

# Country Trade and Chinese Alum

## Raw Material Supply and Demand in Asia's Textile Production in the 17<sup>th</sup> and 18<sup>th</sup> Centuries

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Maritime trade played an important and a still somewhat controversial role in the development of the early modern economies of South, Southeast and East Asia in the 17<sup>th</sup> and 18<sup>th</sup> centuries. The controversy centers over a series of internal and external, social, economic, cultural and political relationships over

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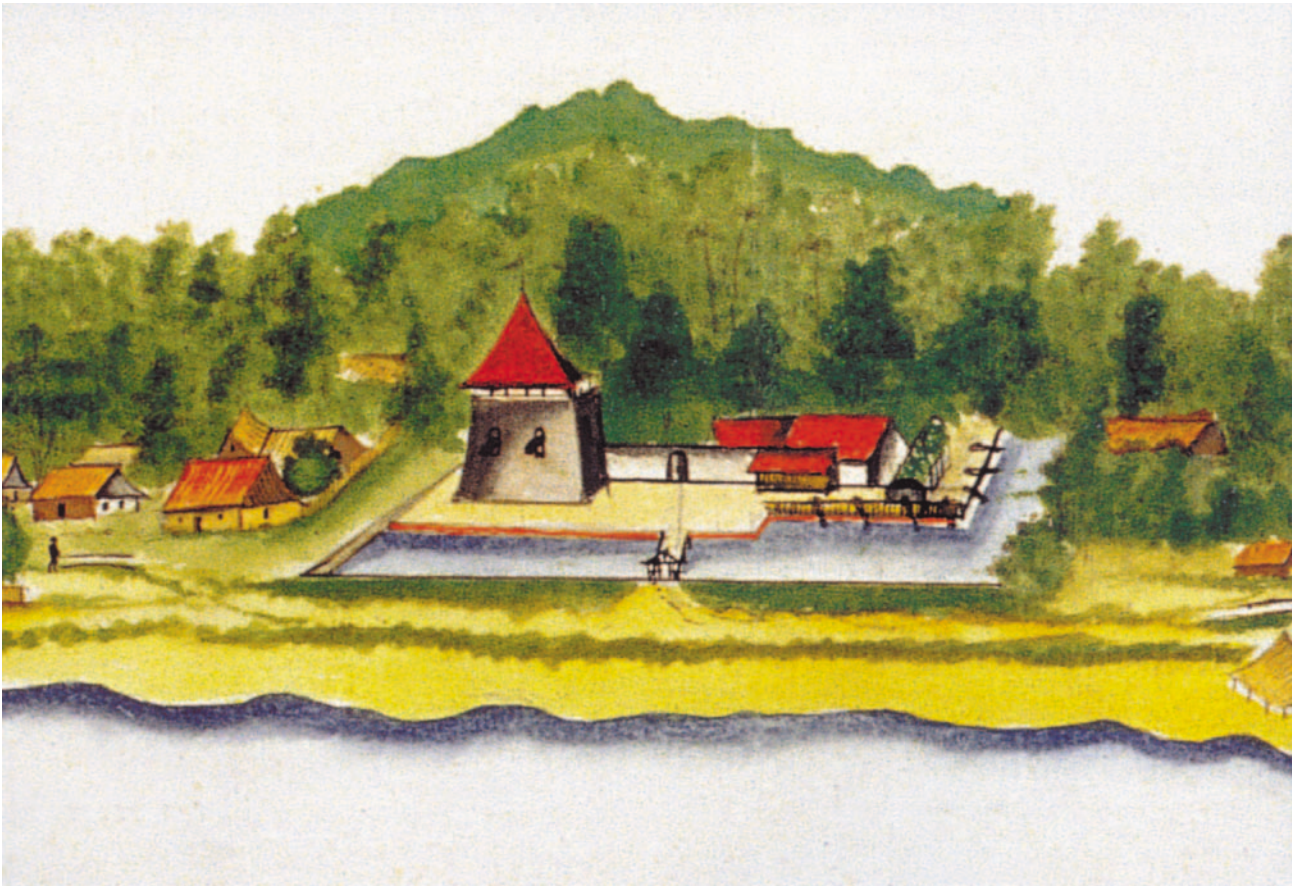
*Professor Associado Adjunto no Departamento de História da Universidade do Texas (San Antonio). Autor de The Survival of Empire: Portuguese Trade and Society in China and the South China Sea, 1630-1754, Cambridge, CUP, 1986 (ed. port., A Sobrevivência do Império: Os Portugueses na China (1630-1754), Lisboa, Publicações D. Quixote, 1991.*

space and time that occurred prior to colonialization. One of its foci is on the presence and participation of European institutions—the East India Companies—and individuals in Asian trade.<sup>1</sup> A facet of this focus is a shift away from the role that Europeans played to the interplay between Europeans and Asians.<sup>2</sup> Recently, the activities of Asians are being placed center stage in those relations, and a useful discussion is developing that deals with the degree of control that Asians exercised over a range of political, economic and developmental issues prior to and during the transition to a colonial economy.<sup>3</sup> Another issue deals with the interaction and interplay of port and colonial port cities with their hinterland.<sup>4</sup>

A series of issues concerning country trade, Asian commodities and markets are presented in this paper. The first deals with the question of the nature of country trade, the commodification, regionalization and globalization of Asian goods. The second deals with the general technical nature of Asian textile production technology and techniques and the specific, basic, proto-industrial raw material demand for mordant and natural dyes. The third centers on alum as a mordant, Chinese alum production, delivery and commercialization in Chinese port and colonial port city markets, the technical and commercial reasons for the country traders to deal in this commodity and reception and incorporation of Chinese alum into Indian port city markets. It generally identifies the participants and quantifies the Indian port city markets' demand and the prices that were paid over the period for Chinese alum. The



VOC ship off the Cape of Good Hope.



Dutch trading post on the Maluco Islands, 17<sup>th</sup> century.

fourth discusses the importance of country trade and commercial and cultural exchange on imperial projects in the 17<sup>th</sup> and 18<sup>th</sup> centuries.

The primary historiographical context in which the above-mentioned issues are examined is the discussion of port and hinterland relationships in the early modern economy of China and India. This paper examines country trade—its structure and markets—in economic and cultural terms by drawing extensively upon un-published and published European sources.<sup>5</sup> We have knowingly excluded a lengthy discussion of the agency or primacy of any individual participant or the historical formation and assignation of market share to specific participants in this trade. Our focus is to inter-connect the production, commercialization and consumption of Asian goods.<sup>6</sup> Much of what follows is suggestive and preliminary in nature. This is the first of two essays<sup>7</sup> that posit new approaches and problems. The objective is to broaden the discourse concerning the role of country trade by

introducing and relating the technology and techniques of textile production and raw material proto-industrial supply and demand in the early modern economies of China and India.

The time frame that is dealt with broadly in this paper is the 17<sup>th</sup> and 18<sup>th</sup> centuries. There is a more detailed focus, however, on China from the last quarter of the 17<sup>th</sup> century until almost the end of the 18<sup>th</sup> century. This is a period in which a new Chinese imperial administration, the Qing, finally established an effective political and territorial control over all of China and, especially, in the south over its maritime trade. This long 18<sup>th</sup> century ended for China, as it does with this paper, with the emergence of tensions between China and British country traders and the English East India Company. These tensions arose in part as a result of a paradigm shift in European relations with Asia with the English East India Company's acquisition of Bengal and the growth in the illicit traffic and sale of Indian opium to China.

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European sources were employed to develop this essay. There is an apparent absence of Chinese and Indian sources for and research on the specific topics of alum production, commercialization, consumption and its exchange in and between the Chinese or Indian early modern economies in the 17<sup>th</sup> and 18<sup>th</sup> centuries. Every precaution was taken in the use of this historical evidence in order to avoid skewing the importance of one group or groups over others and distorting alum's commercial importance or to over-emphasize its incorporation into Indian textile production processes.<sup>8</sup> There are five types of reports, among others, found throughout the Dutch East India Company (VOC) archives that warrant mention. They are 1) price current; 2) return; 3) demand; 4) Batavia sales and purchase reports; and 5) shipping lists.<sup>9</sup> This paper presents a preliminary overview of what emerges from the use of such sources and evidence.

