EARLY MODERN THINGS

Objects and their histories, 1500–1800

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LOCATING RHUBARB

Early modernity's relevant obscurity

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In the spring of 1653 Fedor Ivanov syn Krisovo, a Russian peasant from the Urals town of Verkhotur'e, petitioned Tsar Aleksei Mikhailovich to reduce his tax burden. He explained that in the past year he had spent so much time assisting state convoys in the search for and extraction of rhubarb that he could not farm his own land enough to meet his tax burdens.[1] That same summer in distant Deptford, England, a gardener named John Evelyn was growing rhubarb in his own one-hundred-acre garden. Evelyn had also spotted it growing in the Oxford Botanic Garden.[2] At first glance these two events do not appear to be remotely connected. John Evelyn and Fedor Krisovo, men of completely different backgrounds with wildly different world views half a world apart, knew nothing of each other. They worked their respective patches of soil with different means and different ends, but their actions share a common denominator: they reflect the growing popularity of rhubarb in early modern Europe.

Locating rhubarb

Today we mostly think of rhubarb as the pleasing filling in pies and jams. However, making those sour stalks taste pleasant requires a heavy dose of sugar, a commodity that was neither widely available nor inexpensive for most of human history, so stalks were not the focus of early modern enthusiasm. Nor were the leaves, which contain oxalic acid, poisonous to humans. This fact was discovered through trial and error, such as in Elizabethan England when rhubarb leaves were tried as table greens. A cook at Versailles, ignorant of their toxicity, allegedly experimented with a soup using rhubarb leaves.[3] We can only wonder what befell that gastronomically bold but probably not regicidal cook. No, it was neither the leaf nor the stalk that early moderns coveted, but the root of the rhubarb plant.

Rhubarb's medicinal history dates to ancient times. Although the oldest Egyptian medicinal text does not mention rhubarb, it does appear in the Greek Dioscorides' seminal *De Materia Medica*, which was written in the first century CE and circulated throughout the Christian and what became Muslim worlds in Ancient and medieval times. At the other end of Eurasia, knowledge of rhubarb's medicinal value may have dated back farther; rhubarb is listed in the earliest Chinese herbal, *The Divine Farmer's Materia Medica* (*Shen Nong Ben Cao Jing*), which was probably compiled between 300 BCE and 200 CE.[4] Both texts prescribe rhubarb to treat a wide range of maladies, from hypochondria to sciatica, malaria to nosebleeds.[5] The thirteenth-century polymath from Andalusia, Ibn al-Baitar (d. 1248), included among rhubarb's medicinal benefits 'strengthening the stomach, improving its smell, softening the faeces, cessation of thirst and vomiting,[6] relieving jaundice, regulating the heart beat and improving the appetite.'[7] In Christian Europe it was used to treat all manner of illness, including jaundice, various skin complaints, fevers, even syphilis. It was also used as a diuretic and accompanied most bloodletting treatments in seventeenth-century France.[8]

But where rhubarb really earned its mass appeal was in the gastrointestinal business, as a gentle purgative. Dioscorides had credited rhubarb with acting 'against laxity' and al-Baitur acknowledged that rhubarb could 'strengthen the stomach' and 'softened the faeces' but neither considered it foremost as a laxative or purgative. The Greeks understood rhubarb's binding abilities, but not its purgative properties. The evacuative attribute became most strongly associated with rhubarb imported from the Far East. Gradually – over the course of the twelfth to the fourteenth centuries – it became recognized that the rhubarb that came from the east was far more potent than the rhubarb of Dioscorides.[9] For example, by the early sixteenth century when the Portuguese doctor Garcia d'Orta visited Samarkand, a flourishing market in Central Asia to which Chinese merchants had brought rhubarb since at least the fourteenth century, he reported that 'lesser' sorts of rhubarb grew in the region of Samarkand, indicating his awareness of varying potencies among different rhubarb species.[10]

This Chinese rhubarb was not just any purgative. What made this rhubarb so special was its combined aperient *and* astringent qualities: it catalyzed a catharsis that was followed by constipation – a little binding action on the end (astringent). Paradoxically, rhubarb could effect essentially opposite actions – relieving diarrhea (small dose) and cleansing the system (larger dose). These qualities made it nothing short of a wonder drug. In early modern medicine generally the power of the cleansing principle reigned supreme. Laxatives, purging, and bloodletting were prescribed for most maladies: rhubarb was used in all three. Relative to other purgatives, it was popular for being effective yet mild enough that small children and pregnant women could take it.[11] Thus, rhubarb's particular characteristics in the midst of widespread market demand set the stage for a highly coveted, albeit extremely distant, commodity.

Obstacles other than distance complicated definitively 'locating' rhubarb. Rhubarb was accompanied by uncertainties that challenged entrepreneurs and horticulturalists alike. To begin with, making sense of the various names applied to rhubarb requires some untangling.[12] Geography informed the naming of rhubarb in ways that could confuse as much as clarify. The rhubarb known to ancient Greeks was named based on presumed origin, but by the sixteenth and seventeenth centuries appellations generally reflected the trade route it traveled to European markets: Turkish, Indian, Chinese, and Russian rhubarb sold at European markets was probably often the same species and had come from China.[13] Although the name only reflected the route traveled, that route could impart meaningful qualitative differences, even for rhubarb of the same sort. For example, the Russian state established a rhubarb monopoly and instituted a quality control system (called the *brak*) that resulted in 'Russian' rhubarb garnering the highest prices and best reputation in eighteenth-century Europe.[14] Astute buyers knew that Russian rhubarb came from China (*Rhubarbus palmatum*) but having traversed Russia added real value.

Confusions about rhubarb were hardly limited to transit route. Botanical unknowns stumped enthusiastic naturalists and mercantilists for centuries. Ambassadors to China, medics in Central Asia, missionaries traversing Eurasia, and trade agents in India brought back conflicting or ambiguous reports on the question of whether medicinal rhubarb grew only in the wild or was cultivated.[15] Part of the problem was that different species of rhubarb existed. Determining what was *Rha rhabarbarum*, *Rheum officinale*, 'true rhubarb,' *R. rhaponticum*, *R. palmatum*, *R. undulatum*, etc. made for a complicated story. From the seventeenth to nineteenth centuries naturalists and druggists struggled to determine which variety or varieties was/were 'true rhubarb,' identifying over fifty different species that spanned much of the globe in the process. Pharmacological challenges were no less acute than botanical ones. Chinese rhubarb had long been brought to the markets of the Near East and Mediterranean in miniscule quantities.[16] Demand for it accelerated when it became clear that Chinese rhubarb held the desired potency. What remained unclear, however, was just what made Chinese rhubarb so effective – a question that would remain unanswered well into the nineteenth century.[17]

Indeed, the state of early modern technology made species identification, to say nothing of manipulation or application, a substantive challenge. Before the first documented chemical analyses of rhubarb were done in 1803, appearance, color, smell, and taste were the merchant's and the druggist's best tools of recognition.[18] Lacking modern tools of preservation, representation, reproduction, and communication, even the matter of physical description was not trivial. Early modern botanists–horticulturalists sometimes had samples, but often relied only on descriptions and drawings by others in order to make their classifications. The vagaries of transport and dehydration easily rendered samples unrecognizable. Indeed, rhubarb was typically sold in dehydrated form after being dried by various processes: Mongols reportedly hung it on their sheep's

FIGURE 9.1 English apothecary jar for Imperial Pills, laxative containing rhubarb, 1675

horns and let it dry in the wind and sun of steppe pasture.[19] Obviously, the problem of recognition made merchants vulnerable and they armed themselves at market with descriptions of how to identify good rhubarb.[20] Ultimately, dried rhubarb root would make its way to some European apothecary's shop where the druggist would pulverize it and mix rhubarb root powder with other substances to prepare a tincture or pill that patients would then purchase and take in the apothecary shop (Figure 9.1). Given rhubarb's great expense – the most expensive purges in Italian apothecaries were made with rhubarb – clients with ties to long-distance commerce who were trying to economize might obtain the rhubarb for their prescribed tincture or pill directly and bring it to the apothecary themselves.[21]

As if visual recognition, species variation, preservation and transport were not challenging enough, variations in potency among individual plants and during phases of growth, medical practices, and patient particulars left much wiggle room in determining definitively rhubarb's efficacy. The apothecary's expertise and/or integrity was another variable at which the following seventeenth-century verse took aim:

> His Skill in *Physick* did his Fame advance,
> Tho some accuse him of dull Ignorance:
> *Powder of Post* may sometimes do the Trick,
> As well as *Rhubarb*, *Senna*, *Agarick*;
> For let the sad Disease be what it will,
> The Patients Faith helps more than Doctors Skill;[22]

Such difficulties were as daunting as they were typical in the development of botanical taxonomy and knowledge of medicinal plants in the early modern period. Early modern medicine was always a fuzzy business, and such challenges did not keep demand for rhubarb from rising.

