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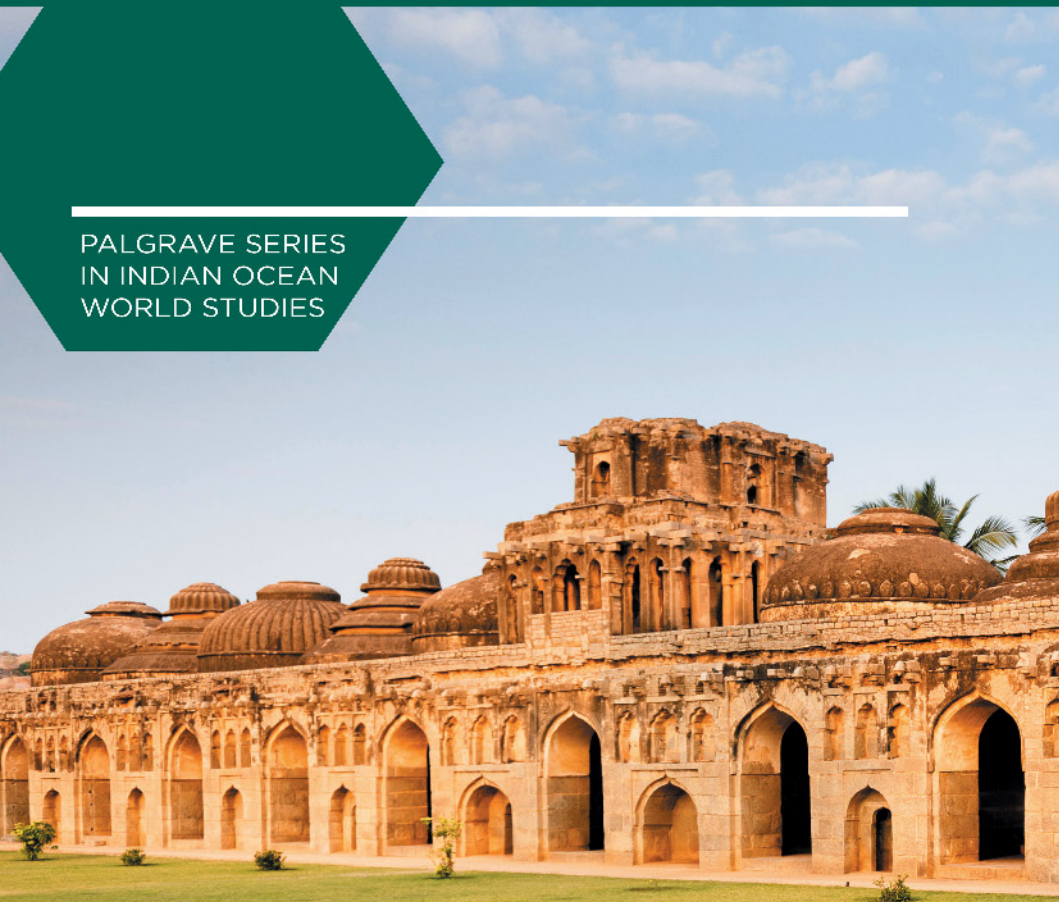

THE MAKING OF AN INDIAN OCEAN WORLD-ECONOMY, 1250-1650

Princes, Paddy fields, and Bazaars

Ravi Palat

The Making of an Indian Ocean World-Economy, 1250–1650

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Softcover reprint of the hardcover 1st edition 2015 978-1-137-54219-9

First published 2015 by
PALGRAVE MACMILLAN

Palgrave Macmillan in the UK is an imprint of Macmillan Publishers Limited, registered in England, company number 785998, of Houndmills, Basingstoke, Hampshire, RG21 6XS.

Palgrave Macmillan in the US is a division of Nature America, Inc., One New York Plaza, Suite 4500, New York, NY 10004-1562.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

ISBN 978-1-349-57646-3
E-PDF ISBN: 978–1–137–56226–5
DOI: 10.1057/9781137562265

Distribution in the UK, Europe and the rest of the world is by Palgrave Macmillan®, a division of Macmillan Publishers Limited, registered in England, company number 785998, of Houndmills, Basingstoke, Hampshire RG21 6XS.

Library of Congress Cataloging-in-Publication Data

Palat, Ravi Arvind, author.
The making of an Indian Ocean world-economy, 1250–1650 : princes, paddy fields, bazaars / Ravi Arvind Palat.
pages cm—(Palgrave series in Indian Ocean world studies)
Includes bibliographical references and index.
Summary: "To counter Eurocentric notions of long-term historical change, this book draws upon the histories of societies based on wet-rice cultivation to chart an alternate pattern of social evolution and state formation; traces inter-state linkages and the growth of commercialization without capitalism; 'industrious revolution' in India, China, Japan, Southeast Asia"—Provided by publisher.
1. Agriculture—Economic aspects—India. 2. Agriculture—Economic aspects—Indian Ocean Region. 3. Social change—India—History. 4. Social change—Indian Ocean Region—History. 5. Rice trade—Indian Ocean Region. I. Title. II. Series: Palgrave series in Indian Ocean world studies

HD2072.P26 2015
330.9182′4—dc23 2015016038

A catalogue record of the book is available from the British Library.

For Faruk

Contents

Figure and Tables

Figure

Tables

Preface

One of the first questions Terence Hopkins asked me when I entered the doctoral program in the sociology department at Binghamton—the only place where a book like this could have been conceived—was something to the effect that everybody knows that much of the gold and silver from the Americas in the sixteenth and seventeenth centuries ended up in Asia, but where did it go? By directing my attention to the infrastructures that generated demand for monetary media, I was led to examine the peculiarities of irrigated rice cultivation and the patterns of sociohistorical change that ensued from its evolution in several loci in continental Asia. Francesca Bray's seminal work on rice economies provided a propitious framework to examine this, even though her analysis did not cover India, required several caveats when applied to early to mid second millennium Southeast Asia, and did not examine its implications for the structure of the state.

By insisting on the concept of states as protection-providing enterprises, Giovanni Arrighi presented me with a new angle of vision to look at political structures in the subcontinent and led me to Jos Gommans' important work on the relations between nomads and state-builders to provide a second major vector to my analysis. Immanuel Wallerstein's insistence that the world be taken as the unit of analysis provided a conceptual framework to situate my work. As my study was on a world-economy centered on the Indian Ocean, to capture its distinctive features, I had to discard some of the key features of his analysis of the capitalist world-economy. Since the world-economy of the Indian Ocean was not a capital-positing economy, the relational concepts of core and periphery had to be abandoned. Though he had insisted that the interstate system was a peculiar feature of the capitalist world-economy, it was impossible to avoid seeing the existence of interstate relations in the world of the Indian Ocean. And the importance of the bullion and crops from the Americas

questioned his claim that the relations between world-systems was an exchange in 'preciosities' rather than necessities.

This book has been long in the making and I have over the years accumulated many intellectual debts. Parts of the book were presented in conferences for over 20 years—at Political Economy of the World-Systems conferences at the University of Washington organized by Resat Kasaba in 1991 and at Cornell University by Philip McMichael in 1993; at two workshops on labor-intensive industrialization organized by Sugihara Kaoru in Osaka and Buenos Aires in 2001 and 2002; at the World History Association meeting in Irfane, Morocco, and at a conference on writing social histories in Yogyakarta in 2005; at a workshop on historical expansions at the National University of Singapore in 2006; and at seminars in Zanzibar and Binghamton in 2008, in Madrid in 2009, in Shimla in 2010 and again in Osaka in 2011. I thank participants at these conferences for their comments and especially Philippe Beaujard, Carlos Prieto del Campo, Peter deSouza, Engseng Ho, Kayoko Fujita, Michael Pearson, Abdul Sheriff, and Chetan Singh.

Cristina Bacchilega and Biray Kolluoglu have provided affection and encouragement from long distances; Arif Dirlik has supported me in more ways than I can count; K. P. Shankar was always enthusiastic about my project; Mukund Padmanabhan was with me on a memorable trip to see the sprawling Vijayanagara ruins at Hampi; my colleagues at Binghamton—especially Bill Martin and Michael West—have been steadfast companions; Ana Maria Candela helped me with the intricacies of transliterating Chinese words; Denise Spadine and Linda Zanrucha provided vital support and plenty of laughter; Mark Selden was always ready with advice on publishing.

At the Epigraphy Branch of the Archaeological Survey of India in Mysore, Drs. K. V. Ramesh, K. G. Krishnan, S. Swaminathan, and P. Venkatesan all provided valuable assistance in deciphering the inscriptions. A large part of this book was drafted when I spent a sabbatical at the University of Wollongong, and I thank especially Susan Engel and Tim Scrase for their friendship. The assistance provided by the Interlibrary Loan staff at Binghamton University in procuring difficult-to-get sources was exemplary.

But above all others, my greatest intellectual debt is to Faruk Tabak who was so abruptly taken from us seven years ago, just after his own magnificent book, *The Waning of the Mediterranean, 1550–1870: A Geohistorical Analysis*, was published. For over 25 years, there is nothing of substance that either of us wrote that has not benefitted from the other's comments. To him, this book is rightfully dedicated.

Introduction

Toward a Framework to Debate World History: Bringing South India and the Indian Ocean Back In

One of the ironies of recent historical writing is that South India has slipped out of discussions of world historical change, despite it being the source of the spices that reportedly drove Europeans to launch "exploratory" voyages across the seas and a major production site of the most widely traded manufactured good before the industrial age—cotton textiles. Trade across the Indian Ocean—the "oldest of the seas in history," as Michael Pearson (2003:3) rightly calls it—predated commerce across all other oceans. And yet, as the origins of the modern world are being debated and the factors that were once held to have been peculiar to Europe—private property in land, free markets, rule of law, among others—are now seen to have operated elsewhere as well, South India rarely figures in contemporary debates on comparative world history.

The excision of South India from these discussions is perhaps because the source materials for the region are primarily stone and copper inscriptions, a handful of literary texts, and a few travelers' accounts. There are no registers of farm expenses and sales, tax registers, account books of merchants with costs, prices, and associated trading practices, or production schedules of weaving households, records of mints, export and import figures: none of the staple sources of economic history. Consequently, much of the literature on the political economy of South India has revolved around notions of ritual polities, sacred kingships, and the "segmentary state" (Stein 1980, 1985a, 1989). Yet these inscriptions also contain considerable information about land tenures, expansion of cultivation, rates of

taxation, administrative hierarchies, and social classes. When contextualized by time and place, and subjected to statistical analysis, they reveal distinct patterns of socioeconomic change: the expansion of agrarian settlements from along the fertile coasts and banks of rivers to the interior, with discrete social patterns and a progressive shift from communal to individual land ownership, an increasingly pronounced martial character of the society and polity (Heitzman 1997; Karashima 1984, 1992). These are similar to trends in other wet rice–growing societies in Asia, and contextualizing South Indian trajectories within the richer empirical trends charted in the broader macro region provides an elegant means to silhouette patterns of sociohistorical transformations very different from the trajectories derived from the historical experiences of the peoples of Europe enshrined in reigning theoretical conceptualizations.

Excavating the historical dynamics of societies based on wet-rice cultivation recasts debates on the origins of the modern world. Whether these debates attribute the reason for capitalism developing first in northwestern Europe because private property in land was institutionalized there earlier, or because markets there were "freer" than elsewhere, or whether European populations were located closer to more conveniently located sources of energy like coal, they assume that capitalism is the teleological goal of history. Rather than seeing the "industrial revolution" as marking a bifurcation point in an hitherto glacial pace of change in Europe, recent historical scholarship has shown that—with the exception of the dislocations caused by the Black Death—there had been long developmental continuities since the twelfth century with the growth of intercity networks in Europe, market-oriented craft production, and by the sixteenth century, the creation of stable political frameworks that facilitated the accumulation of capital. Moreover, these tendencies—steady improvements in technology, leading to a growth in total output and expansive regional and global networks of circulation—were also seen to operate in the "non-Europes," especially in China, Mughal India, Japan, and the Ottoman Empire. Observing the temporal contemporaneity of the evolution of exchange networks in many different parts of Africa, Asia, and Europe, James Blaut (1992: 355) argued that these should be seen "as nodes in a hemisphere-wide network or process of evolving capitalism." Once Africa, Asia, and Europe are seen as "landscapes of even development," it is alleged that the very

association of modernity with Europe is untenable—and hence, as Jack Goldstone (2002: 330) notes, several scholars speak of "early modernities" and even "multiple modernities."

In contrast, a recovery of the dynamics of long-term, large-scale social change in societies based on irrigated rice agriculture charts a very different process of sociohistorical transformation, one that does not lead toward capitalism. Notably, two vectors emerge: first, the natural characteristics of wet-rice agriculture generates a singular pattern of socioeconomic transformation that could support much larger densities of population, did not privilege the accumulation of capital, and led to a very different patterning of political relationships than in Europe. Second, instead of depending on financial and mercantile elites for their protection-providing enterprises, ruling elites in much of continental Asia (excluding mainland Southeast Asia) depended on nomads for the supply of good quality horses. In turn, these vectors both promoted increasing specialization in economic activities and led to widespread trade networks that encompassed regions not ecologically suited to wet-rice cultivation. However, since no economic advantage resulted from capital accumulation in these conditions, expanding circuits of circulation did not lead to capitalism. The entry of Europeans into the world of the Indian Ocean built upon these evolving infrastructures and initially strengthened and deepened socioeconomic integration along its coastlines. It was only much later that these societies were subordinated to the drives of the capitalist world-economy.

In the following section, I sketch a general model of the dynamics of historical change in societies based on wet-rice agriculture, drawing on evidence especially from China and Japan, and contrast these patterns to models of long-term, large-scale social change based on the northwestern European experience. Within the large quadrant where irrigated riziculture dominated, different ecological and social conditions altered, refracted, or otherwise modified shared sociopolitical and economic trajectories. Evolving circuits of exchange, nevertheless, linked these regions together, and the injection of American bullion into these networks by Europeans deepened and extended their ambit. Finally, we reflect on the implications of this model on contemporary debates on early modern world history and the origins of capitalism. The following chapters will then map South India and the world of the Indian Ocean onto this model to fully flesh out an alternate pattern of long-term, large-scale, social change.

A Stylized Model of Sociohistorical Change in Societies Based on Wet-Rice Cultivation

Since about CE 1000, as we shall see in chapter 1, political economies in much of Asia were determined by the peculiar characteristics of wet-rice agriculture. The much higher productivity of lands under irrigated riziculture than areas under other staple crops meant that the former could support much larger densities of population. In turn, this implied both that a larger part of the population could engage in nonfood-producing activities on a full-time basis and that elites could appropriate a greater portion of the surplus. If this promoted an expansion of trade circuits even to ecological zones not suitable for rice cultivation, the propensity of wet-rice agriculture to respond positively to additional inputs of labor placed a premium on skill rather than capital. Indeed, since floods were as much of a threat to rice as drought, in the absence of mechanical equipment to level the fields, plots of land had to be small to ensure adequate control over drainage (Geertz 1963: 31; Bray 1983: 9, 12). Whereas the substitution of labor power by animal and mechanical power represented technological progress in societies with low densities of population, the technical conditions of wet-rice cultivation dictated the substitution of simple tools for more complex instruments (Bray 1983: 4–5). Hence, rather than moving toward large-scale consolidated farming operations, the dynamics of change in societies based on irrigated riziculture increasingly privileged small-scale operations. Or, as Thomas Smith (1980: 105) put it so well, "To speak metaphorically, rather than impelling farming forward to a manufacturing stage of production, [operations associated with wet-rice agriculture] served to strengthen its handicraft character."

Once emphasis was placed on the skill of cultivators rather than on increasingly complex instruments of production as was the case in early modern Europe, there was a tendential decline in the intervention of landlords in the production process. This implied that though producers may remain formally subordinate, there was no attempt by landowners to constantly revolutionize and transform the labor process. These conditions imposed severe impediments to a ceaseless accumulation of capital since landlords were unable to realize an increase in relative surplus value by constantly reducing production costs. At the same time, the increasing premium placed on skilled labor even constrained their abilities to realize an increase in absolute surplus value. Consequently, land ownership may have conferred prestige and

local political power with the intensification of wet-rice agriculture, as we shall see in chapter 1, but not economic advantage.

Large populations also meant that there were no tendencies toward the development of labor-saving devices or to the creation of large consolidated enterprises in manufacturing. The growth of population led to what Hayami Akira (1986) has called an "industrious revolution." Technological improvements tended to be scale-neutral and labor-intensive and were typically implemented to raise product quality and output. Central to this transformation was the absorption of workers through labor-intensive strategies—engaging in cottage industries or by migrating during off-peak seasons to work as service personnel to increase household incomes. It was manifested by an increasing specialization in ever-narrower segments of the production process as evident by the multiplication of occupational castes in the subcontinent. The employment of larger numbers of households in artisanal production as a result of an intensification of wet-rice cultivation led to the emergence of a mass market in which price displaced quality and artistry as the primary consideration affecting production. In these circumstances, rural producers, as Smith (1980: 76) noted of those in Tokugawa Japan, had

> a decisive advantage for they were less encumbered than urban producers by guild restrictions and were nearer to raw materials and water power. Moreover, their labor costs were far more elastic since they did not demand a livelihood from industry, merely part-time employment to fill the lulls in farming.

The progressive elaboration of the division of labor and the spread of cultivation to the interior led both to a ruralization of craft production and to a greater monetization of the economy. The widespread dispersal of craft production, the increasing breadth and density of commercial linkages, and the evolution of financial institutions and credit mechanisms did not, however, lead to the development of capitalist relations, or to a marked separation between producers and managers unlike the case in northwestern Europe. Even though skilled craftsmen could earn much more than less skilled artisans, in the absence of labor-saving implements, these advantages were individual rather than institutional, and successful artisans and traders tried to safeguard their political influence and social status by becoming landowners—which again, as already briefly noted—conferred prestige and local power and rather than

economic advantage. The household held a decisive economic advantage over large-scale enterprises precisely because family members could respond flexibly to situations that may arise, take initiative in anticipating and resolving potential problems, and work longer hours without thought of extra compensation to maintain the status of the family (Sugihara Kaoru 2003: 87).

The greater flexibility of labor and the widespread dispersal of craft production meant that the closest parallel to European models of mechanization and factory production in pre–eighteenth century Asia came from the large sake breweries established to quench the thirst of Japanese urban populations in the seventeenth century (Morris-Suzuki 1994: 49–51)—but sake was never a "leading economic sector" like export agriculture or textiles. In those and other sectors, there was no tendency toward an increasing real subsumption of labor to capital, identified by Karl Marx (1977: 1019–1038) as the hallmark of capitalism as a mode of production sui generis.

Growing artisanal production also led to an increase in the exports of cotton textiles from the subcontinent to locations on both wings of the Indian Ocean and by the seventeenth century, Holden Furber (1965: 12) even argued that if "mercantilist navigation laws of Britain and other European nations had not prevented it, there would have been a brisk direct trade in Indian cotton-piece goods between India on the one hand, and both West Africa and the Caribbean on the other." A crucial ingredient in the extraordinary market penetration achieved by cotton textiles produced by subcontinental weavers was because steady increases in agricultural productivity kept food prices low.[1] In the 1750s, while the South Indian gold pagoda could purchase 90 pounds of rice, its equivalent, 8s., could only purchase 70 pounds of bread, in caloric terms the same as 45 pounds of rice, in England (Parthasarathi 1998: 101–02).[2] In other words, while weekly wages in real terms were broadly comparable in South India and in England in the eighteenth century, money wages in South India were about half the English level and therein lay its competitive advantage. Consequently, the only way European manufacturers could overcome India's competitive advantage, Fernand Braudel (1984: 572) argued, was to use machinery to offset lower subsistence costs in the subcontinent:

> The cotton revolution, first in England, but very soon all over Europe, began by imitating Indian industry, went on to take revenge by catching up with it, and finally outstripped it. The aim was to produce

> fabrics of comparable quality at cheaper prices. The only way to do so was to introduce machines—which alone could effectively compete with Indian textile workers.

In sum, conditions of production in artisanal and agricultural production did not confer any economic advantage to accumulation. Thus, even though there may have been a few wealthy individuals like Virji Vora of Surat, said to possess an "estate" of some eight million rupees in the 1660s (Habib 1990: 398), there was no concerted move to consolidate an alliance between governing and mercantile-financial elites in the large agrarian-commercial empires of Asia. What is at issue here is *not* whether there were wealthy individuals, even capitalists, in India, China, and elsewhere in the "non-Europes," but whether capitalism could become the motor force dominating the dynamics of these social systems. For capitalism to become dominant at the macro-level—to become a system where "a man exists for his business, instead of the reverse," in Max Weber's (2002: 32) words—it had to become embedded within the political system.

> Capitalism only triumphs when it becomes identified with the state, *when it is the state*. In its first great phase, that of the Italian city-states of Venice, Genoa, and Florence, power lay in the hands of the moneyed elite. In seventeenth-century Holland, the aristocracy of Regents governed for the benefit and even according to the directives of the businessmen, merchants, and moneylenders. Likewise in England, the Glorious Revolution of 1688 marked the accession of business similar to that in Holland.
>
> (Braudel 1977: 64–65, emphasis added)

In Europe, as the costs of providing protection increased substantially during the sixteenth century due to an expansion in the scale of warfare (McNeill 1984: 79–184; Parker 1988: 24, 62), the ability of rulers to borrow money from financiers became ever more crucial to their military success. While borrowing from financiers outside their domains may have enabled rulers to repudiate their debts with less adverse consequences for their local economies, it eventually made rulers less creditworthy, and they were forced to make concessions to their creditors, including the authority to collect taxes. When Spain's Philip II tried to default on his loans to his Genoese creditors in 1575, they embargoed all currency transfers from the Spanish crown to his army fighting Dutch rebels in the Low Countries and thus forced him to resume payments.[3]

Territorial rulers who were dependent on financiers and big merchants involved in long-distance trade also confronted actors who could not be entirely controlled by them as these financiers and merchants could escape to another ruler's domains if demands on them became intolerable. Hence the geographies of capital and coercion created a system of states, the rulers of each jurisdiction granting increasingly favorable terms to their merchant-financiers, to enable them to accumulate large profits more optimally (Lane 1979; Wallerstein 1974):

> [W]hat we in blithe retrospect call "state formation" included the setting of ruthless tax farmers against poor peasants and artisans, the forced sale for taxes of animals that would have paid for dowries, the imprisoning of local leaders as hostages to the local community's payment of overdue taxes, the hanging of others who dared to protest, the loosing of brutal soldiers on a hapless civilian population, the conscription of young men who were their parents' main hope for comfort in old age, the forced purchase of tainted salt, the elevation of already arrogant local propertyholders into officers of the state, and the imposition of religious conformity in the name of public order and morality.
>
> (Tilly 1990: 98–99)

If successful European rulers made concessions to their subject populations—no taxation without the consent of their representatives, freedom from the arbitrary exercise of power, and the institution of laws—in their drive to subdue powerful lords, they were increasingly dependent on merchant-financiers, both in their efforts to create absolutist states and to finance their wars. This mutual dependence, however, came up against the interests of subject populations since laws favorable to the increasing commodification of property relations implied extinguishing long-established customary rights. In this regard, the European conquest of the Americas was crucial. Apart from the ecological bounty of the Western Hemisphere, European *conquistadores* caused such widespread destruction of indigenous peoples—as they had no immunity to diseases of the Eastern Hemisphere (Crosby 1972)—that the colonizers and settlers could experiment with new forms of labor control since aboriginal populations and transplanted African slaves were less able to defend their "customary" rights than well-established peasant communities in Europe. Additionally, the bounty from the Americas—bullion and commodities—could be used to subdue resistance by peasants in

Europe itself while subordinating regional grandees to centralized monarchies (Quijano and Wallerstein 1992).

Compulsions of war-making and state-making did not, however, lead to a similar alliance—a series of *liaisons dangereuses*, as Charles Tilly calls it—between governing and mercantile-financial elites in the large agrarian-commercial empires of Asia. Control over large populations, extensive territories, and an elaborate tax system meant that rulers and governing elites were not reliant on mercantile-financial elites for revenues for their protection-providing activities. The Mughals, as Pearson (1991: 57) says simply, "had too much money to need to trade off revenue for rights as European rulers had to do." Instead of relying on loans or cash advances from urban patriciates to wage wars or to suppress local rebellions, commanders of Mughal imperial forces, for instance, merely drew cash from provincial treasuries to pay the troops under their command (Richards 1990: 628). When Akbar sent an expeditionary force to subdue rebellious Afghan chiefs in Bihar and Bengal in 1572, for instance, the salaries of artillerymen were paid directly to the commander for the duration of the campaign from the central treasury (Khan 2004: 92).

A key determinant of state formation in wet rice–growing Asia was the relationship between rulers and military entrepreneurs. In the first instance, expansive dry lands frequently interspersed with fertile river valleys stretching from the Atlantic coasts of northern Africa through West and Central Asia to the eastern and southern parts of the Indian subcontinent—Saharasia as this chequered ecological continuum is sometimes called (Gommans 1998b: 4; 2002: 9)—meant that the frontier between pastoral-nomadic societies and sedentary-agrarian ones was an open, flexible, and ever-shifting border till the nineteenth century. Harold Peake, Herbert Fleure, and Joseph Fletcher argued that unlike the nomads of the northern steppe (from Hungary to eastern Manchuria) or East Africa who had little contact with sedentary societies and rarely traded with cities, the nomads of the southern steppe (stretching from North Africa through Arabia and Persia to western India, or Saharasia) were, since the earliest times, intimately connected with sedentary peoples through war, trade, and religion (Perdue 2005: 30–31; Barendse 2002: 68; Khazanov 1983: 63–65).

The vulnerability of sedentary societies in West, South, and East Asia to depredations by nomadic peoples stood in marked contrast to the experience of the peoples of Europe and the Western Mediterranean. The broken forests, rather than arid steppes—characteristic of

the European landscape—posed enormous logistical problems for the nomads and there were no nomadic incursions into Europe after the eleventh century—except for the Mongols on its eastern margins, and even these stopped after the thirteenth century (Sinor 1972: 181–82; Gommans 1998a: 132; Wink 1997: 24).[4]

Precisely as Europe's frontier with the nomads closed in the eleventh century, Saharasia—or more accurately, the arid regions of Central Asia—

> emerged as a huge continental *mediterranée*, a vibrant interstitial region that widened the horizon of all its adjoining societies and open new channels for pastoralists, warriors, merchants, pilgrims and other restless wanderers.
>
> (Gommans 1998a: 130)

Here, Turco-Mongol horsemen began to institute a string of conquest states stretching from the Saljuks in northern Iran through the Ghaznavids in northwestern India to the Khitan and the Jurchen in northern China. Between the twelfth and thirteenth centuries, as conquest states established by peoples from the Central Asian steppe expanded to encompass large swathes of China and the northern Indian subcontinent, warriors from the dry tracts of the southern Indian peninsula—the Yadavas, the Kakatiyas, the Hoysalas, and the Sambuvarayas—also asserted their dominance over the peoples of the fertile riverine and coastal zones (Gommans 1998b: 14–15; 1998a: 131; Talbot 2001).

Once conquest states had been established, new state builders faced the same problems confronting earlier dynasties: a shortage of pasture sufficient to sustain the numbers of horses required to control large populated territories. Chinggis Khan's intention of turning north China into pasture may have represented a keen strategic analysis of military imperatives but as his grandsons realized, a sustainable polity needed to combine the nomadic pastoralism of the steppe with sedentary agrarian zones. Thus, symbolic of the establishment of conquest states were the rise of a series of new frontier capitals—Delhi, Beijing, Vijayanagar, Bijapur, Ahmadnagar, Golkonda—combining access to sources of mobile warfare (horses) and to an expanding agricultural base (Sinor 1972: 176, 180–81; Barfield 1989: 234–35; Gommans 1998b: 15; 1998a: 129–30; 2002: 23–37).

The location of long-standing capitals in frontier areas underlined the mutual dependence of nomads and rulers of large agrarian-

commercial empires. Competitive relations between agriculture and pasture—as well as ecological and climatic conditions—meant that the latter lacked the extended grasslands required to provision their armies with sufficient numbers of high-quality horses and their only potential suppliers were the nomads—"the very people against whom the cavalry mounted on imperial horses would be used" (Sinor 1972: 174). Conversely, since the horse was the only commodity the steppe produced in abundance, the nomads depended on sedentary peoples for essential or valued commodities. Ghazan Khan (1271–1304), a Mongol chief, succinctly framed the nomads' dilemma:

> I am not on the side of the Tazik [Iranian] *ra'iyat*. If there is a purpose in pillaging them all, there is no one with more power to do this than I. Let us rob them together. But if you wish to be certain of collecting grain ['*tagar*'] and food ['*ash*'] for your tables in the future, I must be harsh with you. You must be taught reason. If you insult the *ra'iyat*, take their oxen and seed, and trample their crops into the ground, what will you do in the future?... The obedient *ra'iyat* must be distinguished from the *ra'iyat* who are our enemies. How should we not protect the obedient, allowing them to suffer distress and torment at our hand.
>
> (quoted in Chaudhuri 1990: 268)

This patterning of political relations meant that there was no great compulsion for ruling elites in Asia to grant favored status to mercantile and financial elites, and in particular exclusive rights or monopolies to them. And it was only through monopolies that agencies—be it the English East India Company of the seventeenth and eighteenth centuries, or Apple and Monsanto today—were able to accumulate large amounts of capital.

Unlike Adam Smith and Marx, who both considered competition to be the normal state of play in capitalist societies, Braudel demonstrated that monopolies were not aberrations in the history of capitalism. The Smithian market dynamic of an infinite number of buyers and sellers armed with perfect information of market conditions and with no constraints on the operation of the forces of supply and demand would imply that buyers would go from seller to seller to find the lowest possible price. Such a price could only be infinitesimally higher than the cost of production and no real capital accumulation would be possible. Exceptional profits were to be reaped, as Braudel argued, not in the market economy, which was the "not unacceptable" face of "micro-capitalism... barely distinguishable

from ordinary work" (Braudel 1981: 562), but in the "zones of turbulence" above it, safeguarded by exclusive rights: it was "exploitation than exchange," he says of the royal monopolies of trade:

> The Manila galleon was an exceptionally good way of closing a circuit from a commercial point of view, but there is no doubt it represented a form of domination to the advantage of merchants of Mexico City. Making their hasty visits to the Acapulco fairs, they held the whip hand, from a distance of months and years, over the merchants of Manila (who took it out on the merchants of China), just as Dutch merchants for so long kept the whip hand over their commission agents in Leghorn. When there was a relationship of power of this kind, what exactly did the terms supply and demand mean?
>
> (Braudel 1982: 176)[5]

Similarly, in his analysis of European trading companies in the Indian Ocean, Niels Steensgaard (1974) argued that overseas voyages were possible only because European states granted monopolies to these companies—insulating them against competition at least from merchants from their own jurisdictions—and allowing them to internalize protection costs through the assumption of governmental and military functions in their operations overseas.[6]

Since agricultural production and taxes were more important, Chinese and Indian rulers focused more on extending cultivation and improving agricultural and artisanal production than on trade. While the Chinese government established state monopolies in salt and iron, these were not intended to reap extraordinary profits.[7] Though the several imperial dynasties of China and India recognized the importance of trade—especially to procure good quality horses for warfare and to acquire gold and silver in regions plagued by chronic shortages of bullion—they were not concerned with the profits of their merchant classes, unlike their contemporaries in Western Europe. Bahadur Shah, a sixteenth-century sultan of Gujarat, is even reputed to have told a group of merchants seeking protection from the Portuguese: "Wars by sea are merchants' affairs and of no concern to the prestige of kings" (Boxer 1977: 50).[8] These differences in the relationships between governing and mercantile-financial elites in Europe and the agrarian-commercial empires of Asia were manifested in the European trading companies' demand for extensive privileges and treaties from the Mughal and Qing courts, demands that were incomprehensible to the rulers (Pearson 1991: 109–14).

Intensive agriculture and increasing craft production generated expansive webs of commercial linkages but these relations differed significantly from the zonal divisioning of labor in the capitalist world-economy invoked by the idiom of core–periphery relations. This is evident both in the long-distance trade in some high-value commodities as well as in the exchanges over long distances of some low-value bulk goods. In the first instance, relationships between highly monetized economies and nonmonetized economies—as in the case of the exchange of cloth from Gujarat for ivory and gold from the Zimbabwe Plateau on the Swahili coast in the sixteenth century—was often an exchange between two distinct social systems. Even though this had all the characteristics of an unequal trade between primary products and finished goods, and high profits were reported in this trade by Portuguese officials,[9] gold had little value in a nonmonetized economy and was, as Pearson (1998: 115) notes, exchanged like any other commodity by weight. Gold production in the Zimbabwe Plateau was a discretionary activity and peasants washed and mined for gold only during slack periods in the agricultural cycle to exchange it for more utilitarian commodities like cloth. Even in the late eighteenth century, Diogo do Couto observed:

> As the Kaffirs are numerous, they always obtain a great quantity [of gold] although they are by nature so indolent that when they have found sufficient to buy two pieces of cloth to clothe themselves, they will not work any more(quoted in Pearson 2003: 141).

In the second instance, even when the trade was in necessities, as in the case of the supply of rice to areas that specialized in cloth production, this exchange did not necessarily have the exploitative character of trade between core and peripheral zones in the capitalist world-economy. Locations exporting manufactured goods did not reap disproportionate benefits from the systemic divisioning of labor precisely because conditions of production in distant locales was unknown as indicated by the example of the exchange of gold and cloth on the Swahili coast. The absence of the sedimented layers of accumulation associated with core zones is underlined by the peculiarly labile quality of cities along the Indian Ocean coastlines and their related hinterlands, their striking lack of monumentality. In Southeast Asia, the lightness of building materials not only meant that cities could be rebuilt easily but also that there was no distinction between the sylvan simplicity of the country and the sophisticated

urbanity of the town as evident from a French Jesuit's description of Aceh in the seventeenth century:

> Imagine a forest of coconut trees, bamboos, pineapples and bananas, through the midst of which passes a quite beautiful river all covered with boats; put into this forest an incredible number of houses made of canes, reeds and bark, and arrange them in such a way that they sometimes form streets, sometimes separate quarters: divide these various quarters by meadows and woods: spread throughout this forest as many people as you see in your towns, when they are well populated…
>
> (quoted in Reid 1993: 88–89)

As building materials were light and inexpensive, a typical strategic response to attack was withdrawal into the forests to wait while the invaders plundered the city and departed with the spoils as an English trading party to Indragiri found out in 1634. Returning to this Sumatran port after an interval of six years, they had to spend two days searching for the town because "the whole population had moved three days' journey up the river in response to an Acehnese invasion" (Reid 1988: 122–23; 1993: 89–90). Even more astonishingly, when the Portuguese besieged Melaka in 1511, the king and his court retreated into the interior on the assumption that Afonso de Albuquerque's forces would merely plunder the entrepôt and sail away.

In the subcontinent, the monumentality of Mughal palaces and forts and Hindu temples highlight the absence of a civic architecture. In the fourteenth century, when Ibn Battuta arrived in Delhi, he thought it was "the greatest of the cities of India (*mudun al-hind*) and even of all the cities of the Islamic East." But, soon afterward, when Muhammad bin Tughlaq decided to shift his capital to Daulatabad in the Deccan, the Moroccan traveler said Delhi was "entirely abandoned…without fire, smoke, or torch…immense city that it is…it was empty, abandoned and its population completely scattered" (quoted in Wink 2004: 74–75). Ferishta similarly recorded that the rapid depopulation of settlements was a characteristic of the subcontinent and Jean-Baptiste Tavernier wrote that after the Mughal court moved to Shahjahanabad, even the nobles remaining in Delhi lived in tents (Tavernier 1977: I, 78; Wink 2004: 69). In the mid-seventeenth century, when Surat was one of the grandest ports in the world,

> The walls of the city are built of earth, and the houses of private persons are like barns, being constructed of nothing but reeds, covered

> with cow-dung, mixed with clay to fill the interstices… In the whole of Surat, there are only nine or ten well-built houses.
>
> (Tavernier 1977: I, 6)

And Matteo Ricci was to observe that in Ming China, buildings were constructed to last for a generation rather than to endure for generations (Chaudhuri 1990: 198). The ephemeral prosperity—even existence—of glittering entrepôts, and the lack of monumentality of cities, underscores that the founts of their fortune lay in fleeting situational factors rather than on processes of accumulation that characterize core zones in the capitalist world-economy. Hence, rather than deploy the idiom of core–periphery relations to characterize the exchange of primary products for finished goods—say, rice for cloth—it is perhaps more appropriate to view this as a trade between grain-producing areas and weaving areas as suggested in chapter 4.

As both the overland and the seaborne trade was dominated by a large numbers of small traders—transmitting market intelligence through networks of kinship, religion, and caste and reinforced small, localized market niches (Palat 1991: 27)—they were unable to accumulate capital on a scale sufficient to subordinate the immediate producers. In short, it was, as Robert Marks (1998: 11) characterized the economy of late imperial China (1500–1850), "commercialization without capitalism."

Just as modern states create specially designated juridical enclaves—export processing zones and international banking facilities to attract international business being cases in point (Palan 2003: 18–21)—rulers permitted resident communities of foreign merchants to administer their own, often incompatible, systems of law provided that in cases of conflict, or serious crimes such as homicides, royal jurisdiction overrode such privileges. These communities mediated between their host societies and traders from overseas, and contemporary historical accounts indicate that goods were offloaded from ships only after complex negotiations conducted by resident foreigners—the *shahbandar* of Melaka, for instance—and involved elements other than relative scarcities (Ma Huan 1970: 140–41; Pires 1967: II, 265; Chaudhuri 1985: 99). Mughal governors of Surat regulated grain prices, and in times of dearth, even seized grain stocks to provide food for the poor (Barendse 2002: 53). There is also ample evidence of state intervention to provide relief from high food prices during years of scarcity in China as late

as the eighteenth century (see Davis 2001: 280–85). Careful regulation of grain prices when necessary by Mughal and Qing imperial governments, and the role of resident foreign merchants in port cities underscore that trade was regulated and considerations of capital accumulation were not paramount.

To recapitulate, the natural characteristics and higher productivity of irrigated riziculture led to a distinct pattern of socioeconomic evolution, which did not privilege capital accumulation, large-scale production, or commercial units over the long run. It also generated expansive circuits of exchange drawing even regions not ecologically suited to wet-rice agriculture into its divisioning of labor. In another contrast with Europe, these regions were vulnerable to nomadic invasions and remained incapable of breeding adequate quantities of good quality horses, the most important military asset of the first half of the second millennium. Hence, rather than a mutually beneficial alliance between rulers and financial and mercantile elites that facilitated capital accumulation in Europe, the critical political relationship was between rulers and nomads and/or military entrepreneurs. Expansive networks of circulation led to the institution of resident communities of foreign merchants in port-cities and this was to provide the institutional armature for the activities of European interlopers in the world of the Indian Ocean since the sixteenth century. However, very different ecological and social conditions in continental Asia meant that these processes did not operate uniformly across this vast quadrant and to these variations we now turn.

Regional Variations

The much lower densities of population in mainland Southeast Asia (excluding Vietnam) is testimony to a very different pattern of sociohistorical change. Here, as engineering technologies remained inadequate to control the massive, monsoon-fed inundations of the lowlands before the nineteenth century, trajectories of agrarian expansion were the mirror-image of China, Japan, and peninsular India—beginning in the intermountain basis and proceeding gradually to the deltas. The lower productivity of land here placed a greater premium on the control of labor as indicated by the defensive strategies of temporarily abandoning settlements as discussed earlier.

The region's considerably smaller population limited the growth of commercial linkages and dry zones in the interior, where extensive wet-rice agriculture was practiced, had a demographic, and

therefore military, superiority over the lowlands. Additionally, since it was easier to sail down the major arteries—the Irrawaddy and Chaophraya rivers—than to go upriver, cities in the interior were better placed to quell revolts in the lowlands (see Lieberman and Buckley 2012: 1086–87). Vietnam, of course, was a case apart as it lacked a central arterial river and its elongated coastline was punctuated by several east–west valleys, which complicated political integration. Only here did intense wet-rice cultivation lead to patterns of sociohistorical transformation similar to those in southern China and peninsular India.

Seas and dense forests also blunted the effectiveness of mounted archers and heavy cavalry as indicated by the failures of the Mongol campaigns launched from Sichuan and Yunnan against rulers of the Southeast Asian mainland and those launched against Japan (Reid 1993: 203; Souyri 2001: 61–63; Wink 1997: 35–36). Additionally, in mainland Southeast Asia, the inherent difficulty of overland communications between the east and west significantly undermined both the potential of prolonged conflict between major powers and the role of cavalries (Lieberman 2003: 60, 149). In short, in Southeast Asia, patterns of sociohistorical change followed a different trajectory from those in peninsular India, southern China, and Tokugawa Japan. This difference is underscored by the far more impressive development of handicraft production in China and the Indian subcontinent than in mainland or archipelagic Southeast Asia.

Though the peoples of China and the subcontinent were vulnerable to nomadic depredations, the patterning of political relations in the two areas offer a study in contrast. The symbiotic relationship between nomadic and Chinese empires meant that with the singular exception of the Mongols, nomadic conquests occurred only when political instability in China led to a situation where there was no government capable of paying tribute (Barfield 1989: 9–11). Relations between nomadic and sedentary peoples were less well-regulated in the more chequered ecological continuum of Saharasia where arid lands with less than 1,000 mm of rain offering pastoral nomadism a comparative advantage over settled agriculture till the nineteenth century were interspersed with fertile riverine valleys (Gommans 1998b: 4). Here, if unreliable harvests, long off-seasons, and extensive grazing lands meant that the dry zones had the greatest military potential, they also posed enormous challenges to state builders who could ill afford to leave the bulk of their potential military recruits to competing employers or allow them to set up their own protection-providing

enterprises (Gommans 2002: 67, 88). The early seventeenth-century traveler, Joannes DeLaet, reported that the Mughal

> empire contains many provinces which are rendered difficult of access on account of their mountainous character and the dense forests with which they are covered. Large armies cannot operate in such districts, which are held by Radias [rajas]…If opposed by the Mogols with a greater force than they can cope with, they merely retreat into their mountains and await a better opportunity.
>
> (quoted in Singh 1995: 26, n.12)

The best resolution that the Mughals and their predecessors could devise for what DaLaet characterized as "these dangerous diseases of the body politic" was to provide leaders of warbands with access to the wealth of empire either by assimilating them into the imperial apparatus or by channeling their martial energies outside their realm.

These differences translated into divergent state-making strategies in China and in the Indian subcontinent. Though periodic nomadic invasions made landed gentries in both territorial designations less secure than their European counterparts (Gommans 2002: 40), the lack of internal frontiers enabled successive Chinese dynasties to rely on an imperial bureaucracy, again with the exception of the Mongols. The consolidation of imperial authority over a large territorial expanse enabled the state to promote the cultivation of American plants, which could grow on marginal lands, after the sixteenth century by sponsoring population migrations. "The crucial importance of the new plants [in China]," Jonathan Spence (1977: 263) observed, "was not that they provided variety for either the poor or the rich (though they did that), but that they allowed a population that had reached the limits of its traditional resources to expand anew." As a result, the population of China, which had several times earlier risen to 100–150 million only to fall back, increased to almost 400 million by the end of the eighteenth century (Sugihara Kaoru 2003: 79).

No similar population rise was registered in the subcontinent where the intermingling of marchlands with sedentary zones made pan-regional polities short-lived as they could never cohere the several "zones of military entrepreneurship" (Gordon 1994: 182–208). This entailed the co-optation of leaders of warbands through revenue assignments and the adoption of an itinerant monarchic style to project imperial power over local power holders. From this perspective, the disdain shown by Bahadur Shah for maritime trade was paralleled

by rulers of large agrarian-commercial empires devoting considerable energies to protect land routes within their empires, even taking measures to host travelers and traders through temples and charitable foundations (*waqf*).

Rulers of small coastal principalities, of course, had a very different view of seaborne trade as these were the vital arteries sustaining their polities. Trade, nevertheless, was important as well to the large territorial empires in China and India as these areas were chronically deficient in coinable metals, crucial to lubricate the circuits of exchange and payments, as explored in greater detail in chapter 4. Networks of trade, drawing areas not ecologically suitable for wet-rice agriculture into economies centered on wet-rice agriculture, underpinned the expansion of labor-intensive artisanal production and the cultivation across the region of a variety of spices and other crops that gave each zone its distinctive cuisine combining ingredients from afar with locally cultivated crops.

In short, ecological conditions meant that much of mainland Southeast Asia did not experience the general sociohistorical trajectories in China and the subcontinent. The latter two regions themselves experienced divergent political patterns as clearly demonstrated by the difficulties of establishing enduring pan-subcontinental polities in contrast to the unity imposed on China by successive dynasties. These tendencies were further deepened and modified by the arrival of Europeans in the wake of Vasco da Gama.

European Intrusion

The entry of Europeans was facilitated by the political economy of the world of the Indian Ocean, and especially by the system of autonomous resident mercantile communities in the port-cities. Without the existence of such protocols, as Charles Henry Alexandrowicz (1967: 99) observed, Europeans would have been unable to conduct commercial operations in the Indian Ocean world in the sixteenth and seventeenth centuries. What distinguished the participation of the Portuguese and the northern European East India Companies in this system of *natios* was that they were additionally endowed by their states with arms, warships, fortresses, and other attributes of sovereignty unlike the other *natios* (Barendse 2002: 87–88). It was not that trade in the Indian Ocean was peaceful before the arrival of the Portuguese (Margariti 2008; Prange 2011b, 2013), but that the Europeans deployed violence on a qualitatively different scale. If this

enabled them to exercise novel claims to sovereignty—notably over the deep seas—it also meant that subcontinental rulers could hold them to these claims and compel them to eradicate acts of piracy over the seas or face punishment on land. "The Indian Ocean was not a Mughal lake," Lauren Benton (2005: 716) writes, "but it was not a European one, either."

Conversely, when maritime states in Asia fused political power with commercial interests, they were the equals of Europeans. In the early seventeenth century, the Ya'rubi dynasty, established in Oman by Nasir bin Murshid and his successor Sultan bin Seif, built a powerful navy by buying ships from the English and drove the Portuguese from the Persian Gulf and attacked Portuguese positions in India and the east coast of Africa. By the early eighteenth century, the Ya'rubis had created a maritime empire "with mighty fleets, lucrative trade routes, and colonies," suggesting that when Asian powers chose to use violence in the pursuit of trade they were very effective (Andrade 2010: 166, 175–77).

Commercial linkages across the Indian Ocean and the South China Sea were greatly strengthened by the arrival of the Europeans primarily due to two reasons: their conveyance of gold and silver from the Americas to India and China, and their own participation in intra-Asian trade—from Arabia through the Indian subcontinent, Melaka and the Indian Ocean archipelago to China and Japan—to economize on their export of bullion. Since there was little demand in Asia for European goods, Europeans could purchase Asian commodities only through the export of bullion, especially silver since the gold price of silver was substantially higher in China than in Europe. They were, hence, as Dennis Flynn and Arturo Giraldez (1995b: 203) were to claim, merely "intermediaries in the trade between the New World and China." In a continent starved of currency media, inflows of gold, silver, copper, and other humbler currency media—like the cowries the Portuguese conveyed to Bengal in large quantities—were essential. "When the Chinese smell silver," wrote a Portuguese captain-general of Macao, Manuel de Cômara de Noronha, in the 1630s "they will bring mountains of merchandise" (quoted in Moloughney & Xia Weizhong 1997: 167).

Most notably, in a bid to stem the flow of bullion from Europe, chartered trading companies—especially the Dutch East India Company, the Vereenigde Ostindische Compangnie (VOC)—became major participants in intra-Asian trade and helped forge and reinforce trade dependencies between textile-producing areas of India

and the eastern Indian Ocean archipelago as well as between China and Japan through its role in the export of Japanese silver to China (Prakash 1998a, 1998b). Their role in conveying the currency media vital to lubricate the wheels of commerce in the Indian Ocean world and in China, their participation in the intra-Asian trade, and indeed their participation in the inter-state systems of Asia, implied that the Europeans were integral elements of the Indian Ocean and Chinese world orders.

The arrival of the northern European trading companies, and their vigorous participation in intra-Asian trade, also changed the balance of power between indigenous merchants and the foreigners, as we shall see in chapter 4. As European ships provided better protection, local merchants began to ship goods aboard their vessels and thus the decline of local vessels was not tantamount to a decline in their participation in intra-Asian trade. Rather, by exploiting the new opportunities, merchants from the subcontinent expanded their orbits of activity. Since the English and the Dutch operations were commercial ventures, rather than state enterprises like the Portuguese *Estado*, their warehouses and factories in the territories of subcontinental potentates were vulnerable to retaliatory action if they violated their agreements at sea. This also meant that powerful administrative officials like Mir Muhammad Said, head of the revenue administration of Golkonda, or Mir Muhammad Murad of Masulipatnam, or powerful Mughal officials like Itimaduddaula and Asaf Khan began to outfit ships to trade with ports in the Persian Gulf and the eastern Indian Ocean archipelago. Sanjay Subrahmanyam and Christopher Bayly call them "portfolio capitalists." However, this is very different from the *liaisons dangereuses* between governing and mercantile elites in Europe because these figures were not enduring features of the precolonial subcontinent. Subrahmanyam and Bayly (1988: 416) concede that "in so far as they persisted, it was through buying or fighting their way into land rights"—that is to say, that they transformed themselves into landlords rather than to a capitalist class. Instead of signaling an alliance between ruling and commercial-banking elites, or the penetration of the latter into the state apparatus, these "portfolio capitalists" were simply some administrative or military officials who derived additional revenues from their commercial ventures (Parthasarathi 1996: 86). Or, as Giovanni Arrighi (2007: 332) bluntly puts it: "Add as many capitalists as you like to a market economy, but unless the state has been subordinated to their class interest, the market economy remains non-capitalist."

By the mid-1500s, the introduction of European-style artilleries also reinforced processes of political consolidation in the western and central regions of the Southeast Asian mainland as monarchies devised new political strategies to mobilize large infantries, build better fortifications, and exercise greater control over local powers, especially the ports that were the main conduits for guns and cannons. The arrival of European interlopers also fundamentally transformed political and economic conditions in archipelagic Southeast Asia and if major ports like Melaka soon succumbed to the Portuguese, other principalities, notably the Sultanate of Aceh, were strengthened by their ties to the Golkonda Sultanate and the Sublime Porte and even blockaded Portuguese Melaka on occasion, as we shall see in chapter 4.

Nevertheless, as we shall see in chapter 2, firearms were rarely decisive in the field in the large agrarian-commercial empires of East and South Asia till the eighteenth and nineteenth centuries. This is underscored by the fact that though gunpowder and firearms were first discovered in China—the earliest evidence for firearms come from sculptures in a Buddhist cave temple dated to the early 1100s (Chase 2003: 32)[10]—their development proceeded far more rapidly in western Europe and Japan, two areas largely insulated from depredations by nomadic hordes because the early firearms were so cumbersome that they were virtually useless against cavalry charges. Thus, though firearms technology was transmitted from China to Europe by the Mongols, by the time the Chinese first encountered European firearms in the 1500s, these were much superior to the weapons of the Celestial Empire (Chase 2003: 3, 140). Just as the peculiarities of wet-rice cultivation did not facilitate the use of heavy machinery and just as large populations inhibited the introduction of labor-saving devices, so too did the difficulties of firing handguns on horseback constrain the development of firearms. The low cost of handguns also enabled peasants, townsmen, and local elites in the large agrarian-commercial empires of Asia to more effectively resist royal forces.

Despite the superiority of their guns, Europeans could not establish their dominance over much of Asia till the late eighteenth and the nineteenth century not only because their guns were relatively ineffective in the conditions of war but also because rulers of Asian states quickly started producing European-style weaponry. Within a year of Vasco da Gama's arrival, two Portuguese deserters were making European-style weaponry for rulers in the subcontinent and from the sixteenth century large numbers of Europeans took up service with

Asian monarchs. Four years after da Gama's voyage, when Alfonso de Albuquerque's armada arrived at Bhatkal, his secretary recorded that they were bombarded from the hilltops over the port. Albuquerque himself was so impressed by the gunsmiths of Goa that he wrote they "had become 'our masters in artillery and the making of cannons and guns, which they make of iron here in Goa and are better than the German guns" (Eaton & Wagoner 2014: 15–17). He even sent master gunsmiths from Goa to Portugal, presumably to instruct gunsmiths there on the superior techniques of gun manufacture in Goa.

The Jesuits—"the world's first global arms salesmen," as Peter Perdue (2005: 539) calls them—the Portuguese, and the rival European trading companies also gifted guns to Asian potentates: Portuguese breechloading culverins presented to the Ming emperors in 1522,[11] the matchlocks carried by two Portuguese castaways on the Japanese island of Tanegashima in 1543, the guns regularly supplied by the Portuguese, the Dutch, and the English to their allies in the subcontinent, or the Javanese princess, Tarurôgô, allegedly sold to a Dutchman for three guns, to cite just a few of the more salient instances (Cipolla 1965: 107–16; Needham 1986; Parker 1988: 129–30; Subrahmanyam 1987; Khan 2004: 59–90). At least till the second half of the seventeenth century, however, the mounted cavalry could not use matchlocks. Besides being heavy, inaccurate, and slow to load, in the hot tropical climates, these pieces rusted quickly. It was also hard for them to function in heavy monsoon downpours even if the powder was dry (Scammell 1980: 4; Perrin 1980: 15–16; Gordon 1998: 231; Khan 2004: 154; Chase 2003: 25). Simply put, what Nicola di Cosmo (2004: 127; see also Subrahmanyam and Parker 2008) said of China remains true for much of the subcontinent as well:

> The presence of Western military advisors, technicians, and engineers appears central and ancillary at the same time: central because without them the level of firearm technology achieved in China between 1600 and 1690 would have been either unattainable or achieved only much later; ancillary because it was the adaptation of technology to the specific needs of Chinese warfare, based on decisions made by the Chinese officials, which made the adoption of such technology and its further development possible.... A supposed Western military superiority remains both untested on evidential grounds and purely speculative even in theoretical terms, as military superiority is based only partly on technology. It requires a full assessment of the context of war, together with an analysis of the fighting parties' ability to mobilize, supply, and coordinate the movements of large numbers of soldiers.

In Japan, however, firearms were critical to political centralization under Oda Nobunaga, Toyotomi Hideyoshi, and Tokugawa Ieyasu in the late sixteenth and early seventeenth centuries. Beginning with Hideyoshi, and followed through by his Tokugawa successors, the Japanese shoguns ferreted out and confiscated guns and swords from the peasantry to contain challenges to their authority.

In tracking these unfolding processes, we begin by tracing the general characteristics and then present a detailed examination of a case study drawn from the Coromandel plain or, in the case of trade networks, from the circuits of trade along the coasts of the Indian Ocean and their associated hinterlands. This forms a "world" among many worlds but its boundaries remain fuzzy and ill-defined. Trade with nonmonetized societies on the Swahili coasts provided gold and other highly valued commodities but these were dispensable luxuries, and the trade was a profitable one precisely because it was an exchange between two "worlds." As Braudel (1984: 17–18) underlined, only a few places experienced "*world time*," which

> is not . . . and never can be the sum total of human history. This exceptional time-scale governs certain areas of the world and certain realities depending on period and place. Other areas and other realities will always escape it and lie outside it.

This was all the more the case with the Indian Ocean world-economy since it was not driven by processes of capital accumulation and thus had no core areas where capital had accumulated in great goblets over long periods of time. Its glittering entrepôts owed their fortunes to situational rather than structural factors, and if their hinterlands were devastated or if there was a locational shift in political capitals, they soon reverted to the sleepy villages or ports where they once were.

In sum, though the ability of lands under wet-rice cultivation to support larger densities of population than the staple crops of Europe promoted a more wide-ranging divisioning of labor in China, India, and Japan and thereby generated expanding circuits of exchange, these were based on very different imperatives than the expansion of trade networks in Europe as indicated above. Since technological conditions of production and the greater densities of population in areas under wet-rice cultivation did not privilege the accumulation of capital, the creation of larger units did not provide economic advantages in most agricultural and craft sectors. Consequently, there was no impetus towards forging *liaisons dangereuses* between the

state and the mercantile-financial elites that undergrid the emergence of capitalism in Europe. Sociohistorical and ecological conditions in areas suitable for wet-rice cultivation—ranging from the arid lands and deep forests interspersed with fertile river valleys that prevented the emergence of pan-subcontinental polities in India to the relative insulation from nomadic incursions enjoyed by Japan and much of mainland and archipelagic Southeast Asia—led to divergences among these areas as already alluded to above and elaborated in greater detail in the following chapters.

Theoretical Implications

Over the last forty odd years, historical scholarship has rudely disrupted widely accepted differences between Europe and the "non-Europes." R. Bin Wong and Kenneth Pomeranz, for instance, have marshaled an impressive array of evidence to show that many of the crucial "advantages" said to have propelled Western Europe to high-speed growth—private property in land, technological competencies, capital stock, market networks, demographic patterns, mobility of labor, decline of arbitrary taxation—were also prevalent in China, Japan, and possibly India. Indeed, Pomeranz (2000: 70) even argues "that eighteenth-century China (and perhaps Japan as well) actually came closer to resembling the neoclassical ideal of a market economy than did western Europe." From this perspective, it was the presence of conveniently located supplies of coal, and the conquest of the Americas that thrust Europe above the other "core regions" of the Eastern Hemisphere. Apart from its natural resources, the conquest of the Americas allowed Europeans to create "a new kind of periphery"—plantation economies based on slave labor that enabled European states to solve their land shortage with capital and labor (Pomeranz 2000: 20–21). Once it is granted that the seeds of capitalism were sprouting in several locales in the Eastern Hemisphere—"landscapes of even development"—capitalism is endowed with an aura of inevitability; it is cast as a product of the "natural" progression of humanity.[12]

Underpinning this argument is the assumption that exchange networks automatically generate "free markets" and "perfect competition" in the absence of state intervention, and that these phenomena necessarily lead to the evolution of capitalist relations. Yet, more than fifty years ago, Karl Polanyi and his collaborators had demonstrated that price-making markets are not transhistorical phenomena and

that markets are embedded in social institutions (Polanyi, Arensberg, and Pearson 1957). Polanyi argued that a market economy—far from being essential for capitalism—would result in the "demolition of society" because the land, labor, and money that are essential for a market are "fictitious commodities." None of these elements, vital for the functioning of a self-regulating market economy, are produced for sale. To include these fictitious commodities in a market is to subordinate "the fate of human beings and their natural environment, indeed, even of the amount and use of purchasing power," to the laws of the market, and no society could withstand the effects of this for more than the shortest period of time. Thus, the end of the nineteenth century, he was to argue, was a history of a "double movement": "the extension of the market organization in respect to genuine commodities was accompanied by its restriction in respect to fictitious ones" (Polanyi 1944: 76).

Markets, indeed, took the center stage as the defining feature of capitalism in social science theorizing in the early- to mid-twentieth century, to distinguish it from the feudalism that preceded it and the socialism that was widely expected to replace it. Yet, historical scholarship over the last three to four decades has clearly established that markets existed in feudal societies, that these were not enclosed "natural" economies as had once been believed. Markets in feudal Europe, as elsewhere, were embedded in a web of social institutions that restricted the operation of its laws to land, labor, and purchasing power.

Not only were markets not the defining feature of capitalism, but Braudel even argued that capitalism is anti-market. Pomeranz (2000: 17) was perhaps right when he claimed that

> western European land, labor, and product markets, even as late as 1789, were on the whole probably *further* from perfect competition—that is, less likely to be composed of multiple buyers and sellers with opportunities to choose freely among many trading partners—than those in most of China (emphasis in the original).

But that is precisely why capitalism originated in "western Europe" and not in China.

By universalizing a model of sociohistorical transformation derived from the particular experience of northwestern European societies, the revisionists obliterate the distinctiveness of other historical social systems and deny the possibility of alternate patterns of social evolution.

