograph on the history of rhubarb; in the meantime readers may consult Chapter 3 of my *Muscovite and Mandarin. Russia's Trade with China and Its Setting, 1727-1805* (Chapel Hill: University of North Carolina Press, 1969) for the Russian trade in the drug.

TABLE II

<i>The Trade in Rhubarb from St. Petersburg to London, 1753-1804</i>					
Exports from St. Petersburg to London & Outports, in Pouds and Pounds Avoirdupois				Imports to London & Outports in Pounds Avoirdupois, from Customs 3 & 5	
	<i>Oddy</i>		<i>Goldsmiths'</i>		
1753		00		00	91
1754		00		00	00
1755		00		00	00
1756		00		00	00
1757		00		00	00
1758		00		00	00
1759		00		00	00
1760	8-1/2	307	8-1/2	307	00
1761	40-1/2	1462	40-1/2	1462	1874
1762	60	2167	60	2167	377
1763	157-1/4	5678	157-1/4	5678	6206
1764	277-1/2	10,021	277-1/2	10,021	9682
1765	284	10,255	284	10,255	34,789
1766	00	00	00	00	00
1767	129-1/2	4676	129-1/2	4676	4028
1768	00	00	00	00	3170
1769	00	00	00	00	00
1770	81-1/2	2943	81-1/2	2843	2309
1771	00	00	00	00	57
1772	3-1/2	126	2-1/2	90	3
1773	00	00	00	00	85
1774	56-1/2	2040	56-1/2	2040	2343
1775	100	3611	100	3611	3151
1776	84-1/2	3051	84-1/2	3051	3095
1777	43	1553	43	1553	1572
1778	23-1/4	840	23-1/2	849	336
1779	70-1/2	2546	70-1/2	2546	3452
1780	156	5633	156	5633	3763
1781	217	7836	217	7836	—
1782	49	1769	49	1769	—
1783	200-1/4	7231	200-1/4	7231	—
1784	00	00	00	00	—
1785	37	1336	37	1336	—
1786	99	3575	99	3575	—
1787	239	8630	239	8630	—
1788	57-1/2	2076	57-1/2	2076	—

Exports from St. Petersburg to London & Outports, in Pouds and Pounds Avoirdupois				Imports to London & Outports in Pounds Avoirdupois, from Customs 3 & 5	
Oddy		Goldsmiths'			
1789	55	1986	55	1986	—
1790	15	542	15	542	—
1791	75	2708	75	2708	—
1792	31-1/2	1137	32	1156	926
1793	16-1/2	596	16 + 25 lbs.	601	—
1794	12	433	00	00	—
1795	25	903	00	00	—
1796	138-1/4	4992	138	4983	—
1797	37	1336	00	00	—
1798	236-1/2	8540	237	8558	—
1799	86-1/2	3124	86-1/2	3124	—
1800	1	36	1	36	90
1801	26	939	26	939	—
1802	00	00	—	—	—
1803	47	1697	—	—	—
1804	122	4405	—	—	—

Note: Oddy's account has it that the "Number of British Ships, to all Parts, in which Produce was loaded, are given till the Year 1791; from that Year, the Number of British Ships, which actually loaded to Great Britain and Ireland only...". The Goldsmiths' account, from 1753 through 1792 are for shipments in British bottoms to all ports; thereafter there is some variation. The years 1794 and 1797 are respectively "pour differentes Places" and "for Sundry Ports". The remaining appear to include only loadings in British ships although 1796 is vague: "pour l'Angleterre". The poud has been converted to lbs. avoirdupois by multiplying by 36.11; the Russian lb. (as in the Goldsmiths' figure for 1793) is lighter - 40 funts to one poud.

Before comparison with Customs 3 figures for imported rhubarb, it is important to examine closely the Oddy and Goldsmiths' contributions, and to establish if possible their reliability. Agreement between the two is virtually perfect, except for small discrepancies which, all in all, tend toward authentication of the accounts rather than challenge of them. Of the forty-nine years spanned by the two accounts, only six years have minor differences of 1/4, 1/2, or a full poud which may be dismissed as either scribal error or carelessness in tallying from the presumed original Russian source. Four other years have slightly greater problems. There is a five lbs. avoirdupois difference for 1793 which cannot be reconciled, although it likely derives from the unusual reportage of 16 pouds 25 lbs. (*Russian lbs.*) carried in the British bottoms. For 1794 Oddy lists 12 pouds while the Goldsmiths' sheet has 13 pouds for various places; we can presume twelve of that thirteen went to Britain

and one elsewhere. For 1795 there is a significant difference, the Goldsmiths' account recording no exports to Britain or rather in British ships while Oddy gives 25 pouds (903 lbs). There is no ready explanation for this anomaly except that the lists include only the "major" items of trade which could well have been judged by some anti-herbal clerk to exclude rhubarb. Perhaps also it was just carelessness. Finally there is an explainable difference for 1797. The Goldsmiths' account has 63 pouds (2275 lbs.) destined "For Sundry Ports" which sensibly allows 27 pouds (1336 lbs.) of that for British destinations and the remaining, as usual, for northern Europe. These minor differences, then, suggest, at the least, that both the Goldsmiths' and Oddy accounts drew from a common source and, by and large, did so carefully.