Growing demand

Though knowledge about rhubarb's properties only crept along, consumption exploded in the early modern period. Like most commodities of long-distance medieval trade, rhubarb consumption was initially concentrated in elite niches. Rhubarb appears routinely in lists of court expenses for the Kingdom of Aragon in the fourteenth century.[23] An elixir containing rhubarb powder was administered to England's failing Henry VIII in the sixteenth century.[24] The Scottish doctor to the royal court in Moscow prescribed rhubarb for Prince Mikhail Dolgorukov in December 1665.[25] But in the early modern period, exclusive consumption patterns began to broaden as more Europeans became global consumers. Imports and consumption rose significantly throughout the sixteenth and seventeenth centuries. In seventeenth-century England, rhubarb consumption increased as the use of imported curatives became more common. In the late sixteenth century a small fraction (estimated 14 percent) of drugs were imported to England from outside Europe. By 1669, despite nativization efforts, 70 percent of pharmaceutical drugs in Britain were imported, mostly from India and the East Indies.[26] In the early eighteenth century the British East India Company imported over 10,000 lbs. of rhubarb annually. In the next decades London imports averaged more than 18,000 lbs. per annum, peaking in 1768 at about 67,764 lbs.[27] If a typical rhubarb dose was 1 dram, or about 4 grams, such a volume of import could have supplied approximately 30.7 million grams or nearly eight million doses.[28]

Growing popular demand was not confined to England.[29] Rhubarb appears as one of the top fifteen commodities in an inventory from an apothecary in early sixteenth-century Italy.[30] Venetian merchants continued to seek rhubarb in the markets of Aleppo, while in Russia commercial agents from England, Sweden, The Netherlands, Italy, and the Ottoman Empire kept their nose to the ground for inside information on the rhubarb trade.[31] Rhubarb sailed from St. Petersburg to northern European ports while Greek merchants bought rhubarb in Moscow to resell in Constantinople.[32] Meanwhile, the Dutch East India Company (Vereenigde Oost-Indische Compagnie, or VOC) and British East India Company (EIC) competed with the Russian state's overland trade for rhubarb market share. In recent years, scholarship eschewing Eurocentrism has challenged the traditional interpretation that the emergence of global maritime trade effected the decline of Eurasian caravan trade.[33] The case of rhubarb may offer an instructive example for the debates in the 'decline' thesis, for this commodity may have traveled better by land than sea. Historian Wilhelm Heyd reported that merchants preferred to transport rhubarb over land despite

available maritime options.[34] At the end of the sixteenth century Dutchman Jan van Linschoten directly averred that rhubarb that traveled over land 'is most esteemed & best sold.'[35] Nonetheless, many company men filled their return ship-carriage allotments from India with rhubarb: private decisions that reflect the profitability of the rhubarb trade.[36]

Profitable it was. Rhubarb was among the most expensive drugs and it grew more expensive as it moved westward. In Siberia, rhubarb could cost 10 or 18 rubles per pud (1 pud weighs 36.1 lbs., slightly more than four gallons of water), which was about three times what a home, a camel, a fine horse, or a slave could cost. The precious root cost easily five times that in Moscow and many times more than that in Western Europe.[37] An Italian Jesuit Matteo Ricci, who lived in Macao from 1582 to 1601, reported that in Peking one could 'buy a pound of rhubarb for ten cents, which in Europe would cost six or seven times as many gold pieces.'[38] Another Italian, P. A. Mattioli, asserted that rhubarb was worth its weight in gold. In Renaissance Florence a pound of rhubarb could retail at almost 6,000 soldi per pound, which was almost seven times as expensive as manna and eighty times as expensive as pudding pipe, other popular purgatives.[39]

The increased demand for rhubarb was a European-wide phenomenon. Typical of many introduced and exotic commodities (e.g. tea, coffee, pineapple) that often retain the same word across multiple languages, the word for rhubarb in most European languages was quite similar. Although it bears no resemblance to the Chinese term *da huang*, it was usually translated as some variation derived from the Ancient Greek appellation, *Rha barbarer*, meaning 'from the barbarian lands beyond the Volga': *rabarber* in Dutch, Danish, Estonian, and Polish; *rhubarbe* in French; *rabarbaro* in Italian; *ruibarbo* in Spanish and Portuguese.[40] Reminding us that language is historically contingent is the Greek example. The contemporary Greek word for rhubarb is *raventi*, which bears little resemblance to the cognates it helped birth. Rather, *raventi* is similar to the Turkish form, *ravent*. *Raventi*, understandably, seems to have found its way into the Greek language during the period of Ottoman control post-1453.[41] However, since the Greek language persisted, it was not a foregone conclusion that the word for rhubarb would become Turkish; the geography of commerce helps explain these cognate appellations. *Raventi* resembles the terms of its neighbors to the north and east: in Persian, rhubarb is *rewas* and in Russian, *reven'*.[42] Much Persian trade moved westward through the Ottoman Empire in times of war and peace. In the sixteenth century Russia had more extensive commercial relations with the Muslim world than Christendom.[43] Indeed, English merchant Arthur Edwards, scoping out the commercial scene in Persia in 1566, advised the directors of the Muscovy Company in London that they should have someone 'on the ground' in Persia who knew Russian.[44] This example invites consideration of ways in which the shifting orientation of economic and political hegemony away from the Mediterranean and Near Eastern worlds mapped itself onto linguistic idiosyncrasies.

Rhubarb's efficacy alone did not assure its market success. Rather, its ascendance reflected the convergence of numerous monumental developments that define early modern dynamism and helped catapult this exotic medicinal to the forefront of apothecary inventories. European markets were increasingly stimulated by increased supply of Eastern products and increased consumer spending. Overland trade caravans and newly established maritime trading companies delivered increasing supplies of rhubarb. Global commercial expansion fed and was fed by developments in Europe that further stimulated demand for rhubarb. Importantly, new discretionary spending facilitated emergent patterns of consumption, of which more apothecaries were one manifestation.[45]

A host of interrelated developments helped channel consumer choices to the apothecary's shop. Emergent imperialism along with the development of scientific thinking and the popularization of natural sciences like botany transformed the intellectual landscape. Entrepreneurial investors, collection-obsessed elites, and naturalists alike attended keenly to new developments at the farthest reaches of global discovery. For its part, scientific discovery often occurred outside the laboratory, as taxonomy was young and the whole world presented itself to be catalogued. Thus began a botanical revolution as naturalists and botanists endeavored to name, catalogue, reproduce, and understand all manner of flora and fauna. The increase in scientific study of the natural world stimulated the growth of medicinal knowledge, which in turn galvanized the discovery of new treatments, and commercial opportunities were not far behind. The popularization of the printing press also played a role, enabling broader dissemination of medical knowledge (Figure 9.2). More herbal and pharmaceutical guides were produced – the Smithsonian Institute libraries' digital collection has compiled a list of 149 herbals published between 1470 and 1745, and this list is incomplete – fixing declarations of rhubarb's efficacy in print and helping to channel consumer choices.[46] '[F]or purging this rhubarb is the best herb of all other purgatives,' read one fifteenth-century Florentine herbal.[47] Although more famous for describing the novel coffee plant, the Italian physician–botanist Prospero Alpini also composed *De rhapontico*, a treatise devoted to rhubarb, in the early seventeenth century.[48] In this way, pharmacological knowledge disseminated via print technology and urban apothecaries helped drive demand for the distant root.

Managing rhubarb

It was in this context that this sour-stalked tuber became the object of an English gardener's and Siberian peasant's digging in the dirt. John Evelyn, along with other seventeenth-century gardners, had a hard time producing medicinally potent rhubarb. In such failures to reproduce 'true rhubarb,' the Russian state found opportunity. If Europe could not properly grow potent medicinal rhubarb, it would have to import it from the east. Russia, so famously poised

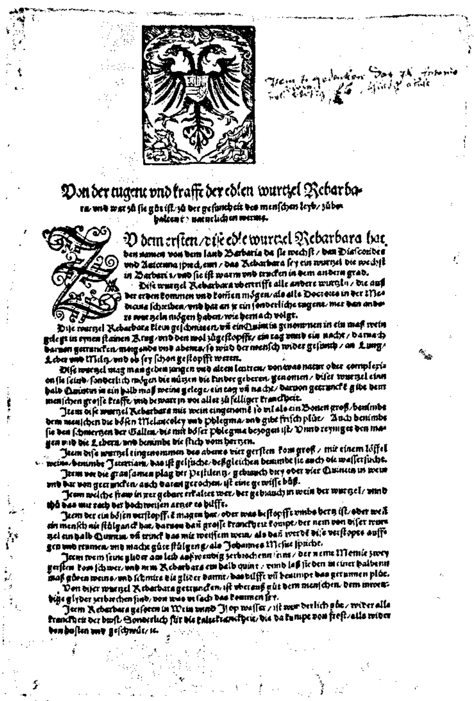
Von der tugent vnd krafft der edlen wurtzel Rebarbara

FIGURE 9.2 Sixteenth-century German imperial broadsheet advertising the wonders of rhubarb

between Europe and Asia, endeavored to profit considerably by facilitating East–West transit trade. By the middle of the seventeenth century the Russian leadership had noted that the price of rhubarb increased fivefold from Siberia to Moscow and even more abroad. Considering it a good investment, the state regulated the rhubarb trade by instituting policies that fluctuated between a monopsony and a monopoly on rhubarb for over two centuries. The state was so serious about garnering the rhubarb trade that it decreed the death penalty for anyone caught smuggling the precious root. Practice, predictably for an over-extended empire, was less draconian; for example, when merchants caught with illicit rhubarb in Siberia in 1656 explained that they had not heard about the law, customs officials merely confiscated the rhubarb and allowed the 'smugglers' to proceed freely.[49]

The Russian state did not limit its enterprising efforts to the regulation of trade. It also sought to procure rhubarb domestically, which is how our Siberian peasant Fedor ended up on rhubarb detail. He was commandeered to help in the state's attempt to source rhubarb within the empire's borders. The domestic procurement program was ultimately unsuccessful because the rhubarb growing wild in Siberia didn't have the right medicinal punch.[50] Ironically, the rhubarb that did grow so well and wild in Siberia – which Russian soldier–Cossack bands, with the help of peasants like Fedor, actually harvested

but ultimately rejected – was a predecessor to or variant of *Rhaponticum*, the rhubarb sort that has become the popular pie plant. In fact, an early recipe for rhubarb tart, mailed from England to America in 1739, called specifically for 'Siberian stalks.'[51] Although prevalent, *Rhaponticum* was not what early modern consumers wanted. *Rhaponticum* would have its day in the sun (even as it grows best with healthy doses of shade) but that was still far off in the future while Fedor was digging up Siberian plants.