Rather than investigating the specific sociohistorical dynamics of the several distinct social systems in the Eastern Hemisphere, they assume that an expansion of exchange networks produce identical patterns of change everywhere. However, different processes dictated the rhythms of economic activity, and there were no tendencies to forge and reinforce alliances between mercantile-financial elites in societies based on wet-rice agriculture and state-builders that were central to the emergence of capitalism in Europe. Put differently, as Mao Zedong once said, if differently constituted entities are subject to the same processes, the results would not be identical. Thus, after the bullion famine of the fifteenth century, the availability of new sources of precious metals from Central Europe, Japan, and the Americas led to world-encompassing circuits of exchange, their impact on the different societies across the planet varied considerably as the reactions in different locations were conditioned by their peculiar socioeconomic and political constitutions.

A review of the patterns of historical evolution in societies based on wet-rice agriculture suggests that despite the temporal contemporaneity of an expansion of relational networks in early modern Europe and Asia, the two processes were fundamentally dissimilar. Central to this argument are the fundamental differences in agricultural practices dictated by the dominant crops and the specific conditions of production in each area. Rather than incorporating the histories of the "non-Europes" into a European modernity that sees a drive to capitalism operating uniformly across the Eastern Hemisphere as revisionist historians do, this recovery of patterns of sociohistorical change in societies based on irrigated riziculture offers a way to put Eurocentric models of societal transformation in their place.

On another register, trade in commodities that functioned as money—gold and silver, certainly, but also lesser monetary media such as copper and even cowrie shells—between different social systems refute Immanuel Wallerstein's (1974: 40–42, 306–07) claim that trade between two world-systems is a trade in luxuries, that is, a trade in dispensable goods. Currency media are after all central to the functioning of circuits of exchange in highly monetized regions as well as to the exercise of political power (for the payment of salaries to troops, collection of taxes, and so on). Yet, commodities can function as money only because of their scarcity or because their conditions of production were unknown in locations where they circulated as currency. A cowrie-based currency, as Marion Johnson (1970b: 18) pertinently observed, "would be unworkable if money

could be picked up in quantity by every beachcomber." In the case of West Africa where, since at least the eleventh century cowries—the shells of *Cypraea moneta* from the Maldive Islands and of *Cypraea annulus* from the East African coasts—had functioned as local market currencies after being conveyed through North African routes; it was the greater integration of West Africa into European-based political and economic networks and the increasing imports of cowries that led to a devaluation of cowries and to their eventual eclipse (Johnson 1970a, 1970b; Heimann 1980).

Precisely because Wallerstein does not acknowledge the extent and depth of commercial relations in the trading world of Asia, he discounts the importance of bullion flows from the Americas to Asia after the Spanish conquest of Mexico and Peru and the Portuguese occupation of Brazil. Thus, he claims that though the extraction of gold and silver from the Americas "was essential to the operation of the [European] world-economy, and it was essential to the extent that it was used as *money*" (Wallerstein 1980b: 109), he summarily dismisses bullion's role in Asia. There, he (1974: 41) claims, it was merely used "to decorate the temples, palaces, and clothing of…aristocratic classes," thereby ignoring overwhelming evidence on the increasing commercialization of economic relationships in much of Asia, especially in China and the subcontinent.

While the utility of comparative history lies precisely in its ability to compare and contrast developments in more than one unit of analysis, a finely textured analysis must also recover the concrete specificity of each historical system. Sharply put, Eurocentric notions of long-term, large-scale social change can be de-centered from world historical studies only if we can resuscitate the particular dynamics of change in historical social systems outside the privileged arena of Europe before they were subordinated to the drives of the capitalist world-economy.

Plan of the Work

To sketch a truly alternate pattern of long-term, large-scale social change, I begin here with by tracing the patterns of sociohistorical change in societies based on wet-rice agriculture in chapter 1. Discussions on the natural characteristics of wet-rice cultivation anchor processes of agrarian expansion and the greater elaboration of property rights in southeastern India between the mid-first and the mid-second millennium. These discussions draw on the richer

historical records of post-Song southern China and Tokugawa Japan to derive a general framework of social change in societies based on wet-rice cultivation. It argues that the crucial importance of adequate water supplies and skilled labor for irrigated rice agriculture led to a tendential decline of the size of holdings and did not privilege large estates. This was true even in much of mainland Southeast Asia where massive seasonal inundations of the floodplains of major rivers had meant that irrigated rice cultivation began in the upland valleys and gradually expanded to the more fertile lowlands.

These patterns, it is argued, were very distinct from the historical experiences of Europe where the revival of agriculture in the "long sixteenth century" was marked by the impoverishment of the peasantry and the consolidation of large landed estates, both in eastern and in western Europe. As no advantages accrued to large estates in rice-growing Asia, and as the high productivity of lands under wet-rice cultivation enabled rulers to make higher claims to revenue, there was no fusion between state and capital in these areas. Hence processes of state-formation were markedly different from the European pattern.

Chapter 2 examines the impact of political changes following the breakout of the peoples of the Central Asian steppe to carve out large territorial empires in much of modern-day China and India. It argues that the increased importance of mounted archers and new technologies of siege warfare and military architecture fundamentally reshaped processes of war- and state-making in the region. Since the productivity of irrigated riziculture meant that rulers were not dependent on mercantile-financial elites for their protection providing activities, their main concern was to incorporate or otherwise accommodate war-bands. As the expansion of agriculture meant that horses could not be grazed on the fertile river valleys, state-builders promoted the expansion of military settlements into the arid zones that also provided grazing grounds for cavalries. This involved a migration of peoples skilled in farming in such environments. Additionally, greater royal surveillance over military leaders led to inspection tours by monarchs often cloaked as ceremonial journeys and raised the importance of road construction, which also facilitated an expansion of exchange networks. Thus, by locating inscriptional evidence in a broader context of the compulsions of rule, rather than in ritual elements, South Indian patterns of rule can be placed in a comparative context.

After laying out the general parameters of these processes, the chapter analyzes their workings in the two southern provinces of the

Vijayanagara Empire—the Chandragiri and Padaividu *rajya*s. This examination will include a discussion of administrative changes introduced to the southern peninsula between the late fourteenth and early sixteenth centuries, including the direct imperial control over fertile areas and the grant of revenue assignments in the more arid tracts.

The expansion of the arable and a commutation of taxes in kind to monetary payments, as well as the greater productivity of agriculture, which meant that a larger proportion of the population could be engaged in nonfood-producing activities on a full-time basis, led to a growth of commercial networks in the southern subcontinent as we shall see in the chapter 3. An abundance of labor placed a premium on its quality and technological improvements were reflected in the acquisition of greater skill and expertise through an increasing specialization of production and a fragmentation of manufacturing operations rather than the greater use labor-saving devices. As agrarian settlements spread into the interior, it was accompanied by a ruralization of craft production and an increasing monetization of the economy that drew these locations into wider networks of circulation. The importance of cotton textiles has meant that weavers loom disproportionately in the inscriptional record and this is reflected in the discussion on craft production here.

It is argued that the coincidence of this growth of trade relations with the continuing effects of prior changes on the two wings of the Indian Ocean—the decline of crafts in West Asia and the eastern Mediterranean due to the Black Death in the fourteenth century and the realignment of trade patterns in the Indonesian archipelago following the Late Song revocation of the ban on trading missions to China—laid the basis for the emergence world-economy centered around, and integrated by transport across, the Indian Ocean. Though a few merchants, often administrators, could outfit large numbers of ships on their own account, this was essentially a trade dominated by petty peddlers clinging stubbornly to small market niches through networks of caste, kinship, and religion.

Chapter 4 tracks the development of this world-economy in three stages. The revival of trade from South Indian ports since the mid-fifteenth century to the arrival of the Portuguese in the early sixteenth century led to the beginnings of a regional specialization of production—with the textile-growing nuclear areas of Gujarat and Coromandel drawing upon sources of subsistence and raw materials from increasingly distant areas. The Portuguese entry into the southern ocean introduced a scale of violence previously unseen in these

waters. While this initially disrupted evolving navigational lines, by the 1530s new linkages had been reestablished. By the latter part of the sixteenth century, increasing flows of silver and gold from the Americas and silver from Japan fostered the further development of these commercial linkages. Finally, the third stage was inaugurated by the arrival of the Dutch and English East India Companies. Initially, this reflected a shift from India to Indonesia as the trading companies sought to acquire spices from the eastern Indian Ocean archipelago. However, the cost-effectiveness of Indian textiles, in particular, drew the trading companies to the subcontinent as they participated vigorously in the inter-Asia trade to economize on the export of bullion from Europe. As commercial operations, they were more dependent on the cooperation and collaboration of local elites, and the greater protection offered when cargoes were conveyed on their ship continued the expansion and deepening of trade links across the Indian Ocean, which continued to receive large injections of gold and bullion. By the 1650s, however, the expansion of the Mughal empire to the southern peninsula and the collapse of local kingdoms led to a substantial decline of patronage for the artisans who increasingly became dependent on procurements by the English and Dutch trading companies. At the same time, a glut of spices in the world market contracted demand for Indian textiles in Southeast Asia and further compounded the deterioration of artisanal production in the subcontinent as the Dutch imposed a mercantile monopoly on the eastern Indian Ocean archipelago. Meanwhile, Japan in the 1630s adopted a policy of closure, forbidding its people to trade overseas while the mid-seventeenth century also witnessed political upheaval in China as the Qing dynasty replaced the Ming (Reid 1993: 285–90)—hence the mid-seventeenth century marks a climateric and an appropriate point to end this study.

1

Dynamics of Sociohistorical Change in Societies Based on Wet-Rice Cultivation

Patterns of sociohistorical transformation in societies based on wet-rice cultivation perhaps provide the best opportunity to disrupt Eurocentric narratives of change and development. As the natural characteristics of irrigated riziculture led to broadly similar trajectories of change in southern China and peninsular India since the mid-first millennium, and in Tokugawa Japan, it enables us to trace both similarities and divergences between these areas—and between them and most locations in mainland Southeast Asia (excluding Vietnam), where wet-rice cultivation was established under very different conditions and followed an altogether different path. Intraregional comparisons within Asia thus help flesh out truly alternate patterns of historical change that were eventually aborted when these territories were incorporated into the capitalist world-economy.

Peculiarities of wet-rice cultivation—the crucial importance of water, the privileging of skilled labor over animal and mechanical power—also help fracture reigning conceptions of technological change. From her study of agriculture in China, Francesca Bray (1983: 5; 1986: 4) argued that "where high land- rather labour-productivity is the desideratum, it is not unusual for agricultural implements to become simpler as cultivation techniques become more sophisticated and productivity rises." As the rice plant derived all its nutrients from water, not only were simple digging sticks substituted for more complex implements, but there was also no need to leave the land fallow periodically for it to regain its fertility. Early nineteenth-century European observers, however, took the absence of labor-saving implements, crop rotation, and fallowing, as evidence indicating the backwardness of Indian agriculture. Francis Buchanan,

surveying the lands the East India Company acquired after the defeat of Tipu Sultan, noted with some amazement:

> So far as I have observed in Mysore, ground once brought into cultivation for rice is universally considered as arrived at the highest possible degree of improvement; and all attempts to render it more productive by a succession of crops, or by fallow, would be looked upon as proofs of insanity.
>
> (quoted in Alayev 1982b: 228)

If Buchanan and others saw this as a consequence of the absence of private property in land in India and the ensuing lack of incentives for cultivators to introduce technical innovations, they failed to explain how such allegedly primitive conditions of agricultural production could support the large populations that awed European visitors and the extensive spread of craft production and cash-crop cultivation that had accounted for Europe's persistently large deficits in its trade with India before Plassey.

In this chapter, we will argue that the natural characteristics of wet-rice cultivation leads to a fundamentally different trajectory of sociohistorical change than the historical experiences of the peoples of northwestern Europe enshrined as the normative pattern in reigning models of historical change. More specifically, a discussion of the technical conditions of production in societies based on irrigated riziculture in the first section will indicate that no advantages accrued from the consolidation of land into large estates or from the development of capital-intensive technologies. Hence there was no premium placed on the accumulation of capital. Instead, expansion of wet-rice agriculture was accompanied by a shift from the communal control over land to private dispositions of fields and a progressive fragmentation of holdings. The greater productivity of fields under irrigated rice cultivation meant that larger volumes of surplus could be extracted by political elites, and they were hence not dependent on commercial and financial elites for their war-making and state-making activities.

These patterns are evident in the waves of agrarian expansion inaugurated in the Tamil country since the mid-first millennium. Our reconstruction of these processes in the second section is based primarily on the inscriptions chiseled on temple walls documenting gifts, sales, and leases of land as well as a variety of tax terms. The centrality of temples in these sources have led to conceptions that make political power dependent on worship as in models of "ritual

polities" or "segmentary states."[1] Yet, such conceptions are derived from the major temples of pan-subcontinental significance—Tirupati, Thanjavur, Madurai—where the scale of patronage is of a different order from those of smaller temples, and the class and status of donors far more exalted. There is little to indicate that the ritual submission of monarchs to deities in these magnificent temple complexes signified their submission outside temple walls (Dirks 1987: 286–89; Talbot 2001: 87–88). This is most evident in the inscriptions from Tirupati, which account for 1,064 of the almost 2,900 Tamil inscriptions of the Vijayanagara era but only six of these records contain references to tax terms in contrast to inscriptions from other areas where fully a third refer to a variety of taxes (Karashima 1992: 184, 199, n. 6). Similarly, from their survey of some 1610 Vijayanagara-era Kannada inscriptions in the northern part of the empire, Kathleen Morrison and Mark Lycett (1997: 224–28) note that though donations by royal donors dominate inscriptions on temple walls, local elites dominate lithic records located in nontemple contexts. Correspondingly while temple inscriptions contain disproportionate references to grants of villages, nontemple inscriptions mainly document constructions of irrigation canals and transfers of land.

Examined in their morphological contexts, however, these inscriptions yield a wealth of information on changing patterns of land holdings, on claims to the produce of land, and spatial variations in agrarian relations. Like assemblages of archaeological artifacts, analyses of sets of inscriptions reveal connections between them through chronological distributions and temporal and spatial changes and variations (Talbot 2001: 13). However, the very nature of inscriptions—conceived as documents for posterity, as marvelously encapsulated by the ritualistic formula "as long as the sun and the moon shall last" appended to the end of most lithic bequests—implies that transactions of property among private individuals would rarely figure in the extant historical record unless they were of the character of a public matter. Records of sales of land between two individuals were more likely to have been inscribed on palm-leaf documents, crumbling to dust after a few generations. Hence, though inscriptions refer overwhelmingly to donations to temples, the few inscriptions referring to property transactions between private individuals have an importance far greater than their numbers may indicate. Moreover, only a few of these records state specific rates of taxes or other claims to surplus. As we lack detailed records of farm operations—account books, lists of expenses and sales, even

price lists—rather than trying to extrapolate figures from a fragmentary and inadequate empirical base, our discussion will focus on the temporal and spatial variations in patterns of land holdings and the types of claims made on the produce of land. Here, we will also draw on the richer historical records of post-Song southern China and Tokugawa Japan to trace similarities and differences in the patterns of sociohistorical change in societies based on irrigated riziculture.[2] Finally, the last section will outline the general characteristics of an alternate model of long-term, large-scale social change in these societies and contrast them both to the distinct patterns of rice cultivation in much of Southeast Asia and to the Eurocentric narrative of historical transformation that informs reigning conceptions of growth and development.

Natural Characteristics of Wet-Rice Cultivation

The ability of areas under irrigated rice agriculture to sustain substantially larger populations than the agrarian systems of early modern northwestern Europe derived from the natural characteristics of the rice plant. Since the staple crops of Europe (barley, rye, and wheat) "bore heads with relatively few grains—at best a few dozen, compared with several hundred grains in each panicle of rice or millet—and usually only a single head on each plant" (Bray 1983: 5; 1986: 15, 198),[3] a much higher proportion of the yield had to be reserved as seed for the next growing season.[4] Before the eighteenth century in France, Marc Bloch (1966: 25–26) estimated that yields "between three and six times greater than the amount of seed sown was a reasonable result." These estimates were broadly compatible across Europe as indicated by table 1.1.

Given these conditions, northern European agrarian systems were based on the extensive use of lands and were unable to sustain high population densities till comparatively recent times. Compared to the approximately thirty acres that were required to support a serf family in eleventh-century England according to the Domesday Book, an average cultivating household in south China of the same time worked less than five acres of land (Chao 1986: 222). Finally, as an expansion of agrarian output was usually possible only by an extension of the arable in Europe, large farms had an advantage over small holdings since they could afford more draught animals and equipment, and use these more efficiently (Kula 1976: 46; Bray 1983: 6–9; 1986: 199–202).

Table 1.1 Average Seed-to-Yield ratios of Wheat, Rye, and Barley in Europe, 1500–1820

Year (CE)	*England/ Netherlands*	*France/Spain/ Italy*	*Germany/ Switzerland/ Scandinavia*	*Russia/Poland/ Czechoslovakia/ Hungary*
1500–1549	1:7.4	1:6.7	1:4.0	1:3.9
1550–1599	1:7.3		1:4.4	1:4.3
1600–1649	1:6.7		1:4.5	1:4.0
1650–1699	1:9.3	1:6.2	1:4.1	1:3.8
1700–1749		1:6.3	1:4.1	1:3.5
1750–1799	1:10.1	1:7.0	1:5.1	1:4.7
1800–1820	1:11.1	1:6.2	1:5.4	

Adapted from Peter Kriedte, *Peasants, Landlords, and Merchant Capitalists: Europe and the World Economy, 1500–1800,* Trans. V. R. Berghahn. Cambridge: Cambridge University Press, 1983, Table 3, p. 22.

Lands under wet-rice cultivation were able to sustain higher densities of population because rice had a much higher seed-to-yield ratio relative to the staple crops of Europe. A Japanese record of CE 733 indicated that dry fields of the Gufukuji Temple in Kagawa prefecture was only one-fourth to one-third as productive as its rice fields, and Ming and Qing records indicate that the seed-to-yield ratios for rice in Jiaxing ranged from 1:31 to 1:51. Whereas one hectare of land produced an average of 5 quintals of wheat in late eighteenth-century France, a hectare under rice produced 30 quintals of unhusked rice or 21 quintals of edible rice. At 3,500 calories per kilogram, a hectare of rice produced 7,350,000 calories compared to 1,500,000 for wheat and only 340,000 calories of animal protein if the hectare was assigned to raising stock. In Malaysia, more recently, even in areas not impacted by the "Green Revolution," yield ratios of 1:100 were not uncommon (Braudel 1981: 151; Bray 1986: 15; Elvin 2004: 208–09). In the light of these relatively high ratios, it was necessary to reserve a much smaller proportion of the crop for seed than it was in the case of the staple crops of northwestern Europe. Climatic conditions in areas suitable for rice cultivation also made year-round agriculture possible and Chinese and Indian historical sources indicate that for more than a thousand years, it was not uncommon for fields to yield two or three crops a year. While multiple-cropping did not double or triple the yield, the additional ploughing and other agricultural operations made these lands produce higher yields than lands that were only single-cropped (Ho 1956; Perkins 1969: 43; Rawski 1972:

11ff.; Bray 1984: 491–95; 1986: 15–16; Mukhia 1981: 288–89; Marks 1998: 110–12).[5] Witnessing the productivity of agriculture in Bengal, François Bernier forgot "his earlier strictures on oriental despotism" to remark:

> Egypt has been represented in every age as the finest and most fruitful country in the world…but the knowledge I have acquired of Bengale, during two visits paid to that kingdom, inclines me to believe that the pre-eminence ascribed to Egypt is rather due to Bengale. The latter country produces rice in such abundance that it supplies not only the neighbouring but remote states. It is carried up the Ganges as far as Patna, and exported by sea to Masulipatnam and many other ports on the coast of Koromandel. It is also sent to foreign kingdoms, principally to the island of Ceylon and the Maldives.
>
> (quoted in Chaudhuri 1990: 236)

As the increased population-carrying capacity was accompanied by increased labor demands, it was not coincidental that the most densely populated regions in the world—the Coromandel Plain, the Lower Yangzi Valley, Java, the Tonkin Delta, Japan—have a long history of intensive wet-rice cultivation. Conversely, in much of mainland Southeast Asia, population densities remained low. In Upper Burma, where rice cultivation was much less intensive, when the Toungoo and Konbaung rulers deported at least 60,000 persons and settled them on military service tenures between the sixteenth and early eighteenth centuries, each family received a shade under nine acres (Lieberman 1991: 8). This stands in sharp contrast to the less than five acres required to sustain a cultivating household in eleventh-century southern China.

Moreover, whereas the dominant staple crops of northwestern Europe drained nutrients from the soil, requiring constant manuring and necessitating leaving the fields fallow for at least one year in three till recently, rice obtained all the nutrients it required from water. This was recognized at least as early as the sixth century when a Chinese agricultural manual, *Qimin yaoshu*, noted "Whether the land be good or poor, if the water is clear then the rice will be good" (quoted in Bray 1986: 28). Reliance on water not only diminished the importance of livestock as a source of manure, but also meant that most fields could be kept in cultivation continuously. Regardless of the initial fertility of the soil, continuous cultivation increases yields through a process known as podzolization, as the seepage of water and organic acids transform the chemical structure and composition

of both the topsoil and different layers of subsoil—dissolving red iron compounds, carrying colloidal clay and other compounds from the top soil to the subsoil—and the addition of nightsoil even enhanced these chemical effects. Rearing of fish on paddy fields provided an important source of protein for farmers and additional income as well as raising yields by as much as 10 percent in some cases since the fish feed on forms of algae, worms, weeds, and insect larvae harmful to rice (Bray 1986: 28–29; Latham 1998: 9).[6]

Though irrigation projects facilitated multiple cropping, the natural growth period of the rice plant ranged from six to seven months. One important way to overcome this limitation—known to Chinese, Vietnamese, and Indian cultivators for over a thousand years—was to reduce the time plants spent in irrigated fields by sowing seeds in well-manured nursery beds, and then transplanting the seedlings once they were about 20–25 centimeters high.[7] Transplanting also ensured that seedlings could be planted at regular intervals, thereby facilitating weeding. It has been estimated that transplanting increased yields by approximately 40 percent over broadcast sowing (Bray 1983: 11; Geertz 1963: 35, 77–78). Often it was possible, between two harvests of rice, to grow vegetables, wheat, buckwheat, or barley, leading Fernand Braudel (1981: 151–52) to call a rice paddy "a factory." In short, as the area required for subsistence was much smaller than in the case of the staple crops of northern Europe, lands under irrigated rice cultivation could support higher population densities (Bray 1983: 9; Geertz 1963: 32–33).

It was also possible to increase the productivity of lands under rice cultivation by greater control over the regulation of water supply, which often provided an alternative to an extension of the arable, especially since the latter course involved high investments of time and labor in preparing previously uncultivated land for agriculture (Geertz 1963: 36). However, since flooding was as much of a danger to the rice plant as drought, in the absence of mechanical equipment to level the fields, plots of land had to be small to ensure adequate control over drainage (Geertz 1963: 31; Bray 1983: 9,12). As it was easier to regulate water supplies more efficiently on small plots of land, significant increases in productivity could be achieved by decreasing the size of fields under wet-rice cultivation. Even when flooding was a constant danger, as in deltaic regions and in the lakelands, the creation through selective breeding of "floating rices"—varieties that could be temporarily submerged for 1 to 10 days at a time for several months to withstand flash floods and tidal inundations—was often effective.

Since the shape and size of rice fields was determined by production conditions, it became counterproductive to subdivide land after a point. After that point, when a field was to be partitioned between two or more heirs, rather than physically dividing it, they continued to cultivate it as a single plot and to divide the yield among themselves instead. In 1735, a Jesuit priest wrote that "All the plains [of China] are cultivated. One sees neither hedges, ditches, nor almost any trees, so afraid are they of losing an inch of land" (quoted in Braudel 1981: 148). In modern China, Bray (1984: 107) observes that that average size of a rice field is about one-sixth of an acre and they tend to be "impervious to social pressures":

> Rice fields are rarely physically divided up on inheritance. Although one field may be left to two or more heirs, no new dykes or bunds will be constructed to separate their property. Instead, they will mark the division by planting trees or boundary stones on the existing bunds, and the field will continue to be cultivated as if it were a single entity. The same is often true of division between tenants.[8]

The progressive decrease in the size of plots with the construction of irrigation works led to a substitution of heavy iron hoes for animal-drawn implements as the latter were not suited for small-scale, highly skilled agricultural practices (Bray 1986: 48). The cultivation of land with technologically simpler equipment was neither an indication of technological regression, nor of the material deprivation of cultivators; it merely implied "that animal-drawn implements [were] not suited to such small-scale, highly-skilled farming techniques" (Bray 1984: 604; see also Geertz 1963: 95–101). In other words, the diminutive dimensions of rice fields were dictated by the technical requirements of production rather than by the pressure of population on land.

At the same time, the great adaptability of rice, indicated by the wide range of its varieties—the most common type of domesticated wheat, *Triticum aestivum*, has some 20,000 cultivated varieties compared to some 120,000 varieties of Asian rice—permitted farmers to simultaneously cultivate different varieties as an insurance against crop disease, pestilence, and the vagaries of the weather, and to distribute their requirements of labor and water more optimally. One of the main differences between the varieties was that *japonica* rice takes a fixed amount of time to ripen while *indica* rice is photosensitive and it is therefore easier to breed quick-ripening varieties from the latter. Quick-ripening rice is especially advantageous in situations where

adequate water supplies cannot be assured throughout the year and it also facilitated multicropping (Bray 1986: 16, 19).

Thus, whereas technological progress in northwestern Europe was indicated by the growing use of labor-saving devices, agricultural improvements in rice-based agrarian systems were associated with labor-intensive techniques. The additional application of labor did not necessarily entail a corresponding decline in its productivity as the shift from single-cropping to multiple-cropping usually yielded an output far in excess of the increased inputs of labor necessary to accomplish the transition. Moreover, since labor requirements were spread throughout the year, household labor was usually sufficient to operate a small farm, and requirements for additional labor during peak periods were met by systems of cooperation, which allowed communities of small cultivators to distribute available pools of labor more efficiently by staggering planting and harvesting operations (Bray 1986: 120–21; 1983: 12; Geertz 1963).

The distinctive characteristics of agrarian systems based on low-yield cereals and those based on high-yield cereals were historically expressed in the contrasting technical relations of production between the social systems of Europe and those in the rice-growing tracts of Asia. The potential of wet-rice farming to increase output with the additional application of labor meant that tendencies toward large-scale agricultural operations observed in Europe were virtually nonexistent in regions where rice was the staple crop as the costs of effective supervision over the numerous discrete tasks involved in its cultivation rose exponentially with no concomitant advantages. Prompt attention to weeding, careful selection of seeds, planting seedlings in rows, transplanting, and a multitude of other tasks, all placed a premium on skill. In these circumstances, a larger labor force—with its mix of full-time and part-time workers, some of whom may have been indentured—was decidedly inferior to a tightly knit, socially cohesive family farm, which could rely on its members for more spontaneous effort to a much greater degree (Smith 1980:105). Hence, while the economic calculations of large-scale agricultural enterprises led to a consolidation of *demesne* lands and an eviction of cultivators from their plots in late medieval and early modern Europe, no similar trend was inscribed in the historical record of rice-growing tracts of Asia. Land ownership in these societies, though less profitable than commercial cash-crop plantations, trade, or usury was valued because it conferred social status and prestige, and provided greater security of investment.

Since the productivity of fields could be achieved through additional inputs of labor, areas under wet-rice cultivation could support increasingly greater densities of population. The demographic growth made possible by intensive farming both facilitated an expansion in nonagricultural occupations and exerted a downward pressure on labor costs. Hence, an expansion and intensification of trade networks, craft production, and the cultivation of other crops accompanied an expansion and intensification of rice cultivation, as we shall see in subsequent chapters.

Further, an important stimulus to the growth of machinery in Europe was the fact that wheat, barley, and rye flour could be kept for several weeks without spoiling in temperate climes. Without chemical additives, dehusked grains of rice and millet could be kept only for a few hours. Thus, whereas feudal lords and wealthy burgers in medieval Europe constructed flour mills where peasant households could take several weeks' provisions of grain to be milled, rice had to be processed on an almost daily basis (Sigaut 1988: 5). Indeed, given the significantly larger densities of population in societies based on irrigated rice cultivation, there was no impetus to the development of labor-saving machinery. It was this condition, rather than a "high-level equilibrium trap" (Elvin 1973) that stymied the development of metallurgy in China after the eleventh century.

However, in areas where techniques of rice cultivation were less developed, relations of production were likely to resemble those prevalent in agrarian systems based on low-yielding crops as the lower ability of land to sustain large populations made the control of labor crucial for the continued reproduction of the patterning of social relations. Since massive seasonal inundation in the lowland plains and river deltas of mainland Southeast Asia could not be managed or controlled by available engineering technologies, the best rice lands were left uncultivated. Unlike in the Coromandel Plain, Japan, and in South China where wet-rice cultivation began in the fertile alluvial river valleys and the coastal plains and expanded to the interior as irrigation channels were extended, in mainland Southeast Asia, the process was reversed. Here, as Yoshikazu Takaya (1977: 445) noted:

> Rice is carefully transplanted in the inter-mountain basins, but it is broadcast haphazardly in the deltas. Broadcasting is adopted because there is not enough time for transplanting. No one can predict exactly when the flood will arrive; when farmers realize the flood is comming [*sic*] near, it is already too late for them to prepare for transplanting.

> The flood submerges all the delta in a very short time. Under such conditions, all the farmers can do is to broadcast seends [*sic*] on uninundated fields well in advance of the flood so that the seeds, using moisture from ephemeral showers, germinate and grow tall enough to survive the flood when it arrives.[9]

The lower productivity of land placed a premium on control of labor. Vietnam, which lacked a central river and was thus not confronted with problems of massive seasonal floods, was, of course, an exception and it experienced a trajectory more similar to peninsular India, southern China, and Tokugawa Japan as we shall see in the third section.

Finally, it should be noted that though large-scale consolidated farming operations in wet-rice cultivation have been set up in the nineteenth and twentieth centuries in Australia and the United States, these enterprises were installed in areas with low population densities (Bray 1983: 28), and after indigenous populations had been decimated and marginalized. Moreover, by the time of their installation, a specifically capitalist technology favoring the increasing use of labor-saving instruments of production had evolved. These developments do not, therefore, negate the main thrust of the argument that tendencies promoting the ceaseless accumulation of capital were not present in areas dominated by wet-rice cultivation in peninsular India since the mid-first millennium, in post-Song southern China, and in Tokugawa Japan.

In short, the natural characteristics of wet-rice cultivation tended to favor a progressive decrease in the unit of cultivation and the ability of lands under irrigated riziculture to support large densities of population meant that there was no pressure to develop labor-saving capital equipment. These characteristics meant that relations of production tended to favor small farmers, and there were no economic advantages to capital accumulation as we shall see in the next section, which attempts to chart patterns of agrarian relations in southeastern India from the mid-first millennium to the mid-second millennium. This reconstruction first draws on studies of the agrarian expansion under the Pallava and Chola dynasties in the Tamil country. Against this historical context, it draws on inscriptional evidence from the northern districts of the modern state of Tamilnadu and parts of the Chittoor and Nellore districts of Andhra Pradesh that formed the Vijayanagara provinces (*rajya*) of Chandragiri and Padaividu—and was also the area of provenance of the largest

number of Vijayanagara-era inscriptions (Karashima et al. 1993)—to reconstruct agrarian relations till the mid-sixteenth century.

Changing Patterns of Agrarian Relations in the Tamil Country

After a sharp break in the historical record of the Tamil country—the "Kalabhra Interregnum" (circa CE 300–575)—the society that crystallized on the Coromandel Plain during the reign of the Pallavas of Kanchipuram was characterized by a sustained expansion of agrarian settlements, the careful elaboration of land rights, and the emergence of a system of surplus extraction through a hierarchy of agents. Agrarian colonization, especially the spread of wet-rice cultivation, was determined by ecological variations in the Tamil country and led initially to the emergence of three distinct patterns of power relations. Eventually, the progressive articulation of irrigation projects resulted in a greater consolidation of political authority in the royal bureaucracy during the rule of the Chola kings, especially in the tenth and eleventh centuries. If local lineages briefly surfaced after the eclipse of the Cholas, the establishment of Vijayanagara rule led to a further intensification of cultivation in the fertile regions along river banks and coastal plains, and to an expansion of cultivation in the more arid submontane regions with the settlement of cultivators drawn from the Telugu and Kannada countries in these areas. This phase of agrarian colonization was marked by significant changes in production relations, notably greater security of tenure for cultivators in the more fertile areas, and the more direct involvement of imperial administrators, holders of revenue assignments, and local notables in the spread of the arable in the drier areas, as discussed in chapter 2.

The new phase of agrarian expansion inaugurated in the mid-first millennium was marked by a major technological innovation to solve the problem of regulating the flow of water from irrigation tanks in the arid regions. While diverting water from perennial rivers to fields through weirs, stone embankments, planks, and wooden pillars was relatively easy, in arid regions where the only source of water were lakes or tanks, the task of getting water to the fields presented much greater difficulties. Bailing water with buckets was both ineffective and very energy intensive, and water could not be easily be conducted to fields located at a distance. Water could also be conducted by cutting breaches into the reservoir walls but this posed the risk of

the water pressure widening the breach and even washing away the containing walls of the tank. It was also difficult to control the volume of outflows. This was hence a method that could really be used only in small village tanks that could be easily repaired. Outlets cut at the sides of tanks were also vulnerable to the water pressure destroying the weirs. As hydraulic engineering skills developed, water began to be conducted through the bed of the reservoir through a culvert of bricks or dressed stone into irrigation channels. There were, however, two problems with this method. First, the flow of water could only be controlled by a lock mechanism on the outside of the dam, which meant that the outlet of the stone pipe had to be small and hence the volume of outflows remained low. Second, if the pipe was built too close to the bottom of the tank, it could easily be clogged with mud and dirt and if it was built too high, water under the pipe would not drain out and would remain in the tank (Frasch 2006).

These problems were overcome by the time of the Pallavas through two vital innovations, possibly as a result of technology diffusion from the dry tracts of northern Sri Lanka from archaeological evidence. First, the construction of a sluice and piston mechanism inside the reservoir—as illustrated in figure 1.1—regulated the flow of water inside the tank. Then the inlet of the culvert was surrounded by a low brick wall to prevent mud and other debris from blocking it. Compared to the Sri Lankan reservoirs, there were two drawbacks to the Tamil variants. In the first instance, the piston regulating water flow was only accessible by boat in the Tamil variant whereas in Sri Lanka the water flow was regulated by a brick cistern built into the embankment and the stone slabs to control the flow could be removed and replaced by two men who could enter the cistern through stepping stones built into its walls. The more cumbersome Tamil variant may be to allow landowning elites to control the use of irrigation water as the boat could be removed from the tank. A second, and more critical, drawback was that the piston sluice method could handle only low volumes of water flows because the hole of the inlet aperture had to be small as an increase in the size of the aperture would have entailed a corresponding increase in the size of the piston, which would have made its operation more formidable. To circumvent this, sometimes two piston-valves were mounted side by side, or the number of sluices per reservoir were increased (Frasch 2006; Gunawardana 1984).

Another key feature of the new phase of agrarian expansion was the settlement of *brāhmaṇar* in special communities (*agrahāra* in

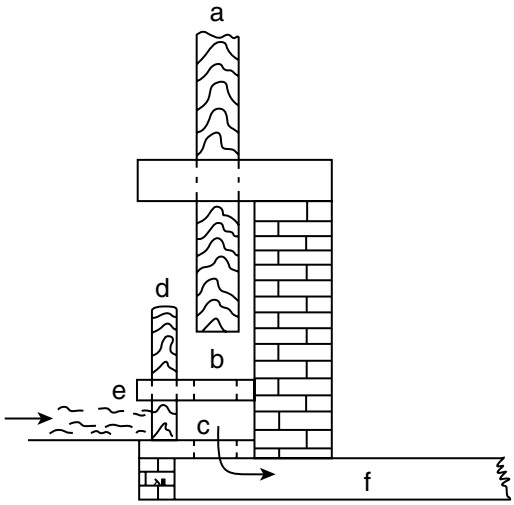

Figure 1.1 Sluice at the Reservoir to the North of Ramnad.

Note: The drawing demonstrates the layout of the sluices mechanism. The outlet conduit (f) is placed below the sill of the sluice. The outflow of water could be regulated by lowering the piston (a) through the circular apertures (b, c) till it rested on the floor of the outlet conduit. When the level of water in the reservoir fell below point e, a wooden slab (d) lowered through the rectangular aperture of the stone slab (e) could be used as an alternative regulating device.

Source: R.A.L.H. Gunawardhana, "Intersocietal Transfer of Hydraulic Technology in Precolonial South Asia: Some Reflections Based in a Preliminary Investigation," *Southeast Asian Studies*, XX, 2, September 1984, p. 128.

Sanskrit, *brahmadēya* in Tamil) within the basic social unit of agrarian civilization—the *nāḍu*,[10] which were portrayed as tribal chieftaincies in the *Sangam* (300 BCE—CE 300) literature (Seneviratne 1981). Though these were not exclusive settlements of *brāhmaṇar* (Nilakanta Sastri 1975: 578; Mahalingam 1969–75: vol. I; Stein 1980: 155; Hall 1980: 21–22), they were granted extensive privileges. The most notable of these was their right to manage local affairs through collective institutions (*sabha*), which functioned through a number of specialized committees (*vāriyam*) overseeing revenue collection, administering justice, and maintaining local irrigation facilities.[11] Since these settlements were located predominantly in areas distant from political centers, the relatively autonomous arrangements for the collective management of local affairs did not necessarily represent a transfer of sources of revenue and administrative functions by a centralized royal bureaucracy to *brāhmaṇa* donees (Kulke 1982: 247).

Rather, the progressive articulation of irrigation projects and the expansion of agrarian settlements represented by the *brahmadēya* led both to an extension of the reach of centralized bureaucracies stemming from the need to arbitrate disputes on water rights and to a parallel growth and greater elaboration of property rights as we shall see sequentially. Initially, as agrarian settlements expanded under the rule of the Pallavas and their successors, the Cholas, three distinct patterns of power relations began to emerge. Along the banks of the major rivers where alluvial soils facilitated the construction of tank-and-canal networks and permitted the growth of densely populated, contiguous settlements, centralized imperial bureaucracies exercised extensive control especially after the revival of Chola power under Vijayalaya (circa CE 850) (Karashima 1984; Subbarayalu 1982; Heitzman 1987: 53–54; 1997: 159–60). This was most evident in the operations of the Chola land revenue administration, the *puravu vari tinai(k) kalan*, which from the reign of Uttama Chola (CE 970–986) registered and collected taxes levied on plots of land with increasing sophistication (Subbarayalu 1978; 1982: 281–82, 287–88, 291–92; Shanmugam 1987: 69, 116, 121–22, 124–28; Heitzman 1987: 43, 46–48; 1997: 156–61).

At areas more distant from the major rivers, the construction of artificial lakes and tanks led to the evolution of discrete pockets of agrarian settlements. Here, powerful local lineages allied with the Cholas figure prominently in the inscriptional record as the driving force behind the excavation of irrigation tanks and lakes. The territories controlled by these local lineages, frequently distinguished by the suffix *pāḍi*—for example, Vānakōpāḍi, Ilādipāḍi, and so on (Subbarayalu 1982: 269)—were not immune from intrusion by Chola officials but such intrusions were intermittent.

Finally, a third system of power relations appeared largely in the dry zones of agrarian civilization. In these marginal regions, the dominant land-owning peasantry called the *uḍaiyār* ("those who possess [land]") collectively controlled local resources—levying and collecting taxes, administering justice and maintaining order, accepting deposits and making investments—especially in the early and late phases of Chola rule (Heitzman 1987: 53; 1997: 52–53, 76). These land-owning groups operated at two levels: through collective village-level institutions (*ūrār*), and through supravillage institutions (including *brahmadēya*s) at the *nāḍu* level (Stein 1977: 46; 1980: 109–11, 118–30; Heitzman 1997: 53, 171–73; Subbarayalu 1982; Hall 1980: 27).

The growth of discrete irrigation systems was an important factor in promoting political centralization since disputes over the allocation of water resources necessitated the establishment of a machinery for adjudicating between conflicting claims. In the first instance, the inscriptional record indicates Chola officials circulating in the intermediate zones controlled by the locality lineages, adjudicating disputes and conducting investigations. Yet, except in the greatest period of Chola ascendancy (CE 985–1070), the presence of these officials does not indicate the existence of routinized control exerted by a rationalized central bureaucracy. Rather, these officials—variously titled *adhikāri*, *senāpati*, *daṇḍānāyakam*, *peruntaram*, *cirutaram*, *nāḍuvagai*, *śrīkāryam*, and so on—appear as close associates of the king[12] and functioning, not as bureaucrats with specific administrative responsibilities, but as roving plenipotentiaries, (Heitzman 1987: 45–46; 1997: 153–54). Additional support for the inference that these officials were emissaries-at-large, performing a wide variety of nonspecialized tasks, comes from studies on the frequency distribution of Chola tax terms. These studies show that one of the most frequent heads of revenue in the early Chola period was *echchōru*, a charge levied for the feeding of royal officials, presumably those on tour (Karashima 1984: 72; Shanmugam 1987: 17–19; Heitzman 1997: 167).

As the Cholas consolidated their power, the roving royal emissaries appear to have been gradually displaced by an increasingly routinized bureaucracy, a displacement reflected by the decreasing frequency of *echchōru* in the inscriptional record. The eclipse of plenipotentiary officers was matched by a corresponding decline of local lineages who were conspicuously absent from inscriptions of the eleventh century (Shanmugam 1987: 19, 36–37; Heitzman 1997: 170; Subbarayalu 1982: 270). The growth of royal power during the eleventh century is additionally attested by the territorial reorganization initiated by Rajaraja Chola I (CE 985–1014), a reorganization in which the *pāḍi* suffix appended to localities of chiefs was replaced by the suffix *valanāḍu* (ARE 73 of 1908) (Subbarayalu 1973: 56–57; Champakalakshmi 1981: 417; Shanmugam 1987: 116–17). These areas were further administratively integrated into larger territorial units called *maṇḍalam*, another nomenclatural change indicating a shift in power toward the royal bureaucracy (Subbarayalu 1973: 14–15; Stein 1980: 442–48; Palat 1981: 82, 115–116; Shanmugam 1987: 115–16). During this period, when Chola power was at its zenith, their land revenue administration registered its presence all

over their domains, attaining great prominence in the epigraphical record (Heitzman 1987: 52; 1997: 159–60; Subbarayalu 1982: 282–83). Similarly, as the Chola land revenue administration extended the ambit of its activities, the *nāṭṭār* (collective name for members of *nāḍu*) appear to have been eclipsed in the areas of dry cultivation. [13] In the absence of routinized methods of bureaucratic recruitment, however, the personnel of the land revenue administration were largely drawn from the *uḍaiyār* (Karashima, Subbarayalu, & Matsui 1978: I, xlv–xlvii; Heitzman 1997: 159).

While the multiplication of discrete irrigation systems and their integration through irrigation canals and sluices may have promoted greater royal intervention in the arbitration of water rights and disputes, there is little indication of royal involvement in the construction and maintenance of irrigation works. Studies of revenue demands reveal that while major charges (*peruvari*) on the producers were claimed by centralized administrative bureaucracies, a variety of minor cesses (*cilvari*) remained in the locality itself to maintain local structures of power and to ensure the preservation of the reproductive capacity of villages. Besides a number of taxes specified for the maintenance of irrigation networks (*ēri īvukkum kulaiyum*, *kurampuram uḷḷiṭṭa veṭṭi vetinaikalum*, and so on), the latter group included taxes on washermen (*vannāra(p) pārai*), on marriages (*kannāla(k) kānam*), charges levied to meet the costs of village administration (*ūr itu vari*), and so on. The *cilvari*, by their very nature, were charges pertaining to local requirements (Shanmugam 1987: 49–51)—the labor services required to keep irrigation facilities in good repair, for instance. Therefore, it is not surprising, as James Heitzman (1997: 165, 168) observed, to find that the demand for forced labor (*veṭṭi* in Tamil, *viṣṭi* in Sanskrit) was often qualified by reference to irrigation projects, as in the case of *cennīr veṭṭi* (forced labor for "pure water"), or *nīr amañji* (forced labor on waterworks, also called *nīr vilai(k) kūli*).

The growth of irrigation systems and the expansion of cultivation also led to a growth and elaboration of property rights in land. Most notably, a study of the occurrence of *kaḍamai* (land tax)—which, beginning in the core of the Chola domains, became increasingly prevalent in zones acknowledging Chola overlordship (Shanmugam 1987: 22–23)—provides an accurate indicator of the restructuring of production relationships. In a detailed survey of all published Chola inscriptions—some 3,500 representing approximately 40 per cent of the total—Noboru Karashima discovered a qualitative difference

between donative grants to temples in the early phase of Chola rule on the one hand, and those in the middle and late phases on the other. Whereas grants of money and animals had predominated in the early period, transactions in land, which first appeared during the century of Chola ascendancy and progressively increased thereafter, came to dominate donations in later years. Concomitant with this numerical increase in land transfers was a shift from the communal exercise of rights over land to individual dispositions of plots of land (Karashima 1984: 20, 27–31). Though individual dispositions of land—through sale, gift, or lease—expanded in all areas, Heitzman's analysis indicated its growth was most spectacular in areas where wet-rice farming was practiced.[14]

After the establishment of Vijayanagara rule in the Tamil country in the late fourteenth century, records of property transfers reflect both continuations of this pattern and departures from it. As might be expected, the overwhelming majority of grants of land and settlements to temples[15] and of sales and purchases of land[16] came from regions of long-established sedentary settlements. Here, the longer history of settlement, the greater intensity of cultivation and density of population, and the more intricate filigree of agrarian relations were reflected in a careful elaboration of rights granted and obligations incurred in contrast to the more marginal areas being opened up for cultivation.

About one-tenth of the records of property transfers from the Chandragiri (excluding Tirupati) and Padaividu *rajya*s specify that the temples are to receive all benefits (*sarvamānya*) from the bequest.[17] Most of the records of grants of land to temples where the donor had purchased the land prior to the donation come from the fertile and intermediate zones,[18] as do records documenting the grant of shares in plots of land.[19] Only a few records—3.2 percent of grants of plots of land and 4.25 percent of grants of village—state that in addition to the benefits accruing from the bequest, the grant is also made tax-free (*sarvamānya iraiyili*).[20] The relatively small numbers of such records also suggest that in the absence of specific references to exemptions from taxes or grants of specified taxes, lands bequeathed to temples remained liable to taxation unless an exemption was subsequently obtained from the donor, his successor or superior authority (for these distribution matrices, see Palat 1988: 161–62). This hypothesis is also supported by literary evidence (Nilakanta Sastri and Venkataramanayya 1946) and by several instances of temples having to sell land or positions in the ritual hierarchy to pay their tax

obligations.[21] There are also references to private individuals similarly being compelled to sell land to pay their taxes.[22]

In conjunction with other references to the sales of land, both by temples[23] and individuals,[24] of grants of land as stipendiary remuneration by ecclesiastical administrators to other religious functionaries and service personnel,[25] and the grant of the right of cultivation (*ulavu-kāniyāṭci*),[26] these references indicate three levels of claims to the produce of land, each of which could be transferred without reference to holders of other claims. Predominant among these claims was the state's demand for a share of the surplus, either extracted directly by an imperial administrative apparatus or assigned to various nominees in return for services. This is reflected by the preponderance of royal donors in instances when land or settlements were granted with immunity from taxation (*iraiyili*, *sarvamānya iraiyili*). References to the sale, purchase, or gift of land referred to the right to receive a "superior share" (*mēlvāram*) of the products of the soil as opposed to the *kīlvāram* ("lower share") accruing to the cultivators.[27]

Interestingly, the intensification of wet-rice cultivation in China also led to a division of claims to land analogous to the *mēlvāram–kīlvāram* division. In the *yi tian liang zhu* ("two owners of a single field") system, on the payment of *fen-tu yin* or "manured field silver," cultivators received transferable and negotiable rights over the topsoil that they could sublease or sell without the consent of the landowner. The sale of either one of these rights—the cultivation rights or the rights to the topsoil vested in the tenant, and the landowner's rights to the subsoil—did not affect the continuance of the other in any way. This system further strengthened the position of tenants since the owners of the subsoil typically lived at distant urban centers and often did not know the precise location of their plots. A system that permitted a division of the rights to the topsoil and to the subsoil, and allowed these to be transferred separately, created considerable confusion in tax records. These complications were multiplied when the landowner who bore the responsibility for taxation sometimes farmed out the burden of collecting rents and paying taxes to a third party—the "three lords to a field system" (*yi tian san zhu*) of the Zhangzhou prefecture being a case in point. Indeed, most of the information about these changing tenurial conditions comes from the administrative records of a bureaucracy determined to curb tax evasions (Rawski 1972: 19–24).

In Japan—where with the establishment of the Tokugawa *bakufu* and the spread of wet-rice cultivation, the peasantry was separated

from the armed warriors—the village was collectively responsible for tax payments. Initially, taxes were assessed on individual plots of land but as subdivisions of land, transfers of property, and other changes took place increasingly taxes were determined by village records and even then the rate of taxation depended on the balance of power between the peasantry and the *daimyo* with land tax tending to decline over the long run (Tsueno Sato 1991: 38–39, 42–43).

In the Vijayanagara taxation system, though taxes were assessed on individual households, village landowners and occupational groups (*kaikkōla* weavers, *sekku-vāniyār* or oil-merchants) were collectively held responsible for the payment of taxes as indicated not only by references to the village as the unit of assessment (227 of 1,920), but also by gifts of taxes by collective groups[28] and by references to land transactions conducted by all the landowners in a village collectively.[29] Hence, in contrast to China where the liability of individual landowners to pay taxes in conditions when they did not usually reside in settlements where they possessed land had led to perennial problems of tax evasion, the Vijayanagara revenue apparatus used the simple but effective expedient of holding the settlement collectively responsible for any arrears.

Nevertheless, with the greater intensity of cultivation and the proportionate complexity and difficulty of effective supervision of farm operations, tenurial relations shifted in favor of cultivators as suggested by the phrase *kuḍinīngā-kāniyāṭci* ("without removing the cultivators").[30] Similarly, in post-Song China (CE 960–1280), though the rising productivity of land had made its purchase an increasingly attractive proposition for wealthy personages, it simultaneously strengthened the hands of tenant cultivators, and eventually led to permanent tenancy rights in many regions of irrigated rice farming. Studies of farm sizes in Jiangnan province show that the greater intensity of cultivation led to a decline in the average size of farmland per cultivating household from 40 *mu* during the late Southern Song to approximately 30 *mu* during the Yuan to 20 *mu* by the early Ming while productivity continued to increase as indicated by table 1.2 (Li Bozhing 2003: 162–65).

Unlike his counterparts in north China, Evelyn Rawski notes, a landlord in Fujian "did not generally provide either tools or seed to the cultivator. He did not participate in the farming process, and his only link with the land was the rent received from the tenant." As a result, there was a progressive shift from sharecropping to fixed rents payable either in kind or in money, a trend particularly

Table 1.2 Farm Size and Output in Jiangnan, Song to Ming

	Farm size	*Yield* per mu	*Output per family*	*Workers Per*	*Output per worker*
Period	*(mu)*	*(shi)*[a]	*(shi)*	Family	*(shi)*
Southern Song	40	1.0	40	3	13
Yuan	30	1.4	42	3	14
Early Ming	20	1.6	32	2	16

Note: (a) Nominal yields per *mu* for all three periods are assumed to be 1 *shi* per *mu;* the figures in this column represent actual yields, taking into account changes in the *shi* unit of cultivation.

Source: Li Bozhing, "Was There a 'Fourteenth-Century Turning Point'? Population, Land, Technology, and Farm Management." in P. J. Smith and R. von Glahn (eds.), *The SongYuan-Ming Transition in Chinese History,* Cambridge, MA: Harvard Univ. Press, 2003, p. 170, Table 4.8.

marked in areas of wet-rice cultivation (Bray 1983: 13, 19–20; 1984: 604–08; Rawski 1972: 17–18). For instance, tenancy contracts in Ming Fujian guaranteed cultivators security of tenure provided that fields were continuously kept in cultivation. Thus, even when rents were in arrears, their customary rights frequently protected the tenants from eviction (Rawski 1972: 20). From this perspective, the coercive measures employed by landlords against defaulting tenants was not so much an indicator of the "ferocity of landlord exploitation" as Barrington Moore had suggested, but evidence of "their relative helplessness on the face of determined village solidarity" (Bray 1984: 606–07).

Likewise, in Japan, studies of the earliest extant cadastral surveys (*kenchichō*) dating to 1583 suggest that in the Kinai region—where the Imperial Court and the large urban centers of Kyoto, Fushimi, Osaka, and Sakai were located—the early development of double-cropping had resulted in the dissolution of large landed estates and the consequent constitution of a large number of small tenant holdings cultivated by family labor (Smith 1980: 2–5). In the rest of the country, however, where control over labor was crucial before the spread of intensive methods of cultivation in the eighteenth century, the predominant form of landholding was the large, centrally managed estate. These estates were worked partly by hereditary or indentured servants (collectively known as the *genin*) who were assimilated as junior members of the landowner's household, and more significantly by a class of people who bore a remarkable resemblance to European serfs—generically known as the *nago*.

Despite local variations in nomenclature and status, the *nago* generally lived separately from the landowners and held small plots of land. However, these plots tended to be so infertile and small that they were dependent on the landowners even for their subsistence requirements, as allotments from the landowners to whom they owed labor services. Moreover, though the *nago* tilled their plots and may even have paid the taxes assessed on their plots, the legal responsibility for the payment of taxes rested on the landowners. Their lack of revenue responsibilities denied the *nago* access to village commons and waste lands and rendered them ineligible to participate in the deliberations of the village assemblies (Smith 1980: 8–10; Yamamura 1979: 285).

With the unification of Japan under the Tokugawa Shogunate in the early seventeenth century, and the consolidation of its power, the *shogun* and their subordinate *daimyō* encouraged innovations in agricultural practices and an expansion of manufactures in a bid to increase their tax revenues. The opening up of communications networks after the establishment of Tokugawa Peace facilitated the dissemination of agricultural improvements from the more densely populated and intensively farmed regions to other areas. By the end of the century, treatises like the *Nōgyo Zensho* published in 1697, based on an intensive study of Chinese agricultural literature and careful experimentation in Japan, helped propagate more scientific methods of cultivation, seed selection, and other practical improvements (Smith 1988: 87–92; Bray 1983: 18; 1984: 609; Yamamura 1979: 284; Tsueno Sato 1991: 75–80). Due to these measures, it has been estimated that the yield of lands under rice cultivation in the Kinai region increased by almost 75 percent between the early sixteenth and the early seventeenth centuries (Smith 1980: 99). Overall, the extent of arable land increased from about 950,000 hectares in 1450 to appproximately 1,640,000 hectares by 1600 and to some 2,970.000 hectares by 1720 (Tsueno Sato 1991: 62).

As a result of the dissemination of techniques of riziculture, cultivators outside the Kinai region, who had hitherto subsisted primarily on dry crops like barley and buckwheat, and grew rice only to pay their taxes now began to shift to the cultivation of rice, both for their own sustenance and for sale (Bray 1983: 18; 1984: 609). As in southern China and peninsular India, the greater complexity of tasks associated with wet-rice cultivation favored a trend toward smaller units of cultivation. This tendency was manifested both by the increasing attention devoted to tenurial relations in administrative handbooks—which had thus far neglected these relations outside

the Kinai region—after 1700 and a gradual transformation of the relations of production from the *nago* and other forms of hereditary and indentured servitude toward waged labor through a succession of intermediate forms (Smith 1980: 5, 108–39; Bray 1984: 610).

From this vantage point, ownership of land in areas where wet-rice cultivation was established was valued not because it was profitable, but because it conferred prestige and was a more secure form of investment than occupations with the potential for higher rates of return—trade, usury, commercial cash-crop plantations. In Tokugawa Japan, by the late seventeenth century when agricultural expansion was reaching its limits, the class distinction between the *honbyakushō*—the peasant household owning about one *chō* (0.99 hectare) of land—and the *mizunomi* who owned only tiny strips of land solidified and the latter were excluded for participating in village assemblies (Tsueno Sato 1991: 46). Thus, as Bray (1983: 20; 1984: 608) observed: "one did not make a fortune through being a landlord, one became a landlord through making a fortune" (see also Golas 1980).

Similarly, in the Coromandel Plain, the purchase of *mēlvāram* is also likely to have been valued because it conferred prestige and local power, most notably in the deployment of labor services. This is suggested by a 1397 inscription from Valikandapuram, a settlement in the Vellar Valley just south of Padaividu *rajyam*, which states that all inhabitants were required to remove accumulated silt from the irrigation tanks with the amount of labor being apportioned according to the size of their houses. Those who did not perform their labor obligations were to pay the *nāṭṭār* one *paṇam* (a fractional gold coin) per *kūli* (a measure of capacity) (Karashima 1992: 51). Vijayanagara-era inscriptions from the Kannada and Telugu areas also include similar terms: *grāma-gadyāna* (coins for the village) and *cheruva-mēra* (tank fee), respectively (Karashima et al. 1993: 42). References to *veṭṭi* or unpaid labor—and its cognate terms like *veṭṭi-vari* and *nīr-kūli* ("labor for water") or *biṭṭi* in Kannada and *veṭṭi-vēmulu* in Telugu—tend to occur in lists of tax terms associated with irrigation works.[31] The responsibility of the *nāṭṭār* to collect fees from those who fail to perform labor service suggests that local notables determined the deployment of these services, as well as claims on general labor services (*kuḍimai*)[32] and local taxes (*ūr-cilavu* or "village expenses")[33] assessed to provide for local village administration.

The very nature of the inscriptional database makes it impossible to determine the percentage of produce claimed as *mēlvāram* though

its assignation as stipendiary remuneration for services and the obligation of its claimants to pay land taxes suggest that it accounted for a substantial portion of the surplus. Inscriptions also yield little information on the size of the average family farm, though references to shares in plots of land suggest that in densely populated, fertile areas the shape and size of rice fields were determined by natural conditions and on inheritance they continued to be cultivated as a single field.

While the demand for additional hands at times of sowing, transplanting, and harvesting could be met by pooling the labor of small cultivators in a village, and staggering the expenditure of labor among the plots, these were probably supplemented partly by hiring the *paṛaiyar*, or ritually impure landless laborers. The latter otherwise lived in segregated hamlets (*chēri*s), appearing at the edges of Tamil society only to perform tasks culturally defined as demeaning (scavenging, leather working, and so on), and then often only under the cover of night. In this context, the infrequent references to *paraiya* settlements may indicate that each *chēri* served as a reservoir of labor to be tapped by several settlements of the higher castes.[34]

Thus, in areas where the dominance of sedentary settlements had long been established land appeared to have been controlled by locally prominent individuals—who included among their number not only a few wealthy residents (including *brāhmaṇar*) but also a range of functionaries spanning the upper echelons of the administrative staff of temples, village administrators, and regional grandees, who held plots of varying sizes as stipendiary remuneration. While these notables collected rents from fields tilled by cultivators, they were in charge of deploying labor to ensure the maintenance of local hydraulic works, protection from marauders, performance of religious services, and the payment of assessed taxes. Finally, the need to coordinate demands for labor services among petty cultivators during peak points in the agricultural cycle provided the material underpinnings for solidarity among villagers. Apart from laboring on their plots, cultivators were periodically required to render labor services to maintain local irrigation projects and for the performance of ritual services—including such activities as drawing the giant chariots through the streets, distributing food on ceremonial occasions, and effecting structural repairs to temples.