This paper is structured and divided into four sections: 1) Country Trade: Commodification and Globalization; 2) Textile Technology and Techniques: Mordant and Natural Dyes; 3) Chinese Alum and Indian Markets; and 4) Country Trade and Empire: Commercial and Cultural Exchanges.

### COUNTRY TRADE: COMMODIFICATION AND GLOBALIZATION

Country trade is a colloquial term that emerged from English East India Company (EIC) records and its use in India to describe inter-regional Asian maritime trade in the 17<sup>th</sup> and 18<sup>th</sup> centuries.<sup>10</sup> Its etymology is of interest. Initially, it had a precise spatial and geographic definition. It was used to delineate and disparage the non-Company, private British and other European and non-European, indigenous, merchants' maritime trading activities from India in inter-Asian markets. The boundaries for its use became less Indo-centric and more inclusive geographically to include, for example, the Portuguese from Macao to India, and ceased to exist altogether as the EIC and other Companies were also commercially active in inter-Asian maritime trade.

The participants in country trade were European or Asian merchants and investors who operated as a group in a joint-stock company, multi-partnership or as individual entrepreneurs and participated in maritime trading activities in Asia. They pursued profit

maximization goals via commercial exchange at the available regional and inter-regional port markets. These investors had alternative port/market options with varied risk and return on investment profit profiles based on the available goods at the investors' departing, intermediate and final destination ports/markets, and the investors' capitalization and the projected return on the commercial exchange between buyer and seller at the selected ports of call in a trading season—normally, over one year.

The commercial decision-making matrix of maritime investors and ship operators extended their annual risk evaluation to their estimation of competing investors' plans at the port/market of departure, the numbers of vessels, amount of capital and the available goods and commodities. Internal and external market intelligence was received and managed by investors from ships' captains and agents in competing ports and markets. This was true at all port and colonial port cities in Asia. European and Asian traders, ship owners, captains, supercargoes or agents executed verbal or written instructions from themselves or their investors orienting them as to how to employ the available capital, which goods and commodities to purchase, at what price levels and quantities, in order to maximize return.<sup>11</sup>

The sailing ship imposed operational constraints as a transportation system on the commercial process of the investors and ship owners. In order to operate properly, with less risk of shipwreck, and to transit as rapidly as ship design, operating condition and wind power would permit, ships had to be in ballast, properly loaded and packed with dunnage to avoid the shifting of weight that imperiled a ship's handling and operation. A range of commodities, bulk items generally, with a low cost per unit was suitable and served this functional purpose, but their selection, negotiation and handling were important elements in the safety of the ships and the investors' investment. The availability in quantity, quality and price, and the composition of commodities at port markets was of paramount interest to regional, inter-regional and global investors in maritime trade.<sup>12</sup>

It is well known that the regional, inter-Asian and global exchange of goods from Asia was an established occurrence prior to the arrival of Europeans via the Cape of Good Hope, but the volume and the frequency of the exchange may be debatably

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characterized as being a non-sustained interaction and that the value of the goods exchanged was insufficient to generate lasting impacts on all trading partners. The impact of the establishment of a maritime route to Europe on the structure of Asian trade re-distributed the delivery of Asian goods to Europe.<sup>13</sup> Prior to, but most definitely by the 17<sup>th</sup> century, the intensification of the frequency and reporting on regional, inter-regional and global maritime commercial exchange, led to the commodification of a wide range of Asian goods occurring with the regularization and relative stability of supply, frequency in transaction, and standardization of presentation of goods at diverse regional port and colonial port cities. Furthermore, some Asian commodities were involved in the process of globalization that Flynn and Giráldez have usefully defined:

“when all populated continents began sustained interaction in a manner that deeply linked them all through global trade....Global trade emerged when 1) all heavily populated continents began to exchange products continuously—both with each other directly and indirectly via other continents—and 2) the value of the goods exchanged became sufficient to generate lasting impacts on all trading partners.”<sup>14</sup>

A series of Asian goods from a broad range of categories—the agricultural, mining, and textile sectors—became commodities. They included spices and precious metals and fine textiles but the list is longer and was not limited to those categories. What of the lesser known or commented upon items of trade—the basic, raw materials for proto-industrial production? How did they become items of exchange, and what was their role in country trade?

#### TEXTILE TECHNOLOGY AND TECHNIQUES: MORDANT AND NATURAL DYES

The reasons how and why different regions and societies produced textiles in the early modern period may be found in the vast and specialized literature on the subject.<sup>15</sup> They include a wide range of factors that cross a number of social science and historiographical disciplines: economic anthropology, demography, climate, environment, and technology. It is sufficient, for the purposes of this essay and the research that it is

presenting, to state that the Indian and Chinese economies, respectively, were much more advanced in the production of cotton and silk textiles in the 17<sup>th</sup> and 18<sup>th</sup> centuries than those of the rest of the world, including Europe.<sup>16</sup> When the fabrics that these two regions produced were colored, artisans employed printing,<sup>17</sup> painting,<sup>18</sup> or dyeing<sup>19</sup> techniques. The dyes that were used were all natural organic materials from widely diverse sources—insects, roots, flowers, leaves, bark, trees, earth and minerals. Dyes, preferably, had to be fast and fixed to the fabric.<sup>20</sup> Fundamental to the success of these techniques and the quality of the finished product was the technology and the raw materials that these artisans employed.

Mordants are substances “used in dyeing to fix the coloring matter, as a metallic compound that combines with the organic dye to form an insoluble colored compound.”<sup>21</sup> Not all mordants are metallic compounds; there are instances of vegetable substances that possess the chemical properties to fix color to fabric.<sup>22</sup> Metallic compounds, however, were the principal sources of mordant.

Alum is one of these metallic compounds and became the primary source of mordant.<sup>23</sup> It was the fundamental ingredient for the fixation of color in textile dyeing processes in the 17<sup>th</sup> and 18<sup>th</sup> centuries. Alum is “a double sulfate of ammonium or a univalent metal (as sodium or potassium) and of a trivalent metal (as aluminum, iron or chromium).” In addition to its use in textile production and dyes, it is and was “used as an astringent, as an emetic, and in the manufacture of baking powders, and paper.”<sup>24</sup>

After the mining and processing of the mineral became known, and that knowledge was disseminated, alum was relatively ubiquitous in China and India. The Chinese had developed a technique of making white alum by the 6<sup>th</sup> century C.E.<sup>25</sup>; presumably, the use of alum in the fixation of color in textile dyeing processes in China dates from this point onwards. In India, the use of alum (*tūvārī*) for the fixation of color in dyeing processes dates from the 9<sup>th</sup> century C.E. onwards.<sup>26</sup> Other global textile production centers were neither ignorant nor was alum insignificant in their processes; for example, alum was known in antiquity in the Mediterranean world<sup>27</sup> and used throughout the Islamic world<sup>28</sup> and in medieval Europe.<sup>29</sup>

Dyers globally were secretive toward their processes and recipes for the use of mordant and natural

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dyes.<sup>30</sup> But merchants knew that alum was a key raw material in proto-industrial textile production and that trading in the commodity was lucrative. Alum in medieval and early modern Europe was relatively scarcer and dearer than in China and India. Genoa and Venice competed fiercely over the monopoly of supplying alum from Asia Minor to Europe. Although alum had been shipped from North Africa and Spain, Northern Europe began to receive supplies by sea from the eastern Mediterranean in the early 14<sup>th</sup> century; previously, the supplies that were received had been shipped from the eastern Mediterranean, usually, to Genoa and delivered overland to Flanders.<sup>31</sup> Large deposits were found in Europe, north of Rome at Tolfa in the Papal States in 1462; the Papacy zealously guarded the alum mining and processing knowledge that was used at Tolfa and benefited from its lucrative lease in an attempt to monopolize the commercialization of European alum.<sup>32</sup> It was not until 1608 that Stuart England found and developed in Yorkshire alternative sources for the supply of alum to northern Europe. The descriptions of the production process for alum in Asia Minor and in Europe parallel the method employed in China.