Following rhubarb in and across the Russian empire sheds light on the vast geographic extent of the rhubarb trade and on the nature of Muscovy's integration into European culture and economy. Rhubarb entered on the Eurasian steppes of the southern Siberian border towns or Astrakhan. That which was not used domestically, which was probably most of it, was re-exported through Astrakhan, routes to Poland, or Arkhangel'sk and later, St. Petersburg. History books long presented Russia as isolated from Europe and the rest of the world until that innovating tempest, Peter the Great, opened a 'window on the West.' In fact, many channels connected Russia to its neighbors prior to the Great Westernizer Peter I. Novgorod and the Bulgar kingdom on the Volga River were part of trade networks that supplied 'to all ends of the earth' in the medieval period.[52] Fine sables from (what became) Russian lands graced the elite courts of Christendom and Dar es Salaam, and lower classes donned squirrel pelts well before the discovery of the New World.[53] In the sixteenth century, Russian forest products essential to the bourgeoning maritime industry – hemp, tar, potash – supplied the tacking for the British navy and East India companies, which meant that Muscovy was already fairly integrated into the European economy in the seventeenth century.[54] While forest products dominated Muscovy's export profile, rhubarb was also part of the mix. In 1568 an English ship sailed from Arkhangel'sk with 20 pounds of rhubarb in its hold.[55] Finally, Russia played a role in decisive developments in the early modern commercial scene. Even though it would be overshadowed by the East India Company, the Muscovy Company, founded in 1555 by Englishmen looking to pass through Muscovy en route to the riches of the Orient, was the first joint-stock trading company Europeans formed.[56]

The Russian state's policies towards rhubarb – establishment of a monopoly, domestic procurement program, quality control system – demonstrate the Russian state operating according to mercantilist principles that animated western European empires. It took the interventionist step of establishing a state monopoly in an effort to channel revenue to state coffers. It instituted a program to source rhubarb domestically in order to minimize specie export. While domestic procurement proved unsuccessful, the Russian state had more success increasing rhubarb profits through its inspection system, known as the *brak*. Beginning in the early eighteenth century, rhubarb was inspected upon import and again when leaving Russia for Europe; unfit specimens were destroyed. Consequently, as noted above, 'Russian rhubarb' garnered the highest prices in European markets.[57] Most basically, the lexical existence

of coveted 'Russian rhubarb' throughout Europe illustrates contact between Europe and Muscovy.

Relative to rhubarb's transit through the Russian empire, much less is known about rhubarb's use in Russia. If the popularity rhubarb enjoyed in early modern Europe was not *as* widespread in Russia – a hypothesis based on absences which may be due more to sources than practice[58] – the picture of domestic use of rhubarb in Russia may present an example of the limits of integration. We know that expatriate European doctors at the Russian court prescribed rhubarb in the seventeenth century. Samuel Collins, personal physician to Tsar Aleksei Mikhailovich from 1659–1666, wrote a prescription for Prince Mikhail Dolgorukov in December 1665.[59] A prescription for rhubarb by a different European doctor written for the Princess Maria Alekseevna in January 1674 also survives in the Apothecary archive in Moscow.[60] That prescriptions for rhubarb were written by expatriate court physicians demonstrates that Muscovites appreciated certain Western ways even as the doctors' expatriate status and the lack of additional evidence of rhubarb's medicinal use in Russia suggests a lack of cultural integration. By a similar token, efforts to find and cultivate rhubarb place Russia on the map of the 'republic of letters' of botanists and naturalists sharing seeds and information about valuable and newly discovered flora.[61] However, it was expatriate Europeans in Russia that dominated those early modern correspondences.

Some clues suggest a variety of domestic uses for rhubarb in Russia. Archdeacon Paul of Aleppo visited Moscow in the 1650s and reported that Russians drank glasses of vodka with small chunks of rhubarb root in it for their good health (demonstrating the food–medicine hybridity discussed below).[62] Croatian exile Yuri Krizhanich, however, also writing during Tsar Aleksei Mikhailovich's reign, listed rhubarb as a dye, not a medicine.[63] Russians reportedly used rhubarb to dye wool. Although the practice does not seem to have been widespread, rhubarb was also used as a dye in German lands. Rhubarb was used as a red, and possibly yellow, colorant to illuminate the fifteenth-century German manuscript *Barlaam and Josephat*.[64]

While rhubarb's profitability to the state lay in its role as a transit medicinal commodity, it is unlikely that rhubarb was only ferried across the Russian empire. Interestingly, two types of rhubarb (*kopytchatyi* and *cherenkovyi*) were trafficked through Russia, according to Russian customs records. Even after it became clear which sort (*kopytchatyi*) was the highly valued medicinal rhubarb, the lesser sort (*cherenkovyi* = *Rhapontic*) continued to appear in customs records, together with and independent of the more valuable sort. There is the possibility that merchants tried to disguise the *cherenkovyi* as the official Chinese rhubarb. Adulteration and smuggling seem to be cost-cutting measures as old as commerce itself. However, the idea that all the *cherenkovyi* recorded at customs posts was passed off as *kopychatyi and* that Russian rhubarb maintained its premiere reputation in such competitive markets seems to attribute far too much savvy to the smugglers and too little to the consumers. Perhaps merchants continued

to ship the *cherenkovyi* rhubarb repeatedly found in customs post declarations because it enjoyed a certain demand, perhaps as the rhubarb Russians used as dye, tanning agent, or veterinary medicine.[65] Perhaps these uses did not require the particular potency of Chinese rhubarb and were satisfied by the lesser sort. While the matter of domestic consumption requires further research I suspect that the 222 lbs. (6 puds and 5 pounds) of Crown rhubarb sold in state-owned apothecaries in 1777 does not account for all domestic consumption.[66]

As noted above, Russia was not the only nation to pursue nativization in the seventeenth century.[67] Indeed, both John Evelyn and the Russian state, in their efforts to domesticate a profitable commodity, were typical of their mercantilist age. And they had much company in their failure to successfully domesticate rhubarb. In the eighteenth century the Swedish botanist Carolus Linnaeus called for European countries to domesticate rhubarb, and the British Society of Arts patronized that objective by distributing seeds and offering prizes (money and gold medals) for the best rhubarb grown in order to 'benefit the nation and all mankind by stimulating inventiveness, industry, and commerce.'[68] Despite such incentives the effort to nativize 'Chinese' rhubarb remained unrealized. The journal of *Economic Botany* in 1947 reported that, 'For rhubarb root we still look to China.'[69]

The reason that rhubarb nativization efforts failed has much to do with the nature of the plant itself. For much of the eighteenth century botanists puzzled over what – soil, climate, age of individual plants, or genetic/ontological variation – accounted for a failure to cultivate on European soil a rhubarb with the same look and potency of Chinese rhubarb.[70] They gradually came to understand that rhubarb tends not to breed 'true.' This proclivity towards bastardization not only made the establishment of an accurate botanical genealogy more challenging, but could also complicate each of the problems enumerated above.[71]

From medicine to food

Alongside the story of the rise and ultimate decline of rhubarb roots, rhubarb underwent an identity shift – from medicinal root to sour-stalked food ingredient, with a protracted period in which it was recognized as both.[72] In broad strokes, in Ancient and medieval times rhubarb root was medicine and from around the eighteenth century rhubarb stalks have been a food. For the most part these are separate stories, for the potent root that was used for medicine did not come from the same variety of plant whose sour stalks were stewed for pies and tarts. Where these separate stories do intersect is in Siberia: the rhubarb that has become popular as a pie plant was a version of the rhubarb cultivated and rejected by the Russian state as the true medicinal rhubarb. Recall that the earliest known rhubarb tart recipe called for 'Siberian rhubarb.'

Although this chapter is most concerned with the intense interest of early moderns in medicinal rhubarb and the vast lengths they went to in order to obtain it, it is worth considering briefly how rhubarb transitioned to a food item.

In a word, sugar largely accounts for rhubarb's reinvention as a dessert food. In the fifteenth century Europeans may have consumed on average one teaspoon of sugar each year.[73] That changed dramatically over the next two centuries, as sugar went from exotic to quotidian on the commodity continuum. Between the 1660s and 1750s total sugar exports to Europe grew by 2.2 percent per annum, more than doubling the per capita sugar consumption in France and Britain. By the 1770s the volume of New World sugar shipments to Europe alone measured over four times the volume of all Asian goods shipped to Europe.[74] Indeed, by the eighteenth century New World plantations had begun to feed (and simultaneously rot) the 'sweet tooth' of the European commoner. It is no coincidence that it is in this same century that the first sweet rhubarb recipes appear, such as the above-mentioned tart recipe calling for the stalks of 'Siberian rhubarb,' which was mailed across the Atlantic Ocean in 1739.[75] Thus, from the eighteenth century onward, recipes for tarts, pies, compotes, and other sweet concoctions gradually began to supplant the common notion of rhubarb's purpose. Sugar's diffusion from the exotic to quotidian ferried rhubarb's transformation from medicine to food.