Unlike land transactions in areas located within relatively favorable isohyetal contours and along the fertile river banks, in the drier areas where agriculture was only marginally established, inscriptions documenting the grant of land and settlements tended to be more

expansive in scope, rarely stating the concrete rights or claims to revenues granted, and grants of the right of cultivation more common. This was the case with all records from the Chengam, Cheyyar, Chittoor, Ponneri, Sriperumbudur, Srikalahasti, Tiruppattur, Tiruttani, Tiruvannamalai, and Walajapet taluks. This was also true of taluks with a low incidence of property grants to temples—like the Arni, Gudiyattam, Madhurantakam, Puttur, and Villianur taluks—where the small size of the database makes the drawing of any conclusions a dubious enterprise. In other words, apart from a few odd records from the Arni and Vellore taluks, all references to land or settlements granted as "free of taxes" (*iraiyili*, *sarvamānya iraiyili*) came from taluks where sedentary settlements had long been established.[35] The same held true for grants of land and villages after purchase by the donor—only this time the exceptional records came from the Madhurantakam and Villianur taluks.[36] Conversely, the greater likelihood that land grants found in areas where sedentary agriculture was firmly established would indicate the specific rights bequeathed, which can be explained by the greater complexity of production relations that necessitated a more unambiguous formulation of rights granted and obligations incurred.

This survey of the spread of wet-rice cultivation in the Tamil country from the mid-first millennium to the mid-second millennium indicates that an intensification of cultivation was accompanied by a greater elaboration of property rights as well as an extension of the reach of centralized royal bureaucracies—an issue to which we will return in the next chapter. For our present purposes, it suffices to note that there were several levels of extractive relationships, spanning village headmen and the imperial monarch, temple managers and a variety of administrative officials, and that the composition of the actual tax demand on each settlement was a composite of claims in kind, in labor services, and in money, the particular balance in each discrete locale among these elements being determined by a complex of factors including its proximity to the seat of high officials or *nāyakkar* and its location within the evolving pattern of sedentary settlements. While the distribution of these revenue claims among local authorities on the one hand, and the *nāyakkar*, regional grandees and the imperial center on the other, freed the latter, especially in regions where the dominance of sedentary settlements had long been established, from direct involvement in the multitude of organizational tasks and small projects of purely local significance necessary to ensure the annual cycle of reproduction in each locality, the collective responsibility of village

landowners to pay taxes ensured an expedient means for supravillage authorities to enforce their claims. Local control over the requisition and deployment of labor services to maintain hydraulic works and the collective responsibility of landowners in each village to pay revenue claims demanded by supravillage authorities, despite individualized assessments, conferred political power on local landowners but did not lead to the subordination of cultivators in the fertile alluvial plains and areas where sedentary settlements were long established. In these areas, as we shall see in the next chapter, the evolution of contiguous, densely populated villages facilitated collective resistance by artisans and cultivators against arbitrary taxation. The strength of peasant communities was also reflected in explicit protections afforded them in transfers of land (*kuḍinīnga-kaṇiyaṭci*, *kuḍinīnga-devadäna*). In the more arid and submontane areas where cultivation was dependent on the excavation of irrigation tanks or wells, the Vijayanagara rulers appear to have granted revenue assignments to *nāyakkar*, as we shall also see in chapter 2, who often brought in cultivators skilled in farming in such environments from the Telugu and Kannada countries. Though these holders of revenue assignments may have held claim to larger territories, the ability of lands under wet-rice cultivation to support larger densities of population meant that there were no tendencies promoting the development of labor-saving machinery or toward the real subsumption of labor.

Long-term Social Change in Wet Rice–Growing Societies

This bird's eye view of changing agrarian relations in the Tamil country since the mid-first millennium, and in post-Song southern China and in Tokugawa Japan, suggest that processes of sociohistorical evolution in societies based on wet-rice cultivation was markedly different from the European narrative of social change that is unwarrantedly cast as the normative model. The potential of irrigated rice farming to increase output with the application of additional doses of labor meant that tendencies toward the consolidation of land into large estates were virtually nonexistent in areas where rice was the major staple crop as the costs of supervising a plethora of labor-intensive tasks outweighed any advantages of scale. Indeed, the greater dependence of rice cultivation on the quality of labor, rather than on capital inputs, meant that a skilled small farmer was at least as capable as

a wealthy landowner in raising the productivity of land. Or, as Bray (1983: 13; 1984: 604) wryly observes, "[I]nspecting an irrigated field for weeds is almost as onerous as weeding it oneself." The great adaptability of varieties of rice placed an addition premium on skilled labor as careful seed selection could provide insurance against pests and climatic conditions. The evolution of more effective techniques to regulate water supplies, along with the flexibility of seed selection, and an assortment of labor-intensive innovations (planting seeds in rows to facilitate weeding, transplanting seeds sown in nursery beds, and so on) led to the installation of multicropping régimes. Hence, whereas the economic advantages of consolidated farm operations led to the eviction of tenants from their plots of land in Europe, no similar tendency was inscribed in the historical record of regions where wet-rice cultivation was well-established, at least before these territories were incorporated into the capitalist world-economy.

In these societies, an expansion of rice cultivation tended to lead to a progressive fragmentation of land as smaller plots facilitated better regulation of water and was more suitable for labor-intensive cultivation techniques. They also tended to be impervious to demographic pressures, with heirs tending to cultivate their diminutive fields as though it were a single entity, preferring to divide the yield rather than physically partitioning their inheritance. The great productivity of lands under irrigated riziculture and the proliferation of claims to the produce of land—rights to the top soil and to cultivation rights in China, to the *mēlvaram* and to the *kīlvaram* in the Tamil country—meant that there was no single "owner" to a plot of land. However, rather than implying the absence of private property in land, each of these shares were alienable—were owned by different people—as we have seen.

The demographic growth made possible by the greater productivity of lands under irrigated rice cultivation also meant that a larger proportion of the population could be engaged in nonfood-producing activities on a full-time basis. This favored an ever-more intricate divisioning of labor rather than the substitution of animal or mechanical power for skilled labor or the development of labor-saving machinery.[37]

The proliferation of small holdings and the shift of tenurial relations in favor of cultivators meant that there was no premium on the accumulation of capital. Indeed, technological progress was often denoted by the substitution of simpler devices for more complex tools as we have seen. Since the seed to yield ratios of lands were

considerably greater than those under dry-grain crops, it theoretically permitted correspondingly higher magnitudes of surplus extraction. Additionally, subsistence requirements appear to have been significantly lower in tropical regions than in the subtropical and temperate areas (Habib 1978–79). Even if a substantial portion of this surplus was devoted to the maintenance of a large segment of the population as retainers of the elites, the superior productivity of agriculture and lower subsistence requirements implied that political authorities in rice-growing areas were not dependent on commercial and financial elites for their protection-providing activities, unlike in the case of Europe (Tilly 1990: 58–61). Thus, for instance, instead of relying on loans or cash advances from urban patriciates to wage wars or to suppress local rebellions, commanders of imperial forces of the Chinese or Indian empires merely drew cash from provincial treasuries to pay the troops under their command (Pearson 1991: 57; Richards 1990: 628).

While the general pattern of agricultural expansion was from the coastal plains to the upland hills, in several regions, wet-rice agriculture was established in the upland river valleys and spread gradually to the lowlands as methods of water control improved. In Jiangnan—the region surrounding Shanghai—for instance, high water tables and the existence of a large number of lakes and rivers meant that lands around Lake Tai were extremely vulnerable to flooding after heavy rains. In this area, it was only after hydrological strategies shifted from dike building to river dredging in the Yuan and early Ming, and the utilization of a square-pallet pumps driven by windmills to dry the land, that cultivation spread to the lowlands (Li Bozhing 2003: 150–53, 171–72).

This pattern of rice cultivation beginning in the uplands and gradually descending into the valleys was most prominent in mainland Southeast Asia where the floodplains were subject to massive seasonal inundations of the floodplains. Richard O'Connor (1995; see also Lieberman 2003: 50–51) controversially argued that as the upland Burmese, Tai, and Vietnamese improved their water management technologies and began to expand to the lowlands between CE 700 and 1700, they displaced the Pyu, Mon, Khmer, and Cham "house gardeners." Even if the link between agricultural complexes and ethnicity was not as determinate as O'Connor suggests, and the pattern of an expansion of irrigation systems from the uplands to the lowlands was a more gradual and piecemeal process, it is undisputed that migrants from the hills arrived constantly in the coastal and riverine

regions. Moreover, if the initial construction of canals was often associated with state intervention,[38] once the canals were in operation, smaller extensions were undertaken by villagers on their own initiative because, as Pierre Gourou (1955: 106) observes of Vietnam's Red River delta, officials could rely on "the experience and good sense of the peasants."

In the lowlands of mainland Southeast Asia, pond and tank irrigation supported extensive rather than intensive cultivation and while this was sufficient for projects as impressive as the Angkor temples in the Mekong basin—Lucien Hanks argued that broadcast sowing could yield rice adequate to feed the cultivator for 38 times the number of days he worked on producing it (see Reid 1988: 20–21)—the continued importance of fishing, gardening, and trade suggest a broad subsistence economy rather than a specialized wet-rice agricultural complex. On the edges of the floodplains, canals were excavated to extend the floodplain and thus expand the area of cultivation as indicated by place names in the Chao Phraya, which suggest that the floodplain was marked by "hundreds of short dead-end canals" (O'Connor 1995: 980). As the unpredictability and intensity of floods precluded the development of transplanting techniques, farmers were compelled to resort to broadcast sowing and Muhammad ibn Ibrahim, a seventeenth-century visitor to the Chao Phraya flood plain noted:

> This is the way they grow the rice. When the time is right for planting, they plough the land in a very careless manner and scatter seed all over the surface of the soil. Then they depart and wait for nature to provide them with results. The monsoon arrives just after their ploughing and the fields become saturated with water. Every day the water mounts up until it finally covers all the land. Under water the seeds turn into green plants and raise their heads up through the earth. They actually spring to the height of 5 or 6 cubits. When the plants reach maturity, the farmers return in their boats and gather the harvest.
>
> (quoted in Reid 1988)

Moreover, since major portions of the fertile deltaic regions lacked natural levies, they were completely submerged during the monsoons, and completely dried up during the dry season (Takaya 1977: 445). In all these regions with low densities of population, opportunities for the development of a market in land were sharply curtailed and cultivators were permitted access to their plots on more restricted terms than those prevalent in areas with high densities of population.

Conversely, the Burmese, the upland Tai, and the Vietnamese specialized in wet-rice agriculture, digging channels in line with the topography to create irrigated fields. In the uplands, since canals and weirs required constant upkeep, village societies needed to cooperate, typically under the guidance of elders unlike lowland farmers. Though the excavation of tanks entailed the deployment of large numbers of laborers in the lowlands, once constructed, the tanks did not require constant maintenance and thus leadership was exercised by big men who had arranged for the construction of tanks. These relationships had affinities with the local lineages who excavated irrigation tanks and lakes in locations removed from the major rivers during the rule of the Cholas in the Coromandel Plain.

Landownership reflected these contrasting patterns—among the Burmese, upland Tai, and Vietnamese, land was routinely redistributed by a variety of village-level arrangements to ensure that each household was allocated an adequate plot. No similar arrangement is reflected among lowland farming communities. In the lowlands, instead of trying to tame the flood waters, peasants sought to select fast-growing varieties of rice that would keep pace with rising water levels—the so called "floating rice." A Chinese observer wrote in 1680:

> In Siam people have been able to grow rice from olden times without worrying about rain.…From the fifth month of every year, the river water rises gradually until the whole kingdom is flooded, and at the end of the eighth month the water recedes.…The floodwater rises to a height of one *jo* [3 meters], but from ancient times has seldom caused damage to the land. This people can grow rice without worrying about rain. If they scatter seed before the coming of the water, the sprouts will grow as the water rises; and finally the rice reaches as high as one *jo* and keeps up with the rise of the water. Since rice is grown so easily there, the price is much lower than in other countries and there is little danger of famine.
>
> (quoted in Ishii 1978: 27)

In island Southeast Asia, irrigated irrigated rice cultivation appears to have been confined to a few pockets in Java, Sulawesi, Pampanga, Luzon, and Panay. In Bali and in Java, the earliest inscriptional evidence for wet-rice cultivation come from the uplands, and in Bali inscriptions indicate the existence of *subak* or self-regulation associations to control irrigation since at least 1022. Similar associations were also found in Luzon before the Spanish conquests (Reid 1998:

111–12). Unlike in the mainland, these areas practiced intensive methods of cultivation as evident from a sixteenth-century description of transplanting in Luzon:

> They put a basketful of it [seed] into the river to soak. After a few days they take it from the water; what is bad and has not sprouted is thrown away. The rest is put on a bamboo mat and covered with earth, and placed where it is kept moist by the water. After the sprouting grains have germinated sufficiently, they are transplanted one by one, as lettuce is cultivated in Spain. In this way they have abundance of rice in a short time.
>
> (quoted in Reid 1988: 22)

Ma Huan (1970: 91, 117), likewise, reported that double-cropping was practiced in northern Sumatra and in Java by the fifteenth century. In the more densely populated areas of western Indonesia—Bali, Java, Lombok, Sumatra, and Sumbawa—rice was the dominant crop in the sixteenth century. In the central Indonesian islands of Kalimantan and Sulawesi, it was still an important crop according to early Dutch records, but these islands also cultivated sago, roots, and tubers, and maize, after it was introduced from the Americas. Rice, however, was not a significant crop in the eastern islands where conditions were either too wet (Ambon) or too dry (eastern Lesser Sunda Islands), or the soil less volcanic (New Guinea) for the *sawah* type of irrigation practiced on the western islands, or the land too steep (Timor) (Boomgaard 2003).

Though wet-rice cultivation also expanded in mainland Southeast Asia since the fourteenth century, reflecting lower population densities in the upland areas from where irrigated riziculture radiated outward, relations of production were less favorable to small peasants and cultivators. Nevertheless, there was a tendency, since the fifteenth century for the transformation of aristocratic and communal land systems into peasant and small landlord tenures. In Burma, Victor Lieberman (1991: 7–8; 1993: 499; 2003: 141–43) estimates that the construction of tanks and land reclamation projects by the lords of Toungoo, Taungdwingyi, and Ava led to the arable land increasing by some 300–400,000 acres between 1350 and 1550, most of the increase being under rice cultivation. Significantly, the reclamation of land was achieved by the forcible transfers of population from outlying principalities—the Shans, the Manipuris, the Yuns, and others—who were formed into hereditary military service units, and allocated land

since the fifteenth century in Upper Burma. With better irrigation techniques, higher-yielding, more water-intensive *indica*-type rice varieties displaced low-yield, early-ripening *japonica* varieties as we have seen in the first section. Conversely, in Thailand, studies by Tadayo Watabe, Yoneo Ishii, and Yoshikazu Takaya indicate that an expansion of wet-rice cultivation was associated, not with forcible population transfers, but with the adoption of new hydrological technologies brought by Tai migrants as they descended down the Mekong and the Chao Phraya. Between the thirteenth and fifteenth centuries, these improved methods of water management enabled the cultivation of both round and slender varieties of lowland rice, which had substantially greater yields than the upland varieties in the central plains. The higher caloric value of slender rice eventually displaced the round rice in the northern valleys as water management techniques continued to improve (Watabe 1976, 1978; Ishii 1978; Takaya 1975, 1977; Lieberman 2003: 248–51). Agricultural expansion in Vietnam followed a different path. Between 1350 and 1800, the Le and Nguyen regimes inaugurated a sustained phase of land reclamations along the coastal swamps and foothills in the Tonkin Delta and made an aggressive push to the south, *nam tien*, providing extensive land rights and tax concessions to large-scale private colonists. Though there is less information on Vietnam's mid-second millennium agricultural conditions, extant evidence suggests an expansion of fast-ripening, drought-resistant rice and a trebling of the population in north Vietnam from 1,862,000 in 1417 to 5,625,000 in 1539. The rapid growth of population led to a transformation in landlord-tenant relations similar to those in late-Song China (Lieberman 1993: 499–500; 2003: 386–89).

Unlike Vietnam, which did not have a central river, in the rest of mainland Southeast Asia as hydrological technologies could not cope with the massive seasonal inundations of the major river systems, even as rice cultivation spread from the uplands to the lowlands, population densities remained relatively low. This placed a premium on the control of labor especially given the high labor demands, especially during transplanting and harvesting, and thus forcible population transfers—both to increase production and to deny labor to rivals—continued well into the eighteenth century. As already indicated, deportees were settled in Upper Burma between the sixteenth and the early eighteenth centuries on plots of almost nine acres per family. In the early nineteenth century, Lieberman (1991: 5) estimated that over 20 percent of the population of Upper Burma could trace their origins to such deportations.

Simply put, since land was abundant and labor scare everywhere on the Southeast Asian mainland, except in Vietnam, control over labor was essential to the spread of the arable (Reid 1993: 35). Despite the greater control exercised over labor, the spread of wet-rice cultivation led to a shift from aristocratic and communal control over land to small landlord and private tenures as indicated by the growing prevalence of land sales. However, reflecting a lower degree of monetization in the region, between 1350 and 1512, only 36 percent of the 114 inscriptions recording land transactions in Upper Burma were in cash, indicating primarily subsistence production. This was also true of central Thailand where many areas entered the cash economy only in the late eighteenth century (Lieberman 1991: 19–20; 1993: 502; 2003: 140). Small landlords and wealthy peasants had an advantage in being able to control larger pools of labor but large landownership did not lead to the type of technical improvement in agriculture that placed a premium on accumulation because of the nature of production conditions in wet-rice cultivation.

In island Southeast Asia, when intensive cultivation was practiced, land tended to be controlled individually and where shifting cultivation was practiced, land tended to be controlled communally as Juan de Plascencia noted of late sixteenth-century Luzon:

> The lands which they inhabited were divided among the whole village (*barangay*), especially the irrigated portion, and thus each one knew his own. No one belonging to another village would cultivate them unless after purchase or inheritance. The lands on the *tingues*, or mountain-ridges, are not divided but owned in common by the village.
>
> (quoted in Reid 1988: 25)

In stark contrast to the steady growth of small-holder cultivation in rice-growing areas of Asia—albeit at a slower rate in mainland and archipelagic Southeast Asia, except in Vietnam and Java—the revival of cultivation in Europe after the demographic decline of the late fourteenth and the fifteenth centuries was marked by the growth of large estates. The general depreciation of rents that had resulted from demographic decline across Europe[39] led to a variety of reactions according to local balances of class forces—but everywhere worked against the small peasantry. To paraphrase Bloch (1966: 126), by the sixteenth century, instead of resigning themselves to bankruptcy, lords in Eastern Europe undertook the management of cultivation themselves, depriving the peasantry of their fields and expropriating their lands into a large

consolidated demesnes, surrounded by just enough small holdings as to ensure an adequate labor supply: "the demesne had swallowed up the tenures, or at least sucked them dry." In England, if the peasant rebellions of the late fourteenth century precluded the outright expropriation of small-holders, tenurial relations nevertheless shifted in favor of large landowners. Here, short-term leases replaced customary rents, enabling landowners to fix rents according to economic conditions. Yet, another pattern was manifested in France where Emmanuel Le Roy Ladurie's (1987: 84–97) studies of sixteenth-century Languedoc and Guy Bois' (Bois 1984: 152, 171–74, 381–86) studies of eastern Normandy indicate a collapse of middle peasants through the subdivision of their holdings due to population growth and to the purchase of the holdings of impoverished peasants by land engrossers. The decline of the middle peasant denoted an impoverishment of the peasantry in general, as the "Liliputian" majority of farmers held plots too small for their own subsistence unlike the case earlier when small farmers typically produced a small surplus for sale.

The impoverished small holders, in fact, not only provided a labor pool for the large estates but also led to a decline in real wages for agricultural labor.[40] Across most of Europe, the price inflation that followed the import of treasure from the Americas was perhaps the most widespread reason for the fall in real wages as wages lagged behind prices as Earl Hamilton (1936) showed for Spain. If landowners collected rents in kind, their incomes were pegged to the price curve but "rents fixed in money melted away like snow in the sun" (Bois 1984: 223). The real winners in this context were the entrepreneurs, the emerging rural capitalists who could take advantage of plummeting wages to hire larger numbers of workers and reap high profits, which they could reinvest in buying more livestock to plough fields more effectively (Le Roy Ladurie 1987: 98–131). Perhaps even more importantly, states and the emerging bourgeoisie could draw on the inflows of treasure from the Americas to erode the customary rights of peasants by enclosing the commons and turning fields into pastures and by reclaiming wastelands. Speculation in meadows for rearing sheep grew "dizzingly" in the fifteenth century—from 130 *livres tournois* a year in 1400 to CE 340 *livres tournois* in 1464 to CE 650 *livres tournois* in 1502 and to 1,450 *livres tournois* in 1521 in eastern Normandy while rents for arable land stagnated (Bois 1984: 359). Enclosures—what Bloch called "agrarian individualism"—profoundly transformed the social structure of villages as it terminated the rights of villagers to graze their animals on the commons and gradually the

old three-field systems were replaced by new systems of crop rotation. Land transformed into pasture was often also ploughed again later—the so-called up-and-down husbandry—which improved the quality of both pasture and fields (ploughing improved grasslands, and the manure that would have been lost being absorbed to fertilize fields) (Kriedte 1983: 18–31).

For our present purposes, what is significant is that the revival of European agriculture in the sixteenth century, in contrast to patterns in rice-growing Asia, was marked by the dominance of the large estate—whether under "second serfdom" or "coerced cash-crop production" in lands east of the Elbe or under a nascent rural bourgeoisie in the West. Technical conditions of production and the balance of class forces led to the impoverishment of small cultivators and privileged accumulation. The money lenders and the rural and urban bourgeoisie who profited from the price revolution when rents and taxes remained stationary became increasingly vital to rulers to provide them with the means necessary for their war-making and state-making activities and this unique fusion of state and capital was what was to transform Europe into what Fernand Braudel (1984: 92) called the "monstrous shaper of world history."

2

Global Roots of Local Politics: State Formation in an Eastern Mirror

In two crucial respects, state formation in wet-rice growing areas of Asia differed from processes of state-building in Europe. First, the enormous productivity of lands under irrigated riziculture freed rulers from a reliance on loans from financial and mercantile elites to underwrite their protection-providing enterprises. Second, unlike Europe where the broken forests hampered nomadic invasions from Central Asia, sedentary societies in West, South, and East Asia were extremely vulnerable to nomadic incursions. "The real scourges" of China and India, Fernand Braudel (1994: 164) wrote,

> comparable to the biblical plagues of Egypt, came from the great deserts and steppes…which are torrid under the summer sun, and in winter buried under enormous drifts of snow…As soon as [nomads] appeared in history, they were what they would remain until their decline in the mid-seventeenth century: hordes of violent, cruel, pillaging horsemen full of daredevil courage.

In China and the Indian subcontinent, the expansion of agriculture—especially wet-rice cultivation—and other ecological factors limited pasturelands and rulers depended on nomads for horses, increasingly vital in war. As Owen Lattimore (1940) observed in his landmark study, *Inner Asian Frontiers of China*, the distinction between pastoral nomads and sedentary populations, when human beings were not separated by natural barriers, only evolved gradually as each group increasingly specialized in activities in which they had a competitive advantage and

> It was only when this diverging specialization had been carried out to a certain point that the marginal steppe society ceased to be marginal

> and committed itself definitely to the steppe. Having reached that point it was ready to take advantage of a steppe technique of horse usage in order to increase the efficiency of life within the steppe environment.
> (Lattimore 1940: 59)

And once people of the steppe, diverging from the "Chinese" way of life, had realized that the practice of agriculture became less important to their standards of prestige, power, and wealth, they began to place greater emphasis on the range and speed of their horses and on their abilities to be in command of a wide range of pastures (Lattimore 1940: 63–64). Nomads depended on settled societies to provide them, in turn, with the commodities that their itinerant lifestyles could not furnish—or in the words of the Persian historian, Abdullah Wassaf, it was "a providential ordinance of God that the western should continue in want of eastern products, and the eastern world of western products" (quoted in Chaudhuri 1990: 278).

This relationship of mutual dependence changed between the twelfth and the late thirteenth centuries—the one hundred and fifty years bracketed by the Jurchen conquest of north China in 1126 and the fall of the Southern Song capital of Hangzhou in 1276 to Kublai Khan—when nomadic invaders from the Central Asian steppe became rulers of China and much of the Indian subcontinent for the first time.[1] Though these nomads had raided both areas many times before, they had not previously established conquest states (Wink 1997: 35). The military advantages accruing to Turkish, Mongol, and other subsequent Central Asian invaders—the Afghans and the Mughals in India, the Manchus in China—rested on their access to supplies of superior warhorses as mounted archers gained ascendancy over massed infantry archers and elephants.[2] Cavalries, of course, had been a familiar feature of Indian armies, but mounted subcontinental warriors had largely used light one-handed varieties of lances and preferred to break up enemy lines with elephants rather than massed cavalries. The failure to develop a force of mounted archers proved fatal for Indian rulers just as it did for the Byzantines (Kaegi 1964):

> The main military advantage always remained that mounted archers were more mobile than any infantry and, in addition to being able to use the bow from horseback, were still capable of making decisive charges with spears and swords or operated in conjunction with heavy cavalry . . . the difficulty of training an army of mounted archers was its one great disadvantage. In the Islamic world of the eleventh to thirteenth centuries, these specialized skills were often taught within

> the framework of *mamlūk* slavery. Here elites could be trained within the army to perform at the highest level and forced into a degree of discipline which earlier Islamic rulers could not impose on their general levies.
>
> (Wink 1997: 90–91)

Despite the susceptibility of empires in continental Asia to nomadic depredations, there were significant differences between them. The operation of a mutually beneficial balance of extortion and tribute between Chinese dynasties and nomadic empires of the steppe implied that invasions of China occurred only when there was no central government capable of paying tribute. The Uyghur had been so dependent on China for tribute that they even dispatched contingents to keep compliant dynasties in power by suppressing internal rebellions. This mutual dependence between nomadic and Chinese empires was so strong that Thomas Jefferson Barfield (1989: 9, 230) claims that if one collapsed the other followed soon after, "the nomads because they had lost their economic base, the Chinese because they had lost their protection."

There was no parallel to this well-regulated balance of terror in the Indian subcontinent, which was more prone to nomadic incursions from the Central Asian steppe, just like empires in West Asia. However, the subcontinent's terrain and climate constrained the nomads' preferred modes of warfare. Hence, on the one hand, the most enduring legacy of the Mongol conquests, as John Dardess (2003: 117, 120) has pointed out, was the elimination of non-Chinese dynasties ruling over Zhongguo—"the Tangut Xi Xia (1227), the Jurchen Jin (1234), and the Tibeto-Burman kingdom of Dali in Yunnan (1254)"—and the unification of "what Song policymakers and cartographers had depicted as the traditional Chinese ecumene" (Smith 2003: 7). On the other, the forests and arid zones interspersed with fertile agrarian belts in the subcontinent, and its hot and humid climate posed virtually insurmountable problems for political integration. Thus, pan-subcontinental polities existed only fitfully till the nineteenth century when new technologies of transport, communications, and administration led to fundamental changes. Nevertheless, the common context of war- and state-making in the wider Saharasian zone stretching from North Africa to the Indian subcontinent led to the adoption of such similar strategies of rule and even courtly ritual in the subcontinent that Phillip Wagoner, following Marshall Hodgson, speaks of an "Islamicate" culture: "the social and cultural complex historically

associated with Islam and the Muslims themselves even when found among non-Muslims" (Hodgson quoted in Wagoner 1996: 855).

The first section locates the transformation of nomads from raiders to conquerors in the fundamental changes in the technologies of warfare—and especially in the greater significance of armed cavalries. Since ecological conditions made it difficult to breed horses of good quality in sufficient numbers across much of South and East Asia, it was incumbent on rulers to import large quantities of horses. Whether horses were procured under the guise of tribute missions or through straightforward trade, the costs were underwritten by an expanding agrarian economy. These imperatives were reflected in the siting of new political capitals at the interstices between the outer marches and the fertile agrarian heartlands of empire (Gommans 1998b: 15). Prefiguring the rise of Vijayanagara on the banks of the Tungabhadra river, by the twelfth century as Chola power waned in the southern peninsula, the changing dialectics of war- and state-making was denoted by the rise of the Hoysala capital, Dvarasamudram, set in the rock hills of modern Halebid in the Kannada country, and by the Kakatiya capital of Warangal in the stony ridges of the Telugu country—very unlike the capitals of the Pallavas and the Cholas set squarely in the middle of the Tamil agrarian heartland (Stein 1989: 15–17). Similarly, when Zhu Di captured the Ming throne in 1403, he shifted the capital from Nanjing to Beijing on the empire's northern frontier. As the north could barely support its own population, let alone the additional military contingents and bureaucrats staffing the imperial court, this entailed the expansion and improvement of the canal network to draw in supplies from the verdant south (Barfield 1989: 234–35).

Invaders from Central Asia also played a key role in the transmission of a variety of military technologies across Eurasia including new techniques of siege warfare and the dissemination of artillery pieces. Marshall Hodgson and William McNeil have argued that "such upstart empires as the Mughals in India…the Muscovite in Russia…and the Ottoman…in eastern Europe and the Levant" owed their existence to the cannon (McNeill 1984: 95; see also Hodgson 1974; Streusand 2011). The destructive power of heavy mortars, which could reduce forts to a rubble, is held to have led to political centralization—the rise of "gunpowder empires"—both in Europe and much of the Islamic world. There is little question that the introduction of firearms was met with hostility by the professional cavalry almost everywhere, with the significant exception

of China. The Chinese exceptionalism, Joseph Needham (1986: 470) plausibly argued, was due to the control of the army by a non-hereditary bureaucracy. Elsewhere, just as feudal knights in Europe scorned medieval archers and crossbowmen who could bring down the knights without endangering themselves, professional cavalry from Mamluk Egypt through the subcontinent to Japan looked down on harquebusiers and cannoneers.

Yet, as Halil Inalcik (1980) and Iqtidar Alam Khan (2004: 8, 103, 163–90) have shown for the Ottoman and Mughal empires, the dissemination of firearms also enabled peasantries and local elites to more effectively resist royal forces. Moreover, studies of warfare in the Indian subcontinent between the fifteenth and the seventeenth centuries indicate that artillery was rarely decisive in sieges. Even in open battles, infantrymen fought alongside mounted archers (Streusand 1989: 63–69; Gommans 2002: 133–36). The main strength of the Mughal forces, as Irfan Habib (1999: 364) argued, "initially lay in their cavalry, or rather mounted archers, and it was in the battle in the open field and in rapid movements, that they remained invincible" until the Marathas countered with "scattered and decentralized warfare, and muskets at long last (in the eighteenth century) replaced the bow and arrow as the soldier's main weapon, to give the infantry a major advantage." Similarly, in China, though firearms were often used and by the late sixteenth and the seventeenth century, European-style guns and cannons were produced either under the supervision of Europeans or by Chinese trained by them, these were rarely decisive in battles against the nomads. They were, however, effective against the Japanese invaders of Korea and against pirates in the late sixteenth and early seventeenth centuries. Hence, it was not surprising that there was little emphasis on improving its qualities—Nicola di Cosmo (2001: 134) writes that when a cannon blew up, "the people in charge simply sent in a request for a new one, while in Europe they sent a request for a better one, possibly made by a better supplier."

The existence of a set of states facing similar constraints and possibilities provides a context to locate the restructuring of state structures in the southern peninsula under the Rayas of Vijayanagara in the second section. The impact of invaders from the steppes was initially felt in the northern subcontinent when Muhammad Ghuri defeated Prithviraj at the Second Battle of Tarain in 1192 and established the Delhi Sultanate that expanded briefly to virtually blanket the subcontinent. Though the difficult terrain enormously complicated the task

of political integration and led to the fragmentation of the sultanate, the introduction of new technologies of warfare triggered wide-ranging structural transformations all across the subcontinent.

Initially, as rulers tried to raise rates of taxation in the fertile heartlands of the empire, they were confronted with widespread rebellions, which were symptoms of the changed ecology of war- and state-making. Eventually, Vijayanagara rulers borrowed from a common archive of technologies of rule to link powerful and relatively autonomous satraps in the relatively arid "zones of military entrepreneurship" to the imperial structure while elaborating administrative technologies in the heartlands to extract more revenues and to expand cultivation, promote crafts, and to draw in arid and submontane regions into circuits of exchange.

Evolving patterns of war- and state-making and associated expansions of circuits of exchange implied that rulers could not afford to be introverted and even states that were not vulnerable to nomadic incursions—in mainland and archipelagic Southeast Asia and in Japan—were imbricated in the networks of power and exchange, though in very distinct ways. Hence, the concluding section of this chapter will survey broadly the variants of statecraft across Asia.

Briefly put, we shall see that though the changed context of war- and state-making reshaped polities from North Africa and West Asia through the subcontinent to the eastern coasts of the Pacific, there were significant differences in patterns of state-making within this large quadrant. In Saharasia, the intermingling of fertile river valleys with arid tracts where pastoral nomads held a competitive advantage meant that rulers could never securely cohere them within their polities. A second variant emerged in China where the lack of similar internal frontiers enabled successive dynasties to rule over a much larger territorial domain administered by an imperial bureaucracy and led to a more regulated relationship with nomads outside the empire. Since its island location insulated Japan from the threat of nomadic invasions, here again a unified polity emerged. A third variant emerged in mainland Southeast Asia where a difficult terrain hampered the effectiveness of mounted archers and heavy cavalries as well as limiting the potential of prolonged conflicts. Here, the dry interior where wet-rice cultivation was practiced had a demographic and military superiority over the lowlands. The small states on the coasts were also far more dependent on overseas trade and represented an important exception.

Horsemen of the Apocalypse

If the old Chinese proverb that the empire "could be won but not ruled, from horseback" contained an important grain of truth, it was also true that the nomads "could never afford to stray very far from their horses once they had dismounted" (Elliot 2001: 3). Once conquest states had been established, rulers had to orchestrate the difficult transition from raiding parties to imperial armies, to confront the problem of maintaining and provisioning large cavalries of mounted archers and, in large territorial empires, also infantries in areas not suitable for cavalry warfare. In the steppe, where there was little distinction between civilian and military life—with equestrian and archery skills being integral aspects of culture—every able-bodied adult male was subject to call-up at short notice and was expected to provide most of his own equipment: horses, weapons, supplies. This was not possible for garrisoned troops and unlike wars waged by nomads against sedentary peoples, which provided loot, wars aimed at suppressing internal rebellions were not similarly lucrative.

In particular, the new rulers faced the same problems of breeding good horses that earlier dynasts had faced. Agricultural expansion meant that the best lands were reserved for the cultivation of grains, vegetables, and other foodstuff, and there was little room for grazing horses in China or India, especially since horses had to be moved frequently because they refused to eat grass growing around their own droppings. Due to competition from agriculturists, fodder crops were also in short supply and accounts of foreign observers record that the Chinese and Indians were not proficient at handling horses (Gommans 1995: 71; 2002: 111–14; Beckwith 1991; Creel 1965). Noting with astonishment the number of horses imported into India, Marco Polo wrote:

> One reason is that no horses are bred there, and another that they die as soon as they get there, through ignorant handling; for the people there do not know how to take care of them, and they feed their horses with cooked victuals and all sorts of trash…and besides they have no farriers.
>
> (quoted in Wink 1997: 83)

Similarly, the unfamiliarity of the Chinese in caring for horses is reflected in historical records where grooms and handlers of horses were invariably portrayed as non-Chinese (Creel 1965: 670). By

Mughal times, Arab, Persian, and central Asian horse-dealers and cavalrymen were employed on a large scale—as Mongolian troops were employed by the Ming—and the detailed schedules for feeding imported horses in the imperial stables tabulated by Abul Fazl in *A'in-i Akbari* underscores the importance attached to the care of these pedigreed breeds (Chaudhuri 1990: 278, 282).

Jos Gommans (1995: 70–73; 2002: 111–14) suggests that extreme differences between the monsoon and dry seasons in India meant that the grass fields that grew rapidly toward the end of the summer became parched by years' end. The shortness of the natural grazing season also implied that the best time for haymaking coincided with the *kharif* (September–October) harvests. The effects of the inadequate nutritional value of the food given to horses were aggravated by the subcontinent's weather—excessive heat and humidity.

These problems were compounded by the scale and magnitude of military operations. Unlike cavalries in Europe at the time where mounted horsemen numbered in the thousands, battles in the Indian subcontinent involved tens of thousands of horsemen. At the Second Battle of Tarain in 1192, Muhammad Ghuri's victorious forces were estimated to have had between 120,000 and 130,000 horses compared to Prithviraj's 300,000 horses and 3,000 elephants. Sultan Muhammad bin Tughluq was reported to add ten thousand Arabian horses to his stables every year while 'Alauddin Khalji claimed to have seventy thousand horses. His general, Malik Kafur, is said to have compelled the ruler of Warangal to surrender some 20,000 horses—many of which had been brought from Yunnan via Bengal (Chakravarti 1999: 203). And in China, according to Marco Polo, Kublai Khan marshaled a force of 360,000 horsemen and 100,000 foot soldiers to quell the rebellion by Nayan and Qaidu (Wink 1997: 145; Gommans 2002: 117; Sinor 1972: 172–73).

Though small areas in China and India were suitable for breeding horses,[3] rulers in both territories depended on imports of substantial numbers of horses for their armies and for communications. In the early fourteenth century, for instance, Marco Polo had reported that the merchants of Kish, Ormuz, Dhafar, and Aden sold 2,000 horses a year to Sundaradeva Pandya for "more than 100 marks of silver" each (Parks 1927: 274–79). Though Polo has been shown to regularly exaggerate the scale and magnitude of conditions and phenomena in Asia, from his survey of the evidence, Gommans (2007: 5, 9) estimates that some 25,000 to 50,000 horses were imported annually to India and China and that each zone had between one and three million horses.

When the Chinese empire was strong, it established horse markets for its "most favored barbarians" to trade horses for essential and luxury items while denying this right to other nomads who had to rely exclusively on tribute missions (Perdue 2005: 68–72; Barfield 1989: 235; see also Creel 1965: 668).[4] The Southern Song was so critically short of horses that they even established over a dozen markets in Sichuan and Guangxi for the Dali kingdom in Yunnan to trade horses even though the Song Court had previously refused tributary missions from them many times (Yang 2004: 297–98). Later, as the Ming sought to obtain horses by instituting "tea-horse markets" (*chamasi*) in present-day Gansu and Qinghai through the government's monopsonistic position in the tea market and its monopolistic position in the exchanges at the '"tea–horse markets" where only tribal chieftains who had been granted gold tablets were permitted to trade. Though the Ming initially fixed prices at 30 to 40 *jin* per horse, and later raised the price to 50 to 120 *jin*, private traders so subverted the system that the Yongle emperor was forced to rely on these private traders and pay upto 80,000 *jin* for 70 horses. In effect, an insufficient monetization of the economy meant that the Ming did not have the resources to meet the strategic requirements of war—not even 4 million taels of silver were sufficient to provision its northwest garrisons (Perdue 2005: 69–70, 74). Said Muhammad (the Sai-yi-ma-ha-mie or Sai-yi-de-ma-ha-ma of Chinese texts), the envoy of the Bengal Sultans to the Ming Court, is also recorded to have taken "thoroughbred horses in Bengali ships" (Chakravarti 1999: 204).

In the less-regulated interchange between rulers of north Indian kingdoms and the peoples of the steppe, the main sources of horses for the former were Central Asia, Afghanistan, Iran, Arabia, and to a lesser extent from the northeast and Burma while rulers in the southern subcontinent obtained their horses mainly from Arabia.[5] To put the cost of good quality horses in perspective, in the Delhi Sultanate, a high quality Central Asian battle horse cost 500 silver *tanka*s and an ordinary one, 100 silver *tanka*s, while a sexually attractive male or female slave fetched only 20 to 40 *tanka*s (Richards 1983: 199).[6] Between 1404 and 1439, horses were the most expensive exports from Bengal to China and each cost a 1,000 gold coins (Chakravarti 1999: 204). A hundred years later, in his account of the Vijayanagara court of Achyutadevaraya, Fernão Nuniz (1970: 354–55, 357–60, 362, 370) recorded the import of thirteen thousand horses from Iran and Aden, at the rate of 12 to 13 horses for a thousand *pardao*s of gold.[7]

Dense forest cover in the Indian subcontinent also limited mobility and the scope of using cavalries. Toward the late sixteenth century—c. 1595—calculations of the gross cultivated area during the reign of Akbar indicate that it is unlikely to have been more than 55 percent of the gross cultivation in 1909–1910 (Habib 1999: 1–24; Moosvi 1987a: 65–66; Singh 1995: 23).[8] According to the *Baburnama* (1922: II, 592), in his campaign against Chanderi, the founder of the Mughal empire's army was preceded "by active overseers and a mass of spadesmen to level the road and cut the jungles down." Similarly, when his grandson Akbar, waged war against Raja Madhukar, Abul Fazl wrote "the country was forest, and the marching of the army was difficult, they cut down the trees one day and marched the next" (quoted in Singh 1995: 24). In this context, Gommans (1995: 17) and André Wink (1997: 3) have plausibly suggested that it was the lack of pasture and a harsh terrain that limited Mongol penetration into India and that instead of being ravaged by waves of marauders, much of the subcontinent was subject to a series of incursions by small bands of well-organized Turko-Afghan forces.

Though rulers of the northern subcontinent bore the brunt of the initial impact of the new technologies of warfare introduced by Turkish invaders, once the intruders had established themselves in Delhi, they swiftly swept across the subcontinent as their access to larger numbers of superior horses gave them an insurmountable advantage over other rulers. The sharp escalation in protection costs caused by the introduction of new technologies of war—light cavalries, standing armies, improved fortifications—compelled rulers everywhere to mobilize resources more efficiently, especially since the structures of the Delhi Sultanate proved insufficient to hold together their conquests and the further reaches of their domains—Bengal, the Deccan, and Ma'bar (the Coromandel)—broke away to form independent sultanates. Reflecting the new imperatives imposed by the changed technologies of warfare, after Bukka and Harihara, the founders of the Vijayanagara Empire,[9] successfully asserted their autonomy from the Delhi Sultanate in 1336, they styled themselves as *Hindu-rāya-suratrāna* that translates as "sultan among Hindu kings" (Wagoner 1996). Their assumption of this title indicates that, contrary to much subsequent historical writing, no sharp divide existed between Hindu and Islamic polities in the structures of rule. Rather the changed conditions of war- and state-making led to

> a growing popular experience of administrative forms, a *library* of categories and techniques within which borrowing could occur, modification be made and additions and experiments attempted.
>
> (Perlin 1985: 433)

Critical to the more efficient assessment, collection, and transmission of surplus to the new administrative centers was a consolidation of the bulk of taxes and cesses into a single tax on land (Habib 1978: 294–95). The predominant element in the restructured relations of domination and subordination continued to be the state's demand for a substantial share of the surplus, claimed as land-tax—*kharaj* being the northern equivalent of the *kaḍamai*.[10] However, in contrast to earlier polities that had been dependent on locally dominant personages for the collection of these taxes, this claim was now either directly enforced by royal bureaucracies or by holders of revenue assignments. It was during the reign of 'Alauddin Khalji (1296–1312) that *kharaj* levied at one-half of the produce (in value or in quantity), became firmly established over much of northern India. Within the next one hundred and fifty years, this system of an enormous land-tax, collected in part through a system of "transferable revenue assignments" and in lands not so assigned (*khalisa*) directly by an administrative bureaucracy was adopted *mutatis mutandis* by most states in the subcontinent.[11]

Unable to eradicate the local bases of power of satraps in the marchlands, and of the leaders of warbands who regularly trespassed into their realms, rulers sought to incorporate them both into the apparatus of empire by instituting a system of transferable revenue assignments (*iqta'*). Requiring holders of revenue assignments to furnish horses and foot soldiers also enabled state builders to "transform their highly efficient but relatively small warbands that made the conquests into the much larger imperial armies that could sustain them" (Gommans 2002: 81). If transfers of holders of revenue assignments convey impressions of an omnipotent imperial bureaucracy, Chetan Singh's (1988) study of seventeenth-century Punjab indicates that even when these assignees were transferred frequently, their reassignments were within the same region and, in many cases, they were reappointed to their former posts after a short interval. The *iqta'* system was initially introduced to the southern peninsula during its brief occupation by the forces of Muhammad bin Tughlaq (Nilakanta Sastri 1966: 235). The first epigraphical reference to *nāyakkar* holding *śīrmai* assignments comes from an inscription of 1314, within

four years of the first incursions of the Delhi Sultanate into the Far South (Appadorai 1936: II, 694 citing ARE 131 of 1917).

The changed ecology of state-making also led inexorably to the commutation of taxes in kind to monetary payments and the attendant transformation of states into agrarian-commercial monarchies. Indeed, unlike the European fief, the *iqta'* was at heart "a salary collected at source…for service granted for a limited time" and was embedded in a monetized economy in West and South Asia "even when tax-farming was resorted to during liquidity crises or in times of disturbance" whereas the fief had evolved from a subsistence economy (Wink 1990: 12–13). Unlike the Euro-Mediterranean world where metallic and commodity currencies were "complementary rather than substantive" and people outside the urban centers were unaffected by formal currency supplies, in wet-rice growing areas of Asia, metallic and commodity currencies overlapped in local markets and their relationship was "substitutive rather than complementary" (Kuroda 2009: 248–49).

Monetization combined with the productivity of wet-rice agriculture in the fertile coastal and riverine belts fostered an expansion of cultivation of dry crops in the arid and submontane tracts and to the growth of circuits of exchange and to a progressive intensification of relational dependencies. This was largely because the monetary return from an acre sown with these crops (e.g., palmyra palms, oilseeds, sugarcane, plantains, spices, cotton) would be considerably higher than that from an acre under low-quality food grains due to the higher prices fetched by the former. The expansion of sericulture in Bengal, as Habib noted,[12] was a particularly striking illustration of this tendency since it indicated that wealthier cultivators were entirely capable of undertaking a new occupation, with all its attendant risks, in response to market forces (1978–79: 154; 1980b: 33).[13] Thus

> For the first time, in the 14th century, we find the substitution of high-priced crops for the low-grade crops meant for local consumption, being regarded as an object of state policy.
>
> (Habib 1965: 52)

In this context, the marchlands—areas with less than 1,000 mm annual rainfall—assumed crucial importance. Unreliable harvests and long off-seasons and ample grazing grounds made them reservoirs for military labor. Here, in small niches suitable for breeding smaller horses, several "zones of military entrepreneurship" developed like the

"Rajput" area stretching from the Himalayan valleys to the Punjab, Rajasthan, and Gujarat to the west and to Malwa, Gondwana, and to the border of modern Bihar in the east; the Marathas; and the Kannada and Telugu warriors in the southern peninsula (Gordon 1994: 182–208).

As the marchlands provided sanctuary to recalcitrant satraps and enabled them to preserve their autonomy, it precluded the emergence of a truly pan-subcontinental polity till the nineteenth century. Noting that Hindu and Muslim rulers of large territorial states titled themselves *maharajadhiraja* or *shan-an-shah* meaning "king of kings" rather than "king of India," Christopher Bayly and Burton Stein argued that these states should be seen as clusters of layers of power and privilege rather than centralized despotisms (Bayly 1988: 13; Stein 1991:PE-14; see also Wink 1986). Often, after a war, the victorious ruler married a daughter of the vanquished, thereby transforming the "simple politics of warfare" into the more "complex politics of families" (Ho 2006: 159). Emperor Akbar, notably, not only integrated Rajputs into Mughal service but also allowed the Hindu women he married to remain Hindus and practice their religious rituals within the imperial household (Dale 2010: 98).

Mongols, and other Central Asian nomads, were central also to the transmission of military technologies—from weaponry to catapults and siege technologies—across Eurasia: China, India, the Islamic world, and Europe. The Mongol mobilization of military manpower was unprecedented. After they subdued an Iranian-speaking community, the Alans, in the North Caucasus, they transported 10,000 of them to north China—about "4,700 air kilometers from their homeland." Similarly, they took 1,000 Chinese siege engineers to western Iran—almost 5,200 kilometers away. Inevitably, these transplanted populations rarely returned home (Allsen 2009: 136; see also Allsen 2002). However, as we shall see, the transmission of military technologies went both ways as military engineers in the subcontinent introduced genuine innovations in military fortifications and Afonso de Albuquerque, the first Portuguese viceroy in Goa, acknowledged that the gunsmiths he encountered there had become "our masters in artillery and the making of cannons and guns, which they make of iron here in Goa and are better than the German ones" (quoted in Eaton and Wagoner 2014: 17).

Apart from using horses in large numbers, siege technology also improved rapidly in West and Central Asia under the impact of the Crusades and the Mongol invasions and these improvements were

brought to the subcontinent by invaders from the northwest. The counterweight trebuchet, introduced from Byzantium in the twelfth century, could launch missiles weighing upto 1,000 kg, and was a vast improvement over catapults and its effectiveness, when deployed by Malik Kafur in his southern campaign against Warangal in 1310, is described by Amir Khusrau:

> The stones of the Mussalmans all flew high, owing to the power of the stone cable, and hit the mark, while the balls of the Hindus were shot feebly as from a Brahman's thread, and consequently went wrong.
> (quoted in Gommans 2002: 142)

Similarly, the Mongols introduced the counterweight trebuchet to increase accuracy and reduce manpower requirements to China in 1272, and the Southern Song who called it the "Moslem stone-thrower" almost instantly adopted it (Elvin 1973: 89; see also McNeill 1984: 59; Allsen 2002). Indeed, Akbar's "effective use of artillery," Stephen Frederic Dale (2010) notes, "signalled a new Mughal gunpowder military era, which featured sieges more often than open-field cavalry battles" since rebellious satraps held out in their mountain fortresses in the marchlands.

In their military campaigns against the Mongols, the Ming had begun introducing firearms along the Great Wall, and had even deployed cannons as early as 1414, but these did not appear to have been decisive. Alastair Iain Johnston (1995: 236) also notes that the "operational capabilities" of the Mongols improved as they captured Ming weaponry and learnt to counter firearms and penetrate Ming fortifications as well as to coordinate cavalry operations with infantry formations. The short-range of muskets possessed by Ming forces—a maximum range of 200–300 meters—meant that they were often ineffective against cavalry charges and at the battle of Mount Sarhu in 1619 when the Manchus first defeated the Ming, a Chinese text noted that the "guns had hardly been fired when the [Manchu] swords had reached the [Ming soldiers'] necks" (quoted in Di Cosmo 2004: 135; see also Needham 1986; Perdue 2005: 55, 534–35).

Firearms were, however, more effective against the elephant corps that did not have the speed and maneuverability of light cavalries. In 1388, for instance, the Ming forces that had earlier been routed by the Maw Shan elephants, adopted "volley firing"—one row of soldiers would shoot their fire-arrows (*shenjijan* or *huojian*) and if the elephants continued to advance, the second row would fire, and then the

third—to overwhelm the Shan elephant corps and in the 1406–1407 Ming invasion of Vietnam, the army was led by at least four "firearm generals" (Sun Laichen 2003: 500; 2006: 77).

Gunpowder technology was diffused from China to India through several routes. By the thirteenth century, Mongol invaders had introduced gunpowder to northwestern India—Muhammad Qasim Firishta reported that there were 3,000 carts bearing fireworks (*sih hazar 'aarrada-i atishbazi*) during the reception of the envoy of Hulegu to the court of Nasir al-Din Mahmud in 1258. Mining was a recognized Mongol tactic in siege warfare and on the advice of 'Ala ul-Mulk, 'Alauddin Khalji had the fortifications of Delhi, as well as those of several provincial headquarters (*khitta*) and lesser towns, rebuilt by adding moats to them presumably because it would prevent the Mongols from getting close enough to mine the fortified walls. The earliest reported use of mining in siege warfare in the subcontinent, however, comes from Timur's campaign in 1398 and the first instance of the forces of a subcontinental ruler using mining was during the Bahmani siege of Belgaum in 1472—some thirty years after its first use in Europe. Interestingly enough, the commander of the Bahmani forces was a Persian, Mahmud Gawan. It was not, however, a common tactic in warfare since the strong hill forts were invulnerable to mining as illustrated by the siege of Chittor in 1567 when it caused more harm to the besiegers than to the besieged (Khan 2004: 22, 31–32; Gommans 2002: 134–35, 142–45; Eaton and Wagoner 2014: 10–11).

Another significant characteristic of warfare in the subcontinent was the preference for rockets—called *ban*, thin iron tubes, each about a foot long and an inch in diameter filled with gunpowder and fixed on top of a 10–12 foot bamboo pole, which was set on fire and directed by hand with a range of about a thousand yards. The earliest recorded use of a gunpowder-based rocket is by the Bahmani forces in 1366 and Habib (1980a: 32; see also Cipolla 1965: 105) speculates that it might have been introduced to the Deccan directly from China. Unlike in Europe, China, and West Asia, where rockets were discarded once guns and cannons were introduced, the *ban* was used in India well into the early nineteenth century when Tipu Sultan's forces deployed them against the East India Company. This deep-rooted preference for the *ban* may have been because rockets in the subcontinent had a greater range than muskets or light cannons due to the use of an iron cylinder rather than the paste boards used in similar European devices or the paper tubes used in China, and because

large numbers of these could be easily transported on pack animals. An average-sized camel could carry 20 *ban* and a horseman about 8. It could also be made from easily available metal as the iron tubes were not meant for multiple firings and could therefore be fashioned from thin sheets of low quality iron. Additionally, their range made them effective against cavalry assaults (Khan 2004: 29). By the reign of Akbar, the *ban* was in extensive use, and even an auxiliary force dispatched to Jaunpur in 1572 to fend off a possible attack by some Afghan chiefs of Bihar was equipped with 16,000 *ban*, which would have cost between 40,000 and 64,000 rupees. If this was the cost of a force equipped to meet a minor disturbance, it conveys a sense of the magnitude of

> the total expenses the Mughal state was incurring on *ban*s in the campaigns that it was conducting simultaneously on different fronts. Moreover, the fact that *ban*s could be used only once and that there is no evidence of used *ban*s being recycled into the manufacture of new ones goes to further highlight the costly nature of this weapon.
>
> (Khan 2004: 31)

Firearms too appear to have played a limited role in warfare in the subcontinent till the early sixteenth century—by the Vijayanagara forces during the siege of Raichur in 1520 and in Zahir ud-Din Mohammad Babur's invasion in 1526 even though there is some evidence to suggest that they were introduced to South India by Chinese ships—Zheng Ho's "treasure ships"—over a century earlier. An anonymous "Florentine nobleman" recorded that an Indian pilot who returned with Vasco da Gama to Lisbon in 1499 reported that "foreign" ships landing in Calicut some eighty years earlier had "carried 'bombarde' which were much shorter than 'the modern ones'" (quoted in Khan 2004: 36, n. 21) and that these ships returned every two or three years in fleets of 20–25 vessels. In 1421, at the battle of Malwa, Gujarati forces were reported to have used guns and muskets, which were subsequently depicted in a Gujarati manuscript of 1475 (Cipolla 1965: 106; Digby 1982: 150). Ludovico di Varthema recorded that on his arrival in Calicut in 1506, two Milanese—Ioan Maria and Pietro Antonio—had been compelled "to make a great quantity of artillery against their will" by the king (Temple 1923: 93; Cipolla 1965: 112–14; Parker 1988: 129). Four years later, when the Portuguese conquered Goa, Gaspar Correira, Albuquerque's secretary, wrote that there were

> large houses with storage space which the Turks [*os rumes*] had filled with all the materials necessary for shipbuilding, and lots of iron and mortar artillery, large and small, and also two of our camel cannons and eight cradles [*berços*] and mortars which the Turks had brought from the defeat of Dom Lourenco at Chaul, and other metal pieces in their fashion and a great number of metal guns, and a large quantity of gunpowder, saltpetre and utensils used in the making of these, and an enormous quantity of all kinds of weapons (quoted in Eaton and Wagoner 2014: 14–15).

Wrought iron tube cannons identical to those captured by the Ottomans from the Mamluks in the late fifteenth or early sixteenth century have been found on the ramparts of Bahmani forts in Bidar, Devarakonda, Medak, and Yadgir, indicating Egypt as a source of ordnance for the Deccan Sultanates (Eaton and Wagoner 2014: 12–14: Ozbaran, 1988 #469).[14]

However, before Babur's invasion, though rocket throwers were mentioned occasionally, "the firearm-wielding infantrymen were not assigned an independent role in battle" (Khan 2004: 47). In the fifteenth century, rather than functioning as an independent force, one or two soldiers carrying an arquebus or operating a light cannon merely added variety to an army. Artillery was used primarily in siege operations—heavy mortars to demolish fortified walls or smaller cannons that could be targeted at the besiegers. While it was easier to aim the smaller cannons, the heavy mortars could unleash their destructive potential on fixed positions inside forts as evidenced during Sultan Mahmud Khalji's successful siege of Mandalgarh in 1456–1457 or the Bahmani demolition of the Belgaum fort in 1472–1473 (Khan 2004: 47–48).

Since hill forts of the smaller chiefs were typically located amidst thick forests that made the transport of heavy cannons by besieging armies very difficult, they remained largely invulnerable. One solution was to manufacture mortars near the site of the siege but by all accounts there is little evidence to suggest that artillery was decisive in sieges. This was largely because the walls of major forts—of the fourteenth-century fort in Gulbarga, or of the Purana Qila in Delhi in the sixteenth century—were so thick that available artillery could make no impression on them. Unlike the *trace italienne* design of contemporary European forts, military architects in sixteenth-century Deccan, by a series of experimentations, replaced stone throwing catapults with "large wrought iron or cast bronze muzzle loaders that could be rotated both laterally and vertically" to obstruct attacking forces

from approaching the walls of forts. Further innovations included the mounting of cannons on massive freestanding platforms that commanded a 360-degree angle of vision of the surrounding countryside (Eaton and Wagoner 2014: 24–33; Deloche 2007: 75–222).[15] Sieges in the subcontinent hence were decided by blockade rather than by artillery and the fortifications were invulnerable even to European forces in the eighteenth century (Parker 1988: 132; Gommans 2002: 156–57; Subrahmanyam 1987: 103; Khan 2004: 49–50; Michell 1995: 121–54; Michell and Zebrowski 1999: 23–62).

One of the earliest effective uses of handguns was by the Vijayanagara forces during the siege of Raichur in 1520. In this campaign, as Fernão Nuniz reported, Krishnadevaraya's troops were accompanied by 20 Portuguese musketeers led by Cristóvão de Figueiredo who shot at the Adil Shahi defenders when they appeared at the fort's ramparts. Nuniz also recorded that the Vijayanagara forces captured some four hundred heavy cannons and several smaller ones from the Bijapuri notable, Salabat Khan. Some five hundred Portuguese renegades were also reported to have served in the Adil Shahi forces (Nuniz 1970: 312, 325–29; Khan 2004: 131; Eaton 2009). Yet, neither in this battle nor in the battle at Rakshasi-Tangadi—where the defeated Vijayanagara forces, according to the *Kamaraja Bakhair*, had some 2,300 heavy cannons besides several thousand smaller firearms—nor in any other battle of the sixteenth century was artillery decisive (Nilakanta Sastri and Venkataramanayya 1946: III: 223–25; Subrahmanyam 1987: 102–04). For the most part, the Mughals and other successful state-builders in the subcontinent reinvigorated Central Asian techniques of warfare by mounted archers and used it on an unprecedented scale (Gommans 2002: 120). Traveling in Mughal India in the mid-seventeenth century, François Bernier (1916: 48) observed with some amazement that "the cavalry of this country manoeuvre with much ease, and discharge their arrows with astonishing quickness; a horseman shooting six times before a musketeer can fire twice."

By the mid-sixteenth century, Maria Augusta Lima Cruz estimated that more than two thousand Portuguese regengades—*chatim*—served in armies from China through Pegu and Ayutthaya to Bengal (Subrahmanyam 1987: 108). By this time, techniques of forging wrought-iron barrels for guns introduced by the Portuguese along the coasts appear to have reached the interior. However, despite their lower cost, from his survey of the evidence Khan suggests that north Indian rulers continued to prefer the cast-bronze mortars cast by Turkish experts (Khan 2004: 78; Cipolla 1965: 128).