## CHINESE ALUM AND INDIAN MARKETS

Resembling gypsum in its natural state, alum was produced in large scale and volume, in a good quality, at a low cost and was relatively inexpensive throughout China. Dug “from the earth” in “stone lumps,” the instructions that the Chinese followed to produce alum were:

“apply heat to the pile together with coal, as if lime were being made. When heating has been sufficient, [the calcined stones] are allowed to cool and then put into water [for lixiviation and decantation]. The [supernatant] liquid is then heated, and alum is obtained when a substance, commonly called butterfly alum, flies out of the kettle of boiling liquid. Heating continues until the liquid is thick. Then it is purified [by fractional crystallization] in a large water jar. The substance that crystallizes on top is called ‘hanging alum’ and is extremely white. That which sinks to the bottom [of the jar] is called ‘jar alum,’ and the light and fluffy kind, resembling cotton wool, is known as ‘willow-

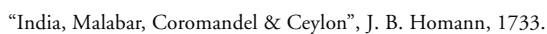
catkins alum.’ When the liquid has been entirely evaporated by heating, the snowy-white residue is called ‘Szechuan stone,’ and that which has been burned by the alchemists, ‘dry alum’.”<sup>33</sup>

The Chinese and other processes<sup>34</sup> produced different grades of alum; merchants sought to realize price differentiation for these grades, subject to market acceptance. During the period under consideration in this paper, however, Chinese alum appeared, generally, under the rubric of alum as an undifferentiated commodity. According to European accounts, it was available for export in the ports and colonial port city of China; its presentation was “in large lumps or pieces, clear and transparent.”<sup>35</sup> For a limited time on one occasion only, Chinese alum appeared in Dutch reports in different quality gradations—white, fine, and Roman—with the intent to command higher sales prices and profit margins.

By the 17<sup>th</sup> century, according to the author of the *Tian Gong Kai Wu* [Exploitation of the Work of Nature], Chinese alum production centered primarily in Qiuzhou in Shanxi, and Wuwei in South Jiangsu.<sup>36</sup> By the 18<sup>th</sup> century, Hunnan and Fukien had also become centers of production; it was from Fujian at Zhangzhou that Canton sourced its alum and vied for supplies between it and other south China ports.<sup>37</sup> At present, it is difficult to comment much further or in greater detail concerning the internal market and the circulation and commercialization of alum within China. Collaborative research is planned to remedy this gap.

Historical evidence was reviewed in order to establish if any non-Chinese source of alum was available for maritime trading transactions in any of the other regional ports and colonial port cities throughout the Indian Ocean and South China. The possibility of European company maritime exports or extra-regional overland sources of deliveries of alum from Asia Minor or Europe were examined. The result in both instances was negative. At present, extensive but not exhaustive research suggests that China was the exclusive regional source of the alum that was commercialized in country trade in the 17<sup>th</sup> and 18<sup>th</sup> centuries.

Alum, and Chinese alum in particular, possessed physical and commercial properties that favored its inclusion in maritime trade and country trade in



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TABLE 1. CHINESE JUNK EXPORTS OF ALUM TO THE VOC IN TAIWAN, 1643 TO 1657  
(Quantities in *picols* and canasters)

| Year    | <i>Picols</i> | Canasters |
|---------|---------------|-----------|
| 1643    | 900           |           |
| 1644    | 1,565         | 160       |
| 1645    | 1,195         |           |
| 1646    | 784           | 1,943     |
| 1647    | 512           | 1,271     |
| 1650    | 20            |           |
| 1651    | 21            | 310       |
| 1654    | 140           | 264       |
| 1655    |               | 1,000     |
| 1657    |               | 80        |
| Totals: | 5,137         | 5,028     |

Sources: DZ, II, III, and IV.<sup>38</sup>

particular. Decision-making over the use of alum took into account its quality, price, market demand and a comparative cost-benefit analysis. There were positive factors for its use by maritime investors. The quality of alum from China was acceptable. Its price in China was low, and a good gross profit margin could be realized in the port and colonial port cities in the South China Sea and the Indian Ocean. All alum, including Chinese, was of sufficient density and weight and was extensively used as a ballast. There were limiting factors as well in its use by maritime investors in China. There was a variety of available Chinese commodities—zinc, sugar and porcelain in particular, as well as Chinese and Japanese copper—that was available in South China and South China Sea ports to compete with alum as an item for ballast purposes. Maritime investors faced and performed a comparative cost-benefit analysis over the question of the overall profitability and the commodity composition of a voyage as well as the profitability of an individual commodity. Simply put, in the return on investment calculation made by maritime investors, Chinese alum, individually and in conjunction with other commodities, was an acceptable choice for country trade. For the less capitalized investor or a ship owner and operator short on capital, it was an excellent choice for country trade because of its low cost and capital outlay in comparison with zinc and sugar, but Chinese alum was a commodity that

was not actively considered or regularly included by maritime investors involved in global or Company trade to Europe from China. A ship's cost of operation increased over longer distances, but the amount of capital to profitably invest was limited, and a ship's cargo capacity remained the same. Investors had to decide on the best overall composition of commodities to include to maximize their return on their voyages. While alum was profitable, it did not compare favorably with other commodities—pepper, porcelain, and certain metals, for instance—which were excellent alternatives, equally suited for ballast purposes, generally realized a greater profit per unit and, in conjunction with the rest of the goods, a greater overall voyage return on invested capital. Hence, although occasionally included in global maritime trade, Chinese alum was overwhelmingly preferred and included in country trade.

Inter-Asian maritime or country trade or the China-India, India-China exchange antedates the arrival of Europeans in Asian waters. By the 16<sup>th</sup> century, active Chinese participation in this exchange had become indirect as Chinese merchants shipped and exchanged their commodities with their Indian counterparts in ports—Melaka in particular—in the South China Sea. Indian historians have focused on the pervasive and important India-Southeast Asia, cotton textiles for spices, exchange. Research on the

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arrival of the Portuguese in Asia and their establishment of a colonial port city at Macao in China in the middle of the 16<sup>th</sup> century has focused on: 1) the Portuguese Crown's organization and failure of the *feitoria* (factor) system in the procurement and delivery of pepper and spices via the Cape of Good Hope route to Europe; 2) the Crown's use and misuse of the organization and the revenue of the sales of concessionary voyages in the financing of the Portuguese imperial project; and 3) their key intermediation in the China to Japan, silk for silver, and, along with the Chinese, in the China to New World, silk for silver, exchanges.

In my book, *Survival of Empire*, a few brief comments were made in regard to the Portuguese involvement in and the China-India exchange of the 16<sup>th</sup> and early 17<sup>th</sup> centuries.<sup>39</sup> Little comment has been made on the China to India or the India to China exchange because of the absence of economic data for this period in the Portuguese and other sources. Although the Portuguese were aware of the suitability of other Chinese and East Asian commodities—for instance, alum, zinc, and copper—for exchange with India, the present historiography focuses on Portuguese efforts in supplying Chinese silks to India and, primarily, the inclusion of these textiles in voyages to Europe and the movements of silver to China and gold to India. By virtue of the changes and vicissitudes in Portuguese imperial and commercial fortunes in the late 16<sup>th</sup> and early 17<sup>th</sup> centuries, the Portuguese records document increased activity in delivering Chinese copper and zinc to India, which was used in founding cannon, minting and the de-basement of coin. These and other commodities such as Chinese alum and sugar were added in this exchange over the 17<sup>th</sup> and 18<sup>th</sup> centuries. It should be remembered that the Portuguese merchant fleet at Macao constituted the only segment of China's maritime trading structures with a home base in China that regularly and directly commercialized Chinese goods and commodities in country trade over this entire period. All of the other participants in country trade between China and India—European and Asian, company and private—had to deal with this reality. They might reside temporarily at Macao, but they did not occupy an independent base nor were their ships based in China.