But it was not quite that cut and dry. One does find rhubarb described concurrently as food and medicine in Mediterranean medieval Europe. It seems to have made its way into European kitchens first via Muslim Spain. A thirteenth-century cookbook from Andalusia contains two recipes for beverages calling for Chinese rhubarb; they are descriptively titled 'The Great Drink of Roots' and 'The Great Cheering Syrup.'[76] This Andalusian cookbook likely drew on well-established food ways from the Arabic world. Centuries earlier and far to the east a tenth-century 'cookbook' from the Abbasid empire, the *Kitab al-Tabikh*, contains several recipes that call for rhubarb.[77] Tellingly, much of the cookbook is organized not according to types of foods or meal genres, as modern customs prescribe, but according to recipes appropriate to treating various health ailments. Rhubarb is typically mentioned in chapters dealing with humoral health. 'Juice of rhubarb (*ribas*) is astringent and good for yellow bile,' it instructs,[78] and adds that 'rhubarb is cold and dry. It controls bowel movements and quenches yellow bile and blood.'[79] Chapter six, on 'Foods recommended for the Young and the Elderly,' suggests that 'a person whose dominant humor is yellow bile may eat...ribasiyya (stew soured with rhubarb)'[80] (while some recipes are not at all sweet, ribasiyya did call for some sugar, though the dish was sour overall[81]). Thus the question is not whether rhubarb was either food or medicine: it was both.

Italy, stereotypically cutting-edge in fine cuisine, appreciated rhubarb as food earlier than most of Europe. The chef Bartolomeo Scappi served rhubarb root to the clerical elite both as a vegetable and in a thick soup.[82] Meanwhile, the Badia of Florence purchased purgative pills of rhubarb from a nearby apothecary several times in the 1490s.[83] Consumption was not confined to elite clerics and monks. When a sixteenth-century Italian woman wrote to a friend recommending Indian rhubarb to treat a fever, she differentiated it from the rhubarb used for

cooking, demonstrating that both conceptions were possibilities in Renaissance Italy.[84] Only gradually did recipes containing rhubarb make their way north. The earliest northern European recipe calling for rhubarb I have encountered is a seventeenth-century recipe for the beverage meade.[85] In the late eighteenth century, a time when rhubarb sold speedily at local markets to Londoners who made sweet tarts from it, a book on Ancient cookery was published in England; it contains a recipe for 'An excellent approved medicine both for the stomach and head of an elderly person' that contains rhubarb.[86]

What all these examples so clearly demonstrate is that food and medicine were not neatly distinct categories in the pre-modern world. Just as *Merchants and Marvels* demonstrated that we do better to abandon stark dichotomies between science and art in the early modern world, this examination into cookery has the same message for the categories of cuisine and medicine.[87] We moderns recognize that eating well is important for good health, but beyond what would be deemed alternative niches, food is not medicine. In the pre-modern period it very much was. Not all medicine was food (think witches' brews of special stones and lark eyelashes, etc.). Food, on the other hand, was quite typically medicine, considered not with respect to calories or nutrients (a twentieth-century neologism) but in terms of its effects on physical health, typically according to Gallenic theories of humoral health.

Sugar accounts for why rhubarb stalks became a food, but it does not account for why rhubarb stopped being a medicine. Despite all of its desirable and arguably survivalist qualities – a highly adaptable morphology should bode well for species survival and reproduction, should it not? – rhubarb did not retain its place as an internationally traded commodity of major importance. Why not? In answering this question the matter of rhubarb's history may help illuminate an underappreciated aspect of the rise of capitalism.

In part, the explanation lies in rhubarb's biology. Though one author affectionately describes rhubarb as a plant that resisted being known or tamed – a 'wondrous drug' that refused to offer up its essence[88] – such characteristics only frustrated early modern botanists. For starters, rhubarb bastardized easily. It manifested differently at different altitudes, in different soils and climates. As a result, attempts to determine species type and efficacy were repeatedly confounded because the same plant transplanted and subjected to different conditions could change substantially. Seeds were particularly susceptible to bastardization. It took early botanists quite some time to understand that the plant reproduced 'more true,' that is, more like its parent, by planting sprigs instead of seeds. In modern times, most people who have planted rhubarb have probably done so by digging up the plant from a friend's garden to replant in a new place. Yet, what is common wisdom for us was hard won in ages without photographic reproduction or rapid transportation. When written descriptions, drawings, or long dead specimens that shrank and deteriorated during transcontinental transport were the best resources that botanists, gardeners, and doctors had as reference, determining generational metamorphosis was no

trivial task. The pace of growth further put rhubarb at odds with modernity's checklist of horticultural desirability. One plant would take four to nine years to mature to a point where its roots contained a desirable medicinal potency. In other words, it was the plant's fault.

But the nature of the plant accounts for only part of the explanation. These qualities became insurmountable disadvantages in the context of an emerging capitalist system. Rhubarb's particularities meant that rhubarb did not lend itself to large-scale, systematic, controllable, predictable reproduction. The long turnaround time for a rhubarb plant to reach a profitable efficacy made it a harder choice in which to invest capital. Even incentives to investment offered by some botanical societies, whose mission statements would hardly have stood up to venture capitalist scrutiny, were insufficient to ensure sustained entrepreneurial efforts at mass production. As processes of production became systematized, regularity and predictability became increasingly important. It was far more efficient to transport and plant seeds than sprigs. Recall that it was not the product but the *process* that made Henry Ford's Model T so successful, and garnered that thoroughly modern capitalist his fortune. Plants conducive to systematic, large-scale production, such as corn, were the agricultural equivalent of Ford's Model T.[89] To make a closer comparison, in the seventeenth century, rhubarb and tobacco were commodities of comparable market importance. Centuries later, the notion that the two plants might hold comparable market significance sounds absurd.[90] Tobacco, like corn, with its regularity and reproductive predictability, is highly conducive to large-scale plantation production. Rhubarb is not.

Of course, another possible explanation for rhubarb's obsolescence is that a better or equivalent substitute emerged. Indeed, it is impressive that the root's medicinal popularity spanned so many centuries, even into modern times. Still consonant with Ancient and medieval understandings, the late eighteenth-century *Universal Dictionary on Trade and Commerce* lauded rhubarb root for its:

> double virtue of a cathartic and astringent; it readily evacuates particularly the bilious humors, and afterwards gently astringes and strengthens the stomach and intestines. It is given with great success in all obstructions of the liver, in the jaundice, in diarrhoeas, and in the fluor albus and gonorrhoeas; it is also an excellent remedy against worms. It is sometimes given as a purgative, sometimes as only an alterant; and which way ever it is taken it is an excellent medicine, agreeing with almost all ages and constitutions.[91]

More than a century later, in the age of modern chemical laboratories and drug development, and despite attempts at synthetic production, no obvious alternative had yet emerged. Numerous pharmaceutical guides of the late nineteenth and early twentieth centuries continued to regard rhubarb as an important medicine, 'used in large amounts, having been long accepted as a

household remedy in syrup and tincture form the world throughout.' With an endorsement that echoes Guido Panciroli's enthusiasm (see below), one 1921 guide reads, 'Rhubarb is one of the great gifts of empiricism to the medical profession.'[92] Even after World War II (WWII), chemists still wrote that, '[f]or rhubarb root, we still look to China.'[93] It was only later in the twentieth century that scientists developed reliable purgative alternatives.

Concurrently, modern chemists looked for alternative product ends for rhubarb. One such opportunity arose from the fact that lemon juice cleaned teeth wonderfully but unfortunately its ascorbic acid (like Coca Cola) also dissolved teeth. In post-WWII America some saw in the lemon's fatal flaw an opportunity for rhubarb when it was discovered that the oxalate in rhubarb counteracted the corrosive properties of lemon juice. In 1947, the *Science News Letter* optimistically speculated, '[a]t present no one can anticipate how much these discoveries will expand the market for rhubarb and its juice, but a new industry may arise...'[94] Alas, in the modern West, rhubarb has yet to be decoupled from sugar, so it maintains its new identity as a food, in a niche at odds with excellent dental hygiene.

The importance of rhubarb

Commodities' histories are not new, but they have enjoyed something of a renaissance in recent years, focusing on culture surrounding a particular commodity rather than on traditional economic indicators like price and volume. In this sense 'commodity' refers not to the bulk goods of commodities markets but to particular objects whose pathways and life ways authors intricately explicate. Recent commodity studies generally follow one of two different narratives. First, there is the story of a commodity that moves from exotic to quotidian. These histories explain how an object that holds a basic and ubiquitous place in our quotidian affairs was once upon a time a rare and exotic product. Academic and popular presses have produced studies on commodities such as sugar, coffee, chocolate, tobacco, and the potato following this narrative line.[95] The second main narrative charts the move from precious to obsolete. Authors identify a product that once was quite important to many people, an object of competition and desire, but is now essentially unknown. Examples of these studies include cochineal, musk, and ostrich feathers.[96] Historians value these histories of obsolescence – the history of ignorance and absence, explanations of what got left behind and why. They remind us of lost possibilities, projects unpursued, of trajectories not taken. And historians – through training or inclination – intrinsically recognize a value in that.