The inability of subcontinental gun-makers to make cannons from cast iron stemmed from the absence of bellows with adequate power to attain sufficiently high temperatures in large furnaces. Unlike in Europe where blast furnaces were mechanically powered, furnaces in the subcontinent were worked with foot- or hand-operated bellows and as these could not impart much air to the furnaces, only small quantities of metal could be melted at one time. Gun-makers attempted to circumvent this problem by casting the stone-chamber and the powder-chamber separately—or, as Jean de Thévenot, a seventeenth-century French traveler observed of the casting of brass cannons, the norm was to "melt the metal in diverse furnaces, so that some of it must be better melted than others when they mingle all together, their cannon commonly is good for nothing" (quoted in Gommans 2002: 152). Earlier, in 1525, the Portuguese in Goa noted that they "make little mention of moorish [*sic*] guns, because they are no good on our ships; however if the metal is melted down, better guns can be cast" (quoted in Parker 1988: 206, n. 42; see also Gommans 2002: 152–54; Habib 1978–79: 166–67; 1980a: 16–21; 1980b: 36–37; Khan 2004: 61–62). The signal exception to this was Assam where by the sixteenth century iron cannons were being cast because unlike elsewhere in the subcontinent, the Assamese used blowing cylinders to achieve higher furnace temperatures, which they had probably got from Burma (Parthasarathi 2004: 8).

These problems did not affect the production of handguns and the ones produced in the subcontinent made from superior Damascus steel had a range greater than small arms made in Europe as well as greater accuracy. Jean-Baptiste Tavernier (1977: I, 127) observed that "the barrels of their muskets are stronger than ours and the iron is better and purer; this makes them not liable to burst."[16] However, unlike in Europe where a number of devices originally developed for the cross-bow—such as two crucial parts of matchlocks, the stock and the lock—were modified and applied to handguns, light artillery in the subcontinent, as elsewhere in Asia,[17] were outfitted with inefficient firing mechanisms. From a Chinese account composed in 1598, *Shenqipu* (Handbook of the Magically Efficient Tools, i.e., Muskets), Joseph Needham (1986: 440–43) suggests that the Turks developed matchlocks about the same time as the Europeans and that they were being used in Xinjiang by the early sixteenth century. On the basis of this evidence, Khan speculates that Babur's invading forces—the first to effectively use firearms in open battle in the subcontinent—may have been equipped with matchlocks. Though Babur had only 1,200

artillerymen with him, their numbers rose rapidly both in the Mughal Empire and elsewhere in the subcontinent. To meet the increased expenses, the *Baburnama* (1922: II, 617) records that in 1528, Babur asked all his officers to contribute 30 percent of the incomes assigned to them (*wajah*) "for war-material and appliances, for equipment, for powder, and for the pay of gunners and matchlockmen." By the middle of the sixteenth-century, according to the testimony of the Turkish admiral, Sidi Ali Reis, matchlocks were common in Gujarat and north India in sharp contrast to much of Central Asia. However, these remained inferior to the muskets used by the Portuguese on the west coast. Archaeological and historical evidence of the attack on Portuguese-controlled Chaul by the Sultan of Ahmadnagar indicate that the range and firepower of the sultan's artillery were substantially lower: in comparison to a Portuguese matchlock, which could shoot a one-ounce shot effectively over a distance of 400 meters, the sultan's infantrymen could only shoot half an ounce over half that distance (Habib 1980b: 16–17; Parker 1988: 131; Khan 2004: 4–5, 132–35. 143–46; Gommans 2002: 152–56).

The speed and maneuverability of light cavalries in much of continental Asia stifled the development of firearms, especially since the matchlocks on the early muskets were extremely impractical on horseback. Jacob de Gheyn's *The Exercise of Armes for Calivres, Muskettes, and Pikes* of 1607, for instance, details the following 28 steps for reloading a weapon:

> (1) hold the gun up with his left hand, (2) remove the match from the lock with his right hand, (3) put the end of the match back in his left hand, (4) blow any sparks out of the priming pan, (5) put priming powder in the pan, (6) shut the pan, (7) shake any powder off the lid of the pan, (8) blow any remaining powder off the lid of the pan, (9) pick up the gun with both hands, (10) transfer the gun to his left side, (11) open a flask with his right hand, (12) insert the powder and bullet into the muzzle, (13) draw the ramrod out of the stock, (14) adjust his grip on the ramrod, (15) ram home the bullet and powder, (16) pull out the ramrod, (17) adjust his grip on the ramrod, (18) return the ramrod to the stock, (19) hold the gun up with his left hand, (20) grasp the gun with his right hand, (21) transfer the gun to his right side, (22) take one end of the match in his right hand, (23) blow on the match, (24) insert the match in the lock, (25) adjust the match in the lock, (26) blow on the match again, and (27) level the gun, before he could finally (28) pull the trigger again.
>
> (quoted in Chase 2003: 25)

One sixteenth-century estimate figured that the time it took a matchlockman to load his piece once, an archer could shoot 15 arrows and John Nef reckons that "an average or clumsy soldier" could take as much as ten or fifteen minutes to load his weapon (Perrin 1980: 15).

Even if cavalrymen kept two pistols to compensate for the difficulty of reloading them, they could not trade fire with infantry armed with muskets because the need to keep the weight of pistols manageable meant that their effective range was only a few feet. Conversely, in Europe, the greater prominence of infantries led to the more rapid development of firearms. Unlike the nomads, who did not have to defend fixed positions and could refuse to do battle when conditions were unfavorable, European forces could not indefinitely decline to fight. Here, along with artilleries, the cavalry began to adopt heavier armor and ride stronger but slower horses to better withstand the infantry's firepower (Chase 2003: 66–69).

In southern China and Korea, as in southern India, where conditions were less favorable for cavalry warfare, infantries were also more important and the numbers of horses deployed in war were substantially lower. When the Ming dispatched their cavalry based in the north to rollback the Japanese invasion of Korea, they were unsuited to the rugged terrain, which also did not have enough grassland to pasture the horses, and the defensive cover provided by forests enabled the Japanese to use their muskets to great effect. This eventually compelled the Ming to bring their southern-based infantry troops who successfully routed the Japanese invaders with their cannons (Swope 2005: 38; 2006).[18] Though the changed terrain of South China conferred greater prominence to infantries as the imperial forces combated pirates who had come ashore as well as launched expeditions against Southeast Asian states, the Celestial Court preferred to divert resources to fight wars in the steppe or for other more benign purposes rather than toward the development of firearms as the nomads were the major threat to the Ming. Of the 308 external wars the Ming were involved in their 276 years of rule, 192 or 62 percent were against the Mongols alone and it is not surprising that they devoted most of their military resources to meet this threat except for the last few years of their rule when the conflict with the Manchus overshadowed all other threats (Barfield 1989: 205; Johnston 1995: 183–84; Chase 2003: 35, 148). In peninsular India, the presence of "zones of military entrepreneurship" provided no such insulation from the demands of cavalry warfare though the changed terrain made the use of handguns decisive earlier than in the north as we shall see.

Subcontinental militaries were also unfamiliar with European military drills and patterns of fighting in formation. Niccolo Manucci (1913: 61–64), an Italian stranded in the Mughal Empire in the seventeenth-century on the death of his patron, accompanied Dara Shikoh's forces in his fight against Aurangazeb and described the fighting:

> Be it known to the reader that these two armies were not ordered in the disposition obtaining in Europe. But one division was close to another as the trees of a pinewood.... I saw in this action, as in so many others where I was afterwards present, that the only soldiers who fought were those well in front. Of those more to the rear, although holding their bared swords in their hands, the Moguls did nothing but shout "Boquox, boquox!" and the Indians '"Mar, mar!" (*Mār, mār*!)—that is to say, "Kill, kill!" If those in front advanced, those behind followed the example, and if the former retired the others fled, a custom of Hindüstän quite contrary to that of Europe; and if they begin to take flight, by no method is it possible to stop them.

If Indian armies were aggregations of individual soldiers rather than a cohesive fighting unit, Geoffrey Parker (1988: 130–31) argues, so were European forces in Asia in the seventeenth century, which mounted guerilla raids but did not engage in pitched, open battles.[19]

Finally, though the introduction of artillery enhanced the power of royal armies in the subcontinent, the low cost of guns also increased the effectiveness of peasant and landlord resistance. According to the *A'in-i Akbari*, during Akbar's reign, prices of guns ranged from 0.5 to 9 rupees compared to bows, which ranged in price from 0.25 to 27 rupees (Khan 2004: 15, n. 45). By the seventeenth century, guns were widely available as indicated by Peter Mundy's observation that in Kanpur district peasants had "their guns, swords and bucklers lying by them whilst they ploughed the ground" (Temple 1967: 90). Though there are no similar figures available for the southern peninsula, given that the handgun was a simple device—with the wrought-iron barrels fashioned by heating and hammering a thin sheet of metal—there is no reason to expect that the situation was any different and the people from Karnataka were prominent in Mughal armies from the seventeenth century (Kolff 2002: 1–31; Gommans 2002: 73–75; Khan 2004: 7–8, 103,164–90).

The changed technological requirements of war—mounted cavalries, artilleries, and improved fortifications—imposed a degree of military "professionalism" and implied that the rulers could no

longer rely on irregular levies of armed peasants recruited by dominant locality chieftains and controllers of land during slack periods in the agricultural cycle. In the Ottoman Empire and some other parts of North Africa and the Middle East, special classes of elite slaves were recruited to be trained in these new military skills. Initially, Delhi Sultanate and the Deccan Sultanates, in their early phases, continued the Turkish practice of employing military slaves,[20] but slavery was not a significant component of Indian military forces because, Gommans and Dirk Kolff suggest, the slaves

> were more or less drowned in the huge military market that was India. This was an attractive free market dominated by the highest bidder of the day, pulling in various warrior groups from Central Asia and Iran eager to find adventure and more importantly, employment and ready cash. Every ambitious ruler in Hindustan had to come to grips with this almost permanent inflow of military manpower, as well as with the indigenous offers of service.
>
> (Gommans and Kolff 2001: 14–15; see also Gommans 2002: 83)

In short, the development of disciplined light cavalries conferred substantial military advantages on nomads against the massed infantries and heavy cavalries of sedentary empires and changed the nature of warfare in the early second millennium, along with improved siege technologies and advances in fortifications and military architecture as well as the introduction of gunpowder and artilleries. The impact of these technological changes varied across Eurasia. Among these, in eastern Eurasia, mounted archers remained the most critical element. If the European terrain posed virtually insurmountable logistical challenges for nomads from the Central Asian steppe, and shielded Europe from their depredations, peoples across much of Saharasia and China enjoyed no such invulnerability. The arid marchlands, interspersed with fertile agrarian belts best suited the nomads' military strategy. In China, the absence of marchlands and the competitive relations between agriculture and pasture compelled nomadic invaders to adopt new approaches, more suited to rule over a large agrarian empire. In the Indian subcontinent, a hot and humid climate—particularly to the east and south—and a paucity of pasture limited their penetration. The inability to breed horses of high quality in sufficient numbers in both China and the Indian subcontinent led state builders to import large numbers of horses, symbolic of which was the location of new capitals in interstitial zones between sources of supply of horses and an expanding agrarian frontier.

The inability to breed adequate numbers of good-quality war horses in these areas, along with the military "professionalism" imposed by the deployment of new military strategies and weaponry, provided powerful incentives to state-builders to assess and extract revenues more efficiently. Unlike in China, where the absence of internal frontiers led to the emergence of a vast imperial bureaucracy, the broken ecological landscape of South Asia with fertile valleys interspersed with arid lands and deep forests inhibited the formation of pan-subcontinental polities.

New Technologies of Rule—A Tamil Case Study

> Since the *rājanya*s (officers of the king) and the *jīvitakkār* (holders of service tenures) oppressed people in this *maṇḍalam*, and the *kāniyālan* and the *brāhmaṇar* took the *rājakam* (taxes), none of those belonging to the *valangai* and the *iḍangai* should give them shelter and none born in this *maṇḍalam* should write accounts for them or agree to their proposals. If anyone acts against this decision, he should be stabbed.

In the midst of a corpus of stylized records documenting donative grants to temples and *brāhmaṇar*, these words of defiant resistance inscribed on the walls of the Vriddhagirïsvara temple at Vriddhachalam by the *valangai* ('right-hand') and the *iḍangai* ('left-hand') caste-clusters[21] of the twelve *paṛṛu* (revenue districts) surrounding Paravur meeting there on April 29, 1429 (92 of 1918)—and similar inscriptions in the same year from Aduthurai (Perumbalur taluk, Tiruchirapalli district, 34 of 1913) and Pennadam (Vriddhachalam taluk, 246, 254 of 1928–29) on April 11; from Elavanasur (Tirukkoyilur taluk, 490 of 1937–38), on May 4; and from Tiruvagavur (Papanasam taluk, Thanjavur district, 59 of 1914, ARE 1914–15, para 44), and Korukkai (Mayavaram taluk, Thanjavur district, 216 of 1917 on October 21[22]—provide an important avenue to examine the restructuring of state structures in the early fifteenth-century Tamil country. Several inscriptions indicate attempts to impose new taxes[23] or to change the units of measurement to the detriment of taxpayers.[24] Unable to shift these new claims to the shoulders of virtually resourceless landless laborers without jeopardizing the reproductive capacities of the system, members of subordinate groups sought to preserve their existing shares of surplus by denouncing new demands for revenues as unjust impositions, sanctioned neither by law nor by custom.[25] Hence, transcending differences between them that had earlier

occasioned violent conflicts, which in one instance lasted for four years,[26] the *valangai* and *iḍangai* caste-clusters united to oppose tax enhancements that bore down upon them equally. As another inscription by the two caste-coalitions that enveloped all Tamils—except the *brāhmaṇar* and the *vēḷḷālar* at the apex of the social pyramid and the ritually impure landless laborers at its base—in the same year from the Vittalësvara temple at Korukkai stated:

> Because they did not tax us according to the yield of the crop but levied the taxes unjustly . . . we were about to run away. Then we realized that because we of the whole country were not united in a body, we were unjustly [dealt with] . . . Hereafter, we shall but pay what is just and in accordance with the yield of the crops and we shall not pay anything levied unlawfully.
>
> (216 of 1917, ARE 1917–18, para 68)

A little over two months later, on July 7, 1429, another inscription from Vriddhachalam lists the rates of taxes payable in money and in grain and its signatories include representatives of land-holding elites (the *nāṭṭār*, the *ūrār*) of several *paṛṛu*, itinerant mercantile communities (the *nānādēśi*, the *padinen-vishayattār*), craftsmen (the *kaikkōḷar* or weavers, the *kammālar* or goldsmiths), military officials (the *senaikkuḍaiyār* and the *vāṇiyar*), besides representatives of the *iḍangai* and *valangai* caste-clusters, among others (91 of 1918, ARE 1917–18, para 68). Though we do not have firm evidence for the rates of taxation at Vriddhachalam and its surrounding *paṛṛu* before this date, signatures by representatives of the two caste coalitions to the long schedule of taxes contained in this record indicate, at the very least, a recognition of their claims.

There had been similar inscriptions by the *iḍangai* and *valangai* caste coalitions earlier in 1406 at Kil-Paluvur (Udaiyarpalaiyam taluk, Tiruchirapalli district, 253 of 1926) and in 1419 at Tiruvarangulam (Pudukkottai district, 344 of 1914). In 1427, the *mahēśvara*-s of the temple at Jambukesvaram (Tiruchirapalli taluk, and district, 113 of 1936–37) brought to the notice of Devaraya II that worship at the temple had ceased on account of the migration of villagers due to unjust taxation. In 1447–1448, there is also a record of the *iḍangai* and *valangai* caste coalitions protesting high taxes from Kanchipuram (313 of 1954–55) and a 1448 inscription from Kilur (Tirukkoyilur taluk, 23 of 1904–05) of Devaraya II prohibiting extortions by royal officers that had prompted villagers to migrate.

The concentration of these protests during a phase of territorial expansion of the Vijayanagara empire during the reign of Devaraya II (1426–1446) suggest that attempts to raise taxes were linked to changes in military technologies, especially the imperative to import large numbers of horses, furnish troops with firearms, and the attendant professionalization of military labor. The need to mobilize resources to meet the increased protection costs and wage wars of aggression was all the more compelling for the new rulers of Vijayanagara due to the outflow of treasure that had been accumulated in the southern peninsula since antiquity due to plundering raids and brief occupations by invading Sinhala, Khalji, and Tughlaq armies in the late thirteenth and early fourteenth centuries.[27] The situation was exacerbated by political instabilities at the imperial court after the death of Harihararaya II in 1404—struggles over succession and a succession of brief reigns, both of which weakened Vijayanagara defences. Exploiting these conditions, armies of the Bahmani Sultans—Firuz Shah and his brother and successor, Ahmad Shah—inflicted a series of defeats, thrice raiding the Vijayanagara capital, looting it, and imposing punitive treaties on the Rayas.

Invasions and brief occupations from the north transformed statecraft in the southern peninsula as rulers had to raise additional revenues to adapt to the changed conditions of warfare. Noticeably this was indicated by the appearance of new administrative terms in the inscriptional record—*rajya* (province), *parru* (revenue district), and *sirmai* (revenue assignment). The Vijayanagara emperors appear to have controlled the more fertile zones through a centralized, hierarchically ordered administrative bureaucracy. Direct imperial control of these regions was reflected in the division of the empire into several *rajya*s or provinces,[28] at the headquarters of which were the provincial treasuries or *Rājabhaṇḍāram*s,[29] from which imperial officials could draw funds. An undated inscription from Tiruppukkuli (Kanchipuram taluk, Chengalpattu district), for instance, records an order (*nirūpa*) from Devaraya, directing his *dalavay* at Chandragiri, Srigirinatha, to remit the *jōḍi* tax of 131 *pon* and 6 1/4 *paṇam* due to the Chandragiri *rajya* from the village of Tiruppukkuli to the village temple. Srigirinatha was also directed to send his own orders (*tiruchchitram*) to this effect to the temple authorities (*sthanika*s) and to have the imperial edict recorded in the four registers of the *rajya*.[30] Contemporary literary sources like the *Āndhra Sāhitya Parishat Patrika* and the *Attavanatantra* also testify to the employment of administrative procedures of control far more advanced than those used by the

Cholas and other predecessor kings. For example, it is reported in the latter text that a department called *attavana* or *sīmamūla* in the imperial capital at Hampi maintained records of boundaries and extent of cultivable lands in villages, the names of landowners and the size of their holdings, the crops raised by them, the amounts of lands granted to the temples, and so on (Venkataramanayya 1935: 106, 111, 145; Venkateswarlu 1949–50; Nilakanta Sastri and Venkataramanayya 1946: III, 144). These lands directly administered by the imperial bureaucracy then were the southern equivalent of the *khalisa* lands of northern India.

Each *rajya* was subdivided into a number of *paṛṛu* or revenue districts. The *paṛṛu* was a territorial unit that first appeared in inscriptions of the Eastern Chalukyas (e.g., IMP: MS, 179), and reappeared in records of the last Chola king, Kulottungachola III, of the Later Pandyas, and the Sambuvarayas,[31] who were replaced as lords of the northern Tamil country by the Vijayanagara armies led by Kumara Kampana in 1361 (Raman 1957: 97; Ragotham 1983). All inscriptional references to *paṛṛu* occur in the context of the gift of taxes from villages, either by reigning monarchs or by landowners within the *paṛṛu* themselves. Sometimes, rulers alienated all taxes payable to them from some *paṛṛu* to temples.[32] Landowners of the *paṛṛu* (*paṛṛukkaltōr*) were the single largest collective group making donations of taxes and land to the temples during the rule of the Rayas of Vijayanagara.[33] Inscriptions also testify to the occasional transformation of a *paṛṛu* into a *nāyakkāṭṭana-śīrmai* (e.g., ARE, 75 of 1934–35; 411 of 1937–38). Finally, the nomenclature of a few *paṛṛu* explicitly indicate their areal, and thereby taxable, extent—thus, *Āyiravēli paṛṛu*,[34] *Irandāyiravēlipparṛu*,[35] and *Ārāyiravēlipparṛu* (ARE, 318 of 1911; 205 of 1961–62), meaning *paṛṛu* of 1,000, 2,000, and 6,000 *vēli* (a unit for measuring land), respectively.

The structured character of the administrative apparatus becomes evident from the contextual content of inscriptions, a proposition that derives additional support from literary sources. At the lowest tier of this bureaucratic pyramid were the village headmen (e.g., *maniyam*, *kiḷavan*, *reḍḍi*, *gavunda* or *gauda*), accountants (*ūr-kaṇakku*, *karṇam*, *senabhova*), and watchmen (*talaiyāri*) (Stein 1982: 112; 1985a: 72; Venkataramanayya 1935: 145; Krishnaswami 1964: 104; Karashima 1992: 34–36). As we have already seen in chapter 1, these officials were charged with the administrative control of villages, including the maintenance of law and order, repair of irrigation works and the collection of taxes.

The geographical ambit of the tax protests was confined to the fertile agrarian centers of the Tamil country because an arid climate and deep water tables had limited the spread of sedentary populations to the southeastern parts of modern Karnataka and the southwestern districts of Andhra Pradesh (Talbot 2001: 22–25). Beginning in the second quarter of the fifteenth century—and roughly coincident with the rise of the popular insurgencies—the Vijayanagara rulers granted revenue assignments from specified territories termed *nāyakkaṭṭana-śīrmai*,[36] to officials bearing the suffix *nāyaka*[37] to promote the agrarian colonization of arid and submontane areas as indicated by table 2.1. Revenues from *śīrmai* or *amaram* were assigned to *nāyakkar* in return for regular payments of specified amounts of money, and supply of men and horses. Since inscriptions explicitly refer to the grant of revenue assignments to *nāyakkar*[38]—and even to temples[39]—for the performance of specified services, it is clear that the *nāyankara* system did not merely represent the formal recognition of de facto control by locality warriors. Additional support for this contention is derived from epigraphical references to *nāyakkar* petitioning the emperor for the renewal of their assignments (e.g., TTDES: V, 17, 47) and to the transferability of *nāyakkar* (Karashima 2001). There are also references to the "hereditary *śīrmai*" (*paluyanāyakāṭṭanamāna-śīrmai*, TTDES: II, 126) of a *nāyaka*.

Table 2.1 Chronological Distribution of *Nayakkar* and Related Terms

Years	*Nayaka*	*NKT*	*NKT/SM etc*
1359–1475	5	0	0
1376–1400	1	0	0
1401–1425	7	0	0
1426–1450	17	0	1
1450–1475	21	2	2
1476–1500	43	3	6
1501–1525	110	15(17)	29
1526–1550	111	14(17)	23.5
1551–1575	72	2.5	6
1576–1600	47	4.5(6.5)	12.5
1600–1625	34	0	5
1626–1650	30	1	1
Total	498	42	86

Notes: NKT refers to *nāyakkattanam* and SM to *sIrmai*.

Source: Noboru Karashima, *A Concordance of Ndyakas: The Vijayanagar Inscriptions in South India,* New Delhi: Oxford Univ. Press, 2002, p. 68, table 4.1.

Inscriptional references to the grant of *śīrmai* for the performance on *nāyakkāṭṭana* service always occur in the context of grants to temples by recipients of these assignments. Hence, they do not illuminate the nature of the services expected from a *nāyaka*. The terms and conditions under which these officials held their grants can, however, be clarified from descriptions in contemporary literary sources and from the accounts of Western travelers. The *Āndhra Sähitya Parishat Patrika* records an occasion when Krishnadevaraya summoned the nine *samprati* (accountants?) and demanded an accounting of the revenues received from each *śīma* (i.e., *śīrmai*) and their outstanding balances. Most notably, *nāyakkar* were said to be stationed at Adavani, Ceyyetidurgam, Gutti, Gandikota, Chandragiri, Gurramkonda, Maddur, Sonagiri, Trisirapura (Tiruchchirapalli?), Kunnattur, Penugonda, Nandyala, Srirangapattanam, Ummattur, Dalanayakulakota, Vallamkota, Madura, Palaiyamkota, Dindigal, Sathyavidu, Kottikallu, Danginikota, Narayanavanam, "and other forest strongholds" (*Āndhra Sähitya Parishat Patrika*, iii, p.29 quoted in Venkataramanayya 1935: 106, 171; Nilakanta Sastri and Venkataramanayya 1946: 144–46). The payment of a portion of the appropriated surplus by the *nāyakkar* to the imperial treasury is corroborated by the *Rāyavācaka* (Venkataramanayya 1935: 122–23) and by the accounts of two Portuguese chroniclers, Domingos Paes and Nuniz, who visited the empire during the reign of Krishnadevaraya's successor, Achyutadevaraya.[40] Nuniz (1970: 362, 366) also reports that the Vijayanagara emperor shifted the entire burden of purchasing Arabian steeds for the imperial cavalry to the *nāyakkar*, but a certain "Saluva-nāyaka" amassed considerable wealth by not fulfilling his obligations to the *Rāya*. Venkataramanayya (1935: 171) concluded from these literary sources that revenues from three-fourths of the empire had been assigned to the *nāyakkar*, though this is almost certainly an exaggeration.

Rather than an alienation of revenues, the grant of *śīrmai* represented the expansion of Vijayanagara power to the arid and submontane areas where the high cost of lifting water from wells made the cultivation of paddy an unattractive proposition. The growing importance of cavalries, however, made these areas ideal locations for military encampments—"zones of military entrepreneurship." The grant of revenue assignments to *nāyakkar* from the Kannada and Telugu areas where tank irrigation had been established since the thirteenth century (Talbot 2001: 97) led to the migration of peasants skilled in the techniques of farming in arid environments. Accompanying Ettappa

Näyaka from the provincial capital at Chandragiri to his *śīrmai* southeast of Madurai in 1423, for instance, was a band of almost fourteen hundred people—five kinsmen, two subordinate *nāyakkar*, an accountant, sixty-four archers, three hundred soldiers, and a retinue of a thousand retainers and camp-followers (Breckenridge 1985b: 45; Ludden 1985: 51). While none of the inscriptions indicate the origins of cultivators brought in to till these lands, the oral histories of migrations compiled by Colin MacKenzie in the late eighteenth century and the current ethnic distribution of population, as well as the types of crops grown and their wide variety, strongly suggest that these migrants of the early sixteenth century were not indigenous Tamils. The spread of sedentary populations to the arid interior was related to the development of commercial agriculture as indicated most notably by the fact that taxes were assessed in kind only when rice was cultivated on wet lands (*nañcey*). In all other cases, when crops grown on dry lands (*puñcey*) were assessed, or when dry or garden crops were grown on wet lands (*nañcey-mēl-puñcey*), particularly in years of scanty rain as an insurance against the possibility that available water reserves would not suffice to bring the fragile rice plant to maturity, revenue demands were invariably made in cash (Subbarayalu and Shanmugam 1983).

These processes were evident in the settlement history of the northern Kongu region, a dry zone to the west of Padaividu *rajyam*. After the initial establishment of sedentary settlements along the banks of the Kaveri river between the tenth and the thirteenth centuries, there had been a dearth of historical records in this region for the succeeding two centuries. However, with the assignment of revenues to *nāyakkar*, and their construction of irrigation tanks to facilitate the cultivation of millets, pulses, and other dry crops, there was a rapid expansion of agrarian settlements beginning in the sixteenth century (Murton 1979: 8–11, 14–15). The agrarian colonization of the Kongu under *nāyaka* auspices accounts for a strange paradox in the distribution of population found in the mid-nineteenth century when reliable demographic statistics first become available, namely, the higher concentration of Telugu speakers in Coimbatore district, which did not adjoin any Telugu-speaking region, than in Tamil areas bordering the Telugu country.

Similarly, Noboru Karashima's (2002; see also Karashima 1992: 56–58) study of some 1,800 Vijayanagara inscriptions demonstrate that the intrusion of *nāyakkar* was intimately connected with an expansion of cultivation and sedentary settlements in the middle

Table 2.2 Regional and Chronological Distribution of *Nayakkar* in the Tamil Country

Period	*Chingleput*	*North Arcot*	*South Arcot*	*Thanjavur/ Southern*	*Tiruchirapalli Districts*	*Western Districts*	*Total*
1326–1350	0	0	0	0	0	1	1
1351–1375	2	1	1	0	0	3	7(5)
1376–1400	0	0	0	0	0	1	1
1401–1425	1	3	1	0	0	2	7
1426–1450	1	2	3	7	0	4	17
1451–1475	2	5	5	2	5	2	21
1476–1500	12	13	12	6	4	10	57(43)
1501–1525	25	31	23	14	19	21	133(110)
1526–1550	37	30	31	12	18	8	136(110)
1551–1575	16	22	30	7	8	2	85(72)
1576–1600	10	12	19	14	4	1	60(48)
1601–1625	13	8	6	12	4	1	44(34)
1626–1650	4	12	3	4	10	3	36(30)
1651–1675	0	0	0	0	0	1	1
Total of identified *Nayakas*	123	139	134	78	72	60	606(498)
Total of all occurrences	163	223	279	131	154	80	1030

Vellar Valley, an area that had previously been patrolled by locally dominant lineages acknowledging Vijayanagara suzereignty, in the sixteenth century. Conversely, the significantly lower incidence of references to *nāyakkar* in the core of the Chola domains—the Thanjavur and Tiruchirapalli districts—indicated in table 2.2, points to a very different pattern of agrarian social relations, one dominated by petty peasant cultivators. In these more fertile areas, relatively small investments were sufficient to make lands more productive—a small feeder canal was often all that was needed to make previously uncultivated lands cultivable.

Unlike the fertile riverine valleys and coastal plains, in places located away from major perennial rivers (which received adequate rainfall but required water-storage and distribution facilities), technical conditions of production favored *nāyakkar* and other large landowners who had the resources to excavate wells, masonry dams, and irrigation tanks and link them in discrete systems. The assignment of revenues began to create the present highly variegated agrarian landscape in these regions and producing their distinctive cuisine—with paddy grown below the tanks, hardy palmyra palms, gardens and fruit trees nourished by wells and vast stretches of millets (especially *kambu*, *rāgi*, and *chōlam*), pulses, and other dry crops (Ludden 1979: 352–53; 1985: 55–59; Breckenridge 1985b: 42–47).[41]

The advantages of larger land holdings in the more arid and submontane areas is also evident in the increasing incidence of leases (*ulavu-kāṇiyāṭci*, *ulavukkāṇi*, *kāṇi-paṛṛu*) of temple lands by individuals, some of whom had been instrumental in procuring donative grants for temples in the first place.[42] Except in a very few cases,[43] most instances of individuals leasing temple lands come from areas away from major perennial rivers and were hence dependent on the development of irrigation tanks and canals.[44] It is, therefore, not surprising that *nāyakkar* and other administrative officials predominate as recipients of the rights of cultivation, accounting for one-half of the totality of such transactions in which temples figured as lessors.[45] Interestingly, instances of the lease of lands were confined to areas administered directly by the imperial administrative bureaucracy. The singular absence of references to leases of land in *śīrmai* assigned to *nāyakkar* is explicable by the *nāyakkar* themselves undertaking measures to extend the arable and to expand craft production.

Consider, for instance, a set of eight early sixteenth-century inscriptions from Devikapuram, documenting the lease of lands initially granted to the Siva temple in that village to several individuals and

a *matha* (monastery)—among whom were four imperial administrative officials bearing the suffix *nāyaka* and stationed at Padaividu;[46] two shepherds of Devikapuram;[47] a *matha* at Sembiyamangalam, a *dēvadāna* village of the Devikapuram temple;[48] and a private individual.[49] Significantly, while inscriptions documenting the lease of lands from regions with a long history of sedentary settlement frequently prohibited the removal of cultivators (*kuḍinīnga-dēvadāna*), four of the eight lease-deeds from Devikapuram specifically mention that lessees were permitted to bring in cultivators (*kuḍiyum-erri*) to till their lands, indicating an expansion of the arable.[50] In two of these cases, the lessees were Kannadiya-*nāyakkar* from Padaividu,[51] reflecting their control over substantial resources that enabled them to undertake large-scale cultivation by recruiting migrants and excavating irrigation channels. The other lessees permitted to settle cultivators on their lands were the two shepherds, who were also granted rights to bring in cultivators, construct irrigation facilities and open markets, perhaps indicating the sedentarization of non-sedentarized peoples of the hills and forests.

An analysis of the obligations of lessees reveals that by leasing lands from which taxes had been granted to temples, they were perhaps able to substantially reduce their tax burden as temple administrators were more susceptible to their influence than were the chief provincial administrators and the distant *Raya*. In three of the six cases when land was leased as *ulavu-kāṇiyāṭci*, the lessees were granted tax abatements for the first few years of their lease. For instance, an inscription registering the lease of Sembiyamangalam, a *tirunāmakkāṇi* village of the temple to Namassivaya-Nāyaka with the right to settle cultivators therein, stipulated that the lessee was to pay 10 *kalam* of paddy and 10 *paṇam* to the treasury in the first year; 20 *kalam* and 20 *paṇam* the second year; and so on till the fifth and all subsequent years when he was required to pay 50 *kalam* of paddy and 50 *paṇam* per annum.[52] These payments to the temple treasury represent the consolidated taxes due from lands and villages leased, including not only the taxes on cultivated land, but also poll taxes levied on service personnel (*pēr-kaḍamai*), taxes on artisanal production (*tari-kaḍamai*, *paṭṭaḍai-nūl-āyam*), irrigation cesses (*ērimīnvilai*), market duties (*saṇḍai*), and labor dues (*veṭṭi vari*). In the two other cases of lands leased as *ulavu-kāniyāṭci* from the authorities of the Devikapuram temple for which there is inscriptional documentation, though tax abatements were not offered for the initial years of the lease,[53] rates of tax were nominal: 20 *paṇam* and 30 *kalam* of paddy

per year from the 750 *kuli* of *nancey* (wet-land) leased in 1521 by a Kannadiya-*nāyaka* stationed at Gangapuram (369 of 1912), and 15 *paṇam* and 20 *kalam* charged annually from the Kamakshi-ravuttan-tangal village leased by a private individual in 1529 (367 of 1912). Once the rental, which included consolidated taxes due from the lands leased, was negotiated between the lessee and the lessor, the obligations of the former were virtually fixed for the foreseeable future. Without fear of incurring higher rents or taxes, the lessee was then free to expand craft production by enticing artisans with various inducements, as we shall see in chapter 3.

In variant forms, donors granted land to the temple and leased it back as *kāṇiparṛu*, or granted lands while reserving the right of cultivation for themselves and their descendants. In an inscription of 1521, Ammaiyappa-Nāyinar, a shepherd of Devikapuram gifted Uvattur village and its hamlet, Suraipadi, to the temple as a *tirunāmakkāṇi* for the merit of Krishnadevaraya and immediately leased it back as *kāṇiparṛu* for the annual payment of 120 *kalam* of paddy and 120 *paṇam* (368 of 1912; see also 352 of 1912). It appears from this inscription that by granting the village as *tirunāmakkāṇi*, presumably by getting prior imperial sanction, and then leasing it back from temple authorities, the lessee ensured a stabilization of his tax obligations. It meant, in other words, that an expansion of the arable in the leased village and its hamlet through the construction of irrigation facilities, or an increase in artisanal production, would not raise the lessee's tax liabilities. Similar instances of donors granting villages—while reserving the right of cultivation for themselves and their descendants for the payment of an annual rent—fixed, as the inscriptional phrase goes "till the sun and the moon lasts," to the temple were also recorded elsewhere.[54]

Opportunities to manipulate temple managers to secure concessionary rates of taxation and low rentals may also partly explain the purchase (*villaiyāy virru*, *kāṇivilai*) of *tirunāmakkāṇi* villages by individual members of the *gōpāla-śeṭṭi* community—vendors of bovine stock—recorded in early sixteenth-century inscriptions from the modern-day Tirukkoyilur taluk.[55] These sale deeds specified fixed amounts payable as annual taxes to the Trivikrama Perumal temple, suggesting a long-term stabilization of revenue demands. These cases may represent, as James Heitzman (1997: 72–74) suggests in an another context, a more widespread practice of transferring tax revenues due to "the more distant and intractable king to the local temple" in the hope of later manipulating "local endowments

without state interference." This may perhaps also explain a record of Devaraya II from Tirumullaivayal (Saidapet taluk), which specifically prohibits the lease of temple lands (*dēvamaṇḍalankal iyartorukkum kuṭṭagai kudukku kadavadu*) because temple administrators and holders of *jīvita* tenure had misappropriated incomes and taxes from properties bequeathed to temples (SII/XVII/736).

Collectively, these two sets of inscriptions—from Tirukkoyilur taluk and from Devikapuram—indicate that the early sixteenth century, particularly its second and third decades, was a period of substantial structural change. In the dry zones, imperial bureaucrats, following the practice of *nāyakkar* holding *śīrmai* assignments, were vigorously expanding the acreage under cultivation. Their resources enabled them to construct masonry dams, build tanks, and excavate irrigation channels; and to people lands leased from temples with migrant cultivators and artisans. The situation was very different in the wet zones where relatively small investments were sufficient to make lands more productive—a small feeder canal was often all that was needed to make previously uncultivated wastes blossom. As discussed in chapter 1, wealthy individuals, especially when acting in concert and when assured stable rates of taxation, could easily undertake the necessary investments in the fertile riverine and coastal belts. Taken in conjunction with instances of cultivators migrating because of high taxes, or having been compelled to sell their lands due to their inability to pay taxes,[56] the lease of large plots of land, and even of entire villages, suggests an increasing concentration of land holdings due to the commodification of production in the more arid tracts, a concentration that was of greater intensity than in regions with a long history of sedentary settlements.

Finally, while the fertile agrarian tracts provided the revenue base of empires, the stationing of large numbers of horses in these areas would have devastated crops and undermined the imperial apparatus of power. Hence, arid zones intersecting the riverine centers of agriculture provided the army with extensive fields for pasturage. These zones of military settlement in India developed around the marchlands of the Indo-Gangetic *doāb*, the head of the Bengal delta described by some geographers as an "arid tropical steppe," the Rajmahal area, the passes and meadows of the Western Ghats, Golkonda, and the Arcot area in the southern peninsula (Gommans 2002: 25–37).

Even during the Mughal Empire, in the sixteenth century, there is ample evidence of forts being constructed in the forests. The *Akbarnama* records that several fortresses in Kangra, Jasrota, and Mau were

located in the midst of "impenetrable jungles" and Joannes Delaet describes a campaign in Rajasthan during the time of Jahangir:

> The royal army then advanced to Siavend…a very strong place, which the Kings of Delhi had never dared to attack on account of impenetrable wilderness and forests by which it is surrounded. Abdul Chan gave orders that these forests should be gradually cut down ahead of the advancing army…[On reaching the fortress] The moat was filled up with logs of trees and so huge a mound was raised against the walls that at last, the garrison fell.
>
> (quoted in Singh 1995: 25, n. 12)

Later, during Aurangazeb's reign, John Fryer reported that not only were the Mughal armies "unfit for such barren and uneasy Places," but the difficulty of assessing the revenue potential of these areas into the agricultural statistics that Mughal officials could understand also discouraged military intervention (Singh 1995: 27). The persistence of unsubdued nonpeasant peoples was implicitly acknowledged in the *Āmuktamalyada*, the sixteenth-century book of political maxims purportedly authored by the Vijayanagara ruler Krishnadevaraya (quoted in Saletore 1934: II, 40–1). Similarly, the *Achyutarāyabhyudāyam* of Rainatha Dindima records that Achyutadevaraya stopped at Kanchipuram, where he was waited upon by several *kirāta* or forest kings, on his way to quell the revolt of Chellappa (=Sellappa in Tamil), the governor of the Chola country (Aiyangar 1924: 159).

To control subordinates, scattered across their domains, rulers traveled constantly and itinerant monarchies implied both surveillance and the construction of roads (Gommans 2002: 106). The moving royal camp was a constant reminder of sovereignty—a warning against any provincial satrap considering sedition, a display of power and wealth to inspire awe and allegiance, an exhibition of stately ritual and ceremony. Impressing cultivators and service personnel with their richness, political leaders inspired belief in their unlimited possibilities and thereby won obedience to their will (Kula 1976; Gurevitch 1977; Godelier 1972).[57] Stephen Blake calculated that the Mughal emperors spent almost 40 percent of their time on tours of one year or more while the Safavid rulers of Iran were estimated to have been itinerant for about a third of their reigns (Gommans 2002: 101–02). Moreover,

> the financial and commercial resources of the major trade routes provided the means to regulate the collection of supplies and revenues. In

> other words, the control of the imperial highways obviated the need for the army of plundering fields and cities.
>
> (Gommans 2002: 22)

From this perspective, the donative grants of Vijayanagara rulers inscribed on temple walls is testimony not to their participation in "ritual kingship" but of a peripatetic monarchy, displaying its power across the realm and to cement and renew political allegiances with powerful subordinates.[58]

In brief, the emergence of new technologies of warfare in the subcontinent raised protection costs and made it imperative for monarchs to extract surpluses more efficiently and to concentrate the appropriated surplus in a tightly knit ruling class. Key elements of this strategic imperative were the creation and progressive elaboration of a more structured royal administrative apparatus to more efficiently assess and collect revenue demands and the institution of a system of transferable revenue assignments—which helped subcontinental state-builders accommodate leaders of warbands within the apparatus of rule to prevent them from setting up protection providing enterprises of their own. This was manifested in the Tamil country by a regrouping of settlements within new administrative units—the *paṛṛu*, *śīrmai*, and *rajya*—and an increasing uniformity in the heads of taxation. The functional distinction between the high imperial officers administering provinces and collecting taxes from *bhaṇḍāravāda* lands (or lands from which taxes were transmitted to the *Rāja-bhaṇḍāram*) and the *nāyakkar* controlling revenues from the *sïrmai* assigned to them was, however, an analytical distinction frequently blurred in actual practice. Administrative officials (*mahāmaṇḍalēsvara*, *mahāpradhāni*, *adhikāri*, and so on) and military commanders (*dannāik*, *danḍānāyaka*, and so on) were also granted assignments of revenue for their services. For instance, Vira Narasingaraya Nayaka is mentioned as holding all of Padaividu-*rajya* as his *nāyakkāṭṭana-śīrmai* (ARE 27 of 1934–35) and this may even have been a factor in his successful usurpation of the Vijayanagara throne in 1456.

In this context, confronted by determined and effective resistance by the subordinate groups represented by the *valangai* and *iḍangai* caste clusters to the increased revenue claims imposed on them, and compelled to rescind these increased claims, the Vijayanagara rulers sought to expand the spread of sedentary settlements into the more arid regions. This not only increased their revenue base—both

through land taxes but also through the expansion of commercial linkages between these settlements and those in the fertile riverine and coastal strips—but the location of military settlements in the these regions where horses could be pastured on the extensive grasslands also enabled the rulers to exercise more effective control over their domains.

A monetization of the economy undertaken to facilitate the transfer of agricultural surpluses to an urban-based ruling class encouraged an increasing cultivation of cash-crops. Just as Habib showed that the monetization of the economy to transfer agrarian surpluses to a tightly knit and largely urban-based ruling class led to the substitution of cash crops for low-value crops from the fourteenth century in North India,[59] the same pattern was visible in the arid and submontane parts of the Tamil country. The excavation of wells, especially in the black soil tracts of Padaivïdu-*rajyam* with their low water tables, and the construction of tanks and canals linked in discrete irrigation systems, were, however, alternatives open only to wealthier landowners and local political authorities.

The increasing tendency to demand surplus in cash is also explicable by the replacement of the collective authority of collegial bodies of landowners, the *nāṭṭār*, by the authority of *nāyakkar* now becoming progressively more prominent in the dry zones. Their obligation to provide armed levees to the Rayas and to protect people living in their *śīrmai*, both from attacks launched by neighboring states and the more frequent predatory incursions by nonsedentarized peoples of the hills and forests led to the construction of fortified settlements in their *śīrmai* headquarters, giving Vijayanagara society its particular martial flavor. While the establishment of forts in the arid and submontane areas, as well as in the forests, near the fertile agrarian zones was a resolution to the competitive relations for land between agriculture and pasture, it also created the potential for political fragmentation. Hence, monarchy entailed constant tours of inspection and surveillance, a display of sovereignty through tours of the domain often combined with ritual and ceremony—such as royal pilgrimages to Tirupati and other temple towns. Royal tours were supplemented by systematic surveillance of local powers—and both required good roads and internal communications, which also served to expand networks of exchange. Thus, even the most arid regions were drawn into expanding webs of exchange networks as we shall see in subsequent chapters.

State Formation in an Eastern Mirror

If the enormous productivity of lands under wet-rice cultivation meant that state-builders across Asia were not entangled in a series of *liaisons dangereuses* with financiers and mercantile elites, their vulnerability to nomadic incursions was a fundamental determinant of state formation in much of continental Asia in the first half of the second millennium and beyond. While relatively small bands of nomadic warriors were able to conquer larger agrarian empires in South and East Asia, new state-builders had to mobilize larger armies to rule their domains and devise new ways to ensure the loyalty of their forces. These strategies were determined by broad regional peculiarities in each case. The inability of state-builders to breed good-quality horses in sufficient numbers also entailed establishment of relations with nomadic peoples—the very peoples against whom the horses were likely to be used. The need to import large quantities of horses and to maintain standing armies led to greater monetization and nurtured the expansion of commercial networks within and beyond their domains. In short, the differential impact of the dialectic between nomadic and sedentary peoples in continental South and East Asia meant that state formation in these two regions occurred within a wider interstate frame of reference, reflected in the diffusion of Confucian and "Islamicate" codes of statecraft. The imperative to import large numbers of horses strengthened the development of commercial linkages and the expansion of circuits of exchange, drawing in areas like Southeast Asia and Japan that were not as susceptible to nomadic incursions within shared political cultures and two intertwined and overlapping archives of statecraft reflecting particular geopolitical imperatives.

The circulation of bureaucratic and military elites and scholars across many jurisdictions attest to a common culture of statecraft within the wider Saharasian zone. New dynastic empires—the Muzaffaris in Cambay, the Rasulids in Aden, and the Mamluks in Cairo—were instituted by foreigners, and their slave officers and a shared political culture made it possible for the Maghrebian Muslim scholar, Ibn Battuta, to travel across many lands, earning a living as a jurist, and often taking a local woman as his wife or slave-concubine (Ho 2006: 100). The Mughal navy was officered by Ethiopians and Jewish elites are recorded to have occupied important positions in Islamic states from Aden to Spain and to have had considerable influence (Margariti 2007: 13–16).

As we have seen, the Vijayanagara rulers adopted systems of transferable revenue assignments common to the Delhi Sultanate and to the Islamic polities of West Asia, and even styled themselves as "*Hindurāya-suratrāna*" and adopted Islamicized forms of dress unlike many other South Indian potentates. In the 1440s when 'Abd-er-Razzak (Abdul-Razzaq Samarqandi) who was sent by the Persian court of Shah Rukh in response to the ruler of Calicut's request for diplomatic exchanges, he reported that

> The blacks of this country have the body nearly naked; they wear only bandages round the middle called lankoutah.... This costume is common to the king and beggar.
>
> (Major 1974: 17)

However, if the scant clothing of the *Samudri Raja* (Zamorin) of Calicut scandalized the Timurid envoy, he noted that Devaraya II, who eagerly summoned him from Calicut, wore "a tunic of *Zaytuni* silk," thereby identifying himself as a king on par with Shah Rukh.[60] The use of tunics and hats or caps represented a radical departure from prior courtly norms in South India where rulers at best draped a cloth loosely over their upper body but more frequently left their chests and arms bare, as Wagoner has underscored. The generous reception accorded to Abdul Razzaq also indicates that though the Vijayanagara rulers adopted grandiose titles, they clearly recognized that they were imbricated within a broader framework of interstate relations. This was underlined not only by the request by the *Samudri* for diplomatic exchanges with the Timurids but also by a system of residential diplomacy. Tristam de Paiva, the Portuguese ambassador to the court of Sadasivadevaraya between 1545 and 1548, noted that ambassadors of the Sultanates of Ahmadnagar, Berar, and Golkonda were also present at the court (Wagoner 1996: 860, 863, n. 9, 866), and as we shall see in chapter 4, the presence of the Persian ambassador at the Golkonda court enabled local merchants to avoid harassment by the Portuguese at sea. From Samudra, in northeast Sumatra, a Hindu raja is reported to have sent two Muslim "foreigners" as envoys to China (Schrieke 1955: 28). The existence of a shared network of interstate relations is also evident after the defeat of the Adil Shahi forces by the Krishnadevaraya in 1520, when the defeated Bijapur ambassador petitioned the Vijayanagara ruler for the return of Raichur and captured war materials and the restoration of peace between the two states, to which the victorious

Raya agreed, provided that the Bijapur monarch pay obeisance to him (Alexandrowicz 1967: 39).

Chinese rulers exceeded dynasts in the Indian subcontinent in the adoption of grandiose titles—even suggesting that their realm, the "Middle Kingdom," was suspended halfway between heaven and earth. To make themselves acceptable to their Buddhist subjects, the Yuan *qaghans* (emperors, rulers of khans) even turned themselves into *cakravartirajas* (Allsen 2001: 55). Nevertheless, though Chinese monarchs refused to acknowledge other rulers as their equals and thereby formally recognize their own participation in a network of inter-state relations, they paid off leaders of nomadic polities with titles, subsidies, and border markets, which were usually more lucrative than raiding for the nomads. The tributary missions

> were an approved channel for providing subsidies and trade to frontier peoples. Envoys would present "tribute" (often mere tokens) and in return receive much larger gifts, lavish entertainment, and access to profitable markets. China gained the ideological satisfaction of treating envoys as if they were from subject states. This allowed the court to dispense huge subsidies, often amounting to extortion, without officially acknowledging…any such thing. The appearance of a sinocentric world order, with its peerless all-sovereign emperor, was thereby maintained while the realities of power politics were handled flexibly. The rationale behind this policy was that tributary relations and markets were cheaper and less disruptive than wars. A rarely admitted benefit was that a weak dynasty could often count on military aid from the nomads to put down rebellions or repel invasions because the nomads wanted to maintain a profitable status quo.
>
> (Barfield 1989: 248)

The tribute system, in short, was "an institutionalized protection racket, in which Chinese traded rich silks, porcelain, jewelry, and money for bad horses, at a loss, in return for nomads' promises to stop raids" (Perdue 2005: 321).

Military decline of the Ming and the reconstitution of the post-Yuan Mongol alliances had led to the reemergence of the Sino-steppe frontier as Mongol federations challenged Ming control in the southern Ordos and western Shanxi regions. It was only the Manchus, who were able to accomplish the task, that had eluded previous dynasties and eliminate the Great Wall frontier by integrating the steppe into China (Dardess 2003: 8). Rather than following previous patterns of Chinese imperial dynasties sending large military expeditions

against the Mongols, Qing commanders—like the Marathas against the Mughals—sent separate armies in pincer formations to attack the nomads from the front and close off their escape routes from the rear. The success of this strategy was also predicated on constraining the mobility of the Mongols by entering into treaties—of Nerchinsk and Kiakhta—with the Russian tsars to close the steppe and each empire agreeing to return refugees who crossed their borders (Perdue 2005: 522–23). Once again, despite formal claims to a position superior to all other rulers, establishment of tributary relations with the Mongols and negotiations of treaties with the Russians underline that Ming and Qing dynasts fully recognized their imbrication within a system of interstate relations.

Invasions from the Central Asian steppes that loomed so large in the history of China and the northern Indian subcontinent were less significant by themselves in Japan and in Southeast Asia as the Mongols' military strategies did not carry well across the seas or in the heavily forested terrain of Southeast Asia. Though the Mongols gave up on the conquest of Japan after two futile attempts, the mid-twelfth to the early thirteenth century constituted a major watershed in the island state's history. Just as Hoysala, Kakatiya, and Sambuvaraya warriors from the arid zones of peninsular India established their dominance over sedentary societies in the twelfth century, warriors from Japan's own "steppe"—the eastern Kanto plain, removed from the capital and its imperial culture, "practicing the 'way of the bow and the horse"' (Souyri 2001: 13)—established their dominance. This era was marked by the replacement of the old imperial code, modeled after the Chinese Tang dynasty codes, with a codification of the warriors' customs, the *Goseibai shikimoku*, and the creation of the shogunal state. Crucially, though, unlike the *iqta'*, the territories of the warriors were not embedded in a monetary economy—the Tokugawa *Bakufu* was the first Japanese government to mint currency since the tenth century and in the interim Chinese copper coins and illegally issued private coins circulated widely (Yamamura 1988: 342; von Glahn 1996: 53–54, 88–89, 95–96, 131–32)—and its island location meant that the import of horses did not acquire the centrality it had in China or in Saharasia. If these conditions reduced the pressures toward commercialization, and wet-rice cultivation "took-off" in earnest only by the late sixteenth and the mid-seventeenth century, the three major warlords who unified the islands—Oda Nobunaga (1534–1582), Toyotomi Hideyoshi (1536–1598), and Tokugawa Ieyasu (1542–1616)—all came from the provinces of Mino, Owari, and Mikawa

in the eastern part of Kinai, an intermediate area between the highly commercialized and sedentarized central Kinai region where political anarchy prevailed and the more arid parts controlled by territorial lords called *sengoku daimyō* (Hayami Akira 1986: 7; Shinzaburo Oishi 1990).

A far more important element fostering political centralization in Japan, however, was the introduction of European-style firearms by two Portuguese castaways—Christoper da Mota and the other, known only by his name in Japanese, Murashukusha (Needham 1986: 429–30; see also Sansom 1962: 414)—on the island of Tanegashima in 1543. Though the Japanese had been familiar with Chinese handguns since the fifteenth century, the superiority of the Portuguese matchlocks ensured that they were quickly copied by local gunsmiths, especially since Tanegashima was already a major center for the production of swords—and Japanese swords were the best there were, able to cut through tempered steel (Perrin 1980: 10–11). As the Japanese exported large quantities of their swords—in 1483, some 67,000 were conveyed to China alone—the guns could be distributed efficiently through existing networks. The first effective use of muskets occurred in 1555 by the forces of Takeda Shingen and as Akira Kurosawa's film, *Kagemusha*, vividly illustrated, they were used spectacularly by Nobunaga's troops in the battle of Nagashino in 1575 (Black 2000: 50–51). It was after this that the first castle designed to withstand gunpowder weapons—Azuchi Castle built between 1576 and 1579—was constructed by Nobunaga (Sansom 1962: 414; Parker 1988: 140–42; Subrahmanyam 1987: 98; Morillo 1995: 99–100; Khan 2004: 414). Within a few years, Nobunaga had conquered about half of all Japan before he was assassinated in 1582. Following his assassination, Hideyoshi conquered all of Japan by 1587 and as Parker (1988: 140–42) observes: "The reunification of Japan might perhaps have been achieved without the gun but the ability to turn large numbers of men into effective musketeers certainly accelerated the process."

If muskets helped speed the unification of Japan, the concomitant neglect of cannons and heavy artillery hampered the expansionist ambitions of Hideyoshi. Thus, in his two invasions of Korea in the 1590s, while his forces successfully routed the Koreans and the Ming forces with small arms, they were no match for the Ming cannons. Confronted with an upsurge of large-scale piracy—itself caused by Ming bans on overseas trade, which compelled large merchants to turn pirate to continue conducting business—during the reign of the

Jiajing emperor (1522–1566), the Ming copied Portuguese cannon designs and successfully mounted cannons on ships. As Japanese ships had plenty of muskets but no cannons, Korean turtleboats equipped with cannons on both sides were able to cripple Japanese supply lines while their encounter with Ming cannons at the Battle of Pyongyang in February 1593 convinced the Japanese that they could not defeat the Chinese army in pitched battle due to the superior firepower of the latter's cannons (Anthony 2003; Swope 2005).

Domestically, in Japan, Hideyoshi and his successors instituted a series of "sword hunts" designed to confiscate and remove all weapons from peasants, townsmen, and monasteries. These began in 1586 when Hideyoshi demanded that all samurai, temples, and farmers surrender "voluntarily" surrender their firearms so that the metal could be melted and used to make a giant statute of the Buddha. Later, when Ieyasu emerged victorious after the Battle of Sekigahara, two centers for the production of guns were licensed at Sakai near Osaka and at Nagahama on Lake Bike and the gunsmiths were required to accept orders only from the Tokugawa Shogunate. The shoguns were able to successfully implement the suppression of firearms—muskets were last used in a major engagement to quell an uprising of Christian peasants and landless samurai in 1637—because they were able to institute a "closed door" policy till Commodore Perry's arrival in Tokyo Bay, and because muskets subverted class and status relationships in Japan where the samurai were significantly more numerous relative to knights in Europe (Sansom 1962: 430–31; Perrin 1980; Needham 1986: 467–71; Parker 1988: 140–45). The separation of warriors from cultivators also severed their links to land and they could then be transferred and the practice of reallocating the lands of the *daimyō* became routine throughout Japan during the time of Tokugawa Ieyasu, except in the case of the Satsuma clan (Hayami Akira 1986: 7–8).

Finally, unlike the itinerant monarchies of the Indian subcontinent, the more compact territorial extent of Japan dictated an opposite strategy. Instead of the shogun traveling across the country, a system of alternate attendance or *sankin-kōtai* under which a *daimyō*'s family was left in permanent residence at the shogunal capital while the *daimyō* and his retinue made biannual trips to Edo to renew his allegiance to the shogun.

Polities in Southeast Asia were also severely disrupted by the invasions launched by the Mongols, after their conquest of China, against Pagan, Champa, and Vietnam between 1277 and 1301 and the

Mongol sea expedition against eastern Java in 1292. These incursions were, however, limited as the dense forests and an inhospitable terrain that made east–west communications very difficult on the Southeast Asian mainland hampered the Mongols' favored blitzkrieg tactics, and as their failures in Japan had already shown, the nomads could not project their power across the seas as ominously as they could do across land. The chief beneficiaries of the Mongol invasions on the Southeast Asian mainland were the Tai (an ethno-linguistic group that includes the modern Assamese, Khuns, Lus, Yuans, Thais, Laos, and the Shan) and on Java, the kingdom of Majapahit, which arose near the mouth of the Brantas River after the Singhosari kingdom collapsed under the Mongol assault (Reid 1993: 203; Lieberman 2003: 119, 240; Terwiel 2002: 18–20).

Patterns of state-building in the Southeast Asian mainland followed a different trajectory from those in continental South and East Asia since east–west communications were hampered by broad inhospitable marches and the separation of potential competitors from each other limited opportunities for extended conflict. The region was also marked by considerably smaller population densities, and relatedly of lower levels of monetization and commercialization as well, as we have already seen in chapter 1. The credit mechanisms and monetary resources needed to sustain wars and indigenous capabilities to craft firearms were both absent in the early second millennium (Lieberman 1997: 516; 2003: 60). In both the western and central mainland—modern Burma and Thailand—wet-rice cultivation in the interior dry zones and the advantages of going downstream through the major riverine arteries than sailing upstream had conferred advantages to political capitals in the interior (Lieberman 2003: 159). Even here, the scarcity of population meant that state-builders competed primarily for people rather than land and as Anthony Reid (1988: 123) notes, the "object of warfare was to increase the available manpower, not to waste it in bloody pitched battles." When faced with defeat, people simply abandoned their towns and villages and moved further afield—often baffling European traders who returned to ports they had traded with a year or two ago, only to find no trace of the town as the people had simply moved upstream in response to an invasion.[61] Vietnam's narrow, elongated shape and close ties to China made the eastern littoral—what Pierre Gourou (1955: 3) called the "world's least coherent territory"—an exception. Here, an 800-mile corridor serrated into narrow east-west valleys with no interior north–south artery comparable to the Irrawaddy or the Chaophraya rivers, made

political consolidation much harder to achieve and Vietnam remained fragmented till the late eighteenth century (Lieberman 1993: 483; 1997: 475; 2003: 343).