The final two comparisons mentioned above are limited to a few years but are nonetheless highly useful²¹. The Francisco de Miranda papers, part of which were preserved originally in Great Britain and are now in Caracas, include two lists, one printed and one manuscript, for the years respectively 1779-84 and 1786. They match exactly the Oddy and Goldsmiths' accounts save that the pouds are rounded off. The survival of a manuscript sheet for 1786 which is substantially the same as the other accounts, yet with scribal differences, certainly helps authenticate all of them.

Lastly the papers of Citizen Genêt, who arrived to serve in St. Petersburg as Miranda departed, preserve accounts for 1788 and 1791 which, although printed, bear some differences from the Goldsmiths' lists. There is some re-arranging of commodities and slight re-definition of them but the major difference is that Genêt's lists are far more detailed than the Goldsmiths'. Genêt's list for 1788, for example, provides a breakdown of the 542 British ships departing St. Petersburg: 517 to Britain and the rest to Europe (plus one to Charleston and two to Philadelphia). Of the 517 only 266 announced London or Hull as destination, while the Scottish ports, especially Leith and Dundee, bulk much larger than might have been expected. Genêt is likewise more detailed in commodities included, listing

²¹ There are, in addition, confirming items in two contemporary accounts. The Rev. WILLIAM COXE in his *Travels in Poland and Russia* (New York: Arno Press, 1970, reprint of the first three volumes of the 1802 edition), II, p. 389, comes up with a figure for goods exported from St. Petersburg in the holds of 382 British ships in 1777: 42 pouds 32 Russian lbs., close enough to the Oddy/Goldsmiths' figure of 43 pouds. He adds that this rhubarb was valued at £ 846/8/- or a bit less than £ 20 per poud, a comparatively high price, if calculated using his rate of exchange for 1778 between pound and rouble (2/6 = one rouble).

ADAM KRÖLL, member of the Russia Company, in his *A Commercial Dictionary, in the English and Russian Languages: With a full explanation of the Russian trade, &c. &c.* (London: S. CHAPPEL, 1800), p. 58, gives the figure of 80 pouds to England, Ireland, and Scotland in 1799 which compares closely with the 86-1/2 of Oddy/Goldsmith's. He also notes 107 pouds "to America, and all other Countries", which also compares closely with the 100 pouds of the Goldsmiths' list, save that the latter attributes the entire 100 pouds to nations other than America.

quantities, usually small, of soaps, printed linens, smoked tongues (138 dozen, mostly to Leith), and a variety of furs, especially fox (2458 pieces and 34 backs) and ermine (28-1/2, mostly to Leghorn). He also includes commodities laden in ten American ships bound for Boston, Salem, Gloucester, and ports south: bar iron, clean hemp, and various linens. The 1791 Genêt list, also more detailed than the Goldsmiths', gives 75 pouds and one lb. - Russian - of rhubarb but unlike Oddy and Goldsmiths' adds a breakdown for destination: 54 pouds 18 - lbs. Russian - to London, 20 pouds 11 lbs. - Russian - to Leith, and 12 lbs. - Russian - to Dublin, a total of 75 pouds 1 lb. - Russian. A nearly equal amount went to European ports Italy, Lübeck, and Hamburg presumably not in British ships. The upshot of the comparison of Miranda/Genêt and Oddy/Goldsmiths' is to bolster the claim of the latter as generally accurate and dependable extracts from St. Petersburg port ledgers.

What are the shortcomings of Oddy and Goldsmiths'? First and most obvious, we do not have the original ledger books from which all of the extracts most certainly were drawn. Although the agreement between and among them is great, we still need the originals back to 1753 if we wish to be certain. Yet even were they to surface, we would still have to examine them much as Customs 3 has been challenged since 1938, and is it not likely that we would conclude that the St. Petersburg bureaucracy was no more successful than the British in preventing smuggling and contraband, in avoiding inaccurate reporting due to speculation on the part of customs inspectors, and in preventing simple carelessness? We cannot now fully evaluate these shortcomings although common sense intimates they are considerable.