The story traced in this chapter fits neither of these typical narratives, but nevertheless this root's history illuminates fundamental early modern economic and cultural changes.[97] Rhubarb was accompanied by a certain obscurity in early modern times, not because it was unimportant, but because it was perplexing, as shown above. In early modern texts, however, rhubarb

is anything but obscure. It was a valuable medicine embedded in time and tension, place and process, indifferent to the historian's scrutiny and understanding, just like other historical people, places, and things. One need not dig deep in the early modern Eastern travel literature to find rhubarb. In 1403 the Castillian King Henry III sent his ambassador Ruy Gonzales de Clavijo to Samarkand, who reported back that he encountered there, 'silks, which are the best in the world, (more especially the satins), and musk, which is found in no other part of the world, rubies and diamonds, pearls and rhubarb, and many other things.'[98] From their first forays into Russian lands in the mid-sixteenth century, the English Muscovy Company wanted to gain access to the East. In 1620 when the Russian boyars asked English Muscovy Company representative John Merrick why the English desired transit access to Persia, he answered that, among other things, they wanted to buy 'silk, dyes, rhubarb' and other products, in that order.[99] As a rule, early modern travelers to the Far East – Jesuits no less than ambassadors – did not fail to include rhubarb in their observations.[100] They recorded where they found it, where they purchased it, what they learned of its trafficking and processing. The Jesuit Matteo Ricci, mentioned above, reported on the price of rhubarb in Peking.'[101] Another Jesuit, Diego de Pantoia, in 1601 wrote a letter to Spain reporting that 'Turkes and Moores' brought rhubarb to Peking to sell and exchange. Michel Boym, a Polish Jesuit who lived in China from 1643–1659, left a detailed description of rhubarb's appearance and methods of processing along with a detailed picture of rhubarb growing *in situ*. The Jesuit Ferdinand Verbiest traveled in Tartary in 1683 and noted that Uzbeks and Mongols had rhubarb.[102] In the 1710s the Scottish doctor John Bell reported his rhubarb sightings in Eurasia.[103] Russian ambassadors en route to China consistently kept their eyes out for rhubarb.[104] In fact, rhubarb literally defined the bounds of China for one Russian ambassador who traveled to China 1654–1658. The report submitted to the tsar said of the Great Wall: 'And that wall goes from rhubarb China, where the root of "*kopytchatoi*" rhubarb grows...across the Chinese kingdom to the sea.'[105] Travelers to the New World were similarly on the lookout for rhubarb. In 1541 the Genovese Pascual Cataño brought the Iberian merchant-scholar Nicolás Monardes a new rhubarb that he had found in New Spain, an 'excellent medicine' called 'rhubarb of Mechoacan.'[106] A law professor from Padua, Guido Panciroli (1523–1599), at the end of the sixteenth century, took inventory of what the world had gained and lost in his *The History of Many Memorable Things Lost...and An Account of many Excellent Things Found*. Of his twenty-two chapters on the wonders of modernity, he listed rhubarb fourth![107]

That seventeenth-century Jesuits trekking across Eurasia mentioned rhubarb in their journals hardly persuades that rhubarb belongs in the 'not obscure' category. And the suggestion that it was one of the most valuable things of the modern world sounds downright absurd. Yet, if the steppe-traversing missionaries and a relatively unknown academic do not qualify rhubarb as 'not

obscure,' it turns out that rhubarb was quite relevant to several well-known historical figures. Rhubarb enhusiasm was on the tongue and in the texts of personages throughout the centuries who are historical household names far beyond specialized historian circles. Aristotle recommended to his pupil, Alexander the Great, to take rhubarb.[108] Marco Polo noted that rhubarb grew in 'great abundance' in the province of Sukchur and that 'thither merchants come to buy it, and carry it thence all over the world.'[109] It is well known that Christopher Columbus's New World adventures brought pineapple, tomatoes, and tobacco to the Old World, but the journal entry and letters exclaiming his discovery of rhubarb have gotten far less attention.[110] Rhubarb's charms and popularity did not escape the attention of that ever-observant Old World playwright, William Shakespeare.[111] The famous Swedish botanist Carolus Linnaeus chose rhubarb as the subject of his dissertation.[112] We know well about storied founding father Benjamin Franklin's experiments with lightning and electricity; yet that he facilitated the first attempt to grow Chinese rhubarb on what would become American soil remains unpublicized. In 1770, he mailed from London 'some of the true rhubarb seeds' to his horticulturalist friend John Bartram in Philadelphia.[113]

Nor does rhubarb as a mainstream concern remain confined to the pre-modern period. In the lead-up to the Opium Wars (1839–1842), the Chinese state threatened to cut off the westbound rhubarb trade, warning that the constipated of Europe would suffer without relief.[114] Perhaps the ironic icon of imperialism, Rudyard Kipling, intimated the political implications that accompanied rhubarb's medicinal use when he wrapped a tiger cub in rhubarb leaves to symbolize India under medical treatment in his 'Masque of Plenty.'[115] Dr. Livingstone, the famous nineteenth-century explorer of the African continent, was no stranger to malaria in his travels. His favorite remedy for the malady was a concoction of quinine, calomel, rhubarb, and resin of julep, which he called 'Livingstone pills.'[116] These examples demonstrate that rhubarb figured in the margins of mainstream historical events, operative in bits of 'History' that few would call obscure. Rhubarb was not merely a simple pie plant, but a matter of tremendous profit and risk, an object of grand imperial policies and mass appeal. In the early modern world rhubarb mattered to everyone from Columbus to Linnaeus to an obscure peasant or diarrheal miller.

Rhubarb, then, seems to straddle the categories of commodity narrative described above. Rhubarb stalk, the food, has become widespread and common, while rhubarb root, the medicine, has gone from precious to obsolete. The reinvention of this tart stalk as a complement to pies and jams means that 'everyone' knows what rhubarb is, but very few people think of it as medicine. Hence, there is a double disconnect. First, it is not a highly coveted medicine in our world. A search for rhubarb on the Internet (a resource tailor-made for unearthing obscurity) locates references to *da huang* and other products marketing themselves as Ancient Chinese medicine, but rhubarb does not loom large in the healing consciousness of MDs, pharmacists, or even of acupuncturists,

homeopathophiles, or hippies. It is found in the medicine cabinets of neither mainstream nor alternative healers in twenty-first century America. Second, rhubarb's diachronic transmutation – that its contemporary function is entirely different from its historical one – makes the historical study of rhubarb strike some as actually funny because in today's world, rhubarb is something else, something of decidedly less importance – an unexpected incongruity, which is, after all, the very essence of humor.

Conclusion

A history of rhubarb root invites us, in every sense, to unearth it, and not just for the pleasure of enjoying a good pun. Delving into its strangeness forces us to recognize – to put it most basically – that the early modern economy differed profoundly from the modern. As we proceed towards a better understanding of the origins of capitalism – a historical problem that despite centuries of inquiry retains its vitality – the strange history of rhubarb highlights the criteria and consequences of an efficiency-driven economic system.[117] Jan de Vries' proposal of an 'industrious revolution' preceding the Industrial Revolution has importantly complicated the periodization of this momentous phenomenon. His work, along with that of others in the past decades, has profoundly changed the way we understand the early modern world. When we look at the early modern economy now we see consumer demand instead of inert masses; marketing strategies of some sophistication; and an insurance industry. We are now aware of complicated finance as part and parcel of 'exchanges' in centuries past. Historians have shown us that such contemporary phenomena as investor mania, ruinous speculation, and economic crashes also shook the worlds of early modern subjects; the South Sea Bubble fiasco in the 1720s is one prominent example.[118] Much of this historical scholarship cultivates an appreciation for the complexity and sophistication of early modern economies. We see a world that increasingly is filled with motivations, institutions, tools, and practices that we know to be part of our own contemporary economic landscape. Thus, the early modern period appears increasingly modern. But rhubarb's heyday, of root drying on sheep's horns in the steppe sun, traversing Eurasia in leather bundles on camels' backs or in the holds of Dutch or English caravels, pounded in the mortar of an apothecary's shop, and administered during leeching, does not seem modern at all.

This chapter has glimpsed ways in which rhubarb was relevant to a Russian in China, a Scotsman in Siberia, a Portuguese in Samarkand, a Dutchman in India, an Italian in the New World, an Iberian at home, and many others spanning a vast geography during the early modern period. The point here is not to suggest that we have missed rhubarb as a motor of history. While there can be a tendency towards big claims in recent cultural histories of commodities, this chapter makes no such claims.[119] Magellan would have sailed east and Columbus west even if there had been no such thing as rhubarb. Nor is the intention to

stake a revisionist claim against seeing sophistication and complexity in the early modern economy. On the contrary, I think the point to be made is that the early modern economy *was* complex and sophisticated *and* that the rhubarb trade flourished. As Martha C. Howell has written,

> By paying close attention to these practices, we stand not only to grasp the distinctive character of this period in European history but also to appreciate the ways that this age did—and did not—lay groundwork for the modern western market society.[120]

This contribution, which has followed rhubarb from the highlands of China and trading posts of Siberia to the kitchen gardens of England and apothecaries of Amsterdam and Andalusia, serves to check notions of linear economic development and fortify a concrete sense of difference. Rhubarb did not change the world; the world changed around rhubarb, making the once coveted medicinal root obsolete.