In both Burma and Thailand, though the Tai and Shan invasions in the wake of the Mongols in the fourteenth century had led to a period of political fragmentation, this was soon reversed by a series of wars and accompanying changes in political organization and the introduction of European-style handguns and cannons. The arrival of better firearms and the growing size of infantry forces, and the importance of fortifications, made warfare considerably more expensive and state-building became predicated on the control of access to ports and trade, especially since the collection of maritime revenues was easier than the collection of claims on agrarian production paid in kind (Lieberman 1993: 491; 2003: 60–61, 149). Consequently, rulers of both the Restored Toungoo Dynasty in Burma and of Late Ayudhya Siam, like polities in the Indian subcontinent, initiated similar administrative strategies to exercise greater control over provincial governors and the ports—making direct appointments at the subgubernatorial levels and compelling governors to reside in the royal capitals, monitoring tax collections to increase its efficiency, organizing new military and service groups, and conducting censuses and land surveys (Lieberman 1993: 483–84, 488–89, 493, 511; 1997: 477–81; 2003: 62, 161, 278–79). Between the fourteenth and the sixteenth centuries, in Southeast Asia, the number of autonomous polities fell from 26 to six or seven between 1340 and 1540 (Lieberman 1997: 473; 2003: 25–26, 28, 60). Political integration progressed to a greater extent in Burma because the Irrawaddy represented the only viable axis of control, while the Chaophraya and the Mekong represented competing axes in central Southeast Asia (Lieberman 2003: 215). In short, whereas control over access to horses and to agrarian surplus were central to the large agrarian empires of South and East Asia, in mainland Southeast Asia control over maritime trade and populations were crucial.

In archipelagic Southeast Asia—the Malay peninsula and the eastern Indian Ocean islands—conditions of state formation were again different. It was marked by a proliferation of small principalities—none of which had the agrarian resources of the mainland polities—and were therefore far more susceptible to European pressure. Moreover, like the small principalities on India's coasts, the archipelagic powers were far more dependent on commercial ties. The introduction of new weaponry—European-style guns and cannons—and the construction

of new fortifications that could provide a more adequate defense advantaged the wealthier coastal polities cumulatively, and weak coastal principalities like Martaban and Cambodia "could no longer afford the price of admission to interstate competition; and once they had been forced to cede economic privileges, subordinate states could not easily reverse the cycle" (Lieberman 1993: 493, 541).

Werner Sombart had famously argued that wars are inextricably linked to capitalism, yet as this survey of the impact of the evolution of military technologies across Asia indicates, new military technologies did not trigger tendencies toward capitalism even if they stimulated processes toward increased monetization and commercialization. As the protest movements by the *iḍangai* and *valangai* caste clusters, illustrate, changed conditions of warfare increased pressures on state-builders to extract resources more efficiently and to centralize the extracted resources to procure strategic goods. When efforts to raise levels of extraction were frustrated in the fertile tracts of the Tamil country, or when efforts to control trade with nomads in China failed, it spurred tendencies toward greater monetization and commercialization. Japan's island position, and the monopoly over weapons exercised by the shogunal government, was at the other end of the spectrum. A focus on the changing conditions of warfare also illustrate how embedded states were in a larger matrix of interstate relations and how the pressures to procure strategic goods deepened tendencies toward greater monetization and commercialization of economic relations—processes we discuss in the next two chapters.

3

Commercialism without Capitalism: Labor-Intensive Manufacturing and the Growth of Trade

Thirty years ago, Hayami Akira (1986) characterized a dramatic surge in economic growth—a threefold rise in population, a doubling of the arable, and the quadrupling of agricultural output—in Tokugawa Japan as an "industrious revolution." Unlike the "industrial revolution," Hayami argued that the rise in per-capita income indicated by a greater increase in agricultural production than in cultivated acreage was due to the implementation of strategies to absorb labor in the form of labor-intensive farming based on wet-rice cultivation. If his formulation was rooted in the peculiarities of Japanese society under Tokugawa rule, Sugihara Kaoru has demonstrated that labor-absorbing strategies were more broadly associated with the spread of rice cultivation in East Asia as in the case of China's lower Yangzi region in the twelfth and thirteenth centuries. Both in China and in Tokugawa Japan, farm families additionally began to use family labor to produce nonagricultural goods, to absorb "their own off-peak surplus labour for proto-industrial activities" (Sugihara Kaoru 2003: 87; see also Shiba Yoshinobu 1970).

The abundance of labor had meant that a premium was placed on the quality of labor rather than the size of the enterprise. In agriculture, as we have already seen in chapter 1, since carefully mixing varieties of rice plants to reduce risks of crop failure, transplanting, weeding, and other labor-intensive techniques raised yields rather than increasing the size of plantations, there was no economic advantage to accumulation. In warfare, though the Chinese invented firearms, as early handguns were too cumbersome to use on horseback, their

development in China and India—despite their wide deployment—was stunted. Similarly, in manufacturing, technological advance was denoted not by the introduction of more machinery or tools but by the acquisition of greater manual dexterity and the further subdivision of production operations.

The relationship between steady increases in agricultural productivity in lands under irrigated riziculture and corresponding increases in artisanal output was so regular in Ming China that Robert Hartwell (1982: 378–79) even claimed that it was "possible to use a logarithmic power curve formula to project the number of households in a district" on the basis of the number of cultivating households it contained. As larger numbers of households became engaged in nonagricultural pursuits, the divisioning of labor became proportionately more complex with artisans specializing in ever narrower segments of the production process. These tendencies were evident in south China as early as the eleventh century when weavers of silk textiles were reported to have depended increasingly on the market for their supplies of thread while cultivators of mulberry trees relied on exchange networks for their tools (Shiba Yoshinobu 1970: 116–20). Rather than individualism, it fostered a collective ethic as indicated by the sense of time among Tokugawa peasants:

> Time was regarded as fleeting and precious, and great moral value attached to its productive use. Farmers made elaborate efforts to coordinate work and to stretch nature's constraints by the skillful use of early and late varieties, between row-planting, straw-covered planting beds, fast-acting fertilizers, and other time-saving devices. None of this ingenuity, however, was for the benefit of individuals. Time was not a personal possession but belonged primarily to families and, through them, to kin, neighbors, and villages.
>
> (Smith 1988: 202)

In the cotton textile sector, while the entire process from cultivation to weaving had been done in peasant households during the early Ming, it had become an increasingly specialized process by the mid-Ming. Though the women who spun the thread and wove the cloth still remained in farming households, rather than pursuing these as ancillary activities, they were working on cottage-based piece rates for urban markets. By the early sixteenth century, in Fujian, Evelyn Rawski (1972: 47; see also Brook 1999: 115–17) argued that "the incentives for keeping women at the loom had to be considerable before it was profitable to put these women to work in the fields."

A century later, the prefectural gazetteer of 1630 from the Songjiang was to record that "every village and market town has its own varieties and names" [of cotton cloth] and "the list is inexhaustible" (quoted in Brook 1999: 197).

Similarly, in Tokugawa Japan, while small rural cultivators had engaged in craft production in their homes with family labor, before the rapid expansion of wet-rice farming they had characteristically produced the requisite raw materials themselves, and had sold the completed product at periodic markets. The Keian Proclamation of 1649 even decreed that in peasant households, the husband tended to the fields while the wife worked the loom (Tsueno Sato 1991: 41). During the first half of the Tokugawa period, the cultivation of cotton increased so substantially that it replaced hemp that had been the principal raw material for clothing. As hydrological technologies developed to efficiently draw in and draw out water from the fields, rice and cotton came to be cultivated alternatively in some of the more commercially advanced regions of western Japan. The production of cotton—as well as sericulture—also increased demand for dyes to color cotton and silk fabrics, leading to an expansion in the production of indigo and safflower. As a result of this expansion in cotton and silk production, and in related products, by the second half of the eighteenth century, craft production had been fragmented into a series of discrete operations, each performed by a separate household (Tsueno Sato 1991: 73–75). Thus, the end-user "stood at the end of a rather long series of market transactions" (Smith 1980: 79).

The employment of increasing numbers of households in artisanal production as a result of an intensification of wet-rice cultivation led to the emergence of a mass market in which price displaced quality and artistry as the primary consideration affecting production. In these circumstances—as we saw in the case of Tokugawa Japan in the Introduction—rural producers could operate with lower costs since they were not bound by guild regulations, were often closer to raw materials and water power, and as crafts were ancillary to their farming operations. As a result, there was an irreversible locational shift of craft production from urban centers to rural areas and this was reflected in the depopulation of castle towns in eighteenth and nineteenth century, despite robust efforts by the Tokugawa Shogunate to arrest this tendency (Smith 1988: 15–79).

While the concentration of craft production in small enclaves within urban centers in China before the eleventh century had facilitated official control over artisans, state-controlled workshops

were progressively displaced as a source of supply to consumers by a widespread dispersal of silk production, organized on the basis of household labor. Thus, though state-controlled workshops for the production of textiles continued to operate in the twelfth century and beyond, they were increasingly relegated to supplementing taxes levied and collected in kind for provisioning the Imperial Court, including its requirements for conducting legal extra-jurisdictional trade (Shiba Yoshinobu 1970: 111). Surveying the evidence, R. Bin Wong (1997: 38) concludes: "The specific conditions associated with European proto-industrialization—expansion of seasonal crafts, shrinking farm size, and good marketing systems—may have been even more widespread in China than in Europe."

Pace Wong, "industrious revolution" is not tantamount to proto-industrialization not only because it does not have the evolutionary and teleological character of the latter but also because it does not abstract manufacturing activity from the wider nexus of activities (see Perlin 1994: 33–42). Additionally, unlike commercial manufacturing in Europe, which was based on the development of labor-saving mechanical devices, craft production was based on the acquisition of greater skills by craftsmen specializing in ever-narrower niches of the production process, by improving the quality of labor rather than developing better instruments of production. This is evident, most notably, by the stunted development of iron and steel revolution, and metallurgy more generally, in China since 1400. Observing the simplicity of tools used in the production of cotton textiles in India, Robert Orme wrote in the late eighteenth century:

> The women . . . spin the thread designed for the cloths, and then deliver it to the men, who have fingers to model it as exquisitely as these have prepared it. For it is a fact, that the tools which they use are as simple and plain as they can be imagined to be. The rigid, clumsy fingers of an European would scarcely be able to make a piece of canvass, with instruments which are all that an Indian employs in making a piece of cambric.
>
> (quoted in Chaudhuri 1990: 298)

This was due both because abundant labor meant that there were no compulsions to develop labor-saving devices and also because the peculiarities of wet-rice agriculture did not privilege capital accumulation as we have argued earlier. Finally, since the productivity of lands under irrigated rice cultivation implied that state builders were

not dependent of mercantile-financial elites for their protection-providing activities, they were no tendencies toward mutually beneficial alliances between rulers and financiers, leading to a greater coercion of labor as was the case in Europe.

Industrious Revolution also provides a broad framework to locate the slender empirical base for manufacturing, despite its undoubted significance, in the historical record of late medieval and early modern peninsular India, within the context of the richer records from wet-rice growing areas in China and Tokugawa Japan. Due to the perishable nature of tools and products, there is very little direct material evidence of craft production, especially in the important sector of cotton textiles. The solitary archaeological evidence for textile production comes from a low-fired ceramic spindle found in an early- or pre-Vijayanagara site near the imperial capital (Sinopoli 2003: 178). Material evidence for iron working and copper and bronze production are more abundant but the inscriptional references are relatively scarce compared to references on weavers. Typically, itinerant metal workers carried raw materials, forging equipment, and their entire foundry in carts and boats to manufacture goods according to demand (Chaudhuri 1990: 325). Travelogues are also more focused on textile production than on other crafts and hence weavers dominate the historical record. Primary sources come from mainly from epigraphs, which distinguish between cultivators (*uḷukuḍikaḷ*) and noncultivating artisans (*paṭṭaḍaikuḍikaḷ*) since the fourteenth century in the Tamil country (Shanmugam 1989). Most of these inscriptions record claims of taxes on specific communities of artisans, incentives to lure them to specific settlements, their protests against high taxes, their donations to temples, and the like. A few exceptional records also document agreements among communities to produce specific types of products and the structures of artisanal guilds.

The first section locates the growth and spread of commodity production and the expansion of the nexus of commercial relations within the context of a restructuring of the relations of power discussed in the previous chapter. It was manifest most strikingly in the changed nature of urbanization—with administrative centers replacing temples as markers of new urban settlements. The spread of cultivation to the interior also drew these areas into widening ambits of the networks of trade and to a pervasive spread of monetization as well as to a dispersal of craft production to rural areas. This will be followed by a discussion of the nature of the industrious revolution in peninsular India between the mid-fourteenth and the mid-seventeenth centuries.

The introduction of new technologies of production and the greater elaboration of the division of labor made possible by the expansion of wet-rice cultivation and its capacity to support larger densities of population, it will be argued, meant that technical progress implied the acquisition of greater skill in ever-narrower segments of the production process rather than the increased deployment of mechanical devices, to an improvement in the quality of labor that is appropriately termed an "industrious revolution." Finally, in the last section, we take stock of the theoretical argument thus far.

Commodity Production and the Expanding Circuits of Exchange

Tendencies toward the expansion of commodity production and a progressive expansion and intensification of circuits of exchange since the mid-fourteenth century were underpinned by the new compulsions of state-making and war-making and by the implementation of a cluster of technological innovations, especially in the cotton textile sector. The essential impulse toward an intensification and expansion of circuits of exchange came from the commutation of taxes in kind to monetary payments designed to facilitate the more efficient transfer of surplus to a centralized bureaucracy without a crippling reliance on locally dominant personages.[1]

The most frequent tax term appearing in the inscriptional record is *kaḍamai*[2]—a word signifying "duty"—and was levied not only on grain grown on wet lands (*nañcey*) but also on dry crops (*puñcey*) and garden crops such as plantains, sugarcane, turmeric, ginger, arecanuts, and coconuts. The appearance of *kaḍamai*, sometimes in conjunction with terms indicating the extraction of taxes in grain (*nel-vargam*,[3] *ariśi-kānam*,[4] *ari-kānam*[5]), and others indicating the demand for taxes in money (*ponvargam*,[6] *ponvari*,[7] *kāśāya vargam*,[8] *svarna-dāyam*[9]), suggests that taxes on land were extracted in grain when crops were grown on wet lands. In all other cases—when crops other than rice were grown on wet lands, or when crops were grown on dry lands—assessment and extraction of taxes was in money (Subbarayalu & Shanmugam 1983: 161).

Taxes on artisans were similarly assessed and collected in cash—they were, in fact, termed *kāśāyavargam* or *kāśāyakkuḍi*, or tax in money (Ramaswami 1979: 128–29; 1985a: 426; Palat 1988: 192–93). Over time, it is also apparent that there was a growing tendency to

consolidate the different claims made on artisans into a single consolidated levy (Ramaswami 1979: 129). This was evident in the case of the weavers by the 1420s when the varied taxes and cesses levied on them were consolidated into a single revenue demand charged annually on their looms.[10] The stabilization of revenue demand to simplify the tasks of centralized calculation, assessment, and collection implied that their tax liability was dependent, not on the volume of production, but on the number of looms they possessed. Extant tax records also reveal that additional looms were sometimes taxed at a lower rate than the first loom (Ramaswami 1985b: 312). Other artisan communities and service personnel were similarly taxed on their instruments of production. For instance, the list of taxes considered to be legitimate by the *iḍangai* and the *valangai* caste clusters at Tiruvagavur (Papanasam taluk., Thanjavur district, 59 of 1914) in 1429 included taxes on the tools of the *kanmāḷar* as the blacksmiths, braziers, silversmiths, carpenters, and goldsmiths were collectively known; on the potter's wheel (*tirigai-āyam*) of the chief potter; on the washing stone (*kallāyam*) of the chief washerman; and on the instruments (*karavi-āyam*) of the chief barber and the chief oil-monger, besides taxes on weavers, cultivators, and ritually impure laborers (*paraiyar*).

In the face of a wide variety of weights and measures, differing scales of taxation, and the absence of detailed surveys of cultivated land or compilations of wage rates and prices, it is impossible to make quantitative estimates of the rate of commodification in the Vijayanagara Empire. In this regard it is instructive to note that historians of the Mughal Empire suggest that the commutation of taxes in kind to payments in cash implied that at least 50 percent of agricultural production was for sale. They also hypothesize that given the similarity in structures of taxation on artisans, a similar proportion of craft production was also destined for sale (Raychaudhuri 1982: 358).

Be that as it may, the progressive commodification of production entailed by a commutation of taxes in kind to payments in cash, the expansion of craft production, and the spread of sedentary settlements to the arid regions of the interior, strengthened the revival and expansion of exchange networks that had been so rudely ruptured during the century of political instability following the collapse of the early medieval patterning of social relationships. This is most clearly evident from the rise of fortified settlements and new urban centers. Unlike the earlier period, during the rule of the Pallavas and the Cholas—when there tended to be a correspondence between major

religious and political centers—administrative headquarters and seats of *nāyakkar* in the late medieval era rarely coincided with the primary foci of spiritual energies (Stein 1965: 58; 1969: 193; 1980: 481; Murton 1979: 15–17; Palat 1987: 180).

Besides administrative convenience and strategic considerations, the rise of urban centers in which temples had an incidental, or at best a secondary, rôle underline a significant difference in the patterning of power relationships between the early and late medieval social systems in peninsular India. Whereas major temples were reliable markers of urbanization in the former epoch by virtue of their capacity to attract pilgrims in numbers sufficient to provide full-time artisans with a reliable flow of clientele, in the latter period the more centralized extraction of surplus implied that artisans had become increasingly dependent on the patronage of imperial bureaucrats, *nāyakkar*, and their entourages who also lured craftsmen to their seats with various inducements such as the offer of lower rates of taxation for the first few years of their relocation.[11]

Similarly, in the Mughal Empire, it has been argued that a consolidation of the bulk of taxes and cesses into a single tax on land appropriated by an urban-based ruling class was conducive to urbanization. Indeed, Irfan Habib (1978: 289–95; 1978–79: 167; 1983: 23) estimates that urban dwellers in the Mughal Empire possibly amounted to 15 percent of the total population—much more, that is, than in the nineteenth century.[12] While it is well to bear in mind Kirti Narayan Chaudhuri's (1978a: 79) admonition that urban conglomerations did not depend vitally on manufacturing before the "Industrial Revolution," it is nevertheless true that towns and cities in India after the Ghorian conquest were significant loci of craft production even though craft production was also increasingly ruralized, as we shall see.

A greater degree of monetization of economic relations is unmistakable. Unlike currency systems elsewhere in the subcontinent, where a variety of freely convertible metallic and nonmetallic currencies were used for specialized purposes, monetary systems in the southern peninsula were remarkable for being based solely on metals.[13] Foremost among the distinguishing characteristics of the Vijayanagara currency system was its well-known basis in gold unlike currencies in the northern subcontinent, which were based on silver, and (consequently?) the minting of small fractional gold coins called *paṇam* that were the medium of tax payments and most large volume transactions. Their widespread use in commercial and

revenue transactions was only possible by completely eschewing the labor- and skill-intensive techniques involved in the production of the artistic north Indian *muhar*s (Perlin 1987). Thus, the Vijayanagara *paṇam* was only adorned by very simple die-struck designs as contemporary European travellers observed (Dames 1918–21: I, 204; Temple 1923: 48, 53; Panchmukhi 1936: 107–14)—a fact that makes it especially hard to assign coin-finds to specific mints. The inability to identify mints is a problem of particular intensity since there are many coins that contain names of imperial officers (e.g., Lakhamana-*Dannāyaka*) in place of the name of the reigning monarch on their reverse sides (Panchmukhi 1936: 117).

While these gold coins of 26 grains circulated widely within the subcontinent (Elliot 1886: 96–98, Plate III),[14] a coin of greater intrinsic value—the Tamil *varāhan* that Europeans called a *pagoda*—was also minted. These coins, which weighed between 50.65 and 52.912 grains, as G. Bidie noted over one hundred years ago, closely approximated other coins current in long-distance trade, especially the Venetian *sequin*s and *ducat*s, which weighed 52.40 and 53.40 grains, respectively (Bidie 1883: 35; Panchmukhi 1936: 107). Finally, apart from a small quantity of silver coins called *tāra*,[15] there were the copper coins used in small-scale daily transactions at lower levels of societal relations—their circulation and uses, the mints that factored them, and even their weights and types, shrouded in obscurity because numismatists and historians, have focused almost exclusively on the coinage of precious metals. Ludovico di Varthema said that 256 of these copper *kāśu* were equal to a gold *fanom* (Temple 1923: 253), or the *paṇam* of inscriptions—but it is more likely that local coinages varied greatly in value. Caesar Fredrick complained in 1567

> that when as we came into a new Governours Country, as every day we did, although they werte all tributarie to the king of Bezeneger [i.e., Vijayanagara], yet every one of them stamped a severall coyne of Copper, so that the money we tooke this day would not serve the next.
>
> (Purchas 1965: X, 99)

This was because, unlike silver or gold, copper could not be assayed for purity and "the only way to ascertain the copper content was to melt the coin," which, as James Geiss wryly observes, "would defeat the purpose of coining money" (quoted in Flynn and Giraldez 1995b: 208).

Analogously, in Mughal India, Rene Barendse (2002: 228–29) argued that coins factored at provincial mints had lower silver content than the imperial *sicca* rupee and hence the latter commanded a substantial premium, which placed local markets at a disadvantage in their transactions with the major urban centers. Additionally, since tax revenues had to be transmitted in *sicca* rupees "local economies were…drawn into a larger network of recruitment and of supraregional, indeed international, markets."

It is perhaps likely that lower denominations of coins were minted by local administrators at the provincial level, and in the more urbanized and commercially active regions even at market towns, in accordance with local requirements. Such an arrangement for the production of coins for regional use would provide the flexibility necessary to meet local requirements. Hence, in conditions of short-term disequilibria between the demand for coins and the supply of coinable metals, local administrators could vary mint technologies either by adopting cheaper and more pedestrian methods of production, or by reducing the supply of coins by using more labor-intensive methods and thereby respond to local needs.[16] While such practices account for the wide variety of coin types, they did not necessarily hamper commercial transactions since copper coins, being of small value, were primarily coins for local use and merchant communities were likely to have a detailed knowledge of coin types, purities and weights (Perlin 1987).[17] Tangential support for this hypothesis is provided by inscriptional testimonials attesting to an increasing distinction between goldsmiths (*akkasali*) and money changers (*sarabu*) in the late fifteenth- and early sixteenth-century southern peninsula. Merchants (*chetṭiyar*) also appear to have acted as money changers in the seventeenth century (Nilakanta Sastri and Venkataramanayya 1946: III, 91; Ramaswami 1985a: 418–19).[18]

Hence, though there were considerable variations in metallic content, weight, and design of copper coins used for small-scale, localized transactions, much lower variational thresholds were likely to be tolerated in currencies used as units of account and measure in large-volume transactions, including long-distance trade and revenue payments to higher levels of the imperial hierarchy. While an inscriptional citation of revenue demand in a particular medium does not necessarily entail actual payments in the specified unit—typically in *paṇam*, the fractional gold coins of the Vijayanagara realm—small cultivators, and perhaps even some artisans and merchants, may, in fact, have made their payments in copper coins. Copper coins,

moreover, seem to have been particularly dominant in the Tamil provinces where coin hoards have yielded no gold Vijayanagara coins (Wagoner 2014: 469–70). Once payments had been collected by local authorities, they would transmit the shares of provincial and imperial bureaucracies after converting these shares to the appropriate units of account through the mediation of professional money changers. In other words, while a variety of subordinate mediums of payment, exchange, and circulation existed side by side, coins of humbler metals were hierarchically subordinated to fractional gold coins, which were of relatively uniform weights and metallic content. From this perspective, the provenance of small numbers of silver coins implied that these were minted primarily as units of account and payment for long-distance trade.

In the context of widespread monetization and revenue claims in money, it is striking that only a very few Vijayanagara inscriptions from the Coromandel plain refer specifically to weekly, biweekly, and monthly markets held at various points within the several *paṛṛu* and *śīrmai*. Moreover, among the handful of inscriptions that specifically refer to periodic markets, only records from the mid-sixteenth century can be precisely dated.[19] This is in contrast to the earlier Chola period where the existence of widespread networks of periodic markets has been documented in studies on marketing structures (Hall 1977; 1980; 1980; Champakalakshmi 1986). In the Mughal Empire, and in the eighteenth-century all across the subcontinent, a tripartite marketing structure with the periodic rural *hat*, permanent markets for grain and other crops or the *ganj*, and a regional marketing center or *qasbah* has been documented (Grover 1994; Bayly 1983: 52; Blake 1987: 112–21; Murton 1979: 22–25). It is also unlike the case of China where William Skinner (1974) demonstrated that the social world of inhabitants revolved around a center, which was the locus of periodic markets—institutions that facilitated not only the exchange of commodities, but also the negotiation of marital alliances and the organization of local defenses.

Barendse (2002: 156) suggests that the paucity of references to periodic markets and fairs in places like the Coromandel plain in the fifteenth and sixteenth centuries may be traced to the high degree of monetization. From this perspective, periodic markets were necessary adjuncts to distribution in places with low levels of monetization and "where credit had insufficiently penetrated into daily transactions." They were less prominent in regions where credit mechanisms were well-established, and shopkeepers could rely on credit from big

merchants and purchasers in turn could buy on credit in the shops. A remarkable document of 1505—the *Puttasti* ("annual produce") of Alamkonda, in the upland Rayalseema region of the Telugu country, commissioned by Narasimharaya, records a list of market taxes in which a Gaurappa Nayadu is said to own 9 shops, the Balije Settis 12, a Racuti of Kodamuru 6, and Nalla Timma Setti 6 (Nilakanta Sastri and Venkataramanayya 1946: III, 88). This suggests that there were several large merchants in Alamkonda and its 12 surrounding villages that were granted as an *amaram* by a Rangapparajaya to one of his subordinates (Stein 1989: 86). By the early seventeenth century, we know that since the English and Dutch East India Companies did not supply their factories with sufficient capital, their factors were routinely dependent on substantial short-term loans—to the extent of hundreds of *florins*—from local financiers, testifying to a long prior history and development of financial institutions in the region (Perlin 1993: 294).

Second, since areas of wet-rice cultivation could support larger densities of population—and a higher proportion of them could be occupied in nonfood-producing activities on a full-time basis—services and crafts were better distributed across the countryside and rural folk did not have to rely on periodic fairs and markets. This is indicated by lists of village functionaries (*āyagār*) in texts like the *Atthavana Vyavahara Tantram*, which says every village in the Tamil country should include among others a carpenter, a blacksmith, a shoemaker, a washerman, a barber, and a goldsmith but that one or two potters may supply several villages. Similarly, the *Kaifyat of Kamalapuram* lists *āyagār* in the Kannada country, which includes a *ayahkārah* (blacksmith), a *vardhaki* (carpenter) and a *ksuri* (barber) (Nilakanta Sastri and Venkataramanayya 1946: 310–14). Additionally, a key social function identified by Skinner was that the periodic markets tended to be located at distances of six to ten miles from all the villages they served and that they could serve to negotiate marriage alliances and other noneconomic needs. In this context, the narrowly circumscribed ambit of marriage networks in the Tamil country, and the great spatial variation in marriage practices and customs within *jātis*[20] reduced the significance of these periodic markets as the social configurations of *jāti*-based networks did not overlap with the circuits of commodity exchanges.

Finally, one of the most distinctive features of overland trade was a community of specialist traders, the *banjāra*s, who had been operating in the Deccan at least since the early fifteenth century

as a chronicler refers to one of their convoys from Barar being intercepted during a rebellion in the Bahmani Kingdom (Deloche 1993: 248).[21] As a nomadic community, well supplied with pack-animals, they were ideally suited to transport large quantities of low-value bulk goods—their overhead costs were negligible, since they required only food for their subsistence and their oxen could graze along the way (Raychaudhuri 1982: 342; Brennig 1975: 233). Their services were so valued that they could cross political frontiers unimpeded even in times of war (Deloche 1993: 250; Grover 1994; Hobson 2004: 85).

The *banjāra*s were especially important to the textile centers of the northern Coromandel as the region's high humidity and the frequency of flooding in its lowlands rendered in inhospitable for cotton cultivation. Weavers here depended on the *banjāra*s, who operated as autonomous petty traders rather than mere conveyors, to bring cotton from the "black soil" lands of the central Deccan—principally from the region between Nanded and Aurangabad—in large caravans ranging from 10,000 to 40,000 bullocks. In the seventeenth century, according to Jean-Baptiste Tavernier's estimates, the *banjāra* population was around 400,000 and Irfan Habib reckoned that they could transport 821 million metric ton-miles annually, a figure that compares favorably with the 2,500 million metric ton-miles carried by the Indian railways in 1882 (Habib 1990: 376–77; Tavernier 1977: I, 32–34). Though seventeenth century sources contain little information about them, the *Godavari District Records* of the early nineteenth century show that after selling the cotton, they purchased salt for their return journeys to the interior (Brennig 1990: 68–69; Subrahmanyam 1990c: 86–87).

To recapitulate, the changed ecology of war-making and state-making fundamentally restructured social relations as we have seen in chapter 2. Revenue demands in money, the agrarian colonization of the arid interior through the grant of revenue assignments or *amaram*, and the cultivation of cash crops in these tracts, led to a greater monetization of relationships. This was clearly evident in the changed nature of urbanization—while a few centers of supraregional pilgrimage such as Tirupati and Kanchipuram continued to be major urban centers, the more characteristic urban settlement was associated with administrative headquarters of the Vijayanagara rulers and their subordinates. The adoption of "Islamicate" codes of statecraft provided a clientele for craftspeople in the administrative seats of bureaucrats and holders of revenue assignments.

The spread of cultivation to the interior also drew regions inhospitable to the rice plant into the expanding and deepening networks of trade. As holders of revenue assignments sought to lure artisans to their seats in the interior, and revenue demands in cash on cultivators of cash crops led to a pervasive spread of monetization and to the development of credit mechanisms as well as to a ruralization of crafts. These conditions and the narrowly circumscribed orbits of marriage networks dictated by an elaboration of the caste-system perhaps accounts for the relative absence of references to periodic fairs and markets.

An Industrious Revolution

The extension of manufacture was facilitated by major technological innovations that either accompanied the Vijayanagara conquest of the Tamil country in the mid-fourteenth century, or came into general use very soon afterward. Given the ability of lands under wet-rice cultivation to support larger population densities, technological innovations were not designed to economize on labor. Typically, they tended to be scale-neutral and labor-intensive and were implemented with an eye toward qualitative improvements, greater product diversity, and to raise output levels (Habib 1980a; Ramaswami 1985c: 20–25, 66–67). One major exception to this generalization in China was a reference in a handbook of 1313 to 32 spindles mounted on a large spinning wheel, which could be turned by animals harnessed to it, or by water-wheels. It was capable of producing one hundred catties of yarn a day or 59 kilograms and was used largely in the spinning of ramie though a smaller version was adopted for silk as well (Chaudhuri 1990). There was no parallel to this in the subcontinent.

The most important of medieval transfers of technology to the subcontinent were in the cotton textile industry.[22] Significant advances in this field included the vertical loom,[23] the draw or jacquard loom, which made possible the weaving of complex designs and patterns,[24] the spinning wheel, the treadle, and techniques of cloth printing (Habib 1980b: 8–10; 1980a: 29–30; Ramaswami 1985c: 20–25). Similarly, the earliest indication of the manufacture of paper in the subcontinent dates from early thirteenth-century Gujarat (Habib 1980a: 22). Finally, the widespread use of cementing lime and vaulted roofing in the construction industry made possible the impressive monumental architecture of the late medieval period. The new techniques may well have led to a "conversion of middle class housing

from wood and thatch into brick structures" (Habib 1978: 291). Thus, one of the privileges accorded by imperial administrators of the Vijayanagara Empire to lure weavers was the right to white wash their houses (Ramaswami 1979: 134; 1985a: 435). Indeed, the very scale on which monuments, fortified cities, and irrigation projects were built reflects the possibilities opened up by new techniques in the construction industry (Habib 1978: 291; 1980a: 21–22; 1982b: 81).

The indigenous origin of some of these technological innovations may perhaps have contributed to significant differences in technical relations of production between the two halves of the subcontinent. For instance, Habib had conjectured that the establishment and widespread application of new techniques of artisanal production could only have been possible with the immigration of considerable numbers of craftsmen from West Asia. There were obvious barriers to the immediate adoption of technical innovations by Indian artisans, organized as they were in hereditary castes. But in some spheres of craft production—the manufacture of paper, for instance—there may have been no professional caste in existence. The caste system could certainly have accommodated new crafts and techniques (as it ultimately did), but not in the short run. The Sultans of Delhi, he therefore suggests, overcame this obstacle through a policy of large-scale enslavement, the slaves being obtained through military campaigns and punitive raids against peasants who failed to pay their taxes (Habib 1978: 292–93; 1983: 28). Since the slave was deprived of all rights, he could be compelled, regardless of caste considerations, to do any task at his master's command. The inability to obtain slaves subsequent to the decline of the sultanate, did not adversely affect production processes as immigrant crafts and skills had become well established by this time and could therefore be accommodated within the caste system by the creation of new *jāti*s.

Slavery, however, was never a significant form of labor exploitation in the late medieval southern peninsula, due to abundant supplies of ritually impure landless laborers, and to the relative unavailability of fresh supplies of slaves, especially after the first half of the fourteenth century when constraints on imperial expansion became starkly apparent. Only three Vijayanagara-era inscriptions, all of them from the late fourteenth century, refer to slaves (*adimai*), and there is no evidence to suggest that slaves dominated even a single branch of production in the Tamil country for any length of time. Conversely, while *pariayar* and other low-caste folk were referred to only as collective groups or in terms of their settlements such as

parai-chëri in Chola inscriptions, they are referred to as individuals or as family groups in Vijayanagara-era inscriptions, suggesting their greater integration into the agrarian economy (Karashima 1992: 123–26). As far as craft production was concerned, however, the installation and widespread application of innovational production technologies in the late medieval Tamil country appears to have been closely correlated to widespread migrations from the Andhra and Karnataka regions, visible by the appearance of new castes in the historical record. There are also a few records that explicitly state that a son did not follow the calling of his father—as in an inscription found on a reservoir in the Shimoga district of the Kannada country, which says that the engraver, one Viroja, was the son of a goldsmith (Sinopoli 2003: 191–92).

The southern peninsula was renowned for its iron production and Duarte Barbosa records that in the early sixteenth century he saw ships carrying large cargoes of iron from the port of Bhatkal to Hormuz (Dames 1918–21: I, 188). Ironsmiths regularly figure in lists of village functionaries (*āyagār*) and as accompanying troops and working in military encampments (Nilakanta Sastri and Venkataramanayya 1946: III, 310–14; Sinopoli 2003: 193). Archaeological excavations in the imperial city of Vijayanagara suggest over thirty sites of iron working but none appear to have been used for any substantial length of time—the evidence indicates small-scale smelting and forging (Sinopoli 2003: 193–201). West Asian records also document that broken brass and copper objects were often exported to the subcontinent to be melted down and fashioned into new objects, suggesting either an insufficiency or a shortage of local raw materials (Chaudhuri 1990: 325). There does not also appear to be significant technological changes implemented in this sector. Nevertheless, as late as the mid-nineteenth century, British observers estimated that bar iron produced in the subcontinent was at least as good, if not better, than English iron and that in 1829, its price was less than half of what iron cost in England (Pomeranz 2000: 45).

This reflected a general superiority of iron production in wet-rice growing areas of Asia before the European Industrial Revolution. While English iron was the most advanced in Europe in the mid-second millennium—and the Spaniards even surreptitiously secured a few English iron cannons for their Armada—the East India Company found that their iron ingots had no market in Japan. In 1615, its officials moaned that "Coromandel Steel was in no esteem; some which came in on the *Hoseander* being considered inferior to Japan

iron. English iron would sell still worse, the best Japan iron being but 20 mace the picul [or 10 shillings for 125 pounds]" (quoted in Perrin 1980: 10). And a Dutchman had observed a few years earlier that Japanese "Faulchions or Scimeters are so well wrought, and excellently temper'd, that they will cut our European blades asunder, like Flags or Rushes"—an observation tested by a twentieth-century arms collector who used a sixteenth-century Japanese sword to cut a modern European sword in half. The superior qualities of Japanese swords are a clear illustration of the methods of the "industrious revolution" as the steel was "hammered and folded and rehammered" time and again until the edge of the sword's blade was composed of almost "four million layers of finely forged steel." European steel makers could not perfect the technique of varying the hardness of the steel and hence their swords were never as sharp (Perrin 1980: 11–12).

Kenneth Pomeranz (2000: 65–67) observes that as English coal mines tended to get flooded with water—in contrast to Chinese mines where ventilation was more of a problem—it led to the development of steam engines to pump out the water and the development of steam engines had multiplier effects in other sectors as well.[25] In a similar vein, Joel Mokyr (1990: 103–04) suggests that Britain's real technological advantage lay in the creation of instruments such as the mechanical clock, watches, telescopes, and so on, and it was the transfer of calibrating skills and precision-boring from instrument-making that improved steam engines.

In this context, despite the presence of surface deposits of coal "at least in the Birbhum and Jharia belts," it is striking that coal was not utilized in the subcontinent—in 1611 "sea-coale" was unloaded from an English ship at Surat and presented to the Mughal emperor as a marvelous curiosity (Habib 1980b: 22–23). Habib speculated that coal was perhaps not used because of the inferior quality of surface deposits and because deep mining techniques were unknown. Conversely, surface deposits of iron ore in the subcontinent were reputed to be the best in the world—especially those near Indur (modern Nizamabad) in the Telugu country (Habib 1980b: 24).

Perhaps because of undeveloped mining techniques, the evolution of basic tools and instruments in the subcontinent remained stunted. In the mid-seventeenth century, Jean de Thevenot observed that

> the Indians of Dehly cannot make a Screw as our locksmiths do; all they do is to fasten to each of the two pieces that are to enter into one another, some Iron, Copper or Silver wire, turned Screw wise, without

> any other art other than of souldering the wire to the pieces; and in opening them, they turn the Screws from the left hand to the right, contrariwise to ours.
>
> (quoted in Habib 1980b: 28)

This method of fashioning screws by soldering wire to pieces of metal underlines the lack of development of tools to cut and drill metal. There also appears to have been no mechanism to convert "continuous rotary motion to reciprocating motion" through the attachment of a crank handle to a crank and connecting rod and hence mints were unable to use animal power in the seventeenth century to stamp coins (Habib 1980b: 28–29).

Similarly, though ambassadors to emperor Jahangir's court in the early seventeenth century presented him with mechanical clocks, it failed to stimulate much interest or curiosity. Such clocks, Habib (1980b: 31) observes, with their "refined gearing, springs, screws, balances, and escapement," were at the pinnacle of technical achievement at the time and if they had been copied and manufactured in the subcontinent, it could have led to a wider application of mechanical principles. Yet, the lack of curiosity illustrates the very different conceptions of technological achievement and progress at the time.

Nevertheless, when the advantage of European devices was recognized, subcontinental craftsmen had the skill the quickly copy and implement those techniques. As they saw the superiority of Portuguese ships, they quickly adopted the European style of using nails instead of tying planks together and began to caulk their vessels as well. Within a decade of Vasco da Gama's arrival in Calicut, the first Portuguese viceroy reported that vessels "equivalent to our own" were being constructed in northern India (Scammell 1980: 3; Parthasarathi 2004: 7–8).

The most apparent change in the social composition of communities featured in the inscriptional record of the late medieval southern peninsula was their increasing professionalization. This is most clearly evident in the cotton textiles sector. It was dominated by the *kaikkōḷar*, who the early medieval records indicate, had previously pursued weaving only as a part-time occupation since they also appear frequently as soldiers and military commanders. The growing dominance of the *kaikkōḷar* was paralleled by a corresponding decline of the *sāliyar* who had been the most important caste of weavers in the Chola state. The gathering strength of the *kaikkōḷar* may have compelled the *sāliyar* to migrate to the Malabar coast where Duarte Barbosa found them to be

an industrious and prosperous weaving community in the sixteenth century (Dames 1918–21: II, 59; Ramaswami 1979: 121). The outmigration of the *sāliyar* was an anomaly since the more common pattern was not only the spread of the *kaikkōḷar* from their Tamil homeland to the Telugu and Kannada countries but the reverse flow, in much greater numbers, to the Tamil country by the *dēvanga* and the *sāle* or *sālige* communities from these other regions.

Technical innovations and the migration of substantial numbers of weavers to the Tamil country resulted in a specialization of communities in the production of particular types of cloth, often known by the communal names of their producers, leading to the establishment of a highly variegated industry. For instance, the *Varnaratnākara*, a fourteenth-century text by Jyotirīsvara Kavisekharācārya, refers to the brocaded silk manufactured by the *Dēvangas* as *dēvanga paṭṭu*. Similarly, the output of the *Jēdāra*s, a relatively minor weaving community of Karnataka, was listed in the *Gurjarasāvali* as *jēdāra dadhimasara*, *jēdāra mathan*, and *jēdāra bhatigatu*—referring respectively to silk colored by an extract from pomegranates, silk with sheen and patterned silk. Likewise, the *paṭṭunūlkkārār* ("silk-thread weavers") concerned themselves almost exclusively with tie-and-dye weaving,[26] while the specialization of *kaikkōḷar* in the weaving of plain cotton cloth, documented by Dutch records of the seventeenth-century (Ramaswami 1985b: 309; 1979: 309; 1985a: 123; Brennig 1975: 256), is also reflected in the European nomenclature for their product—calicos.[27] This parallels the historical experience of China where, as we have seen, varieties of cloth were known by the names of the villages of their production.

A unique inscription of 1538 from Tirupati (TTDES/IV/112) records the establishment of detailed guidelines for the production of patterned cloth with the jacquard loom at a meeting of cloth and yarn merchants of Tondaimandalam, and other merchants of indigenous and non-indigenous origins, namely that

> in the course of weaving by handlooms, one-third of the *Sadisarakkudam* or *achchukkattu* should be drawn lengthwise and two-third of the cotton yarn should be used in cross-wise weaving. This mode of weaving should be done only by the Muslims.

These specifications were to be communicated to Tirupati, Kanchipuram, and other places and it was stipulated that violators of these guidelines would be fined 12 gold *varāha*s, equivalent to 48 seventeenth-century rupees.[28]

The association of artisan communities with particular products and methods of production was often also linked to specific markets for their products as their designs had symbolic motifs—this was also true of overseas trade as each market had its own distinctive tastes and preferences. While this was understood by the factors of the Dutch and English East India Companies as they participated in the intra-Asian trade discussed more fully in the next chapter, other European observers less conversant with the trading practices of the Indian Ocean world, including a Dutch factor, Daniel Havart, attributed the reproduction of the same designs and patterns to the lack of originality and intiative of weavers in South India:

> Chintzes are painted here according to musters which are given to the painters which they then imitate completely and extremely well, for their national character is so stupid that they cannot imagine anything by themselves, but can only imitate something so that it has a complete likeness.
>
> (quoted in Chaudhuri 1990: 302)

Chaudhuri (1990: 312–13) also suggests that the lack of competition for Indian textiles may have inhibited technical innovations in production processes.

Greater specialization in manufacturing was paralleled by a growing fragmentation of production processes as indicated by the increasing reliance of weavers on the purchase of thread and in the progressively greater elaboration of a ritually ranked occupational segmentation of the population that we invoke by the idiom of caste (Palat 1995). Chintzes involved ten to twelve different dyeing processes and was a highly specialized operation (Chaudhuri 1990: 317). Operations connected with the processing of cotton—from its raw state to spun thread—progressively became the occupation of specialized communities. For instance, an inscription of the late fifteenth century from the Telugu country refers to a tax on cotton cleaners (Nilakanta Sastri and Venkataramanayya 1946: III, 89–90), while an inscription of 1557 from the Kannada country bears witness to the imposition of a tax termed *piñja sidhāyam* on cotton carders (Epigraphica Carnatica, X, Mk. 1, see Ramaswami 1985b: 308). Similarly, there is considerable evidence to the purchase of thread by weavers.[29] Even when production was intended for long-distance trade as in the case of calicos, the usual practice was for the weaver to purchase his own raw materials and tools, work on or with them in anticipation of market demand,

sometimes even enlarging "their 'investment' by having their product 'cured' by washers, a process taking…3 months, and costing three rupees for 20 pieces" and then sell the cloth (Habib 1969: 66–67; 1978–79: 171; Ramaswami 1979: 127–29). The practice of weaving in the artisan's household may indeed offer the advantage of involving other members of the family in production (Habib 1969: 112; Ramaswami 1985b: 313–14). A fifteenth-century verse by Srinatha describes the men in Palnad ploughing fields while the women spun thread (Ramaswami 1985a: 419).

The progressive fragmentation of production processes was also marked by a corresponding ruralization of craft production and related changes in its organization (Palat 1991: 22–23). This is indicated by a survey of tax schedules and other records, which show a shift of handicraft production, particularly to the submontane regions newly opened to sedentary settlements (Ramaswami 1985c: 38–40), from the environs of temple-centered urban places where it had largely been confined in the early medieval period. The locational shift of craft production from urban enclaves to the countryside vastly expanded the pool of artisans. In this context, it is instructive to recall Habib's (1969: 65) perceptive observation that though Western visitors to early modern India routinely commented on how the inflexibility of the caste system prevented an optimal social allocation of labor, there is not a single reference to a shortage of labor in any branch of production.[30]

Increasing specialization in, and the dispersal of, artisanal production was also manifested by the rise of powerful craft guilds.[31] The most powerful and well-organized of these was the *Mahānāḍu* (or the *Mānāḍu*) of the *kaikkōḷar*, headquartered at Kanchipuram and led by a *Mahānāṭṭan*. The pervasive reach of this guild is indicated by its organization, divided as it was into four *diśai-nāḍu* centered at Sivapuram, Thondipuram, Virinchipuram, and Sholingapuram to the east, north, west, and south of Kanchipuram respectively. These were further subdivided into eighteen *kīlai-nāḍu*s within which were grouped seventy-two *nāḍu*s. While the guild of the *kaikkōḷar* is documented only in literary sources like the *Sengunta Prabandha Tirattu*, which cannot be precisely dated, it is partly corroborated by inscriptional records that indicate that Kanchipuram was the centralized depository of copper plates detailing the status and honors accorded to this community of weavers. Thus, when *kaikkōḷar* in other settlements demanded certain privileges or complained of being deprived of their customary rights, imperial administrators arbitrated these

claims in accordance with the provisions of charters available at the Kamakshiamman temple at Kanchipuram.[32] The structured character of the *kaikkōḷa* guild system, as Mattison Mines (1984: 17–18) cautions us, should, however, not be taken to imply an administrative integration of all *kaikkōḷar*, from the part-time weavers in remote villages to the full-time specialists at the major centers of handloom production, all rigidly controlled by a guild-master at Kanchipuram. Guild regulations, after all, derived their sanction only from the voluntary compliance of corporate bodies of weavers at various places. Hence, guilds functioned primarily to coordinate a defence of their common interests rather than to enforce a rigidly specified caste discipline regulating all aspects of life from their marriage alliances and funerary practices to their cuisine, modes of conduct, and patterns of work.

While the guild of the *kammālar*—called the *pañchalar* in Kannada and the *pañchamuvāru* in Telugu—was led by an *Aindunāṭṭu Nattanmikkāran* also stationed at Kanchipuram, the guilds of the *dēvanga* and *togata* weavers, reflecting their non-Tamil origins, were headquartered at the Hemakuta hill, near Vijayanagara city. Some of the craft guilds also appear to have been organized territorially in endogamous branches. Thus, the Chola *Kammāḷar*, the Pandya *Kammāḷar*, and the Kongu *Kammāḷar*. Similarly, the *Sāliya* community was split into the Tamil *Sāliyar* and the Telugu *Sāle*s, each of which contained two distinct endogamous groups—the *Sāliyar* of Thanjavur and Tirunelveli, and the *Padma-Sāle*s and the *Paṭṭu-Sāle*s respectively.

The increasing specialization of artisans—resulting from technical advances, and a growing market for their goods and services under the stimulus of waves of migrants lured to the Tamil country with various inducements, offered by imperial administrators and *nāyakkar*—indicates a substantial expansion of craft production. Extant historical records do not permit even a crude quantitative approximation of the volume of this increase.[33] Dutch records of the late seventeenth century show that many villages in the eastern Godavari delta had large numbers of weavers as indicated by table 3.1.

These records also indicate that "head weavers" of three villages in the northern part of this region provided Dutch merchants with information, which suggested that an average weaver produced about 1,600 yards of cloth annually. This would imply that the yearly output of the 7,500 looms of the East Godavari delta was about 9,653,000 yards (Brennig 1990: 77–78).

Table 3.1 Weaving Villages in the East Godavari Delta, 1682

Villages	*Number of Households*	*Number of Looms*
Chollangi (*Tsalfengy*)	350	400
Peddapuram	400	500
Pithapuram and Samalkota	600	800
Thuni	600	800
Ponara and Oupara	500	600
Peddada	170	200
Pandalapake	40	50
Kesavaram	60	80
Dulla	400	500
Mandapeta	180	200
Veerarallipalem	180	200
Angara	80	100
Amalapuram	900	1200
Nagaram	900	1200
Andrangi (*Angringy*)	500	600
Draksharama	100	100
Total	5960	7530

Source: Adapted from Joseph J. Brennig, "Textile Producers and Production in Late Seventeenth Century Coromandel," in S. Subrahmanyam (ed.), *Merchants, Markets and the State in Early Modern India*, Delhi: Oxford University Press, p. 72, Table 2.

The *Puttasti* of Alamkonda mentioned earlier also lists a large number of looms in Alamkonda and its surrounding villages as indicated in table 3.2.

The "*cheṭṭi*" suffix appended to two of these individuals indicate that they were merchants, one of whom appears to have changed his occupation from weaving to trade. Similarly, an inscription of 1526 from Velpadugu records the tax liabilities of *cheṭṭiyar*, *sēnabhova*s, and merchants of indigenous and nonindigenous origins as follows: while no taxes were to be levied during the initial three years of their settlement, for all subsequent years 3 *paṇam*s were to be charged per loom; however, if a family owned 10 looms, only the first nine were to be taxed (SII/IX/Pt.2/516 from Gooty taluk, Anantpur district, cited in Ramaswami 1985b: 312). Even when artisans worked for merchants and brokers, they also often worked on their own account especially during the slack months after the ships carrying textiles had left the ports. Additionally, unlike the European putting out system,

Table 3.2 Taxes on Looms: Evidence from the *Puttasti* of Alamkonda, 1505

Magga-siddhaya (fixed income in looms):-			
The specification of the 370 looms, which remain after excluding 41 looms that were given away as *mdnya* (tax-free) from 411 looms:			
(i)	Looms for weaving colored cloth:-		
	Looms of Gurivi Setti of the *padmasale* Caste		65
	Looms of Kunigiri Lingi Setti		100
	Looms weaving red cloth in Gaurappanayani peta		230
	Looms of Viraya		16
	Total		411
	Manya		41
	Remaining looms		370
At the rare of 1/2 *riika* per loom per month, the income is *varaha* 15 *rii* 5:			
	And for one year the cash *varaha*		185
	Gaurappa Nayadu's perquisite *(vartana)*	*varaha*	20
	Fort tax *(durga virdlam)*	*varaha*	10
	Amount pertaining to *kanika* (dues to temple)	*varaha*	8
Total amount of cash from looms		*varaha*	223
(ii)	Looms weaving white cloth *(veli-maggalu)*:-		30
	Looms of the weaver Koppavaram in Gaurappanayani peta		12
	Looms in both places (total)		42
	Looms that were made tax-f ree		10
	Remaini ng looms		32
At the rate of 1/4 *riika* per loom per month the money obtained from 32 looms is *varaha*			
	2/3, and for one year	*varaha*	8
	Adukolu	*varaha*	3–1/2
	Total	*varaha*	11 ½
	Total income from looms	*varaha*	234–1/2

Source: Adapted from K. A. Nilakanta Sastri and N. Venkataramanayya, *Further Sources on Vijayanagara History*, III, *Translations and Summaries*, Madras: University of Madras Press, 1946, pp. 88–93.

the relations between weavers and merchants were more in the nature of an advance contract—in which the weaver received money to purchase raw materials rather than the raw materials directly from the merchant—which imposed clearly specified obligations on both parties. According to a text—the *Hidaya*—of the Hanifite school

of jurisprudence, acceptance of an advance by an artisan was considered as a sale and it could not be taken merely as a promise to deliver and hence imposed legal obligations. Since artisans had little information of market conditions—especially over long distances—this system provided them with an assured customer while the merchant was reasonably confident of receiving his merchandise on time (Chaudhuri 1990: 321).

None of these records documenting the ownership of multiple looms by an individual suggest that they were organized into large workshops, In late medieval and early modern North India, even when artisans were assembled in *karkhana*s or workshops, they were responsible for providing most of their own tools (Habib 1978–79: 161; 1980a: 38–39). The large size of the subcontinental population[34] meant that there were no compulsions to conserve labor through the deployment of mechanical devices and the use of new technologies would have required changes in the caste system and the creation of new castes (Habib 1978–79: 169). Similarly, as we have seen, an expansion in agricultural production was achieved by extending the arable rather than by promoting technological innovations, which would have intensified class antagonisms (Habib 1978–79: 161). Due to these reasons, as we shall soon see, even when production of textiles rose rapidly in the seventeenth and early eighteenth centuries as a result of the activities of the Dutch and English East India Companies, an expansion in output was achieved through an increase in employment rather than by the use of improved tools or new sources of energy. Under conditions of an abundant supply of labor, technological progress was denoted not by the introduction of labor-saving mechanical devices but by the acquisition of greater degrees of manual dexterity by craftsmen specializing in ever-narrower niches of the production process.

There are numerous pointers attesting to the rising prosperity and social influence of privileged artisan communities, particularly the *kaikkōḷa* weavers and the *kammāḷa* smiths. Perhaps the most significant indicator of the wealth of artisanal communities in a predominantly agrarian-based economy is their ownership of land. By the mid-fifteenth century, apart from the *brāhmaṇar*, the *kaikkōḷar* were among the most significant of nonagricultural castes owning land as illustrated by epigraphical references to their purchase,[35] and donations,[36] of land. The prosperity of artisans was also indicated by their donations of money and ornaments to temples. Here again, we are confronted with the dominant position of *kaikkōḷar*, as

evidenced, for instance, by a record of the reign of Harihararaya from Kunnattur (Sriperumbudur taluk), which documents that one among their number named Närpatennäyira-Cölakumäran set up an image of the deity in the local temple (221 of 1929–30).[37] It is significant that while other communities of artisans like the *kammāḷar*,[38] and service personnel like the *sekku-vāṇiyar*,[39] also made collective grants to temples, only among the *kaikkōḷar* did individual artisans make donations. Indicative of the prosperity of weaving castes is also the fact that even those looms *not* in working order were subject to tax![40] An additional indice of the importance of *kaikkōḷar* comes from epigraphical references to the economic devastation of villages as a result of their emigration in protest against high rates of taxation.

Reflecting their prosperity, and in recognition of their contributions, leading members of the *kaikkōḷa* community, the *kaikkōḷa-mudali*s, were often assimilated into the administrative bodies of temples and as village accountants.[41] Thus, an inscription of the reign of Virupaksha I (1404–1405) from Devanur records the grant of land as *kudinīnga-dēvadāna* to an individual, Tennavadaraiyär, by the *mahēśvara*s, the *tānattār*, the *kaikkōḷar*, and the *kaikkōḷa-mudaliyar* of the local temple.[42] With their increasing prominence in economic life and their rising social status, artisan communities that had been relegated to low ritual positions in late first and early second millennia—as demonstrated by Chola inscriptions prohibiting weavers, potters, drummers, and barbers from growing their hair long like *brāhmaṇar*, holding high offices, or owning slaves[43]—began to claim brahmanical origins and wear the sacred thread. In the *Skandapurānam* of Kachchiyappa Sivāchāriyar the origins of *kaikkōḷar* were traced to Vïrabähu, a figure associated with the diety Kärtikëya, while the *Dēvanga Purānam* states that *dēvanga*s were descendant from Manu and Närada. Manu was also the attributed ancestor of the *teliki* weavers who, however, claimed *kśatriya* rather than *brāhmaṇa* status. Finally, in contrast to a twelfth-century inscription from Tiruvarur (Thanjavur district), which prohibits the five artisan communities collectively the *kammāḷar*, *pañchalar*, or *pañchamuvāru* from performing rituals associated with the upper castes, by the fifteenth century these artisans were claiming to be descendants of the five sons of Visvakarma, divine architect in the brahmanical pantheon (Ramaswami 1985a: 421, 430; 1979: 135–36).

Artisan communities demanded, and were often accorded, ritual privileges commensurate with their mythological genealogies, like the right to ride a palanquin and blow the conch-shell on ceremonial

occasions.[44] A record from Manimangalam (Saidapet taluk), for instance, indicates that *kaikkōḷar* were preceded in ceremonial processions only by royal officials, the *sthānattār* and the *vēḷḷāḷar*,[45] while an inscription of the reign of Harihararaya from Kunnattur (Sriperumbudur taluk) mentioned earlier, records that a *kaikkōḷa* who had set up an image of the deity was accorded the right to clothe it after the ceremonial bath.[46] The right to clothe images and to wipe the faces of idols was also granted to the *kammāḷar* in some places.[47] Ritual honors were similarly accorded to other communities of artisans and service personnel.[48] Finally, a fourteenth-century epigraph from Kanchipuram records that Kopanna—an imperial officer during the time of Kampana Udaiyär, the Vijayanagara prince who conquered the Tamil country—gave *kaikkōḷar* permission to mortgage and/or sell their honors including their valued positions for the receipt of betel and nut at ceremonies, their right to services to deities and their places in the temple hierarchy (*aṭaivu*).[49]

The social and economic ascendance of artisans, especially of the *kaikkōḷar*, symbolized by the greater ritual honors accorded to them, however, fractured the tenuous unity that subordinate groups had forged to arrest an erosion of their material conditions with such signal success in the early fifteenth century. The interests of the *kaikkōḷar*, grown in strength and prosperity under Vijayanagara rule, participating in the management of temples, and sometimes even becoming absentee landlords,[50] increasingly diverged from the concerns of small cultivators, some of whom may well have tilled lands owned by members of the *kaikkōḷa* community. A widening rift between communities clubbed together in the twin caste clusters that bifurcated subordinate groups in the Tamil country is also evident from instances when the *kaikkōḷar* purchased lands on which the previous owners had been unable to pay taxes.[51] There is also some evidence to indicate that some *kaikkōḷar* themselves engaged in trade.[52]

The rise of artisan guilds was also inimical to the rise of trade guilds. Indeed, demands of trading communities for social status and ritual honors commensurate with their growing prosperity by the mid-sixteenth century, often indicated by their outright appropriation of symbols indicative of high rank already enjoyed by artisans, led to conflicts between constituent corporate orders of merchants and craftsmen. For instance, a mid-sixteenth century inscription of the reign of Achyutadevaraya records the migration of *kaikkōḷa* and *dēvanga* weavers of Villiyanur due to the usurpation of some of the *birud*as of the former by the *ilaivāniyar* (sellers of betel-leaf) with

the connivance of royal officials. The weavers returned to the village only after Vijayaraya, an agent of Tirumalaideva-Maharaya, had decreed after consulting the communal copper-plates of the *kaikkōḷar* that they were entitled to the *birudas* claimed by the *ilaivāniyar* (Pondicherry, 201 of 1936–37, para 61).[53] Similarly, a threatened emigration of the *añju-jati-pañchalattār* from Elavanasur (Tirukkoyilur taluk, 493 of 1937–38) was forestalled in 1573 when the *nāṭṭār* undertook, in the presence of Krishnappa-Malavaräya Nāyakkar and his *rāyasam* Tirumalaiyan—to guarantee them the same privileges that their brethren at Señji (Gingee), Padaividu, and Tiruvannamalai enjoyed. An inscription (65 of 1922) of the reign of Srirangadevaraya (1572–1585) also records the undertaking given to the same imperial officials by villagers of Tiruvamattur (Villupuram taluk) that they will accord the carpenters, blacksmiths, and goldsmiths of the settlement the same honors that were accorded to their counterparts at Padaividu, Señji, Tiruvannamalai, and Kanchipuram. Finally, an undated lithic record from Pattisvaram (Kumbhakonam taluk, Thanjavur district, 257 of 1927) refers to the settlement of a dispute between the *paṭṭunūlkkārār* and the *seṭṭis* concerning the question of precedence in receiving betel and nut on marriage occasions. Hence, the growing commodification of production further eliminated the material bases for an alliance between subordinate groups.