More to the point, however, are several other matters. Thus far we have largely neglected the question of in *whose* ships these goods were sent. The Goldsmiths' accounts (except for two years) tally the exports from St. Petersburg in *British* ships bound for various ports, to be sure British ports in the main. The exceptions are 1794 and 1797 which record shipments to various ports but presumably in the bottoms of several countries including perhaps Russia herself. This does not however seem to be a major problem in so far as Oddy includes only ladings in British ships. (Both Miranda and Genêt specify British ships). Still, if we keep in mind Oddy's careful notation that before 1791 his figures are for British ships departing St. Petersburg for *all* ports, both final destination and possible ports of call, then we cannot be entirely certain how much of the rhubarb taken aboard in St. Petersburg ended up on British wharfs and how much may have been sold in Lübeck or Hamburg or for that matter elsewhere in Europe. This is to be borne in mind as we turn to Customs 3.

The Customs 3 ledgers record rhubarb imports to London and unidentified outports for the twenty-eight years between 1753 and 1780, with the great bulk of the root going to London. Comparison of these figures with Oddy/Goldsmiths' figures produces a striking congruence of pattern although significant differences in precise amounts. At initial glance, overall Customs 3 has *far larger* imports from Russia than shown in the figures from St. Petersburg: 81,898 lbs. avoidupois to

56,909 lbs., or an annual import average for the whole period of 2925 lbs. to 2032 lbs. However, if the difference between the two for the single year 1765 (34,789 lbs. to 10,255.) is set aside, then Customs 3 figures are less than 1% greater than Oddy/Goldsmiths'! We have of course no authority to set aside that single anomalous year, especially if we note that it represents in both St. Petersburg and London the largest year in the rhubarb trade between the two countries.

There are a number of possible explanations for 1765. Several of these we can dismiss early on. There is, for example, the difference in calendar, making precise comparison of annual figures impossible. During the eighteenth century Russia used the Julian calendar for most purposes, eleven days behind the Gregorian adopted in Britain in 1752. The British customs ledgers were kept from Christmas to Christmas, however, so that the real difference was a fortnight and a half. Still the calendar could not have had much impact on these figures, in the light of the weeks it took for ships to ply the route between the two ports. To be certain we could average 1765 with the years before and after, or even the several years before and after, in order to eliminate discrepancies due to shipments late in the year and arrivals early in the new years. But this is no help. The two sets (Customs 3 and Oddy/Goldsmiths') agree for 1766 (no shipments, no arrivals) and nearly so for 1764 (a difference of only 3%).

As for the London side of things, obvious explanations are not readily apparent. The notation in the Customs 3 ledgers is clear and bold, allowing little room for copying error. It is possible that our copyists or compilers misattributed imports by the only other important source, the East India Company, to imports from Russia, but that seems less than likely. Customs 3 already has the Company importing 19,428 lbs. in that year, which would make a total of nearly 44,000 lbs., an exceptionally large figure indeed (although one exceeded in 1768 for the largest import by the Company recorded in Customs 3). Even though such misattribution is possible, we must set it aside as unusual at the least, for we see no evidence of that sort of thing elsewhere.

More telling is a comparison of the *total* imports of rhubarb to London (again, mainly from Russia and the East India Company) with exports of the root to the Continent and the New World Plantations, for the years around 1765, for which see Table 3:

TABLE III

*Total Imports and Exports of Rhubarb for the Port of London,
1763-1767 (in lbs. avoird.)*

	<i>Imports</i>	<i>Exports</i>
1763	25,473	6,041
1764	39,311	22,687
1765	54,289	19,601
1766	27,839	26,849
1767	28,933	20,428