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Notes

1 Sankt-Peterburgskii Institut istorii RAN (formerly LOII), f. 28, op. 1, d. 562, l. 1.
2 Clifford M. Foust, *Rhubarb: The Wondrous Drug* (Princeton, NJ: Princeton University Press, 1992), 21.
3 Foust, *Rhubarb*, 214.
4 *The Divine Farmer's Materia Medica: A Translation of the Shen Nong Ben Cao Jing*, trans. Yang Shou-zhong (Boulder, CO: Blue Poppy Press, 1998), 47, 69, 97, 117, 145.
5 Dioscorides, *De material medica*, trans. T.A. Osbaldeston (Johannesburg: IBIDIS Press, 2000), 3: 364, http://www.cancerlynx.com/BOOKTHREEROOTS.PDF.
6 In China in the first century BC it was prescribed to induce vomiting in order to combat poisoning.
7 Efraim Lev and Zohar Amar, *Practical Materia Medica of the Medieval Eastern Mediterranean According to the Cairo Genizah*, Sir Henry Wellcome Asian Series, vol. 7 (n.p.: Brill, 2008), 259–261.
8 Laurence Brockliss and Colin Jones, *The Medical World of Early Modern France* (Oxford: Clarendon Press, 1997), 307.
9 See Guido Panciroli (1523–1599), from Henrico Salmuth, *The History of Many Memorable Things Lost, Which Were in Use Among the Ancients: And An Account of Many Excellent Things Found, Now in Use Among the Moderns, Both Natural and Artificial* (London: J. Nicholson, 1715), 292–294.
10 Ibid., 10. For rhubarb in fourteenth-century Samarkand see B. G. Kurts, *Russko-kitaiskie snosheniia v XVI, XVII, i XVIII stoletiiakh* (Dnepropetrovsk: Gosudarstevnnoe izdatel'stvo Ukrainy, 1929), 5.
11 Researchers have recently concluded that *R. rhapontic* is effective and acceptable for use in menopausal women. See M. Kaszkin-Bettag, et al., 'Efficacy of the Special

Extract ERr 731 from Rhapontic Rhubarb for Menopausal Complaints: A 6-Month Open Observational Study,' *Alternative Therapies in Health and Medicine* 14.6 (2008): 32–38.

12 For example: *Rha ponticum*, *Rha barbarum*, *Rhapontic verum* ('true rhubarb'), *R. palmatum*, *Ravend cind*, *kopytchatyi*, *cherenkogo* are some names used. See Erika Monahan, 'Trade and Empire: Merchant Networks, Frontier Commerce and the State in Western Siberia, 1644–1728' (PhD diss., Stanford University, 2007), 356.

13 Foust, *Rhubarb*, 123.

14 Ibid., 59–61.

15 On ambassadors Fedor Baikov and Izbrandt Ides, see Natalja F. Demidova and Vladimir S. Mjasnikov, *Pervye russkie diplomaty v Kitae (Rospis' I. Petlina i stateinyi spisok F.I. Baikova)* (Moscow: Glavnaia redaktsiia vostochnoi literatury, 1966), 125, 154; Mark I. Kazanin, 'Introduction,' in *Izbrant Ides i Adam Brand, Zapiski o russkom posol'stve v Kitai (1692–1695)* (Moscow: Glav. red. vostochnoĭ lit-ry, 1967), 150; on seventeenth-century Jesuits Michael Boym and Ferdinand Verbiest and Simon Pallas' observations, see Foust, *Rhubarb*, 23–24, 160. Scottish doctor John Bell reported that rhubarb grew wild without cultivation. See John Bell, 'A Journey from St. Petersburg to Peking,' in *Travels from St. Petersburg in Russia to Diverse Parts of Asia in Two Volumes* (Glasgow: R. & A. Foulis, 1763), 1: 281.

16 Wilhelm Heyd, *Histoire du commerce du Levant au moyen-âge*, vol. 2 (Leipzig: Otto Harrassowitz, 1886), 2: 665–667, http://www.archive.org/details/histoireducomme00heydgoog.

17 Margery Rowell, 'Medicinal Plants in Tsarist Russia,' *Janus* 63.1–3 (1976): 85–93; Foust, *Rhubarb*, 181.

18 Foust, *Rhubarb*, 180–182.

19 Audrey Burton, *The Bukharans: A Dynastic, Diplomatic, and Commercial History, 1550–1702* (New York: St. Martin's Press, 1997), 384, 428, 442.

20 John E. Dotson, *Merchant Culture in Fourteenth-Century Venice: The Zibaldone da Canal* (Binghamton: Medieval and Renaissance Texts & Studies, 1994), 130; G. F. Miller, *Conquest of Siberia and the History of the Transactions, Wars, Commerce, &c. &c. Carried on Between Russia and China*, trans. Peter Simon Pallas (London: Smith, Elder, and Co. Cornhill, 1842), 90–93.

21 James Shaw and Evelyn Welch, *Making and Marketing and Medicine in Renaissance Florence* (New York: Rodolfi, 2010), 240, 242, 255.

22 Richard Ames, *An Elegy on the Death of Dr. Thomas Safford Who Departed this Life May the 12th 1691* (London: A. Turner, 1691), http://xtf.lib.virginia.edu/xtf/view?docId=chadwyck_ep/uvaGenText/tei/chep_2.0009.xml;query=rhubarb.

23 Michael R. McVaugh, *Medicine before the Plague: Practitioners and their Patients in the Crown of Aragon, 1285–1345* (Cambridge: Cambridge University Press, 2002), 151.

24 Foust, *Rhubarb*, 16, 19.

25 Russian State Archive of Ancient Acts (hereafter referred to as RGADA), f. 143, op. 2, ed. khr. 748. I thank Clare Griffin, email correspondence November 24, 2010, December 2, 2010.

26 Denis Leigh, 'Medicine, the City and China,' *Medical History* 18 (1974): 54.

27 Foust, *Rhubarb*, 90–91; idem, 'Customs 3 and Russian Rhubarb: A Note on Reliability,' *Journal of European Economic History* 15 (1986): 555.

28 67,764 lbs × 453.6 grams/lb = 30,737,750 grams/4 grams per dose = 7,684,437.6 doses. This figure is very approximate. Rhubarb doses were often 2 grams, too. Shaw and Welch, *Making and Marketing Medicine*, 242–244, 250. The population of Europe in 1750 is estimated to have been about 163 million.

29 Foust, *Rhubarb*, 57.

30 Shaw and Welch, *Making and Marketing Medicine*, 66, Fig. 3.1.

31 Suraiya Faroqhi, 'The Venetian Presence in the Ottoman Empire (1600–1630),' *Journal of European Economic History* 15 (1986): 379; Foust, *Rhubarb*, 9–10; Iu.N. Il'ina, 'Novye perevody. Iz knigi *Puteshchestvie v Rossiiu*,' *Zviezda* 5 (2003): 84, 86.