The incorporation and the supply of Chinese alum in country trade was initiated or increased

through the indirect and direct efforts of a diverse group of investors and ship and junk operators: 1) the Chinese in South China; 2) the Portuguese at Macao; and 3) other European and indigenous Asian merchants who possessed and developed varying degrees of access to Chinese maritime ports and markets and commodities over the 17<sup>th</sup> and 18<sup>th</sup> centuries.

The primary demand for Chinese alum was identified at the port cities of India that were near centers of weaving and textile production: Surat, the Coromandel Coast, Bengal and the Malabar Coast. Other much smaller and irregular regional and inter-regional markets existed in Japan and continental and maritime Southeast Asia. Attempts to find a market for Chinese alum in Iran were unsuccessful. Indian demand and consumption was regular, if not oversupplied, and landed pricing was kept in line with competing supplies and their availability. It was subject to expansion depending upon the availability of alternate and equivalent indigenous Indian supplies of alum and growth in local market-specific textile production, subject to an increase or decrease in local, regional and international demand for textiles or political, communal unrest, turbulence or violence. As this essay suggests, the entire topic of internal Indian supply and demand and consumption of basic raw materials, mordant and natural dyes for proto-industrial production purposes and the external country trade supply relationship with the Indian port city markets and hinterland is worthy of further research.

The role of Chinese alum in country trade, its supply and the Indian markets' demand for this raw material in proto-industrial textile production over the 17<sup>th</sup> and 18<sup>th</sup> centuries is examined in two chronological periods: 1) indirect supply and growth in demand: 1600 to 1683; and 2) domination of direct supply and expansion in Indian demand: 1684 to 1792.

#### INDIRECT SUPPLY AND GROWTH IN DEMAND: 1600 TO 1683

During this period, Chinese alum was present as a commodity for export at a series of port and colonial port cities on the south China coast. At present, no hard evidence exists on the price that it commanded. Investors in China's maritime trade, primarily Chinese junk operators and to a lesser degree

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TABLE 2. CHINESE ALUM AT SURAT: VOC SALES AND PRICES, 1641 TO 1684  
(All years reported; no sales in un-reported years)

| Year   | Quantity in <i>ponden</i> | Price per maund<br>(of 36 <sup>1</sup> / <sub>4</sub> ponden) | Price per pond<br>in stuivers;<br>20=1 guilder |
|--------|---------------------------|---------------------------------------------------------------|------------------------------------------------|
| 1641   | 215,553                   | 4                                                             | 2.9                                            |
| 1642   | 29,316                    | 4                                                             | 2.9                                            |
| 1643   | 40,609                    | 4 to 5 <sup>1</sup> / <sub>2</sub>                            | 2.9 to 3.9                                     |
| 1646   | 20,959                    | 4 to 5 <sup>1</sup> / <sub>2</sub>                            | 2.9 to 3.9                                     |
| 1648   | 19,748                    | 3                                                             | 2.3                                            |
| 1649   | 6,839                     | 3                                                             | 2.3                                            |
| 1652   | 18,914                    | 3                                                             | 2.5                                            |
| 1653   | 4,545                     | 3                                                             | 2.5                                            |
| 1654   | 110,199                   | 3                                                             | 2.5                                            |
| 1655   | 96,415                    | 3                                                             | 2.1                                            |
| 1656   | 23,381                    | 3                                                             | 2.1                                            |
| 1658   | 38,511                    | 3                                                             | 2.5                                            |
| 1660   | 6,036                     | 4                                                             | 3.7                                            |
| 1666   | 5,916                     | 7                                                             | 4.9                                            |
| 1669   | 9,869                     | 4                                                             | 2.9                                            |
| 1676   | 6,289                     | 2 <sup>1</sup> / <sub>2</sub>                                 | 1.9                                            |
| 1677   | 29,480                    | 3 <sup>1</sup> / <sub>2</sub>                                 | 2.4                                            |
| 1678   | 28,588                    | 3 <sup>1</sup> / <sub>2</sub>                                 | 2.4                                            |
| 1680   | 6,673                     | 4 <sup>1</sup> / <sub>2</sub>                                 | 3.7                                            |
| Total: | 717,838                   |                                                               |                                                |

Source: ARA, VOC 1408, f. 806- 822.

the Portuguese at Macao, employed alum in their shipping and trading activities. It is not possible to decipher from the existing records a complete picture of the quantities of alum that were exported by both groups, but there is sufficient documentation to outline why, how, and where Chinese alum was employed over this time frame.

Chinese junk operators, primarily from Fukien, incorporated alum as ballast in a varying degree of importance and duration in their trade with Japan and the port cities of the South China Sea. It is probable that Chinese alum was included to test market acceptance and demand or a large portion of the port cities and colonial port cities to which they sailed. Overseas Chinese communities in the South China Sea ensured demand and consumption for a series of Chinese goods and

commodities, and it is speculated that they may have participated in central and northern Vietnam in stimulating the preparation of local silk piece good production to specifications for inclusion in trade with Japan. Chinese alum was specifically included in Chinese exports to Japan,<sup>40</sup> Cambodia<sup>41</sup> Vietnam<sup>42</sup> and Taiwan. In Taiwan, they sold Chinese alum to Spanish<sup>43</sup> and Dutch merchants at the Europeans' respective enclaves, as well as including the commodity in their trade at Manila and Batavia. Based on descriptions of the Manila export manifests of the Manila Galleon, Chinese alum did not figure significantly or at all in the transpacific—Magellan—exchange.<sup>44</sup> Demand for and consumption of Chinese alum in the Philippines was probably oriented toward its use in the tanning process for hides and the production of leather.

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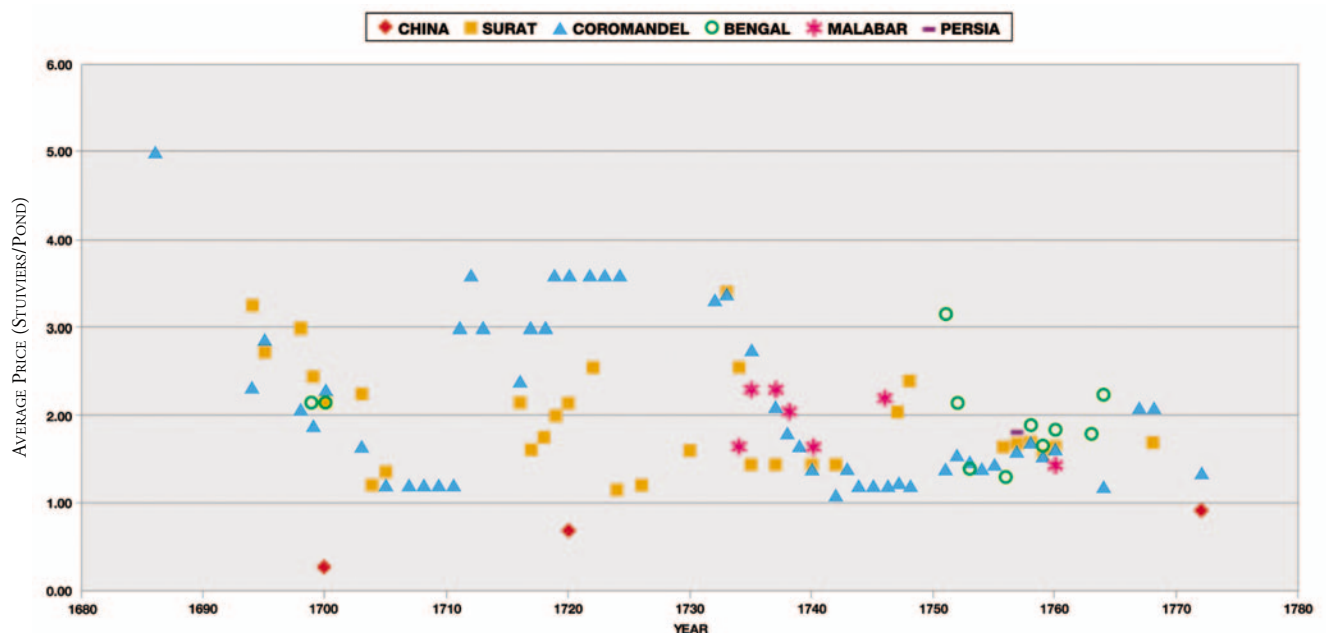
The quantities of alum that the Chinese and others exported from China at this time is difficult to estimate; the difficulty is caused in part by the absence of sufficient data to form a complete serial record and the mixture of precise and imprecise units of measurements in registering quantities in some of the available records, as indicated in the Chinese junk exports of alum to the VOC on Taiwan from 1643 to 1657 in Table 1.