To summarize, the displacement of powerful local lineages and collegial bodies of landowners by a relatively centralized imperial bureaucracy, signified by the administrative reorganization under Vijayanagara rule, led to a widespread, though not total, commutation of revenue claims in kind to payments in cash designed to facilitate the assessment, collection, and transfer of expropriated surplus to an urban-based ruling class. A greater concentration of surplus and its more effective extraction from the frontiers of agrarian civilization through a system of revenue assignments stimulated a revival and intensification of circuits of exchange and the growth of commodity production. These tendencies were strengthened after the mid-fifteenth century when imperial administrators, being thwarted in their attempts to raise rates of taxation, sought to increase the volume of their disposable surplus by actively encouraging craft production by luring artisans to their domains with various inducements, and promoting an expansion of the arable to the interior through the excavation of irrigation tanks and canals. While the growth of craft production—also stimulated by new technological innovations, either of indigenous provenance, or transmitted from afar—led to a

new wave of urbanization, the latter was accomplished by a colonization of the interior by waves of immigrants skilled in techniques of dry farming.

In the context of a greater monetization and commodification of the economy, the introduction of new technologies of production and the greater elaboration of the division of labor and the fragmentation of production processes led to an increasing specialization of artisanal communities in ever-narrower niches of production manifested by the appearance of new castes. This greater professionalization led to the acquisition of greater skill and manual dexterity in narrow segments of the production process rather than to the greater use of labor-saving mechanical devices, to an increase in the quality of labor that enabled India to become "*the* major supplier of textiles—not just fine clothes, but everyday wear for the masses—to the whole of South East Asia, Iran, the Arab countries and East Africa" (Raychaudhuri 1966: 85; Wallerstein 1986: PE-29; Das Gupta 1982: 410, 413–16). It was thus an industrious, rather than an industrial, revolution.

Theoretical Reprise

The spread of wet-rice cultivation through improvements in irrigation technology, agrarian colonization of the interior by migrants skilled in the cultivation of arid lands, and the changed requirements of warfare that compelled state-builders and their subordinates to make revenue demands in money to maintain cavalries and import horses restructured the relations of domination and power relation on the Coromandel coasts, and the southern peninsula more generally, and promoted a high degree of commodity production. As early as the eleventh century in China, as wet-rice cultivation was expanding, an imperial official concerned with finances, Shen Kua, underlined the significance of greater monetization:

> The utility of money derives from circulation and loan-making. A village of ten households may have 100,000 coins. If the cash is stored in the household of one individual, even after a century, the sum remains 100,000. If the coins are circulated through business transactions so that every individual of the ten households can enjoy the utility of the 100,000 coins, then the utility will amount to that of 1,000,000 cash. If circulation continues without stop, the utility of the cash will be beyond enumeration.
>
> (quoted in Chaudhuri 1990: 82)

Noting the ensuing spread of commodity production and commercialization in China for a thousand years—without, however, mentioning the significance of wet-rice cultivation or the changed ecology of war-making and state-making—Hill Gates (1996: 29–30, 39–40) argues that the means of production owned by households controlled by men who were agnatic kin, rather than by individuals. Hence, the basic enterprise was a "patricorporation" that occasionally employed non-kin hired labor. Artisans were loosely organized by guilds and she calls this a system of "petty capitalism" that was different from "capitalism" because "most surpluses beyond the ambit of limited patricorporate expansion were channeled to officials, not to capitalists." As a result, while the system continued to expand and grow, this was "accomplished largely through labor intensification rather than through the technical innovation or greater use of capital characteristic of capitalism."

The most problematic issue in this formulation is its transhistorical character as she not only posits a re-emergence of "petty capitalism" in contemporary Taiwan (Gates 1996: 204–42), but also collapses petty commodity production over a thousand years into a single category and hence liberally draws on examples from this millennium-long time-span abstracting them from their historical contexts. Hence, for instance, citing Donald De Glopper's study of a silted-up town in Taiwan, she (Gates 1996: 29) claims that "despite the personalism of many Chinese petty-capitalist activities, concern for profit dominates other considerations in setting prices." There is no evidence that this held true across the centuries and all over the cartographic extent of China. Rather than seeing the "sprouts of capitalism" emerging in China and elsewhere only to wither away, it is perhaps better to locate the emergence of commodity production in a different framework.

Industrious revolution provides this more historically determinate framework to situate the emergence and growth of commodity production and commercial relations in the Coromandel Plain, and the subcontinent more generally. Rooted in the spread of wet-rice cultivation, and its ability to support larger densities of people than other staple food crops, a higher proportion of the population could engage in nonfood-producing activities on a full-time basis in lands under irrigated riziculture. Not only did this promote the spread of artisanal activities, but large populations meant that there were no compulsions to develop in labor-saving mechanical devices as has also been indicated by studies on the expansion of wet-rice cultivation in post–Song

China and Tokugawa Japan. Large populations additionally meant that a sizable proportion could engage in commercial activities, as peddlers, and there is no evidence that profits were the main determinant of economic activity as Gates claims. Instead, as discussed more fully in the next chapter, it is more likely that these peddlers functioned more like Chayanovian peasants, trying to maximize their incomes to meet their household consumption requirements or, conversely, to minimize their drudgery.

Under these conditions, the extension of rice cultivation led to more labor-intensive strategies of production as artisans specialized in ever-narrower segments of the production process, indicated by the appearance of new taxes in the inscriptional record and in the emergence of new castes. Technical improvement meant the acquisition of greater skill and manual dexterity, an improvement in the quality of labor rather than in the use of labor-saving devices or the search for new sources of energy like steam to drive mechanical implements. Of course, skilled craftsmen, as in the cases of inscriptional references to weavers owning several looms and even becoming merchants attest, enjoyed greater incomes than those less skilled. Ownership of additional looms rather than technological improvements to the looms themselves meant that the advantages of skill were fleeting and personal rather than institutional. Thus, rather than long-standing enterprises, we find references to weavers seeking land ownership and ritual and symbolic honors to cement their social status and political influence.

Due to the peculiarities of wet-rice cultivation, as we saw in chapter 1, land ownership was valued not because accumulation conferred economic advantages but because it brought political power and social status. Even when Christopher Bayly and Sanjay Subrahmanyam (1988: 416; Parthasarathi 1996: 86) posit the existence of "portfolio capitalists," they concede that these individuals could only secure their position by the purchase of land rights—not, that is by the pursuit of further accumulation. The greater productivity of land under wet-rice cultivation also meant that ruling elites could rely on taxes for their state-making activities and were not dependent on mercantile and financial elites. The "portfolio capitalists" themselves were high imperial officials who engaged in commercial activities rather than capitalists who had penetrated the state apparatus.

From this perspective, the equation of capitalism with free markets is baseless. The selling and buying of commodities, as Fernand Braudel (1981: 562) argued, is "barely distinguishable from ordinary

life." Capital accumulated in great goblets only when capitalists penetrated the state apparatus and were assigned monopolies or oligopolies. It was the restriction of the market that permitted the acquisition of great fortunes that could be ploughed back to secure even larger shares of the market.

Industrious revolution is also not mired in teleology like "proto-industrialism" as it does not suggest that technological improvements must necessarily lead to industrialization, the substitution of mechanical devices for labor power. Yet, the industrious revolution was underpinned by the same ships that ferried bullion to Asia, which also brought the botanical bounties of the Americas in the sixteenth century, though they began to be widely cultivated only in the following centuries. Most important of these plants was the sweet potato that arrived in China both from Vietnam (to Guangdong) and from Manila (to Fujian). Its ability to withstand droughts and pests, grow in marginal soils, and its low levels of labor input requirements led to its cultivation spreading rapidly up and down the coast as well as to Hunan in the interior and by the end of the seventeenth century it had become a staple along with rice in Fujian, Taiwan, and Guangdong (Anderson 1988: 97; Bray 1984: 530–32; Ho 1955: 193–94; Mazumdar 1999: 66–68; Spence 1977: 263).

Just as sweet potato cultivation became widespread along the coasts, maize became widely cultivated in the interior highlands. From Sichuan and Hubei where it had been established in the sixteenth century, through state-sponsored migration, peasants took it to Shanxi in the north:

> Like newcomers elsewhere, these immigrants did not have access to the best lands in long-settled valleys. Instead, they found land in the dry, less fertile uplands, so maize became the basic subsistence food of the smallholder economy of this region. A hardy, easy-to-cultivate crop capable of producing high yields with minimal investment, maize had greater tolerance for cold temperatures than the buckwheat grown earlier in these areas. Although the sweet potato was also introduced into this area under government sponsorship, it did not displace maize, since the latter requires a growing period of only four months, compared to the six-month period of the sweet potato . . . Like the sweet potato, maize requires an amount of time that is only the half that of other staple food crops in these areas, such as barley, wheat or millet. (Mazumdar 1999: 68–69; see also Anderson 1988: 115; Bray 1984: 455–58; Ho 1955: 194–97; Spence 1977: 263; Warman 2003: 39–40).

The peanut (*lo hua sheng*) was already listed as a local product as early as 1538 in Changzhou county near Suzhou, but the ready availability of other edible vegetable oils initially limited its spread. However, as it could grow in sandy warm regions where other crops could not be grown and as it provided a good source of protein and oil, its cultivation became widespread. Moreover, it is often cultivated in combination with sugarcane to prevent soil depletion as its nitrogen-fixing qualities compensated for sugarcane's nitrogen-depleting characteristic—and the link between sugarcane and peanut became so strong that "when a new sweet is borrowed from the West, a large dose of peanuts is often a step in making the borrowing into a true Chinese product" (Anderson 1988: 97).

It was the political unity of the Celestial Empire that enabled the state-sponsored migrations to the marginal lands—and there was no comparable correlate to this in India. Combined with the implementation of labor-intensive technologies in the early and mid-Qing period, the spread of American crops allowed the Chinese population to break a ceiling of 100–150 million and to reach almost 400 million by the end of the eighteenth century (Maddison 1998).[54] Hence, Sugihara (2003: 9), even speculates that:

> If the world had ceased to exist in 1820 a hypothetical "global historian" would surely have written an economic history centering on the industrious revolution path, with an important additional chapter on the recent rise of Western Europe.

However, a strategy based on improving the quality of labor rather than the instruments of production or the development of new sources of energy meant that when confronted with the superior power unleashed by better mechanical instruments and new sources of energy, societies pursuing a labor-intensive technological strategy were at a disadvantage. While superior artisanal techniques may enable craftsmen to forge high-quality swords or even copy guns, these skills were helpless when confronted with Enfield rifles and steamboats that can take their firepower to political capitals in the interior. By developing these sources, the peoples of northwest Europe were able to unleash "overwhelming force at minimal cost" and the extent of the European dominated world expanded from thirty-five percent of the earth's land surface in 1800 to 67 percent in 1878 and to 84 percent in 1914 (Headrick 1981: 3, 10). But that is another story.

4

A World-Economy Matures (Circa 1450–1650)

Jacob Cornelis van Leur famously characterized trade in the Indian Ocean before the arrival of the Portuguese and other Europeans as a peddling trade. If the assumptions underlying this portrayal—extraction of the bulk of the agrarian surplus by a ruling elite, which, by engaging in conspicuous consumption, constrained demand and thereby limited production for mass consumption and restricted trade to a few luxury items—have been refuted by subsequent research, the domination of trade routes in the "southern ocean" by peddlers is undisputed. Yet, the overwhelming numerical superiority of peddlers in commercial circuits signified not dramatic fluctuations in prices and supplies as postulated both by van Leur and by Niels Steensgaard, but the increasing integration of lands along the Indian Ocean coastlines precisely because these peddlers dealt not in high-value items catering to the fancies of the truly wealthy but in everyday necessities—spices, cloth, salt, foodstuff. The greater socioeconomic integration in the region and the expansion of trade also renders invalid, of course, claims that it was essentially an unchanging trade before the seventeenth and eighteenth centuries.

Being small operators eking out a bare subsistence, large numbers of peddlers ferrying low-value, bulk commodities from port to port wove a dense web of interrelations across the Indian Ocean and along its coastlines. Evoking Fernand Braudel's metaphor, Rene Barendse (2002: 152), likens the peddling trade to the ground floor of a multistoried building, at the top of which was "a floor populated by capitalists rather than a floor of capitalists" because even when great fortunes were accumulated, trade was a minor part of a battery of activities in

which high officials were involved and among these activities, land revenue and war figured far more prominently than commerce. For high officials of subcontinental kingdoms, as Barendse aptly puts it, "commerce was rather perceived as an asymmetrical exchange of gifts—amiable taxation—though, admittedly, it was a thin line between bestowing gifts and bartering them for a profit." As late as 1648, Mirza Muhammad Sadr Murtuza al-Mulk, a high official in the Golkonda Court who sold several shiploads of rice to the Portuguese in Ceylon, assured Felipe de Mascarenhas—the viceroy in Goa and a former governor of Ceylon—that

> your Excellency should believe that I am not a merchant, nor do I want to be. When I am sending merchandise to Ceylon, I am not sending it because I want to conduct trade but merely to serve your Excellency. (quoted in Barendse 2002: 141)

Unlike Max Weber's capitalist existing for his business, here businesses existed as subsidiary activities, and the only real monopolies—Braudel's true realm of capitalism—established were in goods with strategic significance: copper, gunpowder, horses, lead, and saltpeter.

When, in the wake of Vasco da Gama, increasing numbers of Europeans began to arrive in ports strung along Indian Ocean coastlines, their presence and activities cannot easily be analytically separated from those of indigenous rulers and traders as they interacted in contingent and specific ways: often being employed by indigenous rulers and merchants, even rewarded with rights to collect land revenues by subcontinental potentates who sought their protection in maritime trade (Wills Jr. 1993). The one novelty the Portuguese, and the Dutch and the English East India Companies after them, introduced into the Indian Ocean world was the deployment of violence on a qualitatively distinct scale over the ocean. Before the "Vasco da Gama" era, violence had been strategically deployed by small, trade-dependent coastal states all across the Indian Ocean littoral. Marco Polo, in his description of operation of pirates off the coast of Malabar in the Arabian Sea around 1295, wrote:

> These pirates take with them their wives and children, and stay out the whole summer. Their method is to join in fleets of 20 or 30…vessels together, and then they form what they call a sea-cordon [*il font eschiel en la mer*], that is they drop off till there is an interval of 5 or 6 miles

> between ship and ship, so that they cover something like a hundred miles of sea, and no merchant ship can escape them. For when any one corsair sights a signal is made by fire or smoke, and then the whole of them make for this, and seize the merchants and plunder them (quoted in Prange 2011b: 1273; Chakravarti 1991: 175).

The coordinated action of these pirates stemmed from the semiautonomous political organization of the Mukkuvar caste of fishermen in Malabar—the fifteenth-century Arab navigator Ibn Majid noted that they were "a people ruled by their own rulers" (see Prange 2011b: 1273)—and they often operated, as Polo noted, with the acquiesance of rulers of small coastal states like Thane who received all the horses captured (Chakravarti 1991: 176; Prange 2011b: 1276). In these conditions, as Ibn Battuta reports, galleys on the Arabian Sea carried Abyssinian soldiers to protect them. Evidence from merchants arming their ships also comes from the fragments preserved in the Cairo Geniza, which document that ships owned by a merchant, Ramisht, lifted a siege of Aden by the Qaysi (Kish) fleet in 1135 (Goitein and Friedman 2008: 342; Margariti 2008: 559–60; Prange 2011b: 1278, 2013: 17–18). Yet, the rulers of great entrepôts like Calicut and Aden refrained from such measures as the profits from trade greatly outweighed the spoils of piracy (Chakravarti 1991: 175; Prange 2011b: 1276).

Even the *cartazes* that the Portuguese required vessels to purchase to ensure their safe passage may have been a loanword from the Arabic *qirtas*, meaning paper or document, referring to safe-conduct passes issued by rulers of coastal cities in the Red Sea and the Indian Ocean (Prange 2011b: 1276). What distinguished the Portuguese was not their introduction of violence or protection in the Indian Ocean, but that they deployed violence on an entirely different order of magnitude. Local rulers had, in the words of Philip Steinberg (2001: 15; see also Subrahmanyam 1997: 110–12), treated coastal waters "like land in that it is susceptible to being claimed, controlled, regulated, and managed" by them as an extension of their terrestrial sovereignty. But unlike the Portuguese, they made no claims to sovereignty over the deep seas where "the only necessary (or even permissible) regulation is that which ensures that all ships will be able to travel freely across its vast surface." Thus, when the king of the Maldives approached the *faujdar* of Balasore in 1622 to petition the Mughal emperor to ban English and Dutch shipping from the islands, the *faujdar* replied that the emperor was "master only of land and not of the sea" (quoted in

Prakash 1998b: 140). In the eastern Indian Ocean archipelago, a ruler of Makassar would similarly complain to the Dutch that when "God made the land and the sea, the land he divided among men and the sea he gave in common. It has never been heard that anyone should be forbidden to sail the seas" (quoted in Reid 1990: 73).

If the Europeans claimed sovereignty over the seas, rulers of large terrestrial empires were quick to hold them to their claims. It was customary by the 1620s, for the Danish, Dutch, and English trading companies to provide gunners and pilots to defend Golkonda ships from Portuguese attacks (Subrahmanyam 1990b: 318–19). In the late seventeenth century, when Maratha forces began to disrupt overseas trading ventures of the Mughals, the emperor pressured European traders to intercept the Maratha fleet. When Henry Avery captured *Gani-i Sawai*, the largest ship of the merchant fleet based at Surat, in 1695, a ban was imposed on trade with the English and over 70 English traders were imprisoned, with more than a dozen dying in captivity as the Mughals demanded that the English and the Dutch provide escorts to their ships. Just two years later, the Mughals seized an English ship sailing to Madras due to the failure of the English to prevent a pirate attack (Benton 2005: 714). As Lauren Benton (2005: 715) bluntly states:

> To insist that Europeans collaborate to pacify the pirate-ridden Indian Ocean was, in effect, to hold these powers to their jurisdictional claims over ocean space. And while Mughal officials protected their rights by paradoxically reaffirming English ocean sovereignty, English company officials reinforced Mughal legal authority on land and on the coasts as a way of protecting English enclaves and European-Mughal arrangements for trade.

Again, when the English asserted their right to control trade in the small principality of Signaty on the Malabar Coast in 1696, they were careful to assert that their jurisdiction extended only over the waters and not over the land and affirmed that the "Prince of Signaty" continued to exercise sovereignty "Especially on the Sea Shore of Signauty" (quoted in Benton 2005: 715–16).

When studies on the "expansion of Europe" portray the European intrusion into the world of the Indian Ocean as a largely unilateral endeavor, it is well to recall that the Persian–Dutch treaty of 1631, negotiated between representatives of the states-general of the United Provinces of the Netherlands and the Court of Ispahan, formalized a

"capitulation régime" and established that the Royal Persian Agent in the Netherlands was to enjoy the status

> of a commercial and judicial officer (consul) similar to that appointed at that period by European powers in the Ottoman Empire. Article VI of the treaty treats the Agent in the same way as the Agents of European Sovereigns at the Court of the States General, which must have implied the right to appear before the highest authorities of the State including the enjoyment of diplomatic or at least quasi-diplomatic status.
>
> (Alexandrowicz 1967: 123)

In other words, the 1631 treaty indicated that the Dutch were ready to grant the Persians the same privileges (permission to conduct trade, exemptions from customs duties, immunity of their domicile from local jurisdiction, exercise of their religion within their houses, and so on) they claimed for themselves.

The small island states in the eastern Indian Ocean archipelago enjoyed no similar invulnerability from European naval might and were soon reduced to the status of dependencies especially by the more commercially oriented Vereenigde Ostindische Compangnie (VOC), as discussed in the third section. For now, it suffices to note that though the Dutch and English East India Companies were formally characterized as joint-stock companies, which combined the functions of a commercial enterprise with some functions of states such as the right to conclude treaties and wage wars, in the Indian Ocean they functioned primarily as states within its interstate system just as the Portuguese *Estado da India* had done before them. Their deployment of the attributes of sovereignty—warships, armies, fortresses, and the power to negotiate treaties on behalf of their states—set them apart from other resident mercantile communities in Indian Ocean ports and commercial centers who also managed their own affairs as rulers granted them exemptions based on their own customs, creating several separate juridical realms, subject only to the rulers' authority in case of conflicts or serious crimes like homicide. At the same time, when representatives of resident communities of merchants from Indian Ocean ports—such as the Armenians from Iran in the seventeenth century—went to European capital cities to negotiate commercial issues, they often claimed to be representatives of kings and were accorded ambassadorial status including the right to import goods free of duties (Barendse 2002: 87, 90, 299; Dale 2010: 124; Matthee 1999: 84–92).

The entry of Europeans and their participation in the interstate system and in the commerce of the Indian Ocean does not imply that the Indian Ocean and its associated coastal regions were being incorporated into a European world-economy at this time as the greater participation by the Portuguese and the northern European trading companies did not fundamentally disorient the emerging networks of trade in the "southern ocean." When the Portuguese or even the Jesuits received grants of revenue from subcontinental rulers, for instance, there is no indication that they attempted to change patterns of land tenure, rights of access to land, or raise revenue demands (Campos 1979: 44–65; Pearson 1972; 1987: 111–12; Subrahmanyam 1990a: 67, 74, 121; Wills Jr. 1993: 95).[1] Similarly, even when the Dutch imposed monocultural economies on some islands of the eastern Indian Ocean archipelago, they did not seek to modify local structures of power or legal systems.

And yet, if the insertion of Europeans into the interstate system and networks of trade along the Indian Ocean coastlines did not indicate the emergence of a singular historical social system evolving inexorably toward capitalism, the relation between these two systems—the nascent European and Indian Ocean world-systems—was more complicated than Immanuel Wallerstein's claim that trade between two world-systems was restricted to an exchange of luxuries (Hopkins et al. 1977: 142; Wallerstein 1974: 20–21, 40–42, 301–44; 1980b: 47–48; 1980a: 14–15; 1982: 99–100). Notably, the American plants that enabled the Chinese population to pole vault over the limits of its traditional resources and expand to almost 400 million by the eighteenth century cannot be dismissed as trivial to its internal reproduction. Moreover, as we shall see, since European products did not have a large market in the Indian Ocean world, the Portuguese—and especially the Dutch and English East India companies—vigorously participated in localized circuits of coastal and long-distance trade, the "country trade." The better protection afforded by European vessels against pirates, many of whom were Europeans themselves, meant that indigenous traders preferred to transport their cargoes in European ships. The decline in indigenous shipping, in other words, did not imply a decrease in trade (Pearson 2005).

Of equal importance is an increase in the intensity and density of commercial linkages across the Indian Ocean and its related hinterlands facilitated by inflows of gold and silver from the Americas—either directly through the Manila galleon, or via Europe across land and over the seas. In Ming China, for instance, even with all the

problems of underreporting of domestic production of silver as well as corruption, all evidence indicates that domestic supplies were severely limited. To underscore this, Quan Hansheng observed that though Spanish taxes on the Potosi mines were far lower than the Chinese taxes, Spanish administrators were able to secure more revenue in a week than the latter could in a year (Moloughney and Xia Weizhong 1997: 171). In a continent relatively starved of coinable minerals, it is hard to imagine how commercial linkages could have expanded as extensively as it did between the late fifteenth and the late eighteenth century without the large inflows of American bullion brought to Asia by the Europeans. Conversely, outflows of bullion that the Europeans brought from the Americas were equally crucial to European economies as without these substantial leakages the impact of the "price revolution" would have fundamentally distorted patterns of economic and political dependencies—and Dennis Flynn and Arturo Giraldez (1995a: 429) were to claim that without these outflows "there would not have been a Spanish Empire."

The progressive elaboration of commercial linkages along the Indian Ocean coastlines meant that there was a degree—often, as we shall see, a considerable degree—of regional specialization in production. Unlike core–periphery relations in the capitalist world-economy, the exchange of primary products for finished goods cannot be axiomatically equated to exploitative trade relations in these commercial relations. Unequal exchange, as Arghiri Emmanuel (1972) had demonstrated, arises in trade between states that have the same rate of profit and levels of productivity but different wage levels. Premised on the lack of mobility of labor and the high mobility of capital among trading partners, this argument is based on the fact that in these conditions, workers in a low-wage country would have to export a larger volume of products in exchange for a given volume of imports from a country with a higher-wage level than if wage levels were uniform.

As we have already seen in the Introduction, however, there was little awareness of production conditions in long-distance trade, especially in exchange relationships between highly monetized and nonmonetized areas. In the trade between Gujarat and the Swahili coasts of Africa, while ivory was highly valued in India, it was a by-product of the hunt for meat:

> One elephant could yield up to 5 tons of meat, and hence invaluable protein. The tusks which could weigh up to 40 kg. were a by-product, and accordingly had little value. In some areas, they were stuck in

> the ground as fences or palings. In this almost non-commercial world, Muslim merchants or their agents often had to press cloths onto the locals, and trust that they would produce gold or ivory in return; this trust was usually well placed.
>
> (Pearson 1998: 104)

Hence, even if this trade had many of the characteristics of an imbalanced trade between primary products and finished goods, it was not tantamount to an extraction of surplus from the Swahili coasts to Gujarat and other locations in India despite its magnitude by the sixteenth century: ivory exports from Mozambique and Sofala were estimated to range from 23,000 kg in 1520 to 121,000 in 1546—and Garcia da Orta claimed a total importation to India over the sixteenth and seventeenth century amounted to a staggering 330,000 kg (Pearson 1998: 48; cf. Barendse 2002: 172, n. 168 for a critical review of ivory exports).

Again, notwithstanding the considerable export of cotton textiles from the subcontinent to the Persian Gulf, East Africa, and to Southeast Asia, there is no conclusive evidence that it displaced local manufacture of cloth. Although Indian cotton cloth was the largest single import to Southeast Asia in the sixteenth and seventeenth centuries, cloth was also the region's primary item of manufacture (Hall 1996: 119; Reid 1988: 90). White cloth from the Coromandel—because of its even surface and high density of thread was the preferred fabric for the region's characteristic batik textiles—functioned as an intermediate good, subject to further processing in Sumatra and eastern parts of the Malay peninsula. In this sense, it may even have stimulated textile production, as William Gervase Clarence-Smith (2009: 130) has suggested. The greater scale and more detailed divisioning of labor in Indian textiles made them cheaper than local Southeast Asian products, which were primarily produced by women in households for domestic consumption in backstrap looms (Reid 2009: 33).

In East Africa, Portuguese sources reported that cloth purchased in Gujarat for 100 could be sold in Malindi for 220 and in Sofala for 780. Many places in the region grew cotton but their techniques of weaving were not as efficient or fast as those of Gujarati weavers. Weaving also interrupted the cultivation cycle and Pearson (1998: 113, 123; see also Machado 2009: 168–69) suggests that it was rational for them to import cotton cloth from India by exchanging the gold and ivory they collected as a discretionary activity. As this was a trade in use values, he argues that the import of cotton textiles

from Gujarat in exchange for gold and ivory and high profits was not a case of the "development of underdevelopment," to use André Gunder Frank's marvelously adequate phrase.

This is not to suggest that places linked by trade formed "landscapes of even development" as certain places—royal capitals and administrative seats, major ports, and market centers—were more prosperous than others. But the fount of their prosperity was situational rather than structural and the decline of a port city's major trading partner, the collapse of a dynasty, or even a shift of administrative center meant that a town's advantages evaporated and it reverted to the insignificant village or sleepy port it had once been. Unlike core zones that reap disproportionate benefits by virtue of their positions in trade networks and over time these accretions of wealth are evident by monumental architecture that mark cities and towns as the crown jewels of these zones, major entrepôts and capital cities in the trading world of the Indian Ocean were not characterized by great civic buildings and could be readily abandoned and just as readily rebuilt as Babur, the founder of the Mughal empire, noted:

> The cities and provinces of Hindustan are all unpleasant. All cities, all locales are alike. The gardens have no walls, and most places are flat as boards…In Hindustan the destruction and building of villages and hamlets, even of cities, can be accomplished in an instant. Such large cities in which people have lived for years, if they are going to be abandoned, can be left in a day, even half a day, so that no sign or trace remains…There is no limit to the people…There is no making of houses or raising of walls. They simply make huts from the plentiful straw and innumerable trees, and instantly a village or city is born.
>
> (quoted in Wink 2004: 68–69)

These observations were corroborated for Muhammad bin Tughlaq's Delhi and by Jean-Baptiste Tavernier as we have seen in the Introduction. In the early seventeenth century, Pietro della Valle described houses in Cambay as having tiled roofs with cisterns to collect the rain water running off the roofs—but he said that though these houses were considered to be the best, they were only on par with very ordinary houses in Europe (Chaudhuri 1990: 356). Some one hundred years later, Alexander Hamilton reported that the palace of the Raja of Badagara in Malabar "was very meanly built of reeds and covered with cocoa-nut leaves, but very neat and clean" (quoted in Chaudhuri 1990: 158). We also saw that the situation was virtually identical in Southeast Asia and sixteenth-century visitors remarked

that instead of putting their wealth into houses, the people preferred investing in dress and the decoration of their bodies (Machado 2009: 170–71; Reid 2009: 33). Other reports suggest that the populations of ports such as Surat and Hormuz rose and fell with the seasons (Wink 2004: 73). Thus rather than invoking the idiom of core–periphery relations, it is best to characterize trade by the specific commodities exchanges—rice-producing regions, centers of textile production, spice exporting zones.

As the example of the exchange of Gujarati cloth for ivory on the Swahili coast illustrates, the mere establishment of commercial relations does not denote the existence of an integrated socioeconomic system, a world-economy. Reconstructing patterns of regional interdependencies between lands on the Indian Ocean coastlines and their associated hinterlands are, moreover, complicated by the virtual absence of detailed indigenous records reflecting the lack of interest in commercial affairs by high officials. In this context, not surprisingly, the inevitable recourse to European records—contemporary travelogues, accounts of trading companies, private merchants, and of the *Estado da India Oriental*—proves, however, of little assistance, due to their inclination to dwell on what concerns them, the "rich trades," and their neglect of the mundane, the less spectacular but, in the context of evolving regional dependencies, more weighty trade in bulk goods (Das Gupta 1985: 483–84). Similarly, in the eastern Indian Ocean, Anthony Reid (1993: 2) has underlined that though spices accounted for only a small volume of intraregional trade, which was largely based on bulk foods, spices occupy a disproportionate role in the literature.

Evidence for the intensification of commercial linkages across the ocean and overland also stems from references to resident communities of foreign traders in major ports and commercial centers who largely managed their own affairs. In the absence of a recognized body of international law, this system of *natios*—the Turkish *millet*, the Persian and Arab *milliya*, the Tamil *nagara*, the Kiswahili *torwa*—enabled different mercantile communities to adjudicate their differences without recourse to local authorities. Since notions of national identity did not exist, membership in the *natio*s were variously defined—by religion, by language, by place of origin—with the criteria for acceptance being "descriptive rather than ascriptive" (Barendse 2002: 88–89).

Some clues concerning the gradual integration of the coasts of the Indian Ocean littoral and their associated hinterlands are provided by

references in the accounts of contemporary travelers to the region and in the records of the *Estado* and the European chartered companies. When these references are located within the context of indigenous records of taxation and production, which not only indicate a greater regional specialization of production, but also the increasing demand for a wide variety of monetary media—gold and silver certainly and copper, cowrie shells, and other humbler forms of currency media as well and the pervasive presence, especially in peninsular India, of a variety of fractional coins suggesting the spread of monetization—we can begin to discern patterns of regional integration. These indications are reinforced by evidence also of an evolving pattern of intraregional political alliances as between the Ottoman sultans and the rulers of Aceh, or between the Safavid rulers and the Golkonda sultans, suggesting the emergence of interstate relations, and the associated spread of shared codes of statecraft across the region. On both wings of the ocean, we shall argue, then that the Ottoman Empire and Southeast Asia, being Janus-faced and looking both toward the European world and a Sinocentric world functioned as interstital zones, linking the Indian Ocean world-economy to other world orders.

Hence, the first section attempts to chart the flows of commodities between the shores of the Indian Ocean and its related hinterlands from the mid-fifteenth century to the arrival of the Portuguese in the wake of Vasco da Gama, the communities involved in their conveyance, and the organization and trading practices of these communities through an examination of Tamil historical records, supplemented by extrapolations from contemporary European accounts and modern historical studies. Here and in the following sections, greater attention is devoted to the eastern Indian Ocean because linkages across the Arabian Sea all too often overshadow commercial linkages across the Bay of Bengal. The next section seeks to assess the impact of Portuguese claims to sovereignty over maritime routes on the evolving regional and sectoral interdependencies, again with particular reference to the eastern wing of the Indian Ocean. This is followed by an analysis of the subsequent evolution of these relational networks till the expansion of the Mughal Empire to peninsular India, a process that coincided with the establishment of Dutch supremacy over the Indian Ocean and the relegation of their English and Portuguese competitors to subsidiary markets. Mughal dominance and the corresponding eclipse of polities in the peninsula, along with the growing participation of European trading companies in Indian Ocean networks of trade, production, and power, refigured

relational dependencies so substantially that the ensuing patterns are properly the subjects of another study. Finally, the last section seeks to locate the expansion and intensification of commercial networks in the trading world of Asia with wider global trends to silhouette the distinctiveness of evolving patterns of trade in the "southern ocean" and its associated coastlines.

Trade Revival in the Fifteenth Century, 1430–1520

By the early fifteenth century, as production processes were being reorganized in peninsular India, West Asia was also emerging from a series of destructive wars ranging from the Crusades to the Mongol and Tartar invasions, which ruined Iran, Iraq, and Syria, and to the Ottoman–Persian wars, which devastated large tracts in Iraq, north-eastern Anatolia, and northwestern Iran (Issawi 1970: 246–47). These wars not only destroyed the fragile irrigation projects on which agricultural production in Iran and Iraq were predicated, but were also often accompanied by a large-scale deportation of skilled craftsmen.[2] The cumulative consequences of these wars brought about recurrences of the bubonic, pneumonic, and septicaemic plagues and epidemics of other contagious diseases, which led to depopulation on a large-scale all over the region (Dols 1977). In Egypt, it has been estimated that the number of villages fell from 2,454 in 1315 to 2,122 in 1434, leading to a fall in the primary source of revenues—land taxes—for the Mamluk state from 9.4 million *dinars* in 1315 to only 1.8 million as late as 1517 (Dols 1977: 248; Ashtor 1976: 303; Lopez et al. 1970: 15). Similar decreases in population, approaching catastrophic proportions, were also reported from Syria, Iran, and Iraq (Issawi 1970: 248–50; Ashtor 1976: 301–06). Manifestations of economic decline attendant upon this widespread devastation were the disappearance of silver coins in Egypt and Syria by the end of the fourteenth century,[3] the simultaneous collapse of the silk and linen industries of the two regions,[4] and a decline of agricultural production from the last quarter of the fourteenth century.[5]

This economic downturn in West Asia facilitated a strengthening of trading relationships across the Arabian Sea to ports along the coastlines of India and eventually to the eastern Indian Ocean archipelago.[6] Thus, whereas the linen industries of Egypt and Syria had previously supplied cloth to the whole region, particularly to the important pilgrimage centers of Mecca and Medina, and had even exported large quantities of textiles to Mediterranean markets,

the decline of these manufacturing centers was fortuitous for the expansion of craft production in the Indian subcontinent. The penetration of West Asian markets by coarse Indian cotton textiles was also stimulated by significant changes in maritime technology at this time (Lewis 1973). Similarly, the precipitous decline of agricultural production was matched by a rise in the flows of grain from subcontinental ports as suggested by Ma Huan's (1970) description of early fifteenth-century Hormuz: "The land produces rice and wheat [but] not much; it is all bought in different places and comes here to be sold; the price is extremely cheap." Between 1460 and 1490, as silver production in central Europe—Saxony, Bohemia, Hungary, and the Tyrol—and Sweden increased by about five times, it also contributed to a massive rise in trade between Europe, West Asia, and the trading world of the Indian Ocean and China (Atwell 1998: 388–89; 2002: 99–100).

Similarly, on the eastern wing of the Indian Ocean, the Late Song revocation of the ban on all foreign trade (except those conducted in the guise of "tribute" missions) in the late twelfth century, caused a major realignment of trade patterns in the Malay peninsula (Reid 1993: 10–16). Before the lapse of Chinese overseas trading restrictions, the kingdom of Srivijaya on the island of Sumatra had centralized trade between the Malay archipelago and the Celestial Empire by gaining Chinese "recognition of itself as the regional overlord and the rightful bearer of tribute to China" (Andaya and Andaya 1982: 29; Wheatley 1959). The end of the tributary system, however, heralded a steady decline of Srivijaya since it opened the Malay–China trade to private Chinese traders who preferred to go directly to the sources of supply rather than to a centralized entrepôt. The decline of Srivijayan preeminence was hence paralleled by the growth of a series of small ports dotting the coastlines of the peninsula, some of which like Kampé and Kedah grew in importance and even began sending ships of their own to trade with ports on the southeastern coasts of India by the thirteenth century.

Though conditions in southern India, where trade circuits were being disrupted by the political instability following the decline of the Cholas in the thirteenth century, were not propitious to an expansion of long-distance trade, flows of a variety of luxury products—ivory, aromatic woods, tin, and so on—from the Malay peninsula to China increased rapidly. By the late fourteenth century, when exports from South Indian ports began to attain their former levels, the increased volume of the China–Malaya trade had facilitated

the growth of impressive entrepôts along the Malay archipelago. The most important among these was Melaka—founded in 1400 (Andaya and Andaya 1982: 37), and still a small port in 1433 when Ma Huan (1970: 108–14) visited it—which had grown to become the largest entrepôt in the eastern Indian Ocean by the early sixteenth century when the first Europeans arrived. Having seen only Lisbon and Seville, Tomé Pires (1967: II, 285) declared that it had "no equal in the world." Melaka owed its rapid growth in the latter half of the fifteenth century primarily to its accessibility during both monsoons (Meilink-Roelofsz 1962: 37). Hence, it was ideally sited to serve as a market where merchants from ports to its east and to its west could meet.

Initially, an expansion in the circuits of exchange across the Bay of Bengal merely revived trade routes fallen dormant after the collapse of the Cholas and the ensuing decades of political instability, and long-distance trade appears to have been confined to high-value, low-bulk luxury products. Early indications of the revival of long-distance trade networks in peninsular India, for instance, come from late fourteenth century inscriptions recording the grant of duties on muslin and silk by large corporate bodies of merchants.[7] In Southeast Asia, Kenneth Hall (1996: 102) reports that words for cotton and silk cloth are derived from Sanskrit in contrast to bark cloth, which derives its various names from indigenous languages.

The career of Pulicat exemplifies the growth of regional dependencies caused by the mid-fifteenth century restructuring of relational networks in the southern subcontinent. At best a small, sleepy fishing community not meriting a mention in travellers' accounts even as late as 1433 when Ma Huan completed his survey of the shores of the Indian Ocean, it had emerged by the early sixteenth century as the premier port on the subcontinent's eastern seaboard.[8] In the early Portuguese accounts, Pulicat had, by virtue of its links with Melaka and other ports on the Indian Ocean littoral, so eclipsed Mailapur—the major port on the Coromandel till the 1430s—that the latter rated a mention only because tradition held that an Apostle, St.Thomas, died there. But Pulicat's reign as *primus inter pares* among Coromandel ports, as we shall soon see, was closely aligned to the destinies of the Vijayanagara Empire, and was not fated to outlive the ebb of the latter's fortunes for long.

Like Melaka, its more famous sister port on the Malay peninsula, Pulicat represented an intersection where many streams converged, pulling together diverse, localized, and fragmented circuits of

exchange. It was sited squarely in the middle of the Coromandel coast, at the confluence where a network of coastal capillaries stretching from the Bengal and Gingelly coasts to its north and from the southern Malabar and the Fisheries coasts to its south intermingled, and connected by a dense web of arterial and subsidiary roads reaching deep into the interior, to the imperial and provincial capitals, to diamond mines of the central peninsular *doāb*, and to flourishing supraregional centers of pilgrimage and artisanal production. Recognizing its central role in the evolving trade networks, the Vijayanagara emperors stationed officials in the entrepot to collect customs duties (Dames 1918–21: II, 132).

Hugging the coast, and perhaps calling at smaller coastal settlements—"port-hamlets," as Markus Vink (2004: 49) appropriately terms them—along the way, came a flotilla of small craft from Bengal and Orissa, loaded with rice, sugar, butter, and smaller quantities of silk (Dames 1918–21: II, 135–48; see also Temple 1923: 79; Raychaudhuri 1982: 328–31). This was a traffic that corresponded closely to the agricultural cycle, with vessels leaving the coasts of Bengal and Orissa toward the close of the harvest season in January and February, and appearing at Pulicat and other Coromandel ports a month later (Subrahmanyam 1990b: 50). The flow of foodgrains from Bengal was necessary for the victualling, not only of the people of Coromandel but also of the cultivators of pepper and other spices in Malabar—Duarte Barbosa, for instance, reported the purchase of large quantities of low-quality rice for the very poor by merchants from the latter region (Dames 1918–21: II, 125; Pires 1967: I, 76–77; Temple 1923: 71, 73–74). Rice in Bengal was reputed to be very cheap—Cesare Frederici, in 1567 said that in Sondwip one could get "a sacke of fine Rice for a thing of nothing" and forty years later, François Pyrard wrote that in Chittagong:

> There is such a quantity of rice, that, besides supplying the whole country, it is exported to all parts of India, as well to Goa and Malabar, as to Sumatra, the Moluccas, and all the islands of Sunda, to all of which lands Bengal is a very nursing mother, who supplies them and their entire subsistence and food. Thus, one sees there every day an infinite number of vessels from all parts of India for these provisions.
>
> (quoted in Eaton 1993: 201)

These references corroborate evidence contained in a few indigenous historical sources. For instance, an imprecisely dated inscription of

Kampana Udaiyar (mid-fourteenth century) from Tirukkalakkunram records the levy of a consolidated tax (*kaṭṭukkuṭṭagai*) of 70 *paṇam* per annum payable by the *kaikkōḷar* on the cloth (*puḍavai*) sold by them at Sadras and their purchase of commodities there, including paddy brought from several countries,[9] indicating that weavers in centers of textile production relied on supplies of rice grown elsewhere. From the south, again hugging the coasts, came a similar flotilla carrying commodities that provided the return cargoes for vessels of the north—timber, areca nuts, cardamon, and above all pepper, from Malabar, and pearls from Sri Lanka and the Gulf of Mannar.

Finally, cloths from the southern Telugu country, from centers of production in present-day Nellore district, also wound their way along the coasts to Pulicat for sale in markets to its east: at Pegu and other ports on the Irrawaddy delta (Dames 1918–21: II, 132, 153; see also Purchas 1965: 127–28); at Mergui, Tavoy, and Cosmin in Tenasserim, as lower Burma was then known; at Martaban and Pidie (Pedir) in Sumatra; and above all at Melaka, the port-hole through which fabrics from Gujarat, Coromandel, and perhaps even from Bengal, were conveyed to the islands of the Indonesian archipelago and China. Coromandel textiles were also marketed in Malabar, and less significantly in Gujarat. Since Gujarat was a substantial textile-producing zone in its own right, it is possible that a significant proportion of cloth arriving there from Pulicat and other Coromandel ports were rerouted to the Levant and beyond through Arabia.[10] Thus, arriving in 1508–1509 at Pulicat, Duarte Barbosa was immediately struck by the magnitude of printed cotton cloth exported from there to Melaka, Pegu, Sumatra, Gujarat, and Malabar (Dames 1918–21: I, 132). Similarly, Pires (1967: II, 272), an apothecary soon to become the first Portuguese ambassador to the Celestial Court, reported in the course of his extensive travels in the eastern Indian Ocean, that three to four ships laden with "coarse Kling cloth" worth 12,000–15,000 *cruzado*s each, annually arrived at Melaka from the Coromandel coast, in addition to one or two larger vessels, laden with cloth worth 80,000–90,000 *cruzado*s. Another contemporary observer reported the annual arrival at Melaka of a ship carrying a cargo of cloth worth 100,000 *cruzado*s (Meilink-Roelofsz 1962: 67). These figures suggest an average annual export of cloth worth between 116,000 and 225,000 *cruzado*s from the Coromandel coast to Melaka alone by the early sixteenth century. Including cloth from Bengal and Gujarat, the total textile imports from the subcontinent to Melaka was conservatively

estimated to be about 460,000 *cruzados*, equivalent to 19 tons of silver in 1511 by Pires (Hall 1996: 119).

The bulk of this trade was composed of coarse fabrics cut to a standard size, and painted by a brush or a pen—hence the Portuguese called them *pintados* or "painted" cloth. These pieces of cloth were sold as *tapé* or *sarassa*, to be worn by both men and women around their waists. For the marketing of these sarong-like apparel, an important consideration was their styles and patterns, as each locality in the eastern Indian Ocean had its distinctive customary patterns and even a slight deviation from these norms would render the goods unsalable as Peter Floris who traveled aboard *The Globe*, the first English vessel to trade in the Bay of Bengal and the Gulf of Siam, chronicled in the early seventeenth century (Moreland 1934: xix–xx). A few years earlier, in 1602, Augustijn Stalpaert surveyed the market in Banda, the chief entrepôt for eastern Indonesian spices, and described 21 types of cloth that had to be procured from the Coromandel, eight from Gujarat, and six from Bengal (Reid 2009: 36). The wide variety of distinctive, localized styles accounts for the highly differentiated cargoes of coarse calicos from Pulicat and of chintz (i.e., cloth printed with a wooden block) from Gujarat that Pires (1967: 269–72) observed a century before Floris had made his report. Visitors to Southeast Asia in the sixteenth and seventeenth centuries also remarked on the cultural proclivity to invest wealth on clothes and bodily decorations rather than in houses. The spread of Islam led men to start wearing pants and women to cover their breasts and these sartorial changes also increased the demand for cotton textiles from the subcontinent (Hall 1996: 115; Reid 2009: 33).

On their return journeys from Melaka, where traders from all over the littoral, and even from as far afield as the Levant and the Lower Yangzi Valley, conducted a brisk trade, ships that plied the sea-lanes of the eastern Indian Ocean carried gold, large quantities of copper, white sandalwood, camphor, silk, pearls, pepper, Chinese brocades, damasks, alum, and calambac to the Coromandel, in addition to small quantities of tin, nutmeg, mace, and cloves (Pires 1967: 272; Dames 1918–21: II, 125, 121–32; Meilink-Roelofsz 1962: 67). Leaving Melaka in January on their month-long return journeys, these vessels arrived at Pulicat in time to meet merchants involved in the coastal trade (Pires 1967: 272; Dames 1918–21: II, 125). The resultant congregation of merchants placed Pulicat at the pinnacle of an extensive trade network, orchestrating as it did steadily intensifying flows of commodities between regions as far

apart as Bengal and the imperial city of Vijayanagara, and between southern Malabar and the Malay archipelago.

An expansion of textile production that was central to the importance of the Coromandel coast in the emerging nexus of trade relations was predicated on the existence of circuits of exchange assuring a steady, reliable supply of foodgrains to feed the craftsmen. This dependence was underlined by a conspicuous simultaneity of demand for labor in both the agricultural and manufacturing sectors—the times of harvest corresponding to times of outward voyages in September–November and in January–March of each year (Subrahmanyam 1990b: 48, 54). In other words, the monsoons that determined patterns of sailing also dictated that—unlike the historical experience of late medieval and early modern western Europe, where peak periods of labor demand in agriculture and textile production complemented each other—slack periods in the agricultural cycle in the late medieval subcontinent did not correspond to peak periods of textile production. Thus, unlike his west European counterpart, a *kaikkōla* was rarely a part-time weaver. Similarly, unlike Braudel's Mediterranean peasants, Tamil cultivators of the sixteenth century could not turn sailors with the seasons.

The patterns of circulation of commodities over land in the late medieval and early modern Tamil country are considerably more obscure than their flows across the high seas, since contemporary European visitors were usually unconcerned with the former. Indeed, most of them only saw the coasts, rarely venturing more than a few miles inland. The route between Vijayanagara City on the one hand, and Pulicat and Mailapur on the other, passing through Chandragiri and Tirupati, indicating links between administrative headquarters, centers of pilgrimage and ports, documented by Niccolo Conti is a signal exception to this generalization (Major 1974: 7). Infrequent references to the travels of monarchs contained in the preambles of inscriptions recording imperial donations—being a list of fortresses captured, kingdoms conquered and rebellions suppressed—are hardly indicative of the main arteries of commerce traversed by carts, pack animals, and by petty traders and porters carrying loads on their heads,[11] since the main significance of the moving royal camp as we have seen in chapter 2 was to control subordinates through a display of power and wealth. While Chola inscriptions frequently referred to the traders of horses, *kudirai-cheṭṭigaḷ*, from Malai-nādu (modern Kerala) coming to the Tamil country by land, the occasional Vijayanagara epigraph mentioning the tax levied for the purchase of

horses, *kudirai-kāṇikkai*, does not refer to their original transshipment points.[12] Contemporary European and Arabic travel accounts nevertheless emphasize that the Vijayanagara rulers guarded the strategic route between the port of Bhatkal and their capital zealously (Subrahmanyam 1995: 763). Srinatha's *Haravilaśamu*, a text dedicated to Tippayya Cetti of Simhavikramapattana (Nellore), records that this patrician merchant and his brothers delivered a variety of luxury goods in the late fourteenth and early fifteenth centuries to the Vijayanagara, Kondavidu, Bahmani, and Gajapati courts, conveying their merchandise from distant places—"camphor, plants from the Punjab, gold (plates or dust) from Jalanogi, elephants from Ceylon, fine horses from Hurumanji (Ormuz), musk from Goa and Cotangi (Chautang), pearls from the Fisheries Coast and fine silks from China" (Aiyangar 1924: 51–58; Mahalingam 1969–75: 126–27, 156). However, the transport of dyes, chintz,, and Arabian horses from Gujarat to the Malabar coast documented by Barbosa, when taken in conjunction with his observation that "copper, quicksilver and vermilion, as well as other Cambaya wares, dyes in grain [Meca velvets and especially] rosewater" were easily available at Pulicat, tends to confirm the existence of busy overland routes (Dames 1918–21: II, 121, 125, 132; Gopal 1975: 92).

Expanding circuits of exchange were also vital preconditions for the spread of sedentary settlements to the arid interior where, despite the irrigation projects that made cultivation at all possible, agriculture continued to be dependent upon the monsoons. In these circumstances, widespread trading networks provided a safety net assuring an increased supply of grain from regions unaffected, or at least less afflicted, by drought. Barbosa, for instance, reports that in years when monsoons failed in the Coromandel, merchants from Malabar shipped a "great store of rice and coco-nuts" to the coasts of southeastern India, trading their cargoes for children of the famine-stricken populace, buying them as slaves for as little as "four or five *fanam*s each"'(Dames 1918–21: II, 125). Identical reversals of the patterns of coastal trade in years of scanty rainfall are documented in Dutch records of the seventeenth century (Subrahmanyam 1990b).

The growing density of long-distance trade across the ocean is also evident by references to the establishment of resident communities of"foreign" merchants in major ports and other commercial centers who, in the absence of a widely accepted framework of international law, were granted the right to adjudicate disputes arising among their separate communities and to act as intermediaries between local

merchants and merchants from their places or origin or religious affiliation. For instance, in his account of Melaka, Pires (1967: II, 265) refers to four *shahbandars*—one for the Gujaratis, another for merchants from the Coromandel, Bengal, and Burma coasts, a third for traders from the Malay archipelago and the Philippines, and a fourth for the Chinese—both the Muslim Chinese and the Cantonese—as well as the Vietnamese, and those from the Ryukus. and Champa. The *shahbandar* not only provided visiting merchants with elephants and small boats for local transport but also, given Melaka's small size, supplied them with arms and commanded them in battle (Hall 2006: 466–67). Similarly, Portuguese records document the activities of autonomous communities of "foreign merchants" in sixteenth-century Calicut, who lived in specially demarcated areas and were headed by a leader chosen from amongst themselves as well as in the Persian Gulf (Pearson 1976: 17–18; Barendse 2002: 46–47; Alexandrowicz 1967: 98).

These communities or *natios* oversaw the daily administration of trade in the ports and other commercial centers—certifying weights, measures, and currencies and, more importantly, adjudicating disputes between merchants regarding supplies and finances especially since it was substantially cheaper and faster than petitioning the courts of local rulers—with minimal recourse to local representatives of states. They were responsible for religious performances of their communities, including the disposition of the bodies of the dead—and the cremation of traders from India often led to conflicts with local imams in ports on the Arabian Sea. In cases of conflict with local officials, the *natios* would submit "humble" petitions to the authorities—and could stop conducting business or even abandon the port and transfer their operations to more accommodating locations nearby if their demands were not conceded. Though *natios* were not formally institutionalized, with written regulations and the like, they even acted as ambassadors occasionally and sent delegates to royal courts (Barendse 2002: 90–91).

As Ma Huan (1970: 140–41; Chaudhuri 1985: 99) observed in mid-fifteenth century Calicut, goods were unloaded at ports only after prices were negotiated between the visiting merchants and two representatives of local traders. Since the overwhelming bulk of the traders were peddlers, they could not easily adjust their supplies to fluctuations in demand and even though, as Rene Barendse (2002: 153–55) notes, these were "almost textbook cases of perfect competition: unlimited numbers of sellers meeting unlimited numbers of customers," prices did not respond to market conditions in ways

predicted by neoclassical economics. Since most peddlers dealt in small quantities, and had small stocks, they were unable to influence price movements. Rather, like Chayanov's peasants they sought to maximize yields rather than profits. As a result, markets were highly segmented—adding to the problems peddlers had in getting information—and there were persistent variations in prices, and even bimetallic ratios for precious metals, between localized markets (Barendse 2002: 157).

As an eastern window opening out to the world across the Bay of Bengal, Pulicat was vitally important to the functioning of the societal order of southern India in at least two additional respects. In the first place, it was one of the major avenues through which items of luxury consumption—like Chinese brocades and porcelain, and precious stones of Pegu—so essential to the maintenance of political allegiances were brought to potentates on the southern peninsula. Barbosa, for instance, records the purchase of these commodities at Pulicat by merchants who subsequently transported them by land back to Vijayanagara city (Dames 1918–21: II. 130–31; see also Purchas 1965: 99).

In the second place, and perhaps more significantly, Pulicat was the conduit for monetary media from the east that increasingly lubricated transactions within peninsular India—revenue payments, market exchanges, and distributions of extracted surplus. As we have seen in the previous chapter, currency systems in the southern peninsula were distinguished by the absence of nonmettalic monetary media such—such as cowries,[13] and *badam*[14] (an inedible, bitter almond) that respectively facilitated transactions in Bengal, Orissa, the Maratha country, and Kashmir from the fifth to the nineteenth century; and Gujarat (Garg 2007). The use of copper coins, *kāśu*, for low-level transaction was all the more remarkable since peninsular India had no copper mines of its own. Consequently, the import of large quantities of copper from Melaka noticed by sixteenth-century European travelers was an important complement (Dames 1918–21: I, 191; Furber 1965: 249–51) to the large shipments of copper from Europe and Africa to the west coast of India,[15] and smaller quantities arriving over land from Iran (Pridmore 1975: 117, 161; Perlin 1987; Haider 2007: 192–93).

Despite the importance of inflows of currency media of all types to the subcontinent and the pioneering research of Aziza Hasan (1969) on the Mughal currency system, attempts at a quantification of money supply in the late medieval and early modern subcontinent are

mired in a host of conceptual difficulties and ambiguities. Her estimates of silver currency output on the bases of museum collections, as John Deyell (1976) contended, were prone to error since acquisition procedures of museum collections were not governed by principles that permitted such extrapolations.[16] However, his own preference for estimating monetary output on the basis of the contents of coin hoards is equally unreliable without a consideration of factors influencing the practice of hoarding, and contextualizing recorded finds within the total numbers of hoards actually uncovered. Additional complications arise in that coins of a lower denomination—especially copper, lead, and tin coins—are rarely represented in hoards, and even when present, never in substantial quantities (Perlin 1987). Thus, Shireen Moosvi's (1987b) histogram of Mughal silver currency output based on recorded finds in Uttar Pradesh treasure troves generally vindicates Hasan's conclusions, if not her method. However, Moosvi's ambitious attempt to derive quantitative estimates of the silver influx into Mughal India by processing fragmentary data with complex arithmetical operations is only procedurally possible by making a number of untested (and currently untestable) assumptions, and some staggering extrapolations.[17] Given the fragility of the evidentiary bases for quantitative estimates of coin outputs, monetary circulation and rates of monetization, Frank Perlin's call for a reconstruction of infrastructures generating a demand for monetary media offers an elegant way out of the present impasse. This operational procedure enables us to contextualize flows of monetary media to the subcontinent within the framework of evolving and intensifying regional and sectoral interdependencies.

Unlike the Arabian Sea, where trade was dominated by the Arabs despite the regular passage of ships owned by merchants from the subcontinent (Das Gupta 1967: 5–7; Das Gupta 1982: 408), no single community was able to dominate maritime traffic in the eastern seas. Pires (1967: 268), for instance, enumerates the following mercantile communities at Melaka in the early sixteenth century:

> Moors from Cairo, Mecca, Aden, Abyssinians, men of Kilwa, Malindi, Ormuz, Parsees, *Rumes*, Turks, Turkomans, Christian Armenians, Gujaratees, men of Chaul, Dabhol, Goa, of the kingdom of Deccan, Malabars and Klings, merchants from Orissa, Ceylon, Bengal, Arakan, Pegu, Siamese, men of Kedah, Malays, men of Pahang, Patani, Cambodia, *Champa*, Cochin China, Chinese, *Lequeos*, men of Brunei, *Luçoes*, men of *Tamjompura*, *Laue*, Banka, Linga (they have

> a thousand other islands), Moluccas, Banda, Bima, Timor, Madura, Java, Sunda, Palembang, Jambi, Tongkal, Indragiri, Kappatta, Menangkabau, Siak, *Arqua* (*Arcat* ?), Aru, *Bata*, country of *Tomjano*, Pase, Pedir, Maldives.[18]

The most important participants in the steadily intensifying web of cross-oceanic commerce were the *cheṭṭiyar* (especially the *kōmatti*s and the *balañjiya*s) and the indigenous Muslim communities of the Coromandel coast, who were irrepressible till the mid-eighteenth century (Arasaratnam 1978: 43–44). Prominent also in the trade between the Malay peninsula and the coasts of southeastern India were the Coromandel merchants settled at Melaka—Pires's *klings*, or the *cheṭṭiyar* Barbosa said were "very corpulent with big bellies" (Pires 1967: 268, 271–73; Dames 1918–21: II, 177). Ships from Arabia, Gujarat, Malabar, and Bengal also plied the eastern seas, conveying goods not only from their home ports but also from Europe by way of the Mediterranean and the Levant, and from the Indo-Gangetic *doāb*. The role of Armenians, especially those settled on the Coromandel coast, was also considerable. Finally, the Sultans of Melaka were themselves deeply involved in the trade within the eastern Indian Ocean as demonstrated by the Portuguese capture of a ship belonging to the last Sultan after the fall of Melaka in 1511 (Meilink-Roelofsz 1962: 52).