32 B. G. Kurts, *Sochinenie Kil'burgera o russkoi torgovle v tsarstvovanie Alekseia Mikhailovicha* (Kiev: Tip. I.I. Chokolova, 1915), 288.
33 See Morris Rossabi, 'The "Decline" of the Central Asian Caravan Trade,' in *The Rise of Merchant Empires: Long Distance Trade in the Early Modern World, 1350–1750*, ed. James D. Tracy (Cambridge: Cambridge University Press, 1990), 351–370; Scott Levi, 'India, Russia, and the Transformation of the Central Asian Caravan Trade,' in *India and Central Asia: Commerce and Culture, 1500–1800*, ed. Scott C. Levi (New York: Oxford University Press, 2007): 93–122.
34 Heyd, *Histoire du commerce du Levant au moyen-âge*, 2: 667.
35 Foust, *Rhubarb*, 11.
36 Leigh, 'Medicine, the City and China,' 54–55.
37 Monahan, 'Trade and Empire,' 359; Foust, *Rhubarb*, 50.
38 Quoted in Foust, *Rhubarb*, 23.
39 Shaw and Welch, *Making and Marketing Medicine*, 242–243.
40 Dioscorides called the plant *Rha*, footnoting a longer appellation of *Rha barbarum*, which referred to its origins in the land of barbarians beyond the Volga. He gave *Rheon* as an alternative name and noted that the Romans called it *Rhapontic* (meaning literally, 'beyond the Volga' and Pontic steppe stretching from western Ukraine to Kazakstan). Foust, *Rhubarb*, 3–4. Surprisingly, in the typically isolated Basque and Georgian languages: rhubarb = *rhubarb*; in Macedonian, it is *karanitsa*.
41 I thank Nikolaos Chrissidis for his generous Greek language help.
42 M. V. Fekhner, *Torgovlia russkogo gosudarstva so stranami vostoka v XVII veke* (Moscow: Izdatel'stvo gos. Istoricheskogo muzei, 1952).
43 Janet Martin, 'Muscovite Travelling Merchants: The Trade with the Muslim East,' *Central Asian Survey* 4.3 (1985): 31; Rudi Matthee, 'Anti-Ottoman Politics and Transit Rights: The Seventeenth-century Trade in Silk between Safavid Iran and Muscovy,' *Cahiers du monde russe* 35.4 (1994): 739–761.
44 M. Arthur Edwards, Letter of April 26, 1566 in *Principal Navigations, Voyages, Traffiques and Discoveries of the English Nation Collected by Richard Hakluyt*, ed. Edmund Goldsmid, vol. 3, part 2, *The Muscovy Company and the North-eastern Passage* (Adelaide: Adelaide ebooks, 2006).
45 Foust, *Rhubarb*, 21, 34. The importation of exotic drugs gave the apothecary industry a major boost. See E. F. Woodward, 'Botanical drugs: A Brief Review of the Industry with Comments on Recent Developments,' *Economic Botany* 1.4 (1947): 402–414.
46 See http://www.sil.si.edu/digitalcollections/herbals/Titles_chron.cfm., accessed May 2, 2012. See also Edward Kremers and Glenn Sonnedecker, *Kremers and Urdang's History of Pharmacy* (Philadelphia, PA: Lippincott, 1976 [1st ed. 1940]), 32–33, 96; Leigh, 'Medicine, the City and China,' 54; Foust, *Rhubarb*, 21, 35, 253, 255; Shaw and Welch, *Making and Marketing Medicine*, 313–316.
47 Shaw and Welch, *Making and Marketing Medicine*, 242.
48 http://www.summagallicana.it/lessico/a/Alpino%20o%20Alpini%20Prospero.htm, accessed May 3, 2012.
49 Monahan, 'Trade and Empire,' 358–365.
50 See Erika Monahan, 'V poiske revenia: Ob odnom zabytom episode torgovok politiki Rossii serediny XVII v.,' in *Sosloviya, instituty i gosudarstvennaya vlast' v Rossii. Srednie veka i rannee Novoe vremya. Sb. statei pamyati akad. L.V. Cherepnina* (Moscow: Yazyki slavyanskih kul'tur, 2010): 765–771; idem, 'Trade and Empire,' ch. 9.
51 Foust, *Rhubarb*, 214. For a study on the globalization of the sugar trade see Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Viking, 1985).
52 Janet Martin, *Treasure in the Land of Darkness: The Fur Trade and Its Significance for Medieval Russia* (New York: Cambridge University Press, 1986), chs. 1–2.
53 Marie Schiller, 'The Fur Trade in Fourteenth Century Novgorod,' John Bell Library, University of Minnesota, http://www.lib.umn.edu/bell/tradeproducts/squirrel, accessed April 28, 2012.

54 Artur Attman, *The Russian and Polish Markets in International Trade 1500–1650* (Göteborg: Institute of Economic History, 1973), 6. See also Inna Liubimenko, *Istoriia torgovykh otnoshenii Rossii s Anglieiu*, vol. 1, *XVI vek* (Iur'ev: Tip. K. Mattisena, 1912); Jarmo T. Kotilaine, *Russia's Foreign Trade and Economic Expansion in the Seventeenth Century: Windows on the World* (Boston, MA: Brill, 2005), ch. 3.

55 T. S. Willan, *The Early History of the Russia Company, 1553–1603* (New York: Augustus M. Kelley Publishers, 1968), 82.

56 Kotilaine, *Russia's Foreign Trade*, 94. I thank Paul Bushkovitch for pointing out to me that many of the founding shareholders of the Muscovy Company went on to be involved in the East India Co. In fact, in the 1610s an unsuccessful merger of the Muscovy and East India Companies was proposed.

57 Ultimately, Crown rhubarb did not outcompete East Indian rhubarb as chronic oversupply and maneuverability problems undercut profits. Foust, *Rhubarb*, ch. 3.

58 For an introduction to the debate about Russia's sources see the debate on the 'Intellectual Silence of Russia' in *Slavic Review* 21.1 (1962); Simon Franklin, 'Literacy and Documentation in Early Medieval Rus,' *Speculum* 60.1 (1985): 1–38; William R. Veder, 'Old Russia's "Intellectual Silence" Reconsidered,' *California Slavic Studies* 19 (1994): 18–28; Simon Franklin, 'On the "Intellectual Silence" of Early Rus,' *Russia Mediaevalis* 10 (2001): 262–270; idem, *Writing, Society and Culture in Early Rus, c.950–1300* (New York: Cambridge University Press, 2002).

59 RGADA, f.143, op. 2, ed. khr. 748. I thank Clare Griffin.

60 RGADA, f. 143, op. 2, ed. khr. 1093 retsepty dlia tsarskikh osob 13th Jan 1674. I thank Clare Griffin, email correspondence November 24, 2010, December 2, 2010.

61 John Appleby attributes the first successful cultivation of *R. palmatum* on European soil to the Scottish physician John Bell who grew it in his garden in St. Petersburg, Russia, even though the British Society of Arts credited James Mounsey (1710–1773) with this achievement. John H. Appleby, '"Rhubarb" Mounsey and the Surinam Toad: A Scottish [sic] Physician-Naturalist in Russia,' *Archives of Natural History* 11.1 (1982): 141–145.

62 Kurts, *Sochinenie Kil'burgera*, 288.

63 Kh. Trusevich, *Posol'skiia i torgovyia snosheniia Rossii s Kitaem* (Moscow: Tip. T. Malinskago Moroseika, 1882), 109. W. F. Ryan's encyclopedic catalogue of folk medicine includes rhubarb perfunctorily: W. F. Ryan, *The Bathhouse at Midnight: Magic in Russia* (University Park, PA: Pennsylvania State University Press, 1999), 279. But other scholarship omits it entirely. The rare books department of the Russian State Public Historical library contains no eighteenth-century medical titles devoted to rhubarb according to N. F. Chernisheva, *Meditsinskaia literatura v XVIII veke, Katalog kollektsii, izdaniia 1725–1800 gg.* (Moscow: Ministerstvo kultury RSFSR Gosudarstvennaia publichnaia istoricheskaia biblioteka, 1986); and Petr Bogaevskii, 'Zametka o narodnoi meditsine,' in *Etnograficheskoe obozrenie. kn. 1* ed. N. A. Ianchuka (Moscow: Russkaia tipo-litorgrafiia, 1889), 101–106 does not mention rhubarb. V. V. Pokhlebkin, probably the contemporary authority on the history of Russian food, includes rhubarb in his dictionary of Russian cuisine, but it gets no mention in his more historical work, *Kulinarnyi slovar'* (Moscow: Tsentr poligraf, 1999).

64 David A. Scott et al., 'Technical Examination of Fifteenth-Century German Illuminated Manuscript on Paper: A Study in Identification of Materials,' *Studies in Conservation* 46.2 (2001): 93–108.

65 Trusevich, *Posol'skie i torgovye snosheniia Rossii s Kitaem*, 109; Burton, *Bukharans*, 384; Raymond H. Fisher, *The Russian Fur Trade, 1550–1700*, University of California Publications in History, vol. 31 (Berkeley, CA: University of California Press, 1943), 220.

66 Miller, *The Conquest of Siberia*, 104.

67 Foust, *Rhubarb*, 18–22.

68 Ibid., 121.

69 Woodward, 'Botanical Drugs,' 413.
70 Foust, *Rhubarb*, chs. 7–8. The difficulty that Western Europeans had in the eighteenth century suggests that they had not obtained the knowledge Russians gained in the seventeenth century. A closer look into communications of Europeans in the Russian Academy of Sciences with European colleagues could illuminate intellectual exchange. See Appleby, '"Rhubarb" Mounsey and the Surinam Toad.'
71 Ibid., 243.
72 While I do highlight ways in which rhubarb was simultaneously medicine and food, the main narrative is of shifting identity.
73 William J. Bernstein, *A Splendid Exchange: How Trade Shaped the World* (New York: Grove Press, 2008), 205.
74 Jan de Vries, 'The Limits of Early Modern Globalization,' *Economic History Review* 63.3 (2010): 722; Ralph A. Austen and Woodruff D. Smith, 'Private Tooth Decay as Public Economic Virtue: The Slave-Sugar Triangle, Consumerism, and European Industrialization,' *Social Science History* 14.1 (1990): 95–115.
75 Foust, *Rhubarb*, 214. The sender referred to the recipe as an experiment.
76 *Cookbook of Ibrahim b. al-Mahdi*, trans. Charles Perry, http://daviddfriedman.com/Medieval/Cookbooks/Andalusian/andalusian7.htm, accessed April 10, 2011. NB: determining whether root or stalk is indicated is tricky because, according to translator Charles Perry, 'The word *"urûq"* can mean roots or stems/stalks. I've translated it according to what seemed to make sense.'
77 *Annals of the Caliphs' Kitchens: Ibn Sayyar al-Warraq's Tenth-Century Baghdadi Cookbook*, ed. and trans. Nawal Nasrallah (Boston, MA: Brill, 2007).
78 Ibid., 140.
79 Ibid., 156.
80 Ibid., 97, 794. From which part of the rhubarb plant – root or stalk – juice was squeezed is unspecified. The glossary, however, does specify that a 'condensed juice from rhubarb (*rubb al-ribas*) is made by first pounding the stalks of this plant to extract the juice and then boiling it down to syrup consistency. ... Poets sing praises of the pleasantly tart taste.'
81 Ibid., 282.
82 Bartolomeo Scappi, *The Opera of Bartolomeo Scappi*, trans. Terence Scully (Toronto: University of Toronto Press, 2008), 243, 574.
83 Shaw and Welch, *Marketing and Medicine in the Renaissance*, 43, n. 53, 50.
84 Moderata Fonte (Modesta Pozzo), *The Worth of Women: Wherein is Clearly Revealed Their Nobility and Their Superiority to Men*, ed. and trans. Virginia Cox (Chicago, IL: University of Chicago Press, 1997), 170.
85 Ken Albala, *Eating Right in the Renaissance* (Berkeley, CA: University of California Press, 2002), 275.
86 Richard Warner, *Antiquitates culinariae or Curious Tracts Relating to the Culinary Affairs of the Old English* (London: R. Balime Strand, 1791), 90.
87 Pamela H. Smith and Paula Findlen, eds., *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe* (New York: Routledge, 2002).
88 Foust, *Rhubarb*. For more narrativizations of evolutionary success see Michael Pollan, *The Botany of Desire: A Plant's-Eye View of the World* (New York: Random House, 2001).
89 See Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: The Penguin Group, 2006), 15–122.
90 See Erika Monahan, 'Regulating Virtue and Vice: Controlling Commodities in Early Modern Siberia,' in *Tobacco in Russian History and Culture*, eds. Matthew Romaniello and Tricia Starks (New York: Routledge, 2009), 62–65.
91 Malachy Postlethwayt, *The Universal Dictionary of Trade and Commerce*, 2 vols., 4th ed., (New York: Augustus M. Kelley Publishers, 1971 [1st ed. 1774]), 2: n.p.
92 John Uri Lloyd, *Origin and History of all the Pharmacopeial Vegetable Drugs, Chemicals, and Preparations with Bibliography* (Cincinnati, OH: Caxton Press, 1921), 1: 268.