There is sufficient data, however, to make a number of observations and delineate the significant trends in the export of Chinese alum over the period 1600 to 1683. Although availability fluctuated in Chinese port and colonial port cities on account of Ming-Qing military confrontations and internal unrest and Manchu policies to establish political and administrative control, there was sufficient supply from internal markets for alum to become a commodity and to be employed in maritime trade. The export of Chinese alum at this time was primarily controlled by Chinese investors and was directed toward South China Sea markets. The quantities of alum exported by the Chinese to Taiwan and Java were sufficient to permit the incorporation of Chinese alum in the VOC's inter-Asian trading strategies. The Portuguese from Macao also participated in exporting Chinese alum, but, at

present, it appears that their primary commercial focus over this period was toward competing with the Chinese in indirectly supplying alum to the Dutch on Java rather than competing with the Dutch and directly supplying Chinese alum to Indian markets.

The VOC incorporated Chinese alum into their inter-Asian trading strategies despite their reliance upon indirect supplies. Based on their correspondence concerning their commercial deliberations at Fort Zeelandia on Taiwan and at Batavia, the VOC purchased Chinese alum, as Table 2 indicates, primarily to be incorporated in their country trading ventures to Surat.<sup>45</sup> Surat was the port city for one of India's major centers for weaving, dyeing and the production of cotton textiles.<sup>46</sup> While concentrating their efforts on delivering and competing with other suppliers of Chinese alum at Surat, the VOC also identified that there was demand for the commodity in the port city markets on the Coromandel Coast, Bengal and the Malabar Coast. With the loss of their position on Taiwan in the 1660s, the VOC encountered difficulties and irregularity in supply from China; while temporary solutions were found for the interruption in supply, a totally satisfactory remedy was not found until Qing forces pacified and established administrative control over South China and its maritime trade in the early 1680s.

TABLE 3. CHINESE ALUM PRICE COMPARISON: COST IN CHINA AND SALES IN INDIA AND PERSIA, 1684-1780



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DOMINATION OF DIRECT SUPPLY AND EXPANSION  
IN INDIAN DEMAND: 1684 TO 1792

During this period, the data on Chinese alum and its involvement in country trade is significantly improved in stark contrast with the earlier, both in breadth (prices, quantities, markets) and in depth (transactional analysis and gross profit returns). Chinese alum, as we have characterized, was inexpensive, but an examination of Chinese alum's export price behavior over the 18<sup>th</sup> century reveals a tendency for it to increase. By the end of the century, the price had clearly trebled and slightly more in comparison with its price at the beginning of the 18<sup>th</sup> century. According to sporadic EIC reports at Amoy and Canton, in the 1700s, alum's export price per *picol* (133 pounds or 125 *ponden*) was 0.6 tael, the

equivalent of 1.7 guilders; by the late 1720s, it had nearly trebled and was sold at 1.5 taels, the equivalent of 4.3 guilders. At this time, on occasion, its price reached 1.8 taels; but it was not until the 1770s that it was regularly sold for export in the range of 1.8 to 2 taels, the equivalent of 5.1 to 5.7 guilders.<sup>47</sup> These prices in Chinese taels and Dutch guilders per *picol* provide a useful frame of reference to visualize an order of magnitude and value for alum in China. These values were converted to Dutch stuivers per *pond*, as shown in Table 3,<sup>48</sup> in order to provide points of comparison between the export price in China with the alum sales prices realized in diverse Indian and other markets.

The volume of alum available in Chinese port cities for export increased dramatically over this period. Chinese junks continued to obtain their supplies in the port cities along the coast of Fukien and Chekiang

TABLE 4. SALES OF CHINESE ALUM BY CHINESE AND PORTUGUESE TRADERS TO THE VOC AT BATAVIA, 1717 TO 1792 (All years reported, except 1751 and 1770; no purchases in un-reported years)

| Year   | Quantity<br>(in <i>ponden</i> ) | Quantity<br>(in <i>picols</i> ) | Price Paid by VOC<br>(in guilders per <i>picol</i> ) | GPM calculation<br>(%) |
|--------|---------------------------------|---------------------------------|------------------------------------------------------|------------------------|
| 1717   | 130,115                         | 1,041                           | 6                                                    | 37                     |
| 1719   | 26,712                          | 214                             | 18 and 9                                             | 311 and 106            |
| 1720   | 21,538                          | 172                             | 9                                                    | 106                    |
| 1721   | 45,970                          | 368                             | 9                                                    | 106                    |
| 1722   | 240,152                         | 1,921                           | 7 <sup>1</sup> / <sub>2</sub>                        | 71                     |
| 1724   | 94,837                          | 759                             | 7 <sup>1</sup> / <sub>2</sub>                        | 71                     |
| 1725   | 2,500                           | 20                              | 7 <sup>1</sup> / <sub>2</sub>                        | 71                     |
| 1728   | 5,000                           | 40                              | 7 <sup>1</sup> / <sub>2</sub>                        | 71                     |
| 1729   | 65,264                          | 522                             | 9 <sup>3</sup> / <sub>4</sub>                        | 123                    |
| 1731   | 84,625                          | 677                             | 14 <sup>1</sup> / <sub>4</sub>                       | 226                    |
| 1732   | 141,500                         | 1,132                           | 10 <sup>1</sup> / <sub>2</sub>                       | 140                    |
| 1733   | 14,000                          | 104                             | 10 <sup>1</sup> / <sub>2</sub>                       | 140                    |
| 1734   | 242,670                         | 1,941                           |                                                      |                        |
| 1735   | 114,250                         | 914                             | 9                                                    | 106                    |
| 1736   | 119,250                         | 954                             | 9                                                    | 106                    |
| 1750   | 99,216                          | 794                             | 9                                                    | 106                    |
| 1759   | 123,500                         | 988                             | 10 <sup>1</sup> / <sub>2</sub>                       | 140                    |
| 1765   | 24,875                          | 199                             | 10 <sup>1</sup> / <sub>2</sub>                       | 140                    |
| 1767   | 19,842                          | 159                             | 9                                                    | 106                    |
| 1769   | 10,137                          | 81                              | 9                                                    | 106                    |
| Total: | 1,625,953                       | 13,000                          |                                                      |                        |

Source: ARA, VOC 1888 to 3822, Batavia sales and purchase report.

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TABLE 5. VOC DEMAND AND PURCHASES, DELIVERIES AND EXPORTS OF CHINESE ALUM AT CANTON, 1737-1769  
(in *ponden*; all years reported; no orders, deliveries or VOC exports in un-reported years)

| Year    | Orders    | Purchases, Deliveries and Exports |
|---------|-----------|-----------------------------------|
| 1737    | 140,000   | 135,112                           |
| 1738    | 100,000   | 100,696                           |
| 1739    | 200,000   | 97,394                            |
| 1740    | 200,000   | 95,375                            |
| 1748    | 100,000   | 0                                 |
| 1750    | 100,000   | 0                                 |
| 1752    | 100,000   | 99,825                            |
| 1753    | 100,000   | 0                                 |
| 1754    | 100,000   | 101,270                           |
| 1755    | 200,000   | 149,247                           |
| 1756    | 200,000   | 236,500                           |
| 1757    | 100,000   | 100,000                           |
| 1759    | 100,000   | 101,718                           |
| Totals: | 1,740,000 | 1,207,137                         |

Source: ARA, VOC 13592-13620, Demand reports.

province, but with the administration of maritime trade by foreigners canalized by Qing officials to one South China port city, the greatest proportion of the increased volumes of alum produced for export moved from its centers of production to Canton. Although the overall volume of alum traded by all participants increased, there was a major shift in the pattern of supply from indirect deliveries to ports in the South China Sea toward a substantial increase in direct deliveries of alum from China to India. This shift provoked a major re-adjustment in the participants in this trade and was caused, apparently, by increased demand for Chinese alum in India.