Apart from a cargo of cloth from the Coromandel worth 12,000 to 15,000 *cruzado*s belonging to the Sultan and therefore seized by the Portuguese, the royal vessel also contained cloth belonging to *cheṭṭiyar* resident at Melaka, one among whom served as its captain (Meilink-Roelofsz 1962: 52).[19] Though the value of cargoes shipped by merchants on the Sultan's ship was not mentioned in Alfonso de Albuquerque's letter of April 1, 1512, to the king of Portugal since they were not subject to seizure, their very presence aboard this vessel illustrates an important aspect of long-distance trade across the Indian Ocean. Despite Barbosa's report that some wealthy merchants could fit out as many as three to four ships by themselves (Dames 1918–21: II, 176), as the cargo-composition of the sultan's ship indicates, the more common practice was for companies of merchants jointly to undertake a voyage. It was, after all, the only way that most traders could participate in cross-oceanic commerce. Each merchant shipped a diversified cargo, not only to spread his risks, but also because the luxury goods from which he derived a large part of his profits occupied very little space. These joint ventures were

headed by a *nakhuda* or captain, who was either the owner of the vessel or his representative, usually the former in the case of smaller ships. Finally, the considerable trade in low-value bulk goods was a boon to the numerous petty peddlers who either climbed aboard ships sailing beyond Melaka's western horizons with their little bundles of goods and returned with a headload or two of cloth from the Coromandel or Gujarat coasts, or else entrusted their merchandise to a kinsman travelling on board the departing ship, or with the *nakhuda* himself, at the sender's risk (Meilink-Roelofsz 1962: 46–52; Barendse 2002: 14–15).

In contrast to their early occupation of Melaka, Portuguese involvement with the Coromandel remained minimal in the first half of the sixteenth century. Consequently, the organization of trade in southeastern India is considerably less well-documented in their records, compelling an almost exclusive reliance on extrapolations from fragmentary epigraphical references. However, an interpretation of these references within the patterning of social relations sketched earlier suggests a replication of the organization of Coromandel-bound traffic from Melaka. The control of the more expensive varieties of cloth—the dyed fabrics of superior quality from Masulipatnam and Petapoli, and muslin and silk—led to a greater dominance in their trade by wealthy merchants, sometimes organized in corporate bodies. Indeed, the infrequent references to activities of the *nānādēsi* merchants in later Vijayanagara inscriptions are always associated with the trade in luxury goods,[20] and rarely with the traffic in coarse cotton cloth. Of course, the prominence of wealthy merchants in the luxury trade does not imply that they did not participate at all in the bulk trade in coarse cloth[21]—only that they failed to dominate the latter. The suggestion that wealthy merchants devoted themselves to the "rich trades," trafficking in expensive goods affordable only to the truly wealthy and yielding high profits, dovetails nicely into the small, localized markets for coarse cloth indicated by the accounts of Pires and Floris. These circumscribed markets for coarse fabrics, by limiting sales and profits implied that wealthy merchants could never eliminate petty traders, who perhaps accumulated and transmitted detailed knowledge of local markets through networks of caste and kinship. Hence, it is possible that these true peddlers, like their landlubber brethren making a living from frequenting periodic markets, climbed aboard ships chartered by groups of wealthy merchants, with their headloads of cloth. At the same time, being operators on a small scale, these petty traders did not have the means to make advances

to weavers and thereby effect a subordination of the producers of textiles intended for mass consumption.[22]

It is the combination of these densely interwoven structures of low-level interdependencies—brought about by a vast expansion of craft production, the spread of sedentary settlements to arid tracts, and the increasing integration of producers within growing circuits of commerce—and the demand for a substantial share of the surplus in cash by political functionaries, rather than a strange Indian proclivity to hoard gold and silver that underlies sustained and high levels of demand for monetary media in the subcontinent. It was the cumulative consequences of these long-term structural trajectories, as Perlin (1984, 1986, 1987) has properly insisted, that determined the basic infrastructures generating a persistent demand for currency media of various kinds. In fact, it is only by focusing on this broadly based demand for coinable metals—gold and copper—that we can transcend the lack of reliable statistics on the import of these metals to the domains of the *Raya*s of Vijayanagara and our ignorance even of the numbers and identities of mints and begin to account for the relentless flow of monetary media to the southern peninsula.

By Vitorino Magalhães Godinho's estimates, till the mid-sixteenth century, the Portuguese exported large volumes of copper to the Malabar coast—from 4,000 *quintais* annually in 1510 and then an annual average of 6,000 *quintais* till 1520 (Subrahmanyam 1994: 195). Seventeenth-century evidence indicates an increasing penetration of mints by Portuguese para-statal authorities, northern European trading companies and Indian merchants, all issuing coins under charters from subcontinental political authorities. However, since this was clearly a response to specific conditions,[23] a backward extrapolation from these sources to the sixteenth century is clearly unwarranted. In the light of formidable uncertainties and inadequate evidence, it would be equally gratuitous to suggest that all coinage in the empire, including copper coins, was centralized in imperially administered mints.

Taken collectively, evidence of the patterns of trade and infrastructures generating exchanges suggest the beginnings of an integration of serially related production processes, and a regional divisioning of economic activities. The great demand for subcontinetal textiles on both wings of the Indian Ocean implied that the territories where textile production was concentrated—primarily Gujarat and the Coromandel coasts—and Melaka, the dominant entrepot in the eastern Indian Ocean were clearly the most prosperous areas, drawing on sources

of subsistence and raw materials for artisanal manufacture, not only from locales in their immediate vicinity, but also from increasingly distant regions (e.g., flows of raw silk from Bengal to Gujarat). Yet, their fortunate positions were situational and could easily be reversed as we shall see in the following section.

The Lusitanian Interlude, 1500–1620

Despite the increasing importance of these cross-oceanic commercial links, and unlike the Sultans of Melaka, central administrations of subcontinental states with only a few exceptions,[24] remained preoccupied with the more efficient extraction of agrarian surpluses. Hence, local administrators were left free to deal as best they could with all issues related to seaborne commerce. Or, as Ashin Das Gupta (1982: 422) pertinently remarked:

> The Hindu Baniya trembling in fear of "the Mughal," unable to accumulate and hang on property due to the fell attention of the government, is a figure largely conjured up by the ill-informed imagination of a few among India's western travelers.

The primary result of the Portuguese irruption into the Indian Ocean, as already noted, was the imposition of tributary extortions, rather than a severance of evolving regional interdependencies. They attempted to enforce their claim to sovereignty over the seas primarily by the *cartaz* system, which theoretically compelled every ship sailing to a port not reserved by the Portuguese for their exclusive trade to purchase licenses from the Viceroy at Goa or his designated agent, if it was to be secure from acts of piracy from Portuguese galleons. This was hardly an innovation as Ibn Battuta reported that the Hindu ruler of the small state of Fakanur (modern-day Barkur on the Malabar coast) had a fleet of 30 warships commanded by a Muslim named Lula and

> It is a custom of theirs that every ship that passes by a town must anchor at it and give a present to the ruler. This they call the right of the port (*haqq al-bandar*). If anyone omits to do this, they sail out in pursuit of him, bring him to the port by force, double the tax on him, and prevent him from proceeding on his journey for as long as they wish. (Chakravarti 1991: 175; Prange 2011b: 1276; Prange 2013: 25)

What was different about the Portuguese was that they systematically deployed their naval might on a qualitatively different scale. Through a string of fortified settlements strung along the Indian Ocean coastlines, from East Africa to the Indonesian archipelago, regular naval patrols attempted to enforce a royal monopoly on the spice trade, claimed by King Dom Manuel in 1505, six years after he had precociously proclaimed himself, "Lord of Guinea, and of the conquest of the navigation and commerce of Ethiopia, Persia and India."

From the very outset, the Portuguese perceived the implications of their naval superiority—a fact neatly encapsulated in Francisco da Almeida's letter to the"grocer king": "If you are strong in ships, the commerce of the Indies is yours, and if you are not strong in ships, little will avail you any fortress on land" (quoted in Braudel 1984: 493; see also Chaudhuri 1982: 383–85; Furber 1951: 14). Or, as Thomas Roe was to write a century, "Keep to this rule if you look for profit; seek it out on the seas and in peaceful trading; for there is no doubt that it would be an error to maintain garrisons and to fight in India on land" (quoted in Braudel 1984: 493). Though this Portuguese attempt to achieve a stranglehold over the eastern spice trade evoked unrelieved gloom among the Venetians and Arabs, it is now well-established that Portuguese control over Indian Ocean trade was far less effectual than had been assumed earlier (Chaudhuri 1985: 65 ff.; Reid 1993: 14–15).

While the Portuguese struck at Asian shipping with all the fury of a tsunami,[25] reasons for their failure to channel the trade of Asia through the "spicery" at Lisbon are not hard to find. In the first place, they were only partially successful in blocking maritime traffic through the Red Sea, since Aden at the entrance to this narrow waterway remained impregnable until it fell to the Turks advancing southward by land in 1538.[26] Their need to enlist Safavid aid to block the extension of Ottoman power, also made it imperative for the Portuguese to abstain from blocking Iranian ports, an outlet for eastern spices to Syria and the Mediterranean. Besides, even the narrow Red Sea was wider than the thirty-mile radius visible to the lookouts on the Portuguese "tall ships" that sought to block the straits of Bab-el-Mandeb each trading season (Chaudhuri 1985: 73). On the other hand, in the eastern Indian Ocean, the *Estado da India* was confronted by the formidable naval might of Aceh, built by Sultan Ali Mughayat Syah, who obtained his artillery from Ottoman arsenals. At the time of his death in 1530, the sultan had captured so many guns from his raids against the Portuguese that Aceh was better

equipped with artillery pieces than the Melaka garrison (Chaudhuri 1985: 75; Reid 1969; Meilink-Roelofsz 1962: 145). Elsewhere, as in Calicut in 1503, the Samudri Raja lured two Milanese cannon makers to his service and within three years, they had cast 300 cannons and taught the locals the manufacture and use of artillery (Pearson 1987: 58). And the combined fleets of Calicut, Egypt, and Gujarat defeated the Portuguese at the battle of Chaul in 1508 though the latter had its revenge over the "Triple Alliance" in Diu the following year (Prange 2011b: 1282).

In the second place, as the Portuguese presence on India's western seaboard constrained the trade of Calicut, the Samudri Rajas, despite their treaty relationships with the *Estado*, covertly built relationships with Malabari pirates—especially the Kunjali Marakkars who became the most formidable rivals to the Portuguese along western India.[27] By using country craft, local traders were able to evade Portuguese blockades and convey pepper and other goods northwards to Gujarat and around Cape Comorin to ports on the Bay of Bengal. Portuguese attempts to control trade also revitalized overland routes from Calicut and other points in Malabar to Nagapattinam, Masulipatnam, and other points east (Prange 2011b: 1286–87; Prange 2011a: 229–31).

In the third place, though the Portuguese seized some of the most glittering entrepôts—Hormuz, Diu, Calicut, and Melaka—these were small enclaves, dependent on the surrounding countryside for food and trading with the interior was often more lucrative than their overseas trade (Meilink-Roelofsz 1962: 138; Barendse 2002: 60). This vulnerability as well as lucrative commercial prospects compelled the Iberian intruders to accommodate rulers of powerful land-based empires. Albuquerque realized that rulers of states in peninsular India were dependent on the supply of war horses from Arabia and the Persian Gulf, and the capture of Goa through which the Bahmani Sultanate had imported horses, and Hormuz on the Persian Gulf, enabled him to neutralize Goa's dependence on the interior (Eaton 2009: 296).

Finally, Portugal, that tiny strip of land on the western edges of continental Europe with a population of little more than a million persons registered in the census of 1527, was simply not rich enough to maintain effectively its string of widely dispersed outposts stretching from Sofala on the southeastern coast of Africa to Macau off the South China Sea and Ternate in Maluku. Plagued by a shortage of manpower, a perennial lack of sufficient numbers of ships to patrol simultaneously both halves of the Indian Ocean and the

South China Sea, and barriers to communications posed by vast distances, Portuguese plans to monopolize the spice trade were doomed to failure (Meilink-Roelofsz 1962: 125–33; Chaudhuri 1985: 75–76; Braudel 1972: I, 546; Boxer 1977: 48–64).

In these circumstances, the Portuguese claim to maritime sovereignty was notoriously difficult to enforce, except along the coasts off Mozambique (seized in 1507), Goa (1510), Hormuz (1515), and Diu (1538), and it may well be as Philip Curtin (1985: 145; Hobson 2004: 151) and Pearson (1987: 58) suggest that Asian rulers acquiesced in purchasing *cartazes* rather than matching the Portuguese at sea because the latter course was more "cost-effective." While the requirement that Asian ships purchase passes from ports controlled by the Portuguese may have affected the destinies of individual ports—the rise of Goa and the concomitant decline of Calicut, or the eclipse of Cambay after the annexation of Diu being cases in point—it did not substantially affect the patterns and practices of maritime trade (Das Gupta 1967: 9–12; Gopal 1975: 14).

At the same time, the large outlays required to patrol Indian Ocean maritime routes, garrison their outposts, and absorb frequent shipwrecks and damages to cargoes caused by long voyages around the Cape of Good Hope led to rising prices of spices in Europe.[28] In the Asian theatre, the *Estado* had initially paid higher prices than indigenous traders. However, their early successes in violently disrupting seaborne traffic, by causing a rise in European prices, created opportunities for Asian merchants bold enough to run the gauntlet of Portuguese squadrons, especially since the *Estado* did not increase its purchase prices. In these conditions, by offering higher prices, Asian traders were able to reserve for themselves the better quality spices, which they then conveyed to Arabia and the Red Sea by charting new routes, and thereby evading Portuguese vessels.[29] From these ports, spices and other Asian commodities were transported overland to Alexandria or the Levant for carriage in Venetian galleys across the Mediterranean. Lower freight charges, shorter distances, and smaller risks on these more familiar routes, with their well-established intermediary stations, thus revived overland caravan trails by the mid-sixteenth century completely bypassing the Portuguese (Braudel 1972: I, 543–70; Meilink-Roelofsz 1962: 132–33; Gopal 1975: 14–16). An indication of the magnitude of this revival may be found in a 1569 report by Archbishop D. Jorge Temudo of Goa, which stated that "so much pepper is now going to Mecca from Aceh that this year there was a surplus, which was re-exported to Gujarat" (quoted in

Boxer 1969: 421; see also Meilink-Roelofsz 1962: 144–45; Reid 2007: 106–07).[30] Similarly, Baltasar Suàrez reported from Florence in 1591 to Simòn Ruiz in Valladolid when the *naos de Yndias* failed to arrive at Lisbon, that while prices of spices had risen, pepper—that most valued of eastern spices—had remained stable "since large supplies have arrived at Venice from the Levant" (Braudel 1972: I, 548). And Magalhães Godinho, in the defense of his doctoral thesis at the Sorbonne, was compelled to concede that the value of Portuguese spice and pepper imports was far exceeded by the value of agricultural production in the kingdom (Braudel 1982: 403).

Thus, as Braudel (1972: I, 546; Chaudhuri 1982: 383–85) noted, pretentious functionaries of the *Estado da India* were, in reality, little more than customs inspectors, their *cartazes* being a minor tax rather than a substantial restraint on trade. In the Bay of Bengal, away from the major arteries of the spice trade to Europe, Portuguese control was even less significant till the late sixteenth century. Here, after their seizure of Melaka in 1511, their local administration initially outfitted ships at rather infrequent intervals to Martaban and Pulicat, sharing the costs and cargo space equally with participating *klings*. For instance, in the first of such enterprises to Pulicat, undertaken in 1514, the Portuguese Crown and Nina Chatu (Chetti?), a prominent *kling* at Melaka, equally shared in the expenses incurred in commissioning the vessel, provisioning the crew, and in loading and unloading its cargo. On this voyage, the Crown's investment in alum and copper for sale in the Coromandel was worth 12,000–13,000 *cruzados*. Interestingly, apart from factors of the two principals, passengers on this ship included many *klings* and some Portuguese residents of Melaka (Subrahmanyam 1990b: 99–100; Ikuta 1977: 55–57; Reid 1993: 48).

Though joint enterprises between the Portuguese Crown and the *klings* soon came to an end, with the inauguration in the 1520s of annual voyages from Goa, which stopped at Pulicat on their way to Melaka or Martaban before returning, the Portuguese did not claim a monopoly over these routes. In the absence of fortified bases on India's eastern seaboard, any such claim would have been manifestly unenforceable. Thus, four or five ships of *klings* and private Portuguese traders continued to ply between Pulicat and Melaka. The marginality of this route to the *Estado da India* is underlined by the running of the Pulicat–Melaka segment of the annual *naos* (Great Ships) merely as a transporting venture, with the Crown investing no capital at all in commercial transactions, being content to collect 6 percent of the

value of goods carried on board as freight charges, and an additional 6 percent on arrival at Melaka as customs duties. Captains of these *naos* were granted one-fourth of the cargo space free of freight charges and customs duties. These allotments were routinely rented out to merchants who allocated their more valuable merchandise to the captain's one-fourth share of cargo space (Subrahmanyam 1990b: 108–09). Further evidence of the insignificance of trade between Pulicat and Melaka to the Portuguese *Estado* is provided by a treaty signed in 1547 by Sadasivadevaraya and Dom Joao de Castro, captain-general and Governor of Goa, which dealt exclusively with issues relating to commercial traffic in the Arabian Sea (for the text of this treaty, see Sewell 1970: 180; Mahalingam 1969–75: I, 135–36). In short, as Charles Boxer (1977: 49) observed: "Portuguese shipping in this region was merely one more thread in the existing warp and woof of the Malay-Indonesian interport trade."

While activities of the Portuguese *Estado* did not adversely affect Pulicat in the early sixteenth century, its vigor was soon sapped by the political crises following Achyutadevaraya's usurpation of the Vijayanagara throne in 1529, after the death of his brother Krishnadevaraya. The ensuing decades of internecine warfare increasingly weakened Vijayanagara defenses, leaving the country open to predatory raids by the Adil Shahi and Qutb Shahi forces, especially when the *Raya* was preoccupied by rebellions in the Tiruvadi-*rajya* and other trouble spots in the Far South. In the midst of these imperial troubles, the Portuguese wrested control of the western port of Bhatkal in 1542, and even launched marauding raids against the rich temples at Kanchipuram and Tirupati soon after (Nilakanta Sastri 1966: 286–93; Richards 1975: 10–12). The crises of empire, which intensified during the thirty years following Rama Raya's incarceration of Achyutadevaraya in 1535, also fragmented circuits of exchange—as indicated by a dramatic fall in religious endowments, particularly after 1547 when the inscriptional record at Tirupati, for instance, does not register a single donative grant by members of mercantile communities (Palat 1981: 329–39, Table V-7). The consequent dislocation of relational dependencies laid the foundations for the momentous defeat at Rakshasi-Tangadi in 1565.

The headlong descent of the Vijayanagara state from an awesome political behemoth to a tiny principality centered successively at Penugoda, Chandragiri, and Velur, before scions of the Aravidu dynasty died out at Anegundi as pensioners of the Sultans of Golkonda in 1647, and the accompanying fragmentation of political authority

was disastrous to Pulicat. Confronted with a progressively shrinking hinterland, deprived of its large market for luxury goods with the dissipation of the Vijayanagara court, its inland routes of communication harassed by bandits and itself subject to frequent raids, Pulicat rapidly reverted to being the sleepy coastal village it had once been. Now, as it was approaching its nadir, this once flourishing port was dealt a final blow by the Portuguese who, emboldened by the Vijayanagara decline, decreed a monopoly over the maritime trade of the Coromandel coast to be enjoyed as a concession by a viceregal nominee.

In principle, the new system represented the grant of an exclusionary right to make voyages between two points on the eastern Indian Ocean littoral to an individual in his own shipping (Subrahmanyam 1990b: 108–14; Pearson 1976: 36–37). In addition to replacing the old Crown routes, the new system was also extended to embrace new ports that had never before been visited by royal *naos*. The substitution of a single ship, albeit a monstrous one,[31] for the five or six vessels that had earlier plied between Pulicat and Melaka had the effect of drastically reducing the flows of goods between these two ports. While the Portuguese still could not effectively police long-distance trade in the Indian Ocean, their control over Melaka ensured the strangulation of Pulicat's most valuable commercial link. As a result, Pulicat does not even figure as an important port in Jan Huyghen van Linschoten's list of major port-cities on the Coromandel coast, compiled in 1583.

Pulicat's demise, while extremely consequential for its umland was, however, not tantamount to an unraveling of the web of interdependencies, progressively binding together peoples on lands surrounding the Indian Ocean through networks of trade and associated dependencies. Rather, a decrease in the flows of commodities between Pulicat and Melaka, being matched by a rapid escalation in the flows between Masulipatnam and Aceh—principal ports of newly ascendant regional powers—merely signified a realignment of major trade routes in accordance with shifting balances of power among contending states.

The foundation of an independent Persianized polity centered at Golkonda in the early sixteenth century by Quli Qutb'l-Mulk, and the plunder of the Vijayanagara treasury in 1565 by his son Sultan Ibrahim Qutb Shah after the victory of the allied Sultanate forces, created conditions conducive to the growth of Masulipatnam. Located between the deltas of the Krishna and Godavari rivers, it had long

been a small port where vessels engaged in coastal trade regularly called to load rice from its fertile hinterland, and perhaps some fine muslins for transshipment to Melaka and the Indonesian archipelago from Pulicat (Richards 1975: 9–12; Raychaudhuri 1962: 3–9; Brennig 1975: 14–19). However, before the establishment of a *Pax Golkonda*, it could not develop as a major port since it was located in a zone disputed by opposing regional powers, making the overland transport of goods to the Bahmani capital at Gulbarga an extremely hazardous proposition (Brennig 1975: 15). Once overland highways were secured by the Golkonda Sultans, Masulipatnam quickly rose to prominence.

Masulipatnam's increasing importance in long-distance maritime trade was viewed with particular disfavor by the Portuguese, not only because it was a manifest violation of their claim to sovereignty over navigation, but also because of its increasingly close ties with Aceh, supplying the Sultans there with arms and munitions to be used against Melaka. Despite Portuguese attempts to license privateers to waylay ships leaving Masulipatnam, the naval strength of Aceh ensured that these links remained open (Subrahmanyam 1990b: 152–55). This is clear from Ralph Fitch's observation, made in 1585, that "many shippes out of India, Pegu, and Sumatra very richly laden with pepper, spices, and other commodities" came to Masulipatnam (Foster 1975: 16).

Of course, traders at Masulipatnam and Aceh were not the only ones to defy the Portuguese. The *Estado*'s inability to enforce its claim to an exclusive right to trade between the south-eastern subcontinental seaboard and the eastern coasts of the Bay of Bengal is demonstrated by the values attached to concessions granted to captains of the great annual carracks. For instance, while the grant of an exclusionary right to navigate the waters between Sao Tome de Meilapore (Mailapur) and Melaka was valued at upward of 6,000 *cruzados* in 1581, a similar concession from Nagapattinam to the tiny ports of the Malay peninsula—Kedah and Ujansalam—was said to be worth less than 1,000 *cruzados*. These figures, as Sanjay Subrahmanyam (1990b: 162–66) argued, were less an indication of the volume of trade between two points than an index of the degree of enforceability of Portuguese claims to exclusive trading rights.

The marginal role of the Portuguese in the eastern Indian Ocean networks of trade and the consequent lack of reliable documentation makes an estimation of the magnitude of trade in the Bay of Bengal almost impossible. All available indicators, however, point to

a steady intensification of circuits of exchange. On the one hand, the highly style- and pattern-specific demand for textiles in Indonesian markets meant that a decline in outflows from Pulicat did not entail a corresponding fall in demand for textiles produced in southern Coromandel. While some of these textiles were perhaps carried by land and sea to Masulipatnam for dispatch to Aceh, Pegu, and other ports on the eastern Bay of Bengal littoral, considerable quantities may still have been shipped clandestinely from Mailapur, thus accounting for the low values attached to concessionary voyages from there to Martaban, Mergui, and the tin ports of the Malay peninsula.[32] At the same time, paralleling the revival of caravan trade across Iran, Arabia, and the Levant, the high duties levied by the Portuguese at Melaka led to an invigoration of overland routes to the Malay peninsula from Tennasserim and Thailand (Meilink-Roelofsz 1962: 165).[33] While the dimensions of this trade remain unclear (for early seventeenth-century references see Moreland 1934: 42; Moreland 1967: 39), a growth in overland networks of commerce not only suggests an increasing evasion of Portuguese-dominated routes, but perhaps also a growing regional economic integration of inhabitants in southeastern Asia. Reinforcing the growth of trade outside the ambit of Portuguese control were the increasing flows of tin from Perak to Aceh due to constant Acehnese pressure on the local ruler, and which had the effect of reducing the latter's tribute to the Portuguese at Melaka by over two-thirds (Meilink-Roelofsz 1962: 164–65).

On the other hand, the reduced demand for northern Coromandel textiles meant that a realignment of trade routes, from the Pulicat–Melaka to the Masulipatnam–Aceh axes, across the Bay of Bengal was accompanied by significant changes in the composition of commodity flows. Thus, while textiles continued to account for a significant share of the cargoes of Sumatra-bound vessels leaving Masulipatnam, the proportion of iron and steel was steadily increasing, partly as a result of the deepening alliance between Golkonda and Aceh. Another commodity progressively becoming more significant in the flows from Masulipatnam was tobacco, newly introduced from the Americas through Europe. Prominent among other commodities exported to the Indonesian archipelago and Burma, according to early seventeenth-century European sources were sandalwood, diamonds, silver in *rials* of eight, indigo, and cowrie shells. Exchanging these commodities at Aceh, Arakan, Pegu, and Tenasserim, trading ships returned with camphor and pepper, as well as porcelains and other Chinese products from Aceh; rice for transshipment to the

Tamil country from Arakan; precious stones, gold, tin, and quicksilver from Pegu; and tin, Chinese silk, porcelain, and damasks from Tenasserim (Moreland 1967: 38–39).

The futility of preventing ships from Aceh reaching Aden and Mocha finally led the Portuguese to abandon attempts to blockade the straits of Bab-el-Mandeb in 1569 (Boxer 1969: 419). The next few decades were marked by sporadic, indecisive encounters between the Portuguese and local maritime powers—the Acehnese in the eastern Indian Ocean and the Ottoman fleets in the Arabian Sea. During this period, when Portuguese control over the spice trade was steadily weakening, they were compelled to buy pepper in Malabar with gold obtained from the southeastern coasts of Africa, Sumatra, and China (Boxer 1977: 60),[34] and more significantly with silver of the Americas. John Richards (1981: 302) estimates that by 1560, the Portuguese were shipping 1,500 kg of gold directly from Kilwa, Mombasa, and Mozambique, and that by 1580 an additional 2,000 kg of gold per year was being shipped from the Japan–China trade to India. Thus, while copper, other metals, and coral had composed the major part of the cargoes of Asia-bound vessels from Lisbon in the first half of the sixteenth century in terms of value, these were replaced in the latter half of the century by precious metals, above all, the Spanish *reales de a ocho* (pieces of eight) (Attman 1981: 33–34). Silver flows from Europe to Asia via the Cape of Good Hope rose from an annual average of 2–3 metric tons in the early sixteenth century to 44 metric tones by the end of the century largely due to a rapid rise in American supplies of silver (Haider 1996: 313).[35]

The dominant role played by the Portuguese *Estado da India* and the northern European trading companies—and the relatively detailed records of their transshipment of precious metals to the Indian Ocean region and China that have survived—has meant that studies of intercontinental movements of bullion have been focused more on oceanic trade despite the fact that flows of specie from Europe and the Mediterranean over land routes through the Baltic and the Levant overshadowed the Cape route until well into the eighteenth century (de Vries 2003: 77; Pearson 2001: 29; Haider 1996: 308–13). Hans van Santen estimated that before 1650, some 25.6 to 51.2 million tonnes of silver equivalent flowed to Surat from West Asia, a sum considerably larger than the volumes conveyed around the Cape especially since Surat was only one of the ports on the subcontinent to which silver and gold flowed from West Asia (Subrahmanyam 1994: 200–01; Prakash 2001: 64–6).[36]

Supplementing these supplies were the direct shipments of silver from the Americas to Asia across the Pacific, beginning also in the latter half of the sixteenth century and reaching levels close to the trans-Atlantic flows of silver. Surveying estimates of the production of silver in the Americas and of silver exports to Europe, Ward Barrett (1990: 236–37) demonstrates that there was an average annual discrepancy of about 135 tonnes or 5.5 million pesos between the sixteenth and the nineteenth centuries. If some 50 tonnes a year were to be exported through the Manila galleons to Asia, it would equal the combined exports of silver by the Portuguese and the English and the Dutch trading companies through the Cape route, or to the amount shipped through the Baltic trade (Flynn and Giraldez 1995b: 205; von Glahn 1996: 138–39). Though no reliable estimates of the amount of silver retained within the subcontinent are currently available, especially since the dimensions of the re-exports of silver brought to Goa from Lisbon are unclear,[37] all indicators suggest that the volume of silver influx was considerable. It was, after all, this massive influx which accounts for the relatively early Mughal drive to Gujarat (1573) and which was reflected in the rapid rise of Mughal silver coinage (Hasan 1969; Habib 1982a: 346, n. 1; Moosvi 1987b; Haider 1996: 340, 344–46). The Mughal conquest of Gujarat, raising the specter of an alliance between this powerful empire and the Ottomans, which could drive the Portuguese from the Arabian Sea, and equally importantly, bar them from the profitable trade between Gujarat and Melaka, was viewed with trepidation by the officialdom at Goa. The rise of Mughal power was a blessing, however, to the merchants of Gujarat who were henceforth less vulnerable to arbitrary acts of piracy on the high seas by the Portuguese. Indeed, these merchants began increasingly to ship their goods in monstrous ships belonging to the Mughal emperors and their high officials, who were freely granted *cartazes* by representatives of the *Estado* (Das Gupta 1985: 494–95).

However, this weakening of Portuguese control over routes traversing the Arabian Sea was more than compensated by their growing role as intermediaries in the China–Japan trade after the establishment of a permanent base in Macao in 1555. While Portuguese trade with China was initially based on their carriage of pepper and ivory to Guangzhou, profits from their role as middlemen between the Japanese and the Chinese rapidly eclipsed the former with the grant of Nagasaki to the Jesuits in 1571. Since the bimetallic ratios of gold and silver in Japan closely approximated those prevalent in Europe due to the new technologies of extracting and refining silver in Japan in the mid-sixteenth

century (Moloughney and Xia Weizhong 1997: 172),[38] the Portuguese were able to derive enormous profits by conveying Japanese silver and copper to China in exchange for gold and silk, both of which were in great demand in Japan.[39]

Due to the Ming ban on direct trade with Japan, the Portuguese were intermediaries in the trade between Japan and China. In the 1580s, Ralph Fitch reported that the Portuguese carried over 600,000 *cruzados* of silver—variously estimated to range between 15,336 and 18,000 kilos—from China to Japan (Foster 1975: 41; Brown 1951: 63; Atwell 1982: 71; von Glahn 1996: 133–34; Moloughney and Xia Weizhong 1997: 172). Finally, by Kobata's (1981: 273) calculations the Portuguese annually exported about 20 tons of silver to China a year by the 1580s, and that by the early seventeenth century, as much as 150–200 tons were exported annually. To circumvent the Chinese ban, the Japanese also sent the so-called red seal ships to eastern Indian Ocean ports and Kozo Yamamura and Tetsuo Kamiki estimate that between 1560 and 1600, approximately 450, 000 kilograms of silver—almost as much as the Portuguese—were conveyed to China by Chinese and Japanese merchants (Reid 1993: 18–19; von Glahn 1996: 133–34; Moloughney and Xia Weizhong 1997: 173). Similarly, flows of Japanese copper ore to China, and Chinese copper coins to Japan have been explained by their "differential market price ratios." For instance, Zheng Ruozeng, in the late sixteenth century, reported that while a string of copper cash (1,000 *wen*) brought 4 ounces of silver in Japan, it was worth only 1.4 ounces in China (Rawski 1972: 75–76).[40]

The voyage of huge Portuguese carracks—ranging in size from 1,200 tons burthen to 2,000 tons—involving the exchange of American silver, Indian textiles, and Indonesian spices for Chinese gold and silks for Japanese silver and smaller amounts of other commodities, which were subsequently sold at the annual winter fairs at Guangzhou for silk to be supplied to India and Europe—took three years to complete the Goa–Nagasaki–Goa run, or 18 months if the intermediary stop at Melaka was omitted (Boxer 1963: 9). An indication of the vast profits to be gained in this trade can be gleaned from van Linschoten's report of 1595 that the person who purchased the right to be captain-major of the annual *nao do trato* from the viceroy at Goa for 20,000–30,000 *xerafins* stood to make 150,000 to 200,000 *ducat*s in a single voyage (Boxer 1977: 64).

The growing prominence of the annual carrack to Nagasaki—by the early 1600s, Japan was estimated to produce almost a third of

the global silver output, prompting Magalhães Godinho to call Japan "the sole Potosi of the Orient" (Flynn and Giraldez 1995b: 202; Moloughney and Xia Weizhong 1997: 172; Ribero 2001: 53, n.2)—meant that the fitful control exercised by the Portuguese over Indian Ocean navigational routes was steadily diminishing in importance in their calculations. Notably, the parallel rise of Mughal power and the swift eclipse of the spice trade by the China–Japan trade in which the Portuguese enjoyed a virtual monopoly for a half-century, created the bases for an increasing rapprochement between the *Estado* and the Sultanates of Golkonda and Aceh as the Mughals were a threat not only to the Portuguese but also to the Deccan Sultanates.

Sallying forth from their fortified settlements at Colombo, Goa, and Diu in heavily armed fleets, the Iberian interlopers still possessed the ability to threaten shipping in the Arabian Sea despite the growing significance of links between Masulipatnam and ports on the Red Sea and the Persian Gulf. Apart from pilgrimages, access to these ports was important to merchants of Golkonda since the largest long-distance markets for northern Coromandel textiles lay in West Asia (Subrahmanyam 1990b: 158–59). The Arabian peninsula was also the source of horses so vital for subcontinental armed forces (Moreland 1967: 36–37). It was in recognition of the Portuguese ability to sever this vital artery that Sultan Muhammad Quli Qutb Shah of Golkonda agreed to sell an annual shipment of 300 *khandi*s (or 10,000 kilos) of rice to victual Portuguese garrisons, first at Goa and later at Melaka, in return for several *cartazes* (Subrahmanyam 1990b: 158–59; Meilink-Roelofsz 1962: 172). Protected by these navicerts, monstrous royal ships sailed forth from Masulipatnam, carrying not only cargoes belonging to the Sultan and the rice he sent to be distributed as alms at Mecca, but also cargoes of high administrative officials, merchants, and pilgrims with their small bundles of goods. Similarly, the growing rivalry between the Sultan Alauddin Riayat Shah of Aceh and the Sultan of Johore led the former to negotiate a treaty in 1600 with the *Estado*, agreeing to supply Melaka with grain in return for support against Johore.

No sooner had a rapprochement between the Portuguese viceroyalty and the Sultanates of Golkonda and Aceh been put in place in the late sixteenth century than its varied threads began to untangle themselves. Though the Sultans of Golkonda shared the *Estado*'s apprehension concerning the spread of Mughal power and welcomed the safe-conduct passes for their ships, they had no particular desire to strengthen Portugal's hands by provisioning their garrisons. Thus,

despite their agreement to sell grain to Portuguese forts, as the correspondence between Goa and Lisbon clearly indicates, the Sultans of Golkonda frequently reneged on their commitments once they had obtained the *cartazes*. Attempts to enforce Golkonda's compliance with provisions of the 1585 treaty—including threats, the dispatch of a fleet to blockade Masulipatnam in 1594, and the stationing of a Portuguese captain at the port in 1600 to collect the grain (wishfully called"tribute" in official Portuguese correspondence) and to issue *cartazes*—proved ineffectual (Subrahmanyam 1990b: 159–60).

If the *Estado* was relatively ineffectual in monitoring long-distance trade in the Bay of Bengal, its impact on coastal trade, which it did not even concertedly seek to police, was even more marginal. Thus, late sixteenth- and early seventeenth-century sources continue to document an intensifying dependence of southern Coromandel villages on the supply of rice from Bengal (Raychaudhuri and Habib 1982: xv; Bayly 1985: 586; Prakash 1985: 28 ff.; Chaudhuri 1978b: 206–07, 211–13). While no assessment can yet be made of this trade on account of the lack of data, an indication of its magnitude may be found in an observation by Sebastian Manrique (1927: I, 56–57; Raychaudhuri 1982: 331), a traveller of the seventeenth century, who reported that a hundred ships were loaded annually with rice, sugar, cooking oil, and wax at the ports of Bengal. Other sources indicate that Bengal continued to be the chief source of surplus rice—transporting it by land and sea, primarily to the major textile manufacturing regions of Gujarat and the Coromandel, and less significantly, up the Ganges to Agra and Patna, and around Cape Comorin to Malabar. Apart from coarse cotton fabrics and foodgrains, other bulk commodities involved in interregional trade were sugar and butter (also mainly from Bengal) and salt (from Rajputana and the coasts) (Raychaudhuri 1982: 328–31).

The picture that emerges from this abbreviated survey, then, does not conform to the image of precolonial Asia, characterized by a multiplicity of extremely small, backward, and fragmented markets only tenuously linked by peddlers, presented by van Leur (1955) and Niels Steensgaard (1974). These brief notices may indicate a growing integration of production processes along the coasts of the Indian Ocean, which permit us to speak of an evolving Indian Ocean world-economy operating, to paraphrase Lenin, with great breadth but very little depth.

Of course, all parts of the subcontinent were not equally integrated within this emerging historical social system. The hierarchical

structure of markets in the subcontinent is nicely captured in Das Gupta's (1970: 183; see also Raychaudhuri 1982: 339–40) portrayal of India as a quadrilateral, the perimeters of which were formed by the Coromandel and Malabar coasts and the two arterial roads of the Mughal Empire connecting Delhi to Surat and to the Ganges delta. It was only the great entrepôts on the coastal edges of this quadrilateral—Surat, Calicut, Masulipatnam, Hughli—that "lived at the same pace as the outside world, keeping up with the trades and rhythms of the globe" (Braudel 1982: 18). At a different level, penetrated now and then by *world-time* were the entrepôts of the provinces and regions—Agra, Benares, Burhanpur, Lahore, Multan, Patna, Golkonda, and other lesser towns (Chaudhuri 1979: 156). The privileged among them continued to participate in the caravan trade to the East and West, though that trade was steadily declining, a victim of seaborne trade. Lower down the scale was a third category of markets, which was

> not located at a particular place or town but was rather a collection of small towns and villages forming a single unit and producing a single export commodity. By way of examples, one can name Biana and Sarkhej for indigo, the Chapra district of Bihar for saltpetre, the raw silk producing areas of Kasimbazar, the Dacca district for fine textiles…
>
> (Chaudhuri 1979: 156)

In short, Portuguese attempts to claim sovereignty over Indian Ocean navigational lines led to realignments of cross-oceanic routes rather than to a fragmentation of evolving regional dependencies or to the subordination of production processes along the shores of the southern ocean to the drives of a European-based world-economy. The injection of large quantities of American treasure, in fact, intensified and deepened evolving circuits of exchange in the trading world of Asia.

A Trade Revolution?

This was the situation confronting the first English (1591–1594) and Dutch (1596–1597) exploratory ventures to the Indian Ocean, launched in response to Hapsburg embargoes.[41] Wary of Portuguese naval strength, they prudently skirted the subcontinent, preferring to risk the more difficult southerly route and sail directly to the Indonesian archipelago after circumnavigating the Cape of Good

Hope (Parry 1967: 195–96). Upon reaching the islands, the Dutch not only slid easily into grooves of oceanic commerce furrowed by Asian traders, albeit with some early disasters, but also perceived the inherently brittle structures supporting the apparently formidable carapace of Portuguese dominance over Asian waters. In their struggles with the *Estado* for maritime supremacy in the Indian Ocean the Dutch, and later the English, buccaneers possessed a significant technological edge.

With a perennial scarcity of timber in Portugal, shipyards operated on the principle that it was more economical to build, staff, and maintain a small fleet of very large ships rather than a large fleet of small ships of equivalent tonnage—a principle also adopted by Portuguese shipyards in India. Built for their carrying capacity, rather than for their speed or fighting qualities, the *naos da Carreira da India* and the *naos do trato*—the largest vessels of their age—were easy prey for their northern European competitors sailing in large squadrons of medium-sized ships, built for war. With their superior ships and artillery, and being better endowed with resources, the Dutch not only harried Portuguese shipping in the southern ocean, but after the unification of competing Dutch "pre-companies" in 1602, the United East India Company or the VOC, with their seizure of Tidore and Ternate (1605–1607), began to oust the Portuguese from their outposts on the shores of the Indian Ocean.

At the same time, the VOC also began to explore existing commercial routes in the Indian Ocean, arriving at Masulipatnam in 1605, and receiving a *farman* permitting them to set up a factory the following year (Raychaudhuri 1962: 15–16; Brennig 1975: 24–26; Subrahmanyam 1990b: 168). While Sultans of Golkonda were willing to grant concessions to the Dutch in order to use them as a counterweight against the Portuguese, the Dutch were lured to Masulipatnam by the prospect of obtaining Coromandel textiles for trade in the Indonesian archipelago—because, as Admiral Cornelius Matelief observed in1607, all over the East Indies, people were clothed in Indian textiles and would buy them "no matter what it cost" (quoted in Raychaudhuri 1962: 1–2; see also Furber 1951: 34, 39; Braudel 1984: 215–16, 218–19).[42] Masulipatnam was a logical choice for operatives of the VOC to seek Indian textiles since conditions were not yet propitious for them to challenge the Portuguese on the Gujarat and Bengal coasts. However, as noted earlier, since the market for northern Coromandel textiles was extremely limited in the Indonesian archipelago, the Dutch were compelled to resort to the costly expedient

of transporting cloth overland from weaving centers in the south for shipment to the eastern islands. Hence, they sought, and after one unsuccessful attempt secured, permission from the Vijayanagara court at Vellore to construct a factory at Pulicat in 1610. After this factory was sacked by the Portuguese in 1612, Venkata II permitted Wemmer van Berchem, director of Dutch factories on the Coromandel coast to fortify their Pulicat settlement and to freely attack representatives of the *Estado* within the steadily shrinking Vijayanagara domains (Raychaudhuri 1962: 19–23). Unfortunately for the Dutch, just as the walls of Fort Geldria—as the Pulicat factory was known—were being completed, a prolonged civil war following the death of Venkata II severely affected the company's ability to trade, particularly their procurement of textiles.

However, once political conditions had improved, Dutch exports of Coromandel products (primarily textiles, but also saltpeter, indigo, and cotton yarn) rose dramatically from 279,975 *florins* in 1614 to an annual average of 567,366 *florins* between 1621 and 1625 and continued to climb steadily thereafter till it peaked in the mid-1660s at an annual average of 2.6 million *florins* (Subrahmanyam 1990b: 169–70; Raychaudhuri 1962: 162–64, 169ff). By Ruurdje Laarhoven's estimates, in the mid-1600s, some 20 million square meters of Indian cloth were exported to Southeast Asia each year—or one square meter for each inhabitant of the region (Reid 2009: 37)! Dutch exports of Coromandel products to Southeast Asia were not comparable to indigenous shipping: Asian merchants were estimated to convey commodities, chiefly textiles, worth between 900,000 and 1,350,000 *florins* from Masulipatnam to Burma alone in the 1620s. In comparison, Dutch exports from the Coromandel crossed the 1,000,000 *florin* mark only in the 1640s and the English trade was less than a quarter of that in value (Subrahmanyam 1990c: 82). A Dutch envoy who travelled up the Mekong to Vientiane, one of the most inaccessible markets, in 1642 found that some 40,000 pieces of India cloth reached the city every year. As the river was not navigable between Laos and Cambodia, this merchandise was either taken to the Siamese capital of Ayutthaya or to Tennasserim and then carried on bullock carts for some 400 miles (Reid 2009: 37).

The rapid expansion of textile procurements by the VOC partly reflected increasing shipments of Indian textiles to European markets. Thus, while Indian textiles (mainly from Gujarat, with smaller quantities from the Coromandel) had constituted approximately 10 percent of Lisbon-bound cargoes by the late sixteenth century, cloth from the

Coromandel had come to account for approximately 43 percent of the Dutch cargoes to Europe by the mid-seventeenth century (Ramaswami 1985c:136). Textiles from the subcontinent penetrated so deeply into Europe that Basque officials in Guipúzcoa province tried to prevent, or at least constrain, the sale of calicos as early as the mid-sixteenth century. This suggests that calicos penetrated inland settlements, far removed from the port cities all over Europe, carried here too by pedlars just as they were in the Indian Ocean (Lemire 2009: 212–13; Fontaine 1996).

The bulk of this European demand for Coromandel textiles was for the coarse blue striped or chequered *salempores* or "Guinea cloth," so-called because it was bartered for slaves on the coasts of West Africa (Ramaswami 1985c:136–37; Chaudhuri 1965: 200; Glamann 1958: 20–21; Subrahmanyam 1990b: 171). While shipments of Coromandel textiles to Europe rose at a steady rate, Dutch participation in the Indian Ocean textile trade was increasing at a much swifter pace as demonstrated by a rise in orders placed by the VOC headquarters at Batavia with their Coromandel factories, which escalated from 300,000 *florins* in 1617 to 1,551,000 *florins* in 1650.This rise in their trading activities can be seen in the growth in tonnage and ships both in the Europe-Asia trade, and in the tonnage and ships assigned to the intra-Asia trade depicted in table 4.1 (Raychaudhuri 1962: 159–62; Moreland 1967: 38–39; Glamann 1958: 132 ff.; Subrahmanyam 1990b: 172–73; Reid 1993: 28–29; Barendse 2002: 397; Vink 2004: 81–82).

The rapid rise in shipments of textiles to the Indonesian archipelago was facilitated by the VOC's imposition of exclusionary contracts with the Sultans there for the purchase of spices. Moreover, in Southeast Asia as well as in the Swahili world on the African coast, cotton cloth from India not only functioned as use-values but were also important determinants of "individual status or claims to status through the cultural logics of display and personal adornment" and even functioned as currency (Machado 2009: 171).

The political subordination of parts of the Indonesian archipelago where the VOC enjoyed a military (as opposed to only a naval) superiority, was the cornerstone of Dutch efforts to monopolize the spice trade. The control of spices at the point of production established by the VOC in the early seventeenth century finally brought about the result the Venetians had dreaded for a hundred years—the irreversible decline of Levantine trade. The flood of imports of pepper arriving at Amsterdam led to a considerable fall in European pepper prices

Table 4.1 Dutch East India Company: Asia-Europe and Intra-Asia Trade

Years	*Ships Departing to Asia*	*Tonnage Dispatched to Asia*	*Ships Departing to Europe*	*Ships Arriving in Europe*	*Tonnage Arriving in Europe*	*Ships Retained in Asia*	*Tonnage Retained in Asia*
1602–1610	76	43,710	50	44	25,130	29	9,944
1610–1630	117	56,280	50	46	26,590	64	28,813
1620–1630	141	54,720	71	68	35,280	59	15,696
1630–1640	157	63,970	75	74	38,890	77	23,741
1640–1650	165	100,095	93	92	73,740	70	27,257
1650–1660	205	123,990	103	102	84,200	91	34,082
1660–1670	238	129,350	127	115	79,310	101	45,818
1670–1680	232	147,650	133	129	91,980	86	50,228
1680–1690	204	130,850	141	133	98,170	52	28,489
1690–1700	235	143,300	156	147	100,700	63	38,117
1700–1710	281	186,360	193	188	133,440	68	45,213
1710–1720	310	228,070	245	241	182,160	50	34,800
1720–1730	382	289,230	319	308	243,310	37	20,433

Source: Adapted from Markus Vink, "From Port-City to World-System: Spatial Constructs of Dutch Indian Ocean Studies, 1500–1800," *Itinerario*, XXVIII, 2, 2004, p. 82, Table 14.

and made imports through the Mediterranean uncompetitive (Wake 1979: 387–92). Or, as Professor Parry (1967: 199) puts it so well: "The square sail had triumphed over the lateen, the trade wind over the monsoons."

The forcible enforcement of a monocultural economy in the spice islands (Furber 1951: 45, 52) by the mid-seventeenth century,[43] while signifying the incorporation of these islands within the capitalist world-economy, did not of course imply that production processes within the Indian subcontinent were similarly incorporated. While the impetus towards the territorial subjugation of the Indonesian islands derived in part from the Dutch drive to corner the European market in pepper and spices, it was also impelled in part by their need to arrest the outflows of bullion from the Netherlands to India and China. Their monopsonistic position in the Indonesian archipelago[44] enabled them to sell pepper and spices on the subcontinental coasts at monopolistic prices, which were often higher than those prevailing in Europe,[45] and use their incomes to purchase textiles for the intra-Asian trade as well as for shipments to Europe. However, despite these high rates of profit, the VOC's demand for Indian textiles—which was its main export to Europe from Asia (Prakash 1985: 209 ff.)—easily outpaced the demand for Indonesian spices in India. Hence the company continued to export large quantities of treasure

to the subcontinent. Exports of gold from Europe to Asia did indeed decline from an annual average of 31 kg between 1602 and 1610 to 4 kg a year between 1620 and 1630, before rising once again to 14.7 kg. per year during the subsequent decade. Conversely, the VOC continued to export large quantities of silver, which rose from an annual average of 6,715.75 kg. in the first eight years of its existence to 10,281.6 kg in the next decade (1610–20), reaching a peak of 12,336 kg annually in the 1620s, which, however, would not be surpassed for a half-century (Gaastra 1983: 475; see also Gaastra 1986: 97–101; Attman 1981: 42; Glamann 1958: 50–57; Raychaudhuri 1962: 182–92; Vink 2004: 177–80).[46]

The VOC also attempted to stem the drain of bullion from Europe in the seventeenth and early eighteenth centuries by vigorously participating in the Indian Ocean carrying trade, where they remained far ahead of their British rivals during the entire period (Prakash 1985: 257; Glamann 1958: 263–65; Das Gupta 1967: 14–102). Indeed, during the mid-seventeenth century, through their increasing participation in the intra-Asian circuits of exchange, the VOC was able to tap three significant sources of precious metals: gold and silver from its factory at Bandar Abbas in Iran, gold from China through its factory at Taiwan, and silver from Japan where it had exclusive trading rights (besides the Chinese) after the Portuguese were expelled from Nagasaki in 1639 (Moloughney and Xia Weizhong 1997: 59–61).[47] The success in restricting the outflow of silver from Europe is indicated by table 4.2. While silver supplies from Japan sometimes exceeded those from Amsterdam, the gold obtained in China in exchange for Japanese silver, and from Iran for sales of pepper, spices, and the

Table 4.2 Exports of and Retention of Gold and Silver in Europe, 1601–1700 (in Silver Equivalent)

Years (AD)	*Exports from Europe (tonnes)*	*Retained in Europe (tonnes)*
1601–1625	100	145
1626–1650	125	165
1651–1675	130	200
1676–1700	155	215

Source: Adapted from Ward Barrett, "World Bullion Flows, 1450–1800," in J. D. Tracey (ed.), *The Rise of Merchant Empires: Long-Distance Trade in the Early Modern World, 1350–1750*, Cambridge, MA: Cambridge University Press, 1990, Table 7.3, pp. 242–43.

finer varieties of textiles from Bengal and the Coromandel was sufficient for the VOC to dispense entirely with gold shipments from Europe from 1640 to 1662 when Zheng Chenggong (the 'Coxinga' of Dutch records) summarily expelled them from Taiwan (Gaastra 1983: 464–65; Gaastra 1986: 103–06, 109–110; Prakash 1986: 88–93; Glamann 1958: 57 ff.; Kayoko 2009: 184–85).[48] Though the VOC was able partly to compensate for the loss of Chinese gold by the export of Japanese gold coins (*kobangs*), beginning in 1665, to the Coromandel coast, their expulsion from Taiwan compelled them to resume exports of gold from Europe (Glamann 1953: 45; Kobata 1981: 273–74). While there are no reliable estimates of the quantities of these metals deposited on the Coromandel coast, the persistent fall in the value of gold and silver on this coast indicates a substantial inflow of treasure (Raychaudhuri 1962: 185–89).

Finally, an important ingredient in the Dutch trade to the Coromandel coast was copper, which they initially transported in large quantities from Europe (primarily from Hungarian and Swedish mines) before coming to depend almost exclusively on Japanese supplies by the mid-1640s. While Dutch imports of copper from Europe had initially raised the prices of Swedish and Hungarian ores in Amsterdam (Glamann 1953: 42), soon after the establishment of a VOC factory at Firando in 1608, they began to export such large quantities of copper from Japan that the metal was eventually used as ballast for Amsterdam-bound vessels, where it yielded a tidy profit (Glamann 1953: 44, 46, 50 ff.; Glamann 1958: 167 ff.; Raychaudhuri 1962: 196).[49] An important supplement to Japanese copper was the vast quantities of copper coins carried to Bantam by Chinese merchants in search of silver—indeed their demand for silver was so immense that they often caused a shortage of Spanish *rial*s at that settlement (Meilink-Roelofsz 1962: 246; Atwell 1982: 75; Blusse 1979: 205). Despite increasing flows of copper from Dutch factories in the archipelago to Amsterdam, the major outlets for Chinese and Japanese copper remained in India, especially on the Coromandel coast where the Golkonda Sultanate instituted a copper-based currency system (Joshi 1943; Bruce II, Deyell, Rhodes, & Spengler 1981: 76–79, 87–88), minting silver coins only for their tributary payments to the Mughals (Raychaudhuri 1962: 189).[50] Secondary markets for copper also existed on the Bengal, Gujarat, and Iranian coasts. While fragmentary figures and the variety of alternative uses for copper frustrates any attempt to correlate European imports of copper into the subcontinent with the outputs of mints, all available evidence clearly

point to a substantial increase in copper inflows and suggest that a large proportion of these supplies were coined.

The English East India Company (EIC), formed on the last day of 1600, had a commercial strategy similar to that of the VOC. While the Dutch were successful in imposing their monopsony in the Malay archipelago for only a very brief period (1643–51),[51] they were able to restrict the operations of a poorly endowed EIC, confining them to subsidiary marts along the coastlines of the eastern Indian Ocean. Unlike the Dutch, the English Company, plagued by a perennial shortage of finances—because in the words of Holden Furber (1965: 39), "ten shillings for a hundred acres in Virginia seemed a more attractive investment than twelve pounds for a share of East India stock"[52]—was able to outfit only small fleets and therefore had to combine their carrying trade within the Indian Ocean with their purchases for European markets. Consequently, English trade on the Coromandel coast in the first quarter of the seventeenth century was scarcely more than a sixth of the Dutch trade (Subrahmanyam 1990b: 175, 180). At the same time, the extremely limited size of Asian markets for English products meant that English vessels sailing to ports on the Indian Ocean had to carry large amounts of bullion, leading to the growth of considerable opposition to the activities of the EIC within England.[53]

It was, after all, the formidable Dutch presence in Southeast Asia that led the English to focus their energies on the coasts of Gujarat and along the Persian Gulf (Furber 1965: 48–50; Wolf 1982: 240). Here, with their heavily armed and highly maneuverable ships, the English were able to defeat superior Portuguese galleons in full view of Mughal officials on the coast, and to oust them from the island of Hormuz in alliance with Safavid forces (Furber 1965: 40–41; Watson 1980: 25–26; Steensgaard 1974; Matthee 1999).[54] Acquisition of permanent trading facilities at Surat after they defeated Portuguese ships in the Swally estuary in 1612, and the opening of Iran ten years later, enabled the English chartered company to obtain Indian cotton textiles and Iranian silks to be bartered for spices in the eastern Indian Ocean archipelago (Chaudhuri 1965: 192), and to supply European consumers. However, with the outbreak of hostilities with the Dutch in the 1620s, the EIC increasingly concentrated on the expansion of European markets for Indian textiles, with the numbers of pieces offered at its auctions in London escalating from 5,000 in 1613 to 100,000 in 1620 and to 221,500 in 1625 (Chaudhuri 1965: 193). Iranian pressures to export silk and other products itself stemmed from their persistent balance of trade deficit

with the subcontinent and hence the need to import bullion from the north and the west (Floor and Clawson 2000).

A substantial expansion in European demand, being unmatched by an Asian demand for products of European manufacture, resulted in the EIC exporting £753,336 in bullion and only £351,236 in commodities between 1601 and 1624. While complete sets of figures are unavailable for later years, the available figures indicate that these proportions between treasure and goods continued unchanged till 1640 when the activities of the EIC were violently disrupted for 17 years as a consequence of the English Civil War (Chaudhuri 1965: 117; Haider 1996: 317–19; Vink 2004: 80–81).

Though directors of the company were initially apprehensive that large-scale imports of Indian textiles would lead to a glut similar to the case of pepper, and sought to restrict imports, the increasing popularity of these fabrics not only in England, but also in continental Europe, North Africa, and West Asia soon put their fears to rest (Chaudhuri 1965: 194–97). While the degree to which these imports dislocated production processes in the textile manufacturing regions of the Netherlands and Germany remains unclear, it is possible that, as Wallerstein suggests somewhere, exports of treasure by the EIC did not necessarily imply a depletion of English bullion stocks since the sale of Asian commodities in European markets augmented flows of bullion into England.[55] However, the company's operations were severely curtailed between 1620 and 1657 due not only to persistent financial and organizational problems but also to a constellation of political, economic, epidemiological, and climatic conditions: commercial rivalry and political confrontations with the Dutch in the eastern Indian Ocean, the onset of the Thirty Years' War in Europe, and England's conflicts with France and Spain in the 1620s; a new bout of the plague in England; and famines and war in the subcontinent (Chaudhuri 1965: 56–73; Furber 1951: 66–67).

The Gujarat famine of 1630, caused by three consecutive years of inadequate rains, was particularly disastrous for the company's factories at Surat and on the Iranian coast. Moreover, when the rains finally came in 1632, it came in torrents, destroying crops, raising grain prices even higher, and it was accompanied by widespread epidemics, including the plague. A Dutch factor described the devastation he saw at Surat in October 1631 thus:

> And when wee came into the cytty of Suratt, we hardly could see anie livinge persons where heretofore was thousands; and ther is so great a

> stanch of dead persons that the smell infected, and att the corners of the streets the dead laye 20 togeather…nobody buir[y]ing them. The mortallyty in this towne is and hath bin so great that there have died above 30,000 people. In these parts ther may not bee anie trade expected this three yeares.
>
> (quoted in Furber 1951: 66–67)

In this context, Geoffrey Parker (2014: 404–05) has argued that it was the great wealth of the Mughals, that allowed Shah Jahan to ameliorate climate-induced catastrophes in the seventeenth century by providing welfare to the poor and by cutting taxes sharply: distributing 5,000 rupees every Monday for 20 Mondays and an additional 50,000 rupees to the poor in Ahmedabad, which was more adversely affected than others; cutting taxes by 7 million rupees; and ordering his vassals to do the same.

The dislocation of textile production had far more adverse effects on the English Company than on the VOC since the latter procured the bulk of its textiles on the Coromandel coasts.[56] Hoping to forestall a fall in their shares of customs duties at Gombroon, a privilege accorded them for their help in ousting the Portuguese from Hormuz, the EIC sent a ship in 1632 to Masulipatnam to investigate the possibility of substituting northern Coromandel textiles for those of Gujarat in Iranian markets. The enormous success of this initial foray, however, soon boomeranged on the EIC since it evoked considerable interest among merchants at Masulipatnam, like Mir Kamal al-din who began to send his own ships to Bandar Abbas from 1633, and of Golkonda administrators who imposed a state monopoly in textile trade to the Persian Gulf in 1638 (Brennig 1975: 27–35).[57] It may also be noted in passing that the inauguration of direct shipping links between Masulipatnam and Bandar Abbas enabled Safavid and Qutb Shahi envoys to travel to their posts without traversing Mughal territories (Subrahmanyam 1990b: 320).