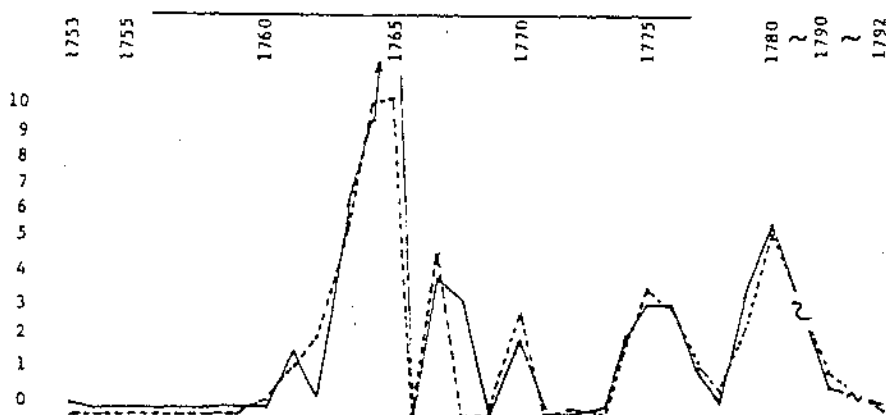
Source: Customs 3/65-69

Of the 54,300 lbs. imported in 1765, as Customs 3 has it, 34,789 were from Russia and 19,428 by way of the Company. In order to account for the unusually large amount exported in the following year (i.e., exported "in time", or, after 1721, within three years of import) either the Customs 3 figure or the Oddy/Goldsmiths' figure would suffice, but if as little as 10,255 lbs., the latter figure, were imported, it would have left surprisingly little for the domestic market in Britain, which was then nearly insatiable in its craving for the good imported root²². The Customs 3 figure, judging from the London side, would appear more plausible than the Oddy/Goldsmiths'.

With a suspicion that the Oddy/Goldsmiths' figure is too low rather than the Customs 3 too high, it is intriguing to notice that the difference between the two figures could very well be accounted for by scribal error in a single digit in the original Russian customs registers; instead of 284 pouds were the figure say 984, the difference would be a trivial twenty-one pouds, well within the annual differences over the years. This is of course wild speculation, and a case cannot be built upon it.

Apart from the discrepancy for 1765 and the overall higher figures for Customs 3, the *pattern* of waxing and waning of the rhubarb trade is remarkably similar, even one of congruence. The following figure illustrates this harmony.

Figure 1
Trade in Rhubarb, St. Petersburg-London, 1753-1800
(in 1000s of lbs. avoirdupois)



Not only do the two sets of figures rise and fall in fairly close unison one with the other, except for two or three periods they alternate one with the other as to

²² As evidenced in the numerous and widespread efforts to cultivate rhubarb in Britain from seeds brought from Russia by Dr. JAMES MOUNSEY in 1762. See, for example, JOHN H. APPLEBY, "Rhubarb" Mounsey and The Surinam Toad - a Scottish physician-naturalist in Russia', *Archives of Natural History*, XI, pp. no. 1 (1982) pp. 137-52.

which is greater. Hence taking periods of two or three years rather than single years results in even closer agreement between the two. Taken together with the slight difference between the two (after omitting 1765), the harmony of pattern strongly recommends the authenticity and accuracy of both London and St. Petersburg figures.

The usual reasons advanced for difficulty in comparing Customs 3 figures with customs tallies of other lands - smuggling, bribery of customs inspectors, and simply bad book keeping - cannot, as least as of now, be employed in the St. Petersburg-London trade connection. To be sure the Russian administration periodically complained that the smuggling of Chinese rhubarb into, through, and from Russia damaged severely the official monopoly in the rhubarb trade which was enforced throughout much of the second half of the century. Notably there seems to have been a decline in those officials' complaints in the period of Catherine the Great when, among other things, the state's apparatus for procuring rhubarb on the Mongol border, selecting (*brak-ing*) it according to the best apothecary state of the art, and guarding it on its long journey to St. Petersburg and abroad seems to have significantly improved²³.

What remains of this comparison is the reasonable judgment that Customs 3 statistics seem well if narrowly tested by the rhubarb trade from St. Petersburg in the second half of the eighteenth century and are not found seriously wanting, and vice versa. The compatibility of the two sets of figures is unusually close for that period, which suggests that the Customs 3 for the rhubarb trade at least, are reliable, that smuggling in that commodity was not great (except possibly for 1765), and that misrepresentation in London customs was not rampant. Specifically, the Russian rhubarb recorded as imported to London probably came directly from St. Petersburg and mainly in British ships. Some Russian rhubarb was imported earlier through Germany, Holland, and Flanders but the amounts were slight and the instances only occasional. From the present evidence there is no reason to believe that any appreciable amounts were carried by these routes after 1753.

But what of other commodities? It is necessary now to make comparisons of the St. Petersburg and British series for other commodities taking care to undertake fresh calculations from the Customs 3 ledgers in order to set aside doubts regarding Schumpeter's tallies. A tedious job to be sure, but one that might allow us confidently to use the quantities series of Customs 3 for at least those commodities and those avenues of trade which do not have the features making them attractive to smuggling or falsification of registry. Customs 3 may yet become our key eighteenth-century source, but it seems fairly obvious now that we must use it selectively, commodity by commodity, port by port, period by period, rather than expect it to be validated or repudiated as a whole.

²³ See, for example, the Senate decree of 21 September 1765 ordering the establishment at or near the Mongol border (Selenginsk or Irkutsk) of an apothecary office to be presided over by the accomplished apothecary ANDREI BRANT, *Polnoe sobranie zakonov*, No. 12477, 27, pp. 340-341.