The Chinese junk operators and the Portuguese merchants at Macao were the primary participants in selling alum indirectly to the Dutch East India Company (the VOC) at Batavia for its re-sale in India. After the normalization of Chinese maritime trading activity in 1684, alum was included in the junks and Macao-based Portuguese shipping that frequented Batavia from 1684-1716, but the mixture of precise and imprecise units of measurement in registering quantities impedes their inclusion in the more accurate post-1716 serial VOC reports. Table 4 documents the Chinese and Portuguese sales of alum, the frequency,

quantity, and price paid, and estimates their gross profit margins to the VOC at Batavia. Gross profit margins (GPM) on sales were attractive for the seller (normally ranging from 70 to 140 percent) and acceptable for the buyer for re-sale purposes in India. Table 4 demonstrates, however, that the annual quantity sold never exceeded 2,000 *picols*, and the inclusion of alum and its sale to the VOC at Batavia was infrequent over the 18<sup>th</sup> century. The Chinese and Portuguese from Macao at Batavia—the indirect suppliers—were not alone in their use of alum from China for country trade.

The other participants and competitors, potentially, included all of the European East India Companies that sailed directly from China to India before their homeward voyage and all other European and indigenous merchants involved in country trade. A preliminary outline indicates, however, that the fiercest competition over alum in China and in India centered on the activities of four competing groups: 1) the VOC; 2) the Portuguese at Macao; 3) English country and EIC traders, primarily, at Madras; and 4) indigenous merchants in India sailing to China, the Armenians in particular, and the port city-hinterland redistribution networks, especially on the Coromandel Coast.

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TABLE 6. PORTUGUESE EXPORTS OF CHINESE ALUM AND OTHER BALLAST GOODS TO INDIA, 1684 TO 1783  
(in *picols*; information for un-reported years, not found)

| Year    | Alum   | Sugar  | Zinc   |
|---------|--------|--------|--------|
| 1684    | 30     |        | 3,700  |
| 1688    | 50     |        | 2,500  |
| 1689    |        | 600    | 1,200  |
| 1692    |        | 15     | 1,000  |
| 1693    | 200    | 400    | 2,800  |
| 1694    | 20     | 750    |        |
| 1697    | 1,400  | 320    |        |
| 1698    | 1,400  |        |        |
| 1700    | 262    |        | 2,300  |
| 1701    | 200    | 1,600  | 2,500  |
| 1705    |        | 25     | 200    |
| 1706    |        | 400    | 400    |
| 1707    | 100    | 2,800  |        |
| 1708    |        | 5,000  |        |
| 1709    | 60     | 1,500  |        |
| 1724    |        | 50     |        |
| 1725    |        | 100    | 300    |
| 1726    |        | 270    | 110    |
| 1727    | 950    | 1,800  |        |
| 1728    | 200    |        |        |
| 1729    |        | 300    | 200    |
| 1733    |        | 650    | 300    |
| 1735    |        |        | 150    |
| 1736    | 1,300  | 450    | 3,000  |
| 1741    | 770    |        |        |
| 1742    | 1,200  | 1,400  | 350    |
| 1777    | 4,400  | 2,000  | 2,500  |
| 1778    | 8,800  | 3,270  | 4,500  |
| 1779    | 12,950 | 7,000  | 10,100 |
| 1780    | 10,500 | 6,100  | 6,400  |
| 1781    | 7,000  | 5,000  | 8,600  |
| 1782    | 2,304  | 7,380  | 8,390  |
| 1783    | 2,000  | 12,500 | 12,450 |
| Totals: | 56,096 | 61,680 | 73,950 |

Sources: Souza, *Survival*, 164-5; ARA, VOC 1403 to 2570, Malacca report; Souza, "Ballast Goods, p. 313 and ARA, VOC 3495 to 3961, Malacca report.

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The VOC remedied some of the commercial inconveniences caused by their dependence upon indirect supply of Chinese commodities by shifting to a policy of trading directly with China in the third decade of the 18<sup>th</sup> century. In the particular case of Chinese alum, Table 5 outlines: 1) the quantity of alum that the Company's merchants in China were instructed to purchase based on an estimated demand for profitable commercial transactions in a number of inter-Asian markets; and 2) the actual quantities that the Dutch were able to purchase.

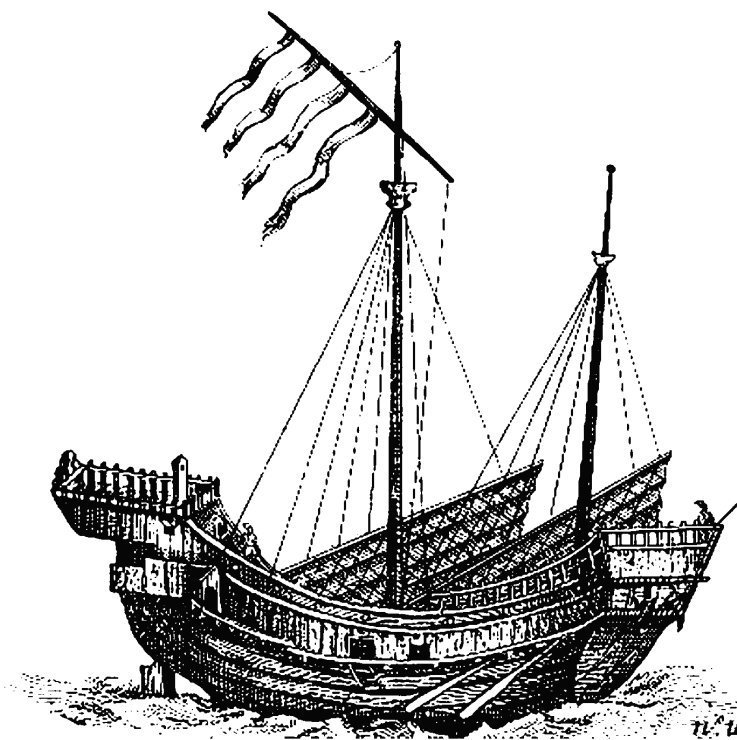
The Portuguese at Macao incorporated and increased their use of alum for commercial and technical reasons over this period. They competed with the Chinese in indirect deliveries and sales of alum to the VOC at Batavia, as shown in Table 4, and in the direct export of Chinese alum to India, as shown in Table 6. In comparison with other Chinese commodities that could be used for ballast purposes, this incomplete table suggests that over this period: 1) alum was not available, initially, in quantity or demanded commercially to the same degree as zinc or sugar; 2) there was, as to be expected, a commercial interaction between the Indian market demand for alum, sugar and zinc, the competitive actions of others and the Portuguese decision to employ and supply any Chinese commodity; 3) there was a substantial growth in the volume of supply of Chinese commodities in general, and alum in particular, by the Portuguese and all competitors.

Purchase prices increased in China, sales prices declined in Indian markets, and gross profit margins for all trading groups and competitors were squeezed, as revealed in Table 3 and Table 7, which caused certain groups such as the VOC to nearly desist in trading in alum. The Portuguese continued to compete; by the second half of the 18<sup>th</sup> century, the English country and EIC traders, primarily, at Madras, had substantially surpassed the annual quantities of alum exported by the Portuguese from Macao.<sup>49</sup>

Although still imprecise on account of the lacunae from other participants' records and data, an estimate of the quantity of alum that was exported annually from China may be advanced at this time based in part on data from Tables 4 through 6. Five to ten thousand *picols* (625,000 to 1.25 million *ponden*) of alum, it is estimated, were exported annually from China in the early 18<sup>th</sup> century, and between thirty to

forty thousand *picols* (3.75 to 5 million *ponden*) in the late 18<sup>th</sup> century. The marked tendency for growth and expansion in Chinese alum exports to India in the late 18<sup>th</sup> century continued, primarily, through the efforts of British country traders into the early 19<sup>th</sup> century.