93 F. W. Tunnicliffe, 'Synthetic Purgatives: The Purgative Action of Dihydroxy-Phthalo-Phenone (Phenolphthalein, Purgen),' *The British Medical Journal* 2.2181 (1902): 1224–1227; Woodward, 'Botanical Drugs,' 410.

94 'Rhubarb Protects Teeth,' *Science News Letter* (October 18, 1947), 252.

95 Mintz, *Sweetness and Power* is a modern work, but seminal; see also Ralph S. Hattox, *Coffee and Coffeehouses: The Origins of a Social Beverage in the Medieval Near East* (Seattle, WA: University of Washington Press, 1985); Heinrich Eduard Jacob, *Coffee: The Epic of a Commodity* (New York: Viking Press, 1935); Anthony Wild, *Coffee: A Dark History* (New York: W. W. Norton & Company, 2005); Marcy Norton, *Sacred Gifts, Profane Pleasures: A History of Tobacco and Chocolate in the Atlantic World* (Ithaca, NY: Cornell University Press, 2008); Beatrice Hohenegger, *Liquid Jade: The Story of Tea from East to West* (New York: St. Martin's Press, 2006); Wolfgang Schivelbusch, *Tastes of Paradise: A Social History of Spices, Stimulants, and Intoxicants* (New York: Pantheon Books, 1992); Redcliffe N. Salaman, W. G. Burton, and J. G. Hawkes, *The History and Social Influence of the Potato* (New York: Cambridge University Press, 1985); Susan Socolow, ed., *The Atlantic Staple Trade*, 2 vols. (Brookfield, VT: Varorium, 1996).

96 Amy Butler Greenfield, *A Perfect Red: Empire, Espionage, and the Quest for the Color of Desire* (New York: HarperCollins, 2005); R. A. Donkin, *Dragon's Brain Perfume: An Historical Geography of Camphor* (Leiden: Brill, 1999); Sarah Abrevaya Stein, *Plumes: Ostrich Feathers, Jews, and a Lost World of Global Commerce* (New Haven, CT: Yale University Press, 2008). While some have become obsolete, many spices such as pepper, cinnamon, cloves, and curry are now commonplace. Andrew *Dalby, Dangerous Tastes: The Story of Spices* (Berkeley, CA: University of California Press, 2000).

97 See Jan De Vries, 'Towards a History That Counts,' Dr. A. H. Heineken Prize for History lecture, 2000, http://www.knaw.nl/Content/Internet_KNAW/prijzen/Heinekenprizes/9.pdf, accessed January 15, 2010.

98 *Narrative of the Embassy of Ruy Gonzalez de Clavijo to the Court of Timour at Samarcand, A.D. 1403–6*, trans. Clements R. Markham (London: Hakluyt Society, 1859), 171.

99 S. M. Solov'ev, 'Moskovskie kuptsy v XVII v.,' in *Sochineniie v. 18 kn.*, bk. 20, *Dopolnitel'naia raboty raznykh let*, ed. I. D. Koval'chenko (Moscow: Mysl', 1996), 511.

100 David Mungello reported that from 1552–1800, 920 European Jesuits traveled to China. See David E. Mungello, *The Great Encounter of China and the West, 1500–1800*, 3rd ed. (Lanham, MD: Rowman & Littlefield, 2009), 37.

101 Quoted in Foust, *Rhubarb*, 23.

102 Ibid., 23–24.

103 Bell, 'A Journey from St. Petersburg to Peking,' 1: ch. 2, http://www.archive.org/stream/travelsfromstpet01bell/travelsfromstpet01bell_djvu.txt.

104 For Baikov: Demidova and Miasnikov, *Pervye russkie diplomaty v Kitae*, 154; For Ides: Kazanin, 'Introduction,' 150; Foust, *Rhubarb*, 65.

105 Report of Fedor Baikov (embassy 1654–1658), reprinted in *Skazaniia russkago naroda*, compiler I. P. Sakharov, vol. 2, bk. 8 (St. Petersburg, 1849), 129.

106 Cataño had delivered the purgative mechoacan. Nicolás Monardes, *Dos Libros. El uno trata de todas las cosas q[ue] traen de n[uest]ras Indias Occiede[n]tales, que sirven al uso de Medicina* (Seville: Sebastian Trugillo, 1565), fol. Hv. I thank Marcy Norton for this reference. For more on Monardes' New World *Materia Medica* see Norton, *Sacred Gifts, Profane Pleasures*, 110–114.

107 Panciroli, *The History of Many Memorable Things*, 291–294. I thank Vera Keller for sharing this wonderful information with me. Interestingly, Panciroli was familiar with Dioscorides and ancient references to rhubarb, but he considered the medicine brought from the east so qualitatively different that, the Ancients, wise though they were, were mistaken in thinking that they had possessed rhubarb.

108 Andrew G. Little, ed., *Roger Bacon Essays* (Oxford: Clarendon Press, 1914), 314, http://www.archive.org/stream/rogerbaconessays00litt/rogerbaconessays00litt_djvu.txt, accessed April 8, 2011.

109 Marco Polo, *The Book of Ser Marco Polo, the Venetian*, trans. and ed. Henry Yule (New York: Scribner, 1903), 217.

110 See Adolph Caso, *To America and Around the World: The Logs of Christopher Columbus and Ferdinand Magellan* (Boston, MA: Branden Books, 2001), 202–203; Christopher Columbus, 'Letter to Lord Raphael Sanchez,' 14 March 1493, http://www.wise.virginia.edu/history/wciv1/ civ1ref/colum.htm, accessed July 2, 2008.

111 William Shakespeare, *MacBeth*, Act 5, Scene 3: 'What rhubarb, cyme, or what purgative drug, / Would scour these English hence? Hear'st thou of them?'

112 Carl von Linné, 'Dissertatio medico botanica, sistens rhabarbarum: quam consensu experient' (Diss., Uppsala University, 1752). I thank Vera Keller for this reference.

113 Kremers and Sonnedecker, *History of Pharmacy*, 157; Foust, *Rhubarb*, 270. In February 1773 Franklin wrote to Bartram that he was glad to hear the rhubarb was growing. Foust, *Rhubarb*, 278.

114 Lin Zixu Lin Tse-Hsü (1839 CE), 'Letter of Advice to Queen Victoria,' http://acc6.its.brooklyn.cuny.edu/~phalsall/texts/com-lin.html, accessed June 5, 2007. I thank Hal Kahn for this reference.

115 Rudyard Kipling, 'The Masque of Plenty,' http://xtf.lib.virginia.edu/xtf/view?docId=chadwyck_ep/uvaGenText/tei/chep_3.0486.xml;query=rhubarb, accessed April 8, 2011.

116 Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981), 71. I thank Eliza Ferguson for this reference.

117 Works devoted to the topic could fill a library. One recent contribution by a respected historian is Joyce Appleby, *The Relentless Revolution: A History of Capitalism* (New York: W. W. Norton & Co., 2011).

118 For a brief introduction to the South Sea Bubble history see Niall Ferguson, *The Ascent of Money: A Financial History of the World* (New York: Penguin Books, 2008), 138–158, 170–173.

119 For example: Henry Hobhouse, *Seeds of Change: Five Plants that Transformed Mankind* (New York: Harper & Row, 1986); Mark Kurlansky, *Cod: A Biography of the Fish That Changed the World* (New York: Walker & Co., 1997); Larry Zuckerman, *The Potato: How the Humble Spud Rescued the Western World* (New York: Northpoint Press, 1998); Tom Standage, *A History of the World in 6 Glasses* (New York: Walker & Co., 2005). For a more sober analysis in this vein see B. W. Higman, 'The Sugar Revolution,' *Economic History Review* 53.2 (2000): 213–236.

120 Martha C. Howell, *Commerce before Capitalism in Europe, 1300–1600* (New York: Cambridge University Press, 2010), 2.