With our present dependence on European sources, the issue of Indian demand and consumption of alum in general and Chinese alum in particular is incomplete. The unquestioned ubiquity of alum use by Indian dyers is reconfirmed in a series of Indian and European manuscript sources on mordant and dyeing in India—the *Nuskha Khulāsatul Mujarrebāt*, a mid-18<sup>th</sup> century dyeing recipe treatise, Georges Roques' *La manière de négocier dans les Indes Orientales*, Beaulieux, Coeurdoux and Roxburgh.<sup>50</sup> In spite of this reconfirmation, at present, there is little clear evidence that permits a discussion of: 1) the supply and demand relationship of alum (both local and imported) versus alternative mordant supplies in Indian markets; 2) local versus imported alum pricing and supply sensitivity in comparison with overland versus maritime transportation costs; 3) the relative security of maritime versus local or overland supply; and 4) a direct, calculable correlation in Indian textile production in relation to the supply of alum.



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TABLE 7. CHINESE ALUM SALES AND GROSS PROFIT MARGINS REALIZED BY THE VOC IN PRIMARY INDIAN MARKETS, 1715 TO 1760 (in *ponden*)

| Year   | Surat    |       | Coromandel Coast |       | Bengal   |       |
|--------|----------|-------|------------------|-------|----------|-------|
|        | Quantity | GPM % | Quantity         | GPM % | Quantity | GPM % |
| 1715   | 55,373   | 66    |                  |       |          |       |
| 1716   | 51,665   | 65    |                  |       |          |       |
| 1718   | 108,423  | 83    |                  |       |          |       |
| 1719   | 17,679   | 87    |                  |       |          |       |
| 1732   |          |       | 13,307           |       |          |       |
| 1733   |          |       | 63,923           |       |          |       |
| 1734   |          | 62    |                  |       |          |       |
| 1736   | 100,000  |       |                  |       |          |       |
| 1744   | 200,000  |       |                  |       |          |       |
| 1747   | 97,160   | 56    | 40,260           | 32    |          |       |
| 1748   | 107,641  | 99    |                  |       |          |       |
| 1749   | 167,613  | 131   |                  |       |          |       |
| 1751   |          |       |                  | 53    |          |       |
| 1752   |          |       |                  | 59    |          |       |
| 1753   | 0        | 0     | 19,813           | 19    | 12,108   | 17    |
| 1755   |          |       | 0                | 0     |          |       |
| 1756   |          |       | 0                | 0     |          |       |
| 1757   |          |       |                  | 34    |          |       |
| 1758   |          |       | 6,028            | 29    |          |       |
| 1759   |          |       | 13,344           | 33    |          |       |
| 1760   | 27,394   | 29    |                  |       |          |       |
| Totals | 932,948  |       | 156,675          |       | 12,108   |       |

Sources: *GM VII*, 189, 248, 375, 438; *GM IX*, 614, 625, 680, 773; *GM XI*, 252; ARA, VOC 2710-2974, Return reports.

The evidence does permit us to advance certain informed impressions. Chinese alum did not find any significant market demand in Persia.<sup>51</sup> Clearly and obviously, there was no Indian demand *per se* but a disaggregated pattern of demand and consumption centering on the port cities and hinterland cities—Surat, Coromandel Coast, Bengal, and Malabar Coast—in relation to those ports that were weaving and textile producing centers.<sup>52</sup> Since the Dutch sold alum at both port and hinterland cities on the Coromandel Coast (Pulicat, Teganapatam, Sadras, Nagappattinam, Porto Novo [Parangipettai], Masulipatam, Golkonda, Bimlipatam, and Jagannathapuram) and in Bengal (Hugli and Patna),

the registered price fluctuations in the same years that the VOC and others sold alum are important indicators of Indian sub-regional port and hinterland cities market demand. According to VOC records over the 18<sup>th</sup> century, there was greater demand for imported Chinese alum at Surat and on the Coromandel Coast than in Bengal and on the Malabar Coast. At Surat, the limiting factor in the VOC's participation in this market was caused more by the inconsistency in supply of Chinese alum via their indirect purchase policy than by a decline in demand or price or competition from other country traders in that Gujarat port market. On the Coromandel Coast, it is clear from contemporary Dutch reports that: 1) the quantities of Chinese alum

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that arrived at Masulipatnam<sup>53</sup> from indigenous competitors were significant (117,432 and 660,051 *ponden* in distinct years) and greatly surpassed the VOC's supplies; 2) after purchasing 242,670 *ponden* at Batavia and delivering the alum to the Coromandel Coast to remedy this disadvantage, the selling price for alum collapsed from 13 or 14 to 9.5 or 10 *guilders* per *bahar* on account of large supplies brought to the coast by the English and Portuguese; and 3) unable to sell their stocks, the VOC was temporarily left holding 72,000 *ponden* of alum.<sup>54</sup> Indigenous, Portuguese from Macao and English competition emerged, centering on Masulipatnam, Porto Novo and Madras, and by the mid-1730s the VOC had to desist in competing on a regular basis with these suppliers of Chinese alum on this coast and in the internal market redistribution of this commodity.

COUNTRY TRADE AND EMPIRE:  
COMMERCIAL AND CULTURAL  
EXCHANGES

Country trade and the exchange of commodities between China and India grew in commercial and political importance for Europeans and their imperial projects in Asia. The pursuit of country trade by Europeans in Asia in the 17<sup>th</sup> century was primarily for profit. Over the 18<sup>th</sup> century, however, fueled by mercantilist policies and debate over the perceived deleterious effects of an imbalance or outflow of bullion from Europe to acquire Asian commodities, there was increased competition and interest in country trade as a way to provide alternative capital resources and profits to finance European purchases of Asian commodities. The commercial objective of establishing ascendancy over country trade contributed to tension and conflict between other Europeans and with Asians.

The overall contribution and participation in country trade of Chinese alum should not be and has not been inflated or exaggerated; it did not rival Chinese tea or silk exports, nor was any claim made that it did. It was a commodity that exploited a niche market and demand for proto-industrial raw materials. Although full of opportunities for further research, our objective to broaden the discourse concerning the role of country trade was accomplished by introducing Chinese alum and its trade and relating the supply and demand of proto-industrial raw materials—mordant

and natural dyes—to the technology and techniques of textile production in the early modern economies of China and India.

This essay demonstrates and suggests at the heuristic level that the structure of country trade and the typology of the commodities that were exchanged: 1) encompassed a greater variety of goods beyond the stereotypical label of “luxury” items and precious metals; 2) included commodities that were intended to supply proto-industrial and artisan activities; and 3) although un-determined, it is probable that there was a dynamic and significant internal and external market and material cultural relationship between Chinese alum and Indian textile production processes.

There are a number of broader ramifications concerning the nature of exchanges and their importance at a more theoretical and conceptual level suggested by this essay. They are related to maritime trade, technology, and the nature of exchange. The Columbian exchange discusses the biohistory of smallpox and syphilis, Old World plants and animals in the Americas and the influence of New World foods such as maize and manioc on Old World demography.<sup>55</sup> The Magellan exchange, to date, concentrates and discusses the introduction of New World plants into Asia via two maritime routes: the Cape of Good Hope and the transpacific route.<sup>56</sup> The China-India and India-China or country trade exchange, as suggested in this essay, warrants a revision of its luxury and precious metals characterization to include basic raw materials for proto-industrial production. Reflection upon Europe's recognition of an inequality and attempts to replicate Asia's technical superiority in the production of specific commodities that were involved in global and country trade, such as silks, cottons, porcelain and others involved the East-West exchange reminds us of a search for convergence in technical know-how before divergence.<sup>57</sup> In a very small but important way, this essay on Chinese alum has introduced new approaches and problems concerning the nature of East-West exchange, the commodities that were involved and the role of country trade in early modern Chinese and Indian economic history. **RC**

**Editor's Note:** This paper was presented at *Country Trade and European Empire in the Arabian Seas: 17<sup>th</sup> and 18<sup>th</sup> Century Conference*, Leiden, 9-11 October 2003.

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## NOTES

- 1 See K. Glamann, *Dutch Asiatic Trade, 1620-1740*, (The Hague, 1958); P. Chaunu, *Les Philippines et le Pacifique des Iberiques (XVIIe, XVIIIe, XIXe siècles)*, (Paris, 1960); L. Dermigny, *La Chine et l'Occident: Le commerce a Canton au XVIIIe siècle*, 4 vols., (Paris, 1964); S. D. Quaison, *English 'Country Trade' with the Philippines, 1644-1765*, (Quezon City, 1966); K. N. Chaudhuri, *The Trading World of Asia and the English East India Company, 1660-1760*, (Cambridge, 1978); O. Prakash, *The Dutch East India Company and the Economy of Bengal, 1630-1720*, (Princeton, 1985); and A. J. R., Russell-Wood, general ed., *An Expanding World: The European Impact on World History, 1450-1800*, 31 vols., (Ashgate-Variorum, 1995-2000).
- 2 See H. Furber, *Rival Empires of Trade in the Orient 1600-1800*, (Minneapolis, 1976) and B. B. Kling and M. N. Pearson, eds., *The Age of Partnership: Europeans in Asia before Dominion*, (Honolulu, 1979).
- 3 See S. Subrahmanyam, *The Political Economy of Commerce. Southern India 1500-1650*, (Cambridge, 1990); S. F. Dale, *Indian merchants and Eurasian trade, 1600-1750*, (Cambridge, 1994); T. T. Allsen, *Commodity and exchange in the Mongol empire: A cultural history of Islamic textiles*, (Cambridge, 1997); C. Markovits, *The Global World of Indian Merchants, 1750-1947: Traders of Sind from Bukhara to Panama*, (Cambridge, 2000); and P. Parthasarathi, *The Transition to a Colonial Economy: Weavers and Kings in South India, 1720-1800*, (Cambridge, 2001).
- 4 For the port city, see J. Kathirithamby-Wells and J. Villiers, eds., *Southeast Asian Port and Policy: Rise and Demise*, (Singapore, 1990); F. Broeze, ed., *Brides of the Sea: Port Cities of Asia from the Sixteenth to the Twentieth Centuries*, (Honolulu, 1995); and F. Broeze, ed., *Gateways of Asia: Port Cities of Asia in the 13<sup>th</sup>-20<sup>th</sup> Centuries*, (Honolulu, 1996); for the colonial city, see R. Murphey, "Traditionalism and Colonialism: Changing Urban Roles in Asia," *Journal of Asian Studies*, 29 (1969), 67-84; D. K. Basu, ed., *The Rise and Growth of the Colonial Port Cities in Asia*, (Berkeley, 1985); and R. Ross and G. J. Telkamp, eds., *Colonial Cities: Essays on Urbanism in a Colonial Context*, (Dordrecht, 1985). For the maritime trade and port hinterland discussion, see I. Banga, *Ports and their Hinterlands in India, 1700-1970*, (New Delhi, 1992); K. S. Mathew, ed., *Mariners, Merchants and Oceans*, (Delhi, 1995); B. Stein and S. Subrahmanyam, eds., *Institutions and Economic Change in South Asia*, (Delhi, 1996); R. Mukheyee and L. Subramanian, eds., *Politics and Trade in the Indian Ocean World*, (Delhi, 1998); R. H. Grove, et al., eds., *Nature and the Orient: the Environmental History of South and Southeast Asia*, (Delhi, 1998); and S. Chaudhury and M. Morineau, eds., *Merchants, Companies and Trade*, (Cambridge, 1999).
- 5 The Dutch archival records that were used are found in The Hague in the *Algemeen Rijksarchief (ARA)*, primarily in the *Koloniale Archieven Oost-Indie: Archieven van de Vereenigde Oost-Indische Compagnie*, (VOC) collection. Printed Dutch records included W. P. Coolhaas, et al., eds., *Generale Missiven van Gouverneurs-General en Raden aan Heren XVII der Verenigde Oostindische Compagnie*, 11 vols., (The Hague, 1960-2001), cited hereafter as *GM*; J. A. van der Chijs, et al., eds., *Dagbregisteer gehouden int Casteel Batavia vant passerende daer ter plaetse als over geheel Nederlands India*, 31 vols., (Batavia and The Hague, 1888-1931); J. L. Blusse, et al., eds., *Dagregisters Van Het Kasteel Zeelandia, Taiwan, 1629-1662*, 4 vols., (The Hague, 1986-97), cited hereafter as *DZ*; and P. van Dam, *Beschryvinge van de Oostindische Compagnie*, 7 vols., (The Hague, 1927-54). Some of the Portuguese archival records that were used are found in Lisbon, Portugal, in the *Arquivo Histórico Ultramarino (AHU)*, *Maços de Macau* collection, in Macao in the *Santa Casa de Misericórdia (SCM)* collection, and in Goa, India, in the *Historical Archive of Goa, (HAG)*, *Macau* and *Correspondência de Damão* collections. The printed records of the Macao archives, see *Arquivos de Macau*, first series, 3 vols., (Macao, 1929-31); second series, 1 vol., (Macao, 1941); and third series, 28 vols., (Macao, 1964-1977). For English country trade and observations on other participants, the diverse documentation throughout the *Records of Fort St. George* series are orientative, see *The Diary and Consultation Books*, 76 vols., (Madras, 1910-1947); *Letters to Fort St. George*, 45 vols., (Madras, 1916-1946); *Letters from Fort St. George*, 40 vols., (Madras, 1915-1941).
- 6 See A. Appadurai, ed., *Social Life of Things: Commodities in Cultural Perspective*, (Cambridge, reprint 1988); J. Walvin, *The Fruits of Empire: Exotic Produce and British Taste 1660-1800*, (New York, 1997); M. Mauss, *The Gift: The Form and Reason for Exchange in Archaic Societies*, W. D. Halls, trans., (2000); and A. Bauer, *Goods, Power, History*, (Cambridge, 2001).
- 7 See G. B. Souza, "Dyeing Red: S.E. Asian Sappanwood in the Seventeenth and Eighteenth Centuries," a paper that was presented at the *Colóquio Produção e Comércio de Mercadorias Raras: Produções, Comércio e Vivências no Oceano Índico e Mar da China*, Fundação do Oriente, in Lisbon, Portugal, November 7-8, 2003.
- 8 For a summary of the discussions by historians of South Asia on the efficacy and the use of European sources, in this case VOC records, in the writing of Indian economic history, see S. Subrahmanyam, *The Political Economy of Commerce. Southern India 1500-1650*, pp. 1-8; O. Prakash and S. Chaudhuri discussed this issue in *Modern Asian Studies*, 27:2, (1993); and see L. Subramanian, "Alternate Approaches to Maritime India," *The Indian Economic and Social History Review*, 33:2 (1996), pp. 209-217.
- 9 See G. B. Souza, "Notes on the 'Algemeen Rijksarchief' and its Importance for the Study of Portuguese, Asian and Inter-Asian Maritime Trade," *Itinerario*, 4:2, (1980), pp. 48-56.
- 10 See H. Yule and A. C. Burnell, *Hobson-Jobson: A glossary of Anglo-Indian colloquial words and phrases*, (London, 1886; reprint: 1969), pp. 266-267.
- 11 See G. B. Souza, "The Portuguese Merchant Fleet at Macao in the Seventeenth and Eighteenth Centuries," an unpublished paper presented at the *Rivalry and Conflict: European Traders and Asian Trading Networks Conference*, Leiden University, Leiden, The Netherlands, 23-26 June, 2003.
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