This intervention of political functionaries in commercial relations indicates a perceptible shift in the balance of power between European trading companies and representatives of land-based empires in the subcontinent after the English and the Dutch replaced the Portuguese as the dominant maritime powers in the Indian Ocean (Das Gupta 1985: 494–95; Meilink-Roelofsz 1962: 187; Furber 1965: 47). Unlike the *Estado*, which had derived most of its revenues from the sale of protection, and was therefore relatively secure from reprisals by political authorities on land, the English and Dutch chartered companies

relied to a much greater extent on commercial operations for their revenues. In order to maximize their profits, these trading companies established their warehouses not only along the coasts, but also deep in the interior, to purchase spices and other agricultural products soon after the harvest, when prices were low, and to store them till they were ready to be transported. Through these factories, the companies could also lower their cost prices for textiles by advancing money and raw materials to weavers by a system of forward contracts. However, the accumulation of large assets made the English and the Dutch increasingly vulnerable to the seizure of their stocks on land as we have already seen earlier in this chapter.

Hence, while trading companies could use their ability to blockade subcontinental ports as a powerful leverage in their conflicts with local administrations of land-based states (Das Gupta 1970: 192; Chaudhuri 1982: 394), they were also exposing themselves to potentially enormous losses, not only because their stocks were liable to be confiscated and their factors imprisoned or even executed, but also because Indian potentates could play off one European power against the other. Finally, though it has been widely recognized that impediments to the flows of commodities would cause large-scale dislocations of relational dependencies within the subcontinent (Chaudhuri 1979: 146–47), the adverse consequences of a prolonged exclusion from the subcontinent for trading companies have often been obscured in historiography. The flows of grain and textiles from India to the spice islands where a monocultural economy had been imposed by the Dutch, and to the Arabian peninsula were, after all, vital to the evolving patterning of interdependencies within the Indian Ocean world-economy, on the continued functioning of which, profits of the East India Companies were predicated. Indian textiles was also critical to obtain slaves for the Americas—and a disruption of the slave trade would have knee-capped the evolution of capitalist property relations in Europe (vide Quijano & Wallerstein 1992). Moreover, given the inability of chartered companies to subordinate production processes within the subcontinent to the drives of the capitalist world-economy, the supremacy of the sea route to Europe was by no means assured in the early seventeenth century. Each year some 20,000 to 25,000 camels carried goods from Lahore to Isfahan as the land route was cheaper than carriage across the seas and the overland passage from Agra to Istanbul was cheaper than the Agra–Surat–Mocha–Istanbul or the Agra–Surat–Basra–Istanbul routes (Pearson 2007: 19). Given

time, the caravan trade could once again be resurrected to convey Asian commodities to West Asia and Europe (Braudel 1972: I, 289; McNeill 1987).

The vulnerability of northern European trading companies to pressures exerted by terrestrial powers is vividly illustrated by the dramatic ascent of Mir Muhammad Said to a position of prominence in Asian trade in the mid seventeenth-century. Using his authority as the *Sar-i Khail* (head of the revenue administration) of the Sultanate of Golkonda, he established an effective monopoly in the trade between Masulipatnam and the Persian Gulf by the late-1630s which adversely affected the English East India Company, as we have just noted. In the early years of the subsequent decade, he also expanded his commercial activities to the east, much to the chagrin of the VOC. The Dutch were compelled to withdraw their threats to block his annual flotilla of ten ships to the spice islands, and even to grant him safe-conduct passes to Melaka and beyond in 1655, when he threatened their factories in northern Coromandel (Brennig 1975: 30–34; Raychaudhuri 1962: 39, 47–48, 51).

The resultant shift in the balance of power, or the "balance of blackmail" as Das Gupta prefers to call it, in favor of rulers of land-based states, also transformed the relations between Indian merchants and political authorities. In the age of Portuguese dominance over the seas, merchants from India had shipped their cargoes, split between the numerous big freight ships owned by the rulers—belonging to the Mughal Emperor, and to a lesser extent to the Sultans of Ahmadnagar, Bijapur, and Golkonda—and high officials. This method of transport was favored because large freight ships provided better defenses against predators and even if lost would not drive an individual merchant to bankruptcy. The possibility of being able to retaliate against Dutch and English acts of piracy in the high seas by confiscating their factory stocks, opened up new avenues to Indian merchants. Secure in the knowledge that they could set "the Mughal on the hat-wearer if the latter misbehaved at sea" as Das Gupta (1985: 495) puts it so well, they became increasingly willing to invest in ships of their own. Changes in the relations between Indian merchants and rulers caused by the new power equations between land and maritime powers in the Indian Ocean can be easily illustrated. In 1618, the two most powerful officials in the Mughal Empire, Itimaduddaula and Asaf Khan, jointly requested English safe-conduct passes for the imperial ship *Jahangir*, as merchants refused to consign their goods without this guarantee. By 1663, Mughal authorities had reduced the numbers of imperial

ships due to petitions from merchants that these vessels hurt their own freight trade (Das Gupta 1985: 494, fn. 13).

Consequently, the growing participation of European trading companies in the intra-Asian webs of maritime commerce was not at the expense of local merchants who continued to intensify their participation in these circuits. Analytically, the latter can be distinguished by their scale of operations into three categories (Das Gupta 1982: 418–19). At the very top of this tripartite structure were the truly wealthy individuals who combined trade with their administrative functions—like Mir Muhammad Murad of Masulipatnam, one of whose ships was reported to have carried a cargo worth 1,350,000 *florins*, equal to the VOC's entire imports to the Coromandel, on its return journey from the Red Sea in 1629 (Subrahmanyam 1990b: 215). Similarly, Malaya Chetti, chief broker to the VOC who had obtained purchase orders for 23,000 *pagodas* worth of textiles when the total Dutch investments in Coromandel textiles was 32,000 *pagodas*, had also been assigned the revenues from Pulicat and nearby settlements by the last scion of the decaying Vijayanagara Empire, now ruling from his court at Chandragiri, in return for an annual payment of 33,000 *pagodas* (Brennig 1977: 324–25; 1975: 56). In addition to textiles, Malaya had also contracted to supply the VOC with saltpetre and large quantities of rice (Subrahmanyam 1990b: 306). According to the Dutch *Dagh-Register* maintained at Pulicat, Malaya sent his own ships to Mrauk-u, Orissa, Pegu, and Mergui in 1632, apart from one vessel captured by the Portuguese (Subrahmanyam 1990b: 306).[58] Finally, there are a few exceptional cases where merchants cornered all supplies to monopolize a local market for a short while. Haji Zahid Beg, a great Surat merchant bought all the tin the VOC shipped in 1661. Later when an English and a Gujarati ship carrying 265,000 pounds tin arrived at the port, he offered to buy the entire consignment or flood the market with so much tin as to spoil it for everyone else (van Santen 1991:92).

Next, there were smaller merchants who freighted space aboard ships belonging to the Sultan of Golkonda, the rulers of Mrauk-u and Ayuttaya, the independent *nāyaka* rulers of Gingee, Thanjavur, and Madurai, and of the wealthy merchants and administrators. For instance, when the Dutch seized a ship belonging to Mir Kamal al-din Haji Jamal in retaliation against some actions of the Golkonda administration, they were compelled to return most of its cargo since these belonged to merchants of Surat whom they had no wish to alienate, and to Mir Azim Shah, then the Safavid envoy to the Qutb Shahi

court. It is of some interest to note that these cargoes included 23 elephants, 14,000 kg of tin, 10,000 kg of pepper and 83 *bahars* of sulfur.[59] Finally, there were the large numbers of true peddlers who, with their headloads of textiles continued to travel across the seas—for instance, the pilgrims on the annual ships that the Golkonda Sultan dispatched to Mocha. The presence of large numbers of these true peddlers effectively prevented the establishment of a trading monopoly for a long time:

> The small men, because they were small, investing little and profiting less, could never be driven out of business, and the power of the great was circumscribed by the ubiquity of the small. A major reason why, for instance 'Abd al-Ghafur…was unable to establish a monopoly in his favoured Red Sea trade was that he was unable to cope with the multitude of small traders, many of whom he managed to drive into bankruptcy.
>
> (Das Gupta 1982: 419)

It was the ability of these true peddlers to operate on very low margins that enabled them not only to withstand competition from the trading companies but to even drive them from markets—the VOC withdrawing from the piece-goods trade between Surat and Bandar Abbas, and being forced to offer Banka tin at lower prices at Basra than at Bandar Abbas due to overland competition by traders who conveyed Cornwall tin across the Syrian desert being cases in point (Barendse 2002: 156; van Santen 1991: 88–89; Hobson 2004: 153).

The increasing participation of subcontinental merchants in these webs of commerce that honeycombed the Indian Ocean implied that they too conveyed precious metals and other monetary media to the subcontinent. For instance, the Portuguese found 100,000 *pardaos* worth of gold and silver on board the ship belonging to the Sultan of Golkonda in 1640 on its return voyage to Masulipatnam from Mocha.

In contrast to the expanding commercial operations of northern European trading companies and Indian merchants, the activities of the Portuguese *Estado* were steadily shrinking in volume and scope, especially after the establishment of the Dutch at Pulicat in 1612. For a while, though the fortunes of their settlement at Sao Tome de Meilapore had plummeted and many of its residents had switched their allegiances to the VOC,[60] the Portuguese settlement at Nagappattinam, in the territory of the Nayaka rulers of Thanjavur, continued to be a significant port in the eastern Indian Ocean, trading with ports on the

coasts of Bengal, Burma, the Malay Archipelago, South China and Manila, besides Goa.[61] The Portuguese captain at Nagappattinam also held revenue assignments for at least ten villages from the *Nāyaka* ruler of Thanjavur (Subrahmanyam 1990b: 197–98). However, with the Dutch capture of Melaka in 1641 and the consequent extinction of its most profitable trade route, Nagappattinam soon reverted to the status of a minor coastal settlement.[62]

A consequence of the intensification of circuits of exchange honeycombing the Indian Ocean was an increasing restructuring of production processes in the textile industries of the Coromandel. With a rapid escalation of demand for Coromandel textiles, the VOC began in 1609 to place advance orders for cotton and silk piece-goods in August or September for deliveries the following February or March (Glamann 1958: 140). The bulk of these orders was placed with a "chief merchant"—Malaya and his brother Chinnana for the VOC, and later Sesadra and Konara for the EIC—with contracts for smaller consignments being placed with a number of subsidiary merchants (Brennig 1977). The position of "chief merchant" did not represent an institutional innovation since every large merchant had such a broker who was, in cases involving traders of extra-regional extraction, the local man responsible to political authorities for their good behavior—negotiating prices, conditions of trade and customs fees, arranging loans and standing surety for them. When Haider Quli Khan, the governor of Surat, was told of an English plan to blockade the port in 1718, he "remembered that the English had a Parsi broker, and offered to blow every Parsi in town from his guns as an amiable tit for tat" (Das Gupta 1984: 31). Or as Niels Steensgaard (1985: 228) observed: "Asian participation did not only mean that there was an Asian seller to every European buyer, but without local protection, local know-how and local capital, the European trade in Asia in the 15th-18th centuries would have been a very small business indeed." Since the trading companies habitually paid their chief merchants only small advances prior to actual deliveries, the latter were normally men of considerable means, as we have already seen in the case of Malaya, the *balañjiya cheṭṭi* who was chief merchant to the VOC from 1608 till his death in 1634 (Brennig 1977: 323–26). In this context, the long-term relationship established between these chief merchants and the trading companies implied an increasing differentiation in wealth and income between the larger merchants able to make forward contracts and advance payments to weavers and the smaller merchants compelled to depend on irregular deliveries of cloth.

At the same time, the brunt of the incessant wars, attendant on the decline of the Vijayanagara Empire, was borne, as might be expected, by the more prosperous towns and cities, leading to their rapid decline. This led to a dispersal of commercial craft production from the seats of local potentates to the villages, and ultimately in large part, to the coastal settlements where European "factors" had established themselves at the sufferance of local rulers (Stein 1982: 104; Chaudhuri 1978b: 251–53; Ramaswami 1985c: 121). The roots of "deindustrialization" and "deurbanization" of India, or of the southern Coromandel at any rate, can thus be traced to this dispersal of craft production from earlier urban centers and not merely, as Frank Perlin (1983: 56) argued, to a "shift to a much lower cost structure, not simply because it escaped gild restrictions, but because it involved a kind of production which subsidized the price of labor itself through 'subsistence' agriculture."

The adverse consequences of the struggle for supremacy among liliputian political entities in the Tamil country appear to have affected the *kaikkōlar* more severely than other communities, perhaps because they had derived disproportionate benefits during the earlier period of expanding relational networks. The destabilization of political authority in the region, resulting in the disruption of trade and the increased frequency of predatory raids led to a progressive leveling of economic disparities between artisans and small cultivators after the mid-sixteenth century, a phenomenon manifested by the growing dependence of the former on advances of yarn and money from merchants. The leveling of economic disparities between artisans and small cultivators, however, led to an eventual reconstitution of the cohesiveness of the *idangai* and *valangai* caste coalitions. Thus, while there was a complete absence of references even to conflicts between the collective corporate bodies of people who comprised these dual caste clusters in the historical record for almost two hundred and fifty years from the early fifteenth to the mid-seventeenth centuries,[63] from the mid-seventeenth century there are increasing references to *iḍangai–valangai* conflicts.[64] Interestingly, a unique 1641 inscription from Tiruppukkuli documents the equal distribution (*pagurru*) of land among themselves by the landowners of the village (ARE 176 of 1916)—though it is perhaps too much to extrapolate anything about a more egalitarian distribution from this solitary record.

In contrast to the process of political fragmentation experienced in the Tamil country, the establishment of Golkonda authority in the northern Coromandel implied a centralization of power. In this region,

where artisans had not been able to resist demands of powerful grandees with the same degree of success as their Tamil counterparts in the early fifteenth century for reasons alluded to earlier, the drought of 1632 and the visitation of a tropical cyclone the following year sparked substantial changes in relational networks. On the one hand, successive years of bad harvests caused an escalation of prices—contemporary Dutch records indicate a 75 percent rise in the price of yarn and a 250 percent rise in the price of paddy in 1634 over its precrisis levels (Subrahmanyam 1990b: 333)—intensifying the dependence of weavers on political functionaries who, as we have just seen, were often active participants in trade. On the other hand, successive years of inadequate rainfall weakened the political functionaries themselves since the Golkonda state, like most other states on the subcontinent, derived the bulk of its revenues from taxes on land. Finally, when the normal supplies of grain from Orissa and Bengal failed to arrive in 1635, another year of scanty rains, widespread distress was evident in the large-scale outbreaks of banditry, often led by local magnates, which the Golkonda central administration was able to curb only by the end of the following year. The destruction of the material bases of the wealth of local magnates during this agrarian crisis facilitated the establishment of a state monopoly in the Persian Gulf trade noted earlier. Thus, when trade revived in the late 1630s, in place of the several magnates—some of whom dealt with larger volumes of commodities in long-distance trade than the East India Companies—we find Mir Muhammad Said, by virtue of his position as the head of the Golkonda revenue administration, towering above all competitors, sealing his dominance with the acquisition of the posts of *Mir Jumla* (chief administrator) and Nawab of the southern conquests (Subrahmanyam 1990b: 324–27).

Finally, despite evidence testifying to the existence of impressive networks of long-distance flows of goods, lubricated by an extensive and sophisticated credit system,[65] there can be little doubt that this traffic was minimal in comparison to interlocal trade. This is reflected in the records of European trading companies—as, for instance, the *Dagh-Register* maintained by the VOC at Pulicat, which documents the traffic between ports on the Gingelly coast to Pulicat and places further south between mid-January and mid-February 1646 as follows: 53,518 kg of rice; 110,498 kg of paddy; 150 jars of vegetable oils and *ghee*; 210,895 kg. of sesamum; 25,609 kg. of various kinds of pulses; 170,489 kg of tamarind; and smaller quantities of tobacco, pepper, lac, and wax (Subrahmanyam 1990b: 52; for coastal

trade along the eastern seaboard see also Moreland 1967: 67–69). Unlike long-distance trade in the Indian Ocean, which was carried on by small fleets of large ships, the coastal trade conveying rice and other necessities to centers of textile manufacture on the Coromandel coast was carried by a large fleet of small ships. This is evident from a Dutch account of a coastal storm off the southern Coromandel coast in April 1627, which reported the estimated loss of over 200 boats (Subrahmanyam 1990b: 49).

Similarly, in the Arabian Sea, a raft of small vessels, sloops, and fishing boats plied from port to port along the coasts linking closely related coastal populations of fishermen and traders. Even as late as 1682, some 125 small craft passed through the port at Mangalore carrying between 3,500,000 and 4,500,000 pounds of rice to Gujarat and Goa—almost all of it conveyed by small peddlers who, because they could "live soberly and survive on very little [were] able to sell their goods for a meager benefit" (quoted in Barendse 2002: 14).

While the pattern of coastal trade does not appear to have changed substantially from the sixteenth century—and we do not have a reliable yardstick to measure differences in volume—the growth of textile exports from Masulipatnam to the Persian Gulf caused significant changes in relational dependencies over land. In particular, as Dutch records indicate, there was a rapid increase in the flows of raw cotton from the central Deccan to centers of textile production in northern Coromandel. The movement of this low-value bulk commodity over more than 300 miles of difficult terrain depended on the *banjāra*s who were

> sometymes hired by Marchants but most commonly they are the Marchants themselves, buyinge of graine where it is Cheape to be had, and carryeinge it to places where it is dearer, and from thence againe relade themselves with any thinge that will yeild benefitt in other places, as Salt, Sugar, Butter, etts.
>
> (Temple 1967: 96)

It has been estimated that the *lambadis* (the southern counterparts of the *banjāra*s) transported as much as 2,500,000 lb of raw cotton per year to the northern Coromandel in the seventeenth century in caravans of 10,000–15,000 bullocks, each animal carrying a load of 240–260 lb along with dry grains, iron, and raw cotton (Brennig 1975: 231, 235; Deloche 1993: 251; Washbrook 2009). The most important commodity carried by the *banjāra*s on their return journey from

the northern Coromandel coasts to the central Deccan was salt—and the magnitude of the volumes conveyed by them can be gauged by the imposition of a royal monopoly on salt production by the Golkonda monarchs in the latter half of the seventeenth century—as well as fine cloth and rice. Operating on miniscule profit margins—scarely above their costs of reproduction—the *lambadis*/*banjāras* were the terrestrial equivalent of the peddlers across the seas (Washbrook 2007; Washbrook 2010). Moreover, apart from the European trading companies, the *banjāra*s were the only community exempt from transit duties imposed by the Golkonda Sultans (Brennig 1975: 237; Deloche 1993: 249–50). Or as Raychaudhuri (1982: 342) once observed: "Here we have an instance of peddling trade organized on a massive scale."

The ultimately successful challenges to Portuguese dominance over the warm waters of the Indian Ocean, mounted by the Dutch and English chartered trading companies, paradoxically fostered the growing integration of production processes within the Indian Ocean world-economy. Since European exports were not competitive in the trading world of Asia, coveted goods—spices, silks, textiles, porcelain—could only be procured by the trading companies through the export of treasure: it was a "bullion for goods" trade (Prakash 1985: 235; Chaudhuri 1978b: 97–98, 456; Meilink-Roelofsz 1962: 246). The increasing participation of European trading companies in intra-Indian Ocean trade in a bid to reduce their outflows of bullion, however, implied that new links were being forged and existing links invigorated, between markets in the trading world of Asia. But European trading companies were not the only, or even the primary beneficiaries of an intensification in circuits of exchange across the twin branches of the southern ocean. For instance, the Dutch were already complaining in the 1630s that they were unable to sell textiles at Aceh because of strong competition from merchants from the Coromandel (Arasaratnam 1986: 119), and an English merchant reported from Surat in 1660 that over the previous decade the numbers of Indian ships at that port had risen from 15 to 80 "and the most part of great burthen" (quoted in Moreland 1975: 85; see also Brennig 1983: 481). Similarly, some two decades later, Sir Josiah Child observed that

> The subjects of the Mogul cannot bear a war with the English for twelve months altogether, without starving and dying by the thousands for want of work to purchase rice; not simply for want of our trade

> but because by our war, we obstruct their trade with all the Eastern nations which is ten times as much as ours and all the European nations put together.
>
> (quoted in Wallerstein 1986: PE-29–PE-30)

The bulk of this trade, as we have sought to suggest here, was in low-value items conveyed by small traders operating like peasants on miniscule margins and seeking to minimize their drudgery rather than to maximize their profits. Their sheer numbers enabled them to fend off all challenges, preventing wealthy indigenous merchants and northern European trading companies alike from dominating the markets.

A World Transformed

A secular rise in economic activity and interregional trade since the late fifteenth century—fuelled by the opening of new mines in Sweden and central Europe, recovery from the plague in the Middle East, stabilization of political conditions in peninsular India, changes in Chinese maritime policies—has been widely recognized. This trend was reinforced and reinvigorated by the global flows of bullion extracted from the Americas in the sixteenth century by European *conquistadors* and as these flows coursed across the planet, several writers have argued that capitalism—or "proto-capitalism" in Perlin's formulation, to distinguish its commercial, rather than industrial, thrust—was born as a result of these interregional commercial networks and that such a perspective frees capitalism from its Eurocentric cage (Perlin 1983; Blaut 1992; Barendse 2002).

Such a perspective assumes that subjecting economies, no matter how differently they may be constituted, to the same forces—commercial exchanges and especially bullion flows—will produce relatively identical outcomes. Yet, there is no reason to accept this premise, and this chapter has sought to demonstrate that though subject to the inflows of bullion and the increasing intervention of European corporate agencies, the trading world of Asia beat to the rhythms of a different drummer till the latter part of the seventeenth century at least. Given the peculiarities of economies based on wet-rice cultivation—especially as conditions did not favor accumulation of capital—there were no institutional arrangements that fostered an alliance between mercantile-financial and ruling elites, which underlay the transition to capitalism in Europe. As high population densities facilitated the development of labor-intensive production processes, there were no

tendencies to effect a real subsumption of labor. Large populations also encouraged the development of low-level circuits of exchange leading to wide-ranging trade dependencies as a multitude of peddlers, by land and across the seas, conveyed low-value, bulk commodities at very low margins and operating costs.

We have seen that the entry of European agencies into the networks of power and trade in the world of the Indian Ocean since the late fifteenth century, after an initial disruption of evolving trade dependencies, led to an expansion and deepening of these relations since the Europeans participated vigorously in what the Portuguese called the "India to India trade." The influx of American treasure through Europe—both via the Cape route and the more traditional overland routes—and across the Pacific was central to the expansion of market networks in Asia. The entry of northern European trading companies into these networks further stimulated them as rulers of large empires could hold them to their claims to sovereignty over the deep seas and force them to provide security for their ships—indigenous merchants even preferred to ship their cargoes in European vessels because of the greater security they provided and as we saw a decline in Asian shipping was not an index of a fall in the volume of commerce across the seas. In this context, as Benton (2005: 716) says, "Indian sovereignty on land made English trade by sea both possible and legitimate."

Since most of our information on the evolving networks come from European sources, these are invariably biased towards high-value goods on which most profits were made. Yet, even the available evidence indicates that these rich trades were based on a much denser network of trade in low-value, bulk items dominated by small petty peddlers—their sheer numbers militating against any attempt to establish monopolies or even to subordinate producers to merchant capital—who operated on low margins and transmitted market information through networks of kinship and caste. Viewed from this angle, the ephemeral nature of even the most prominent entrêpots stems from the fact that they owed their prominence to circumstantial factors rather than to their locations in structures of accumulation.

Moreover, despite the increasing prominence of European corporate entities in the "India to India trade," trade between Europe and the world of Asia remained relatively small:

> If we assume an equal distribution of the Asian commodities brought to Europe among the European consumers c.1730 only the supply

> of pepper appears ample—c.40 grammes of pepper for each. Each European might get c.17 grammes of coffee, c.9 grammes of tea and c.0.15 m^2 calico—i.e., enough to make a small handkerchief.
>
> (Steensgaard 1985: 232)

By the late seventeenth century, however, there began to be a change as a result of a dramatic rise in the flows of Indian textiles to Europe (Chaudhuri 1978b: 281–99; Arasaratnam 1986: 111 ff.; Glamann 1958: 142–43; Glamann 1974: 507–07; Furber 1965: 79–124). Om Prakash (1985: 240–48) has calculated that the numbers of people employed in cotton and silk textile production in Bengal increased by approximately 26,420 to 37,014 between 1678 and 1718 as a direct result of the Dutch Company's exports.[66] Though this was counterbalanced by a parallel decline in European trade with the Persian Gulf (Barendse 2002: 492), it was a harbinger of things to come: the gradual incorporation of the world-economy centered around the Indian Ocean into the capitalist world-economy.

Epilogue: Rethinking Historical Change

The progressively greater density of interactions on a variety of scales across the globe has been accompanied by revisionist histories that attempt to counter Fernand Braudel's claim that Europe was the "monstrous shaper of world history" by demonstrating that societies across the planet—or at least in much of the Eastern hemisphere, except in Australasia and perhaps sub-Saharan Africa—were undergoing processes of sociohistorical change similar to those experienced in Europe. More specifically, it has been argued that after the end of the world bullion famine in the mid-fifteenth century with the opening of new mines in Central Europe, Scandinavia, Japan, and the Americas, there was an increasing worldwide commercial integration and that capitalism originated "within a common international theatre of social and commercial changes" (Perlin 1983:33) rather than in Europe. And David Washbrook (1988: 61) contended that

> If the world economy did not have its origins in Europe, then dominance cannot be reduced to a simple function of expansion and to the progressive "incorporation" of more and more areas of the world, themselves previously inert, into Europe's system.

Just as proponents of globalization and the "flat world" project an even, horizontal process of socio-economic integration taking place on a planetary scale, this image of capitalism rising unbidden all across the world is reinforced by attempts to assimilate the histories of the "non-Europes" in a seamless narrative of human progress: "the historical heritages of every people of the earth are of equal value, even if, or especially because, they were mistreated by European imperialists in the recent past, " as the doyen of world historians in the United States, William McNeill (1998: 6–7) once put it.

The inclusion of "the historical heritages of every people of the earth" into a grand omnibus account has not changed the structure of the basic narrative of long-term social change in which the Euro-North American historical experience is deeply and irrevocably etched. The assumption that trade and other connections automatically leads to a greater integration between different social systems, without examining the structures of power that underlie the new integrated system is tantamount to replacing the triumphalism of the "rise of the West" with the triumphalism of globalization. It has not lead to a constitutive reconstitution of the temporalities and spatialities of Euro-North American history through the sociohistorical experiences of the peoples of the "non-Europes." The process is essentially unilinear as for instance when David Northup (2005) talks of a "convergence" of historical processes across the world since the year 1000. Similarly, claiming to transcend Eurocentrism, André Gunder Frank's "5,000 year world system" makes the progression to capitalism the natural path of human development and "the naturalization of capitalism historically also undermines the possibility of perceiving other alternatives in history, as the only alternatives it allows are alternative capitalisms" (Dirlik 1999: 15).

Merely including the histories of the peoples of the "non-Europes" does nothing to challenge the structures of power (political, economic, social, and cultural) that derives from the Euro-North American domination of the globe—what Martin Heidegger and others have called "the complete Europeanization of the earth and of mankind" (see Halbfass 1988: 167–68)—and has reordered spatialities and temporalities everywhere as places were renamed and social and political relations rearranged. From this perspective, to talk of a plurality of modernities as Jack Goldstone and others do is to obscure the incorporation of "non-Europes" into a modernity that is thoroughly European. After the end of the bullion famine in the late fifteenth century, trade networks may have encircled the planet but the institutions that eventually emerged—from the interstate system and international law to the academic disciplines that condition our views of the world and our abilities to manipulate it are entirely European in origin and conception. Though states systems existed elsewhere, contemporary international law is almost entirely drawn from the historical experiences of European states—from the Treaty of Westphalia through the Concert of Europe and the League of Nations to the United Nations. Roots of contemporary notions of democracy and citizenship, civil society and state, market and the

economy, individual and the subject, gender and race, even the idea of a good life lie deep in European intellectual traditions (Dirlik 2002: 264). To accord "the historical heritages of every people of the earth [an] equal value," may be a laudable sentiment, but it ignores the fact that the constitutive contribution of these legacies to the world-encompassing structures of power has been negligible.

However, well-intentioned the revisionist historians' endeavor to provincialize European history maybe, it is tantamount to incorporating the rest of the world in a European modernity—an "anti-Eurocentric Eurocentrism" as Immanuel Wallerstein (1997: 101) has aptly dubbed it. An "anti-Eurocentric Eurocentrism" because in the name of overcoming Eurocentrism, and specifically the origins of capitalism in Europe, the revisionists force the histories of the "non-Europes" into an idealized straitjacket of presumed changes in Europe—private property in land, "free" markets, decline of arbitrary taxation, mobility of labor, growth of long-distance trade and capital stock. Attempts are then made to gauge how far these elements in the "non-Europes" corresponded with parallels in Europe—as in Kenneth Pomeranz's (2000: 70) claim that China and Japan more closely approximated the ideal of a "market economy" than western Europe—to assess why capitalism did not first develop or take root in these societies. Alternatively, revisionist studies seek to show that these societies were progressing toward capitalist modernity and they were only beaten to the post by Europeans due to some fortuitous circumstance—the "discovery" of the Americas, conveniently located sources of coal, or some other factor. Such procedures not only misrepresent the origins of capitalism itself—especially the virtual identity assumed between "free" markets and capitalism—but also distorts the history of the "non-Europes" by selectively highlighting their similarities with the presumed European pattern while obscuring their historically original trajectories of long-term, large-scale social change. The procedure of abstracting some elements in the pasts of China or India, for instance, and comparing them to similar elements drawn from the historical pattern of social change in Europe actively militates against a reconstruction of the specific historical trajectories experienced by peoples living in the subcontinent or the former Celestial Empire. "The distinguishing feature of Eurocentrism is not its exclusiveness, which is common to all ethnocentrisms," as Arif Dirlik (2003: 110) has forcefully argued, "but rather the reverse: its inclusiveness."[1]

In this context, a study of long-term, large-scale social change in societies based on wet-rice cultivation provides an alternate model

of sociohistorical trajectories to those based on a capitalist teleology. As was the case elsewhere, political power was based on landownership in societies based on irrigated riziculture, but unlike the case in lands under dry grains, landownership in these societies did not confer any economic advantage—and often large landowners were at an economic disadvantage as plots had to be small to ensure adequate drainage and proper weeding. Landlords, thus, seldom intervened in the production process as a premium was placed on the quality of labor—on the knowledge of the farmer of the soils; choice of appropriate varieties of seeds to resist pests and to spread risks; transplanting seedlings; and careful weeding—rather than on heavy and expensive tools. If the small size of plots, simple tools, absence of fallowing, and multiple claims to the produce of a single field seemed to provide evidence of the backwardness of Asian agriculture to eighteenth- and early nineteenth-century European observers who tended to attribute it to an absence of private property in land, it was because they viewed wet-rice cultivation through the lens designed to view production conditions in their homelands. They had simply failed to recognize the peculiarities of irrigated riziculture. Land ownership was valued though because it conferred prestige, status, and political power and was a secure form of investment. Hence, though sixteenth and early seventeenth century imperial officials who amassed wealth through their trading ventures, the so-called portfolio capitalists, secured their wealth not by ploughing it back into trade or production but in land.

The great productivity of land under wet-rice cultivation precluded the emergence of a mutually beneficial *liaisons dangereuses* between state-builders and mercantile-financial elites as a much larger portion of the surplus could be extracted as taxes than in northwestern Europe. Since these lands could support greater densities of populations, it also fostered a more elaborate divisioning of labor and expanding circuits of exchange. At the same time, while these common characteristics provide a basis for comparison between wet-rice growing societies in peninsular India, southern China, and Tokugawa Japan, it also enables us to make distinctions between these societies, as well as between them and societies in mainland and archipelagic Southeast Asia as underscored by the retort by the Sultan of Golkonda to a Siamese visitor who had boasted about the size of his homeland: "It is true, I admit, that [it is] of greater extent than mine, but you must agree that the king of Golkonda rules over men, while the king of Siam only rules over forests and mosquitoes" (quoted in Lieberman 2003: 27)!

These distinctions were amplified, refracted, or otherwise modified by conditions of state-making in these several regions. André Wink (2002: 416) speculates that the simplistic observations on climate and geography which were invoked to explain persistent differences between the East and the West in formulations like "Oriental despotism" and the "Asiatic mode of production" may have led historians of the subcontinent, and of the Indian Ocean more generally, to downplay the importance of geography on long-term social change. Be that as it may, more recently as we have seen historians have begun to stress the importance of nomads, and the relations between nomads and sedentary societies provides a comparative framework to study processes of state formation across much of continental Asia.

Unlike Europe where broken forests provided a barrier against nomadic incursions since the eleventh century, waves of nomadic invaders established conquest states across most of West, South, and East Asia between the twelfth and the late thirteenth century as the speed and maneuverability of light cavalries conferred an insurmountable military advantage on the nomads. All state-builders from the Central Asian steppes—the Ottomans, the Safavids, the Turko-Afghani rulers of the Delhi Sultanate, the Mongols, and the Manchus—as well as the Telugu and Kannada warriors in peninsular India sought to remake the small bands of warriors who had made the conquests into much larger imperial armies that could sustain their power by either channeling their martial energies outside their realms, or by incorporating them into the apparatus of empire through the banner organizations of China, systems of transferable revenue assignments (*iqta'*), or similar arrangements that provided leaders of warbands with access to the wealth of empire (Gommans 2002: 81). In contrast to the European fief, given the high degree of monetization of the economy, the *iqta'* was a salary collected at the source rather than embedded in a subsistence economy. The constant incursions of armed invaders also meant that aristocracies in societies based on irrigated rice cultivation did not enjoy the longevity of their European counterparts.

The creation of large armed contingents however made cultivators apprehensive of the loss of their crops to foraging horses and pack animals—an apprehension shared by the state-builders themselves who depended on agricultural revenues. Hence, crucial to the maintenance of power were military settlements established in the arid zones, too infertile for rice cultivation but with extensive grazing grounds, located "at the interface of unsettled marches and more settled agrarian fields.

This frontier delivered its rulers the best of both worlds: mobile power and sedentary investment" (Gommans 1998b: 15).

In the subcontinent, the presence of arid lands interspersed with fertile river valleys created "zones of military entrepreneurship," as we have seen, and these were formidable obstacles to the emergence of pan-subcontinental polities till the nineteenth century when new modes of transportation, communication, and improved military technologies were deployed. In particular, rulers of large polities had to ensure that rival military entrepreneurs did not recruit many potential military recruits and prevent the military laborers from setting up their own protection providing enterprises. Hence, the itinerant royal camp was a constant reminder of the sovereignty of the ruler and conspicuous consumption and the maintenance of a large retinue were important instruments employed to foster political allegiance. Indeed, as Jos Gommans (2002: 109) says of the Mughals

> neither the city nor the palace, but camp in open fields was the ideal setting for stately ritual, such as welcoming ceremonies (*istiqbal*), paying homage (*kornish*), grand receptions and banquets of reconciliation, and giving robes of honour (*khilats*) and other presents.

Conversely, in the absence of these "internal frontiers," Chinese dynastic empires were founded on large bureaucratic apparatuses while in Tokugawa Japan, rather than the *shogun* going on tours, the subordinate *daimyo* were required to spend half the year in attendance at the court and leave their families as hostages when then returned to their territories for the other half-year. However, in their own domains, the *daimyo* ran their own courts, collected and retained most of their taxes, and even minted their own coins (Wong 2007: 318).

The thick forests and difficult terrain that shielded much of mainland Southeast Asia from nomadic depredations also limited the spread of wet-rice cultivation to the plains as these were prone to flooding and control over labor was more important than control over land as indicated by the Golkonda Sultan's retort to the Siamese envoy. Here, the competition between rulers was for subjects and there was a marked absence of pitched battles that characterized warfare elsewhere in continental Asia.

The importance of light cavalries hampered the development and deployment of firearms since the early guns were too cumbersome to use on horseback and firearms played only an auxiliary role in much of continental Asia. "Early cannon were marginally useful for siege

warfare, early muskets were marginally useful for infantry warfare," says Kenneth Chase (2003: 24), "and both were completely useless for cavalry warfare." If firearms came relatively late to Japan, their European provenance had an powerful impact on the unification of the island empire. In parts of peninsular India and southern China, as well as in archipelagic and mainland Southeast Asia where the terrain and climatic conditions was not as favorable to cavalries, firearms were more decisive in crucial encounters due to the greater importance of infantries as illustrated by the better success registered by the southern Ming forces in repelling Japanese invaders from Korea than the Ming contingents from the north.

Dependence on nomads through trade or through tributary relations for regular supplies of good quality horses—essential for war-making and state-making in the first half of the second millennium—strengthened tendencies toward commercialization that stemmed from the peculiarities of wet-rice cultivation in China and the subcontinent. This entailed both the extension of cultivation to the arid and submontane regions and the expansion of craft production in China and in peninsular India.

Higher productivity of lands under wet-rice cultivation also led to a greater elaboration of the division of labor and promoted craft production on a large scale. At the same time, ample supplies of labor meant that tendencies toward the development of labor-saving devices and even of precision tools was stunted as the emphasis was on the acquisition of greater manual dexterity through a more-thoroughgoing specialization of labor. Hence, this has been labeled an "industrious revolution" rather than an industrial one. In these conditions, as price displaced quality and artistry as the driving force of production, manufacturing tended to be ruralized to lower costs of production.

Moreover, even when fossil fuels like coal were used—as in China—the location of coal deposits meant that there was no compulsion to develop engines to pump out water as was the case in England and this inhibited the development of steam technology (Pomeranz 2000: 65–67). This, however, underlines that given ample supplies of labor, there was never any premium on searching for new sources of energy and the emphasis on improving the quality of labor through greater specialization—the "industrious revolution"—was extraordinarily productive. Demographic studies of China have indicated that while the population attained peaks of 100–150 million several times before declining, it soared to almost 400 million by the end of the eighteenth century "and its impact on world GDP far outweighed that

of post-industrial revolution Britain, whose share of world GDP in 1820 was less than 6 per cent" (Sugihara Kaoru 2003: 79)—when the corresponding figures for China and India were 29 and 16 percent respectively.

The expansion of manufacturing and the extension of the arable even to semiarid and arid zones unsuitable for the rice plant generated expansive webs of trade but the presence of a multitude of petty traders meant that no true monopolies—which could lead to the accumulation of large dollops of capital—could be established. Much like Chayanovian peasants, these peddlers sought to maximize their incomes to meet household consumption requirements or to minimize their drudgery and hence operated on razor thin margins (Barendse 2002: 157). Thus, even though some powerful administrative officials in the seventeenth and early eighteenth centuries—the so-called portfolio capitalists—could outfit large ships for trade and reap significant rewards from their commercial activities, the only way they could safeguard their fortunes was by "buying or fighting their way into land rights." Rather than signaling a *liaisons dangereuses* between state-builders and mercantile-financial elites, or the interpenetration of the latter into the state apparatus, they were merely imperial officials who derived additional revenue through their participation in commerce as underlined by the case of Mirza Muhammad Sadr Murtuza al-Mulk discussed in the previous chapter (Barendse 2002: 141; Parthasarathi 1996: 86).

Similar socioeconomic conditions across several zones led to similar codes of statecraft—an Islamicate code of kingship across much of West Asia and the subcontinent, Confucian codes across much of East Asia, and as befits a zone straddling two zones, a mixture of Confucian and Islamicate codes were adopted over an older Indic-Theravada code in Southeast Asia. The different codes of statecraft serve to mark the distinct world-economies of the trading worlds of the Indian Ocean and of the Celestial Empire. The trading world of the Indian Ocean stretched from West Asia and the coasts of East Africa to Southeast Asia and the eastern Indian Ocean archipelago. These extremities, as the land frontiers of this world in Central Asia, were transitional worlds, interfaces with the world of the Mediterranean, of Africa, and of the Sinocentric world order as indicated by the intermixing of different codes of statecraft, religion, customs, and social mores in each transitional zone.

Since no premium was placed on accumulation, wealth did not coagulate in encrusted layers in particular locales and it is inappropriate

to invoke the idiom of core–periphery relations to describe networks linking the glittering entrepôts, ports, and imperial capitals with villages and towns as the latter owed their fleeting prosperity to situational factors rather than to structural ones and soon reverted to the sleepy port-hamlets or dusty village if trade routes shifted or the political center was relocated. This was also reflected in the lack of enduring civic architecture in the world of the Indian Ocean despite the monumentality of Hindu temples and Mughal palaces and tombs.

Shifts in trade routes occurred most notably when the Portuguese introduced violence on a hitherto unprecedented scale on the Indian Ocean, though the disruption of Indian Ocean networks was brief as new networks were forged. While states had deployed violence over the seas before, these had been extensions of their activities on land and in the Indian Ocean world, terrestrial rulers had never asserted their sovereignties over the deep seas. The Portuguese enjoyed a naval superiority after the defeat of the Mamluk navy in 1509 as most subcontinental vessels were constructed by stitching planks together and if they had been equipped with comparable weaponry "they would have disintegrated on its discharge" (Scammell 2000: 516). Local craft soon began to be built to Western design and the Europeans did not enjoy a naval superiority in the South China Seas till much later.

European intervention in the Indian Ocean actually intensified and reinforced trade circuits of trade as they channeled large volumes of gold and silver to lubricate trade networks in a region woefully starved of precious metals. Such was the desire for gold that as Filippo Sassetti, a Florentine merchant, put it in 1586, "the Chinese among all peoples of Asia, are wild about silver as everywhere else are men about gold." And in 1636, these sentiments were echoed by an official of the English East India Company who said that the Chinese thirst for silver was so intense that "they will as soon part with their blood as it, having once possession" (quoted in Moloughney and Xia Weizhong 1997).

Long-distance trade in the Indian Ocean world was predicated on the autonomy of diasporic mercantile communities who often administered their own laws and adjudicated their disputes. This system of *natios* provided an umbrella framework for the Portuguese and the northern European trading companies to operate though they were distinguished from the other *natios* by being endowed by their home governments with the sovereign powers in the extra-European world and with their armies and naval forces, they functioned more as states in the states system of the Indian Ocean world rather than as mere

diasporic merchant communities. Unable to dominate the trading world of the Indian Ocean or East Asia, dependent on local rulers for their precarious footholds, and on local mercantile and financial networks to procure goods, the Europeans largely had to adapt to the political and socio-economic cadences of these worlds even as they conveyed large quantities of bullion and copper needed to lubricate the circuits of exchange in these regions.

Over the long run, Portuguese attempts to extract a protection rent on trade along the Indian Ocean did not interrupt the evolution of commercial ties and these links were immensely strengthened by the arrival of the northern European trading companies. In the first instance, as their commercial operations depended on stationing their agents in inland locations where they enjoyed no military superiority, local rulers could hold the trading companies to their claims to jurisdiction over the seas and eradicate arbitrary acts of violence. As mercantile operations, the trading companies participated actively in the "India to India" trade to reduce bullion flows from Europe and since their ships were better armed and protected, indigenous merchants often freighted their goods on them as well.

From this review of the evidence, the question that animated an earlier historiography—why did capitalism not evolve autonomously in India or China—is misplaced because there was no advantage to capitalism in societies based on wet-rice cultivation. As Pomeranz, Prasannan Parthasarathi and others have shown, the standards of living in these societies were higher than in northwestern Europe and as Sugihara suggests, the impact of the "industrious revolution" in China was probably more significant than that of the English "industrial revolution" in improving living standards.

In contrast to the revisionist claims of capitalism arising unbidden on a world scale—or at least across the "landscapes of even development" in the Eastern Hemisphere, this recuperation of the sociohistorical trajectories of societies based on wet-rice cultivation suggests that there were no tendencies toward capital accumulation. The absence of such tendencies meant that the system was less predatory than the nascent capitalist system emerging in Europe and even when trade was established with nonmonetized societies, there were no moves to forcibly incorporate them. The presence of a multitude of petty traders and craftsmen and the cultivation of marginal soils generated its own dynamic of petty commodity production and expanding circuits of exchange that was astonishingly wide-ranging as we have seen, even if the edges of the systems remain nebulous.

Rather than assimilating the "historical heritages of every people of the earth" into a master narrative based on patterns of long-term, large-scale social change in Europe and North America, an excavation of their distinct sociohistorical trajectories, their autonomous dynamics of social change before these were short-circuited with their incorporation into the capitalist world-economy will provide us with an apparatus in which emerging debates of world-scale historical social sciences may be joined however tenuously.

Notes

Introduction Toward a Framework to Debate World History: Bringing South India and the Indian Ocean Back In

1. In Tokugawa Japan, agricultural production in 1850 was some 25 percent higher than in 1730 (Sugihara Kaoru 2003: 11–12).
2. This claim has been disputed by Stephen Broadberry and Bishnupriya Gupta (2006) who dismiss without examination the possibility that the higher yields of lands under wet-rice cultivation and the reduced subsistence requirements (clothing, shelter, and fuel) in warmer areas may have contributed to higher living standards in the Yangzi delta, Bengal, and the Coromandel. Additionally, while they argue that despite the failure of higher "silver" wages to translate into higher "grain" wages in northwestern Europe due to an "industrious revolution," again without examination, they rule out the possibility of a similar spurt of industriousness in the rice-growing tracts of India and China. Moreover, when prices of cloth fell, weavers were often able to pass on the cost reductions to spinners and thus maintain their own profit margins (Parthasarathi 2011: 42–44).
3. Domestic creditors may have been easier to fend off as they could be paid in debased currencies, or their assets could be seized as England's Henry VIII did to the monasteries, or they could be expelled as the Jews were from thirteenth-century England by Edward I (Thompson and Runciman 2006: 543–44).
4. Based on the assumption that in the early second millennium 120 acres of grazing land was required to support one horse per year, Denis Sinor (1972: 181) estimated that the Hungarian Plain could provide pasture for only 205,920 horses compared to the Mongolian grasslands, which could support 2,500,000.
5. The original translation of this passage had translated Braudel's *rapport de force* as "balance of power" rather than as "relationship of force." The latter interpretation is suggested by Immanuel Wallerstein (1991: 210).
6. Unlike prior ventures when partnerships were dissolved after a predetermined span of time and the assets divided among the partners, the internalization of

protection costs made the Dutch East India Company a new form of enterprise as it was necessary to treat its capital stock as permanent and to allocate as much of its profits as possible as circulating capital. By spreading its fixed costs over as large a volume of trade as possible, it could increase returns to its investors over a long period of time. However, as some investors were not willing to wait for an indefinite period, it led to the separation of ownership and control, thereby allowing investors to dispose of their shares in the market. Here again monopolies were crucial—and often times governments endowed company officials with ambassadorial status to facilitate their transactions with foreign princes (Pearson 1991: 89–92, 109–10, 113).

7. The creation of a salt administration since the Tang dynasty was designed to provide a stable source of revenue for the government since salt could be produced only along the coasts and in some marshes and interior lakes while it was universally consumed. Hence, it was easy to levy a tax at source and as the returns would be higher if the incidence of the tax was small, there was an incentive to keep the tax low (Adshead 2004: 50). A monopoly on iron was implemented to facilitate collection of taxes or the distribution to merchants on a quota basis rather than to generate substantial profits.
8. Rulers of small port-cities and local officials of ports, when these were part of larger jurisdictional entities, were certainly more conscious of the need to protect commercial interests of local merchants. Or, as Ashin Das Gupta (1982: 421–22) once put it: "Golconda or Bijapur, Vijayanagara or the Mughal Empire never had any serious interest in maritime trade and usually relegated all matters relating to the sea to their local administrations. In an emergency which called for central assistance, it was the local administration and the regional network of mercantile interests which tried frantically to persuade the Olympians to intervene, not usually with the kind of success they desired."
9. A Portuguese source reported that small yellow and blue beads purchased in Cambay for 1.05 maticals could be sold in 1525 in Sofala for 21.28 maticals and that cloth would sell for five times its purchase price. Others reported that cloth that cost 100 in Gujarat sold for 220 in Malindi and 780 in Sofala (Pearson 1998: 113). A matical or *mithqal* was an Arabic weight (also known as metical or nitical) of approximately 4.25 grams (Pearson 2001: 32).
10. After Mughal forces commanded by Mir Jumla conquered Assam and returned with many iron guns and Western-style gunpowder in the seventeenth century, a tradition arose suggesting that guns and gunpowder were invented there and then transmitted to China (Tavernier 1977: II, 216–17; Chaudhuri 1990: 101–02). However, the earliest mention of firearms in Assam according to local records—the *burunji*—date to the early sixteenth century, suggesting that the Ahom received firearms technology from Tibet (Sun Laichen 2003: 504–05).
11. There is some evidence to suggest that breechloaders had arrived in the southern regions of China by around 1510 and, given that the Portuguese reached Melaka only in 1509, this suggests an extremely rapid pace of technology transfer. The first Portuguese ship to visit a Chinese port was in 1514 (Cipolla 1965: 107; Needham 1986: 372; Di Cosmo 2004: 131).

12. Similarly, Blaut (1992: 356) argued that "capitalism would (one suspects) have arrived in any case, but it would have arrived many centuries later and it would not have seated itself in Europe alone (or first) had it not been for European colonialism in America." And again: "If the Western Hemisphere had been more accessible, say to South Indian centres than to European centres, then very likely India would have become the home of capitalism, the site of the bourgeois revolution, and the ruler of the world" (Blaut 1992: 369).

1 Dynamics of Sociohistorical Change in Societies Based on Wet-Rice Cultivation

1. Burton Stein (1980: 275) who formulated the "segmentary state" model, insisted that "the only possible supra-local, extra-segmentary integration which could occur [in medieval South India] would be of a ritual sort." See also Appadurai and Breckenridge (1976), Breckenridge (1985a), and Spencer (1969).
2. Korea was an outlier—though rice had been grown there for some two thousand years, it accounted for only 36 percent of the cultivated land as late as the 1920s and even then it was mainly dry rice grown along other dry crops such as barley, millet, and soybeans (Latham 1998).
3. According to Slicher van Bath's calculations, medieval northern European seed-to-yield ratios for barley, rye, and wheat were between 1:3 and 1:4, though ratios between 1:1.6 and 1:2 were more common before the twelfth century (Bray 1983: 28, n. 2; 1986: 225, n.2). On the fields of the bishopric of Winchester, Georges Duby (1981: 343) estimates that seed to yield ratios rose from 1:4.22 in 1300–1349 to 1:4.45 in 1400–1449 for wheat, from 1:3.8 to 1:4.31 for barley, and from 1:2.42 to 1:3.62 for oats. Guy Bois (1984: 205) calculates that this ratio was 1:6 on the very best lands in late fifteenth-century eastern Normandy, and slightly lower on less fertile soils. These figures are compatible with Emmanuel Le Roy Ladurie's estimates in which, however, he criticizes Slicher van Bath's finding that average French yields rose to between 1:6.8 and 1:6.9 for the years 1500 to 1700 as highly excessive. Le Roy Ladurie (1987:113–15) argues instead, that yield ratios in the range of 1:4 and 1:5 are more plausible.

   Though even plants like wheat, barley, and rye could theoretically produce a maximum of approximately 400 grains per plant as early as in sixteenth-century Europe, the physiology of the plant and inefficient sowing techniques reduced the seed to yield ratio to about 1:5. The transplantation techniques developed in Asian rice cultivation (on which see below), however, meant that rice had a much higher ratio of about 1:100 (Bray 1986: 15).
4. Even at the turn of the eighteenth century, a French peasant had to reserve 15 to 20 percent of the crop as seed for the next season (Goubert 1987: 203).
5. One of the great technical innovations in twelfth-century European agriculture was to plough land under grain cultivation three or four times to increase yields. However, the difficulty of finding forage for livestock meant that plough teams were usually kept below optimal strength (Bloch 1966: 25).

6. Li Bozhing (2003: 153) indicates that the rotation of wet and dry crops also improves the quality of the soil.
7. The earliest reference to transplanting rice in Chinese literature is found in *Ssu Min Yüeh Ling*, a text of the second century AD (Bray 1984: 519); for transplanting in China and Vietnam, see Bray (1984: 501–04); for India, see Mukhia (1981: 288) and Alayev (1982b: 227).
8. A study of patterns of landholdings in seventeenth-century Yangzi Delta indicates that really large estates of more than 10,000 *mou* (approximately 1,377 acres) were exceedingly rare, while about 75 percent of the land was held by medium (100–500 *mou*, or 13.8–68.9 acres) and small (less than 100 *mou*) landowners (Huang 1974: 158; see also Chao 1986: 92–93; Golas 1980: 302–05).
9. For Burma, see Lieberman (1991: 8–11); for the Tonle Sap flood plain of Cambodia see Reid (1988: 21).
10. The *nāḍu*, in contrast to *kāḍu* or forest, denoted agricultural land (Burrow and Emeneau 1961: 342, #3012).
11. The right to manage their own affairs was the central characteristic distinguishing special settlements of *brāhmaṇar* from similar settlements of Buddhists and Jains (*pallichandam*)—the latter possessing no comparable rights (Stein 1980: 143–44; 1977: 46).
12. This is reflected in the general designation, *kōyirramar* ("relatives of the palace"), applied to royal officials, big and small (Subbarayalu 1982: 284).
13. Heitzman (1997: 172) found that there were 21 references to the *nāṭṭār* in the 200 Chola records from the Alangudi and Kalattur taluks of Pudukkottai district and that these records appeared all through the chronological span of the Chola period. Conversely, while the bulk of the Chola period inscriptions come from the Kumbhakonam (Thanjavur district) and Tiruchirapalli (Tiruchirapalli district) taluks, only eight records contained references to the *nāṭṭār*. Tirukkoyilur taluk (South Arcot district) yielded 10 references. Most of those records were concentrated in the early and late phases of Chola rule.
14. Between 985–1070 and 1178–1279, recorded instances of transactions concerning private property in land rose by 800 percent in Kumbhakonam taluk, 3,100 percent in Tiruchirapalli, 700 percent in Tirukkoyilur and 2,000 percent in Tirutturaippundi, and represented 75, 57, 13, and 87 percent, respectively, of all inscriptions found in these taluks in the latter period (Heitzman 1997: 65–66).
15. Thus, 23.05 percent of these records came from the Kanchipuram taluk (of which 16.87 percent was from the settlement at Kanchipuram itself), 13.17 percent from the Chengalpattu Taluk, 9.05 percent from Tindivanam, 7.41 from Polur, 7.0 from Wandiwash, 6.58 from Saidapet (including Madras) and 4.53 from Tiruvallur. An additional 23.84 percent came from the less fertile zones surrounding these taluks—4.53 percent from the Arni, Gudiyattam, and Tiruvannamalai taluks; 3.29 percent from Gingee; 2.88 from Villupuram; 2.46 from Vellore; and 2.06 percent each from the Madhurantakam, Tiruttani, Tiruppattur, Walajapet, and Chittoor taluks. Finally, the least number of records came from areas where agriculture was

of marginal significance—a mere 5.35 percent from the combined totals of the Cheyyar and Villianur taluks (1.23 percent each), Sriperumbudur and Srikalahasti taluks (0.82 percent each), and the Ponneri and Chengam taluks (0.41 percent each). No records of property grants to temples were found in the arid Arakonam taluk. See Palat (1988: 468–72) for details.

16. See a fifteenth-century inscription from Valuvur (Wandiwash taluk, 61 of 1908) recording the purchase of land from an individual by the temple; see also ARE 45 of 1933–34, a record of 1529 from Tenmahadevamangalam (Polur taluk), and ARE 70 of 1923 from Siruvallur (Kanchipuram taluk). For the purchase of land by an individual from the *kīlavan* (headman) of a village, and from the *ūravar* of another, see records of 1388 from Tirukkalakkunram (Chengalpattu taluk, ARE 171 of 1932–33) and of 1381 from Kunnattur (Sriperumbudur taluk, ARE 193 of 1929–30). Individuals also figured as purchasers of land in *all* cases when temples were forced to sell a part of their holdings due to their inability to pay assessed taxes (see note 20).
17. Endowments to the Tirumalai Tirupati temple, housing the personal deities (*iṣṭadēvata*) of the Vijayanagara *Raya*s far exceeded those to any other. Being the recipient of continued patronage even after the decline of the empire, the Tirupati temple is today the richest religious institution in India. The exceptional character of the Tirupati temple is reflected in the activities of its *tiruppaṉipiḷḷaiyār* who had access to their own funds (*tiruppaṉibhaṇḍāram*) made possible through their control of revenues from some villages and even from a *śīrmai* (TTDES/II/49, 87; III/167). No other temple in the Chandragiri and Padiavïdu *rajya*s possessed a department of public works, let alone one as well endowed as the one at Tirupati.

    The close association between ruling dynasties of Vijayanagara and the Tirupati temple highlighted by the fact that it yields more than a third of all Vijayanagara-era Tamil inscriptions but only a meager total of six inscriptions containing revenue terms indicate that its exceptional status would unduly skew the distribution patterns of variables. For *sarvamānya* grants of land see lithic records of 1374 from Eyil (Gingee taluk, 224 of 1906); of 1384 from Ponnur (Wandiwash taluk, ARE 401 of 1928–29); of the reign of Bukka II (1405–06) from Angarankuppam (Gudiyattam taluk, ARE 193 of 1921); of 1440 from Villiyambakkam (Chengalpattu taluk, ARE 72 of 1932–33); two records of 1505 from Vadamahadevamangalam (Polur taluk, ARE 54 and 64 of 1933–34); of 1509 from Kodungalur (Wandiwash taluk, ARE 142 of 1924); and of 1525 from Polur (ARE 409 of 1928–29). See also three fourteenth-century records from Ponnur (ARE 401 of 1928–29), Brahmapuram (Gudiyattam taluk, 207 of 1921) and Ramapakkam (Villupuram taluk, ARE 530 of 1970–71); and a sixteenth-century record from Ulavur (Chengalpattu taluk, ARE 22 of 1932–33).

    For *sarvamānya* grants of villages see an inscription of the reign of Bukka I (1344–1357) from Venmanapulur (Tiruvallur taluk, ARE 24 of 1944–45), two fourteenth-century records from Devanur (Gingee taluk, ARE 298 of 1928–29) and Sattampadi (Tindivanam taluk, ARE 236 of 1927–28); of 1389 from Panaiyavaram (Villupuram taluk, ARE 328 of 1917); of 1403 from Madam (Wandiwash taluk, ARE 260 of 1919); of 1407

from Veppambattu (Vellore taluk, SII/I/55); of 1435 from Kanchipuram (ARE 308 of 1954–55); a fifteenth-century record from Ten-Illupai (Cheyyar taluk, 209 of 1968–69); two records of the reign of Achyutadevaraya from Marakanam (Tindivanam taluk, 40 and 43 of 1919); and a record of the time of Sadasivadevaraya from Velur (same taluk, ARE 109 of 1919).

18. The bulk of these records come from Kanchipuram: ARE 340 of 1954–55 (1472), ARE 659 and 660 of 1919 (both in 1516), 373 of 1919 (1539), ARE 482 and 653 of 1919 (of the years 1548 and 1555 respectively). There are also two other records of similar transactions in 1530 from Tenneri in the same taluk—ARE 225 and 245 of 1922. Other cognate records include inscriptions of 1379 and 1536 from Villiyanur (Villianur commune, ARE 181 and 184 of 1936–37); of 1381 from Madaivilagam (Tiruvallur taluk, 486 of 1926); of 1398 and 1404 from; of 1467 from Munnur (Tindivanam taluk, ARE 84 of 1919); and of 1540 from Pakkam (Chengalpattu taluk, ARE 98 of 1932–33). There is also a solitary reference to a village being purchased by the donor prior to its donation to the temple, ARE 173 of 1932–33 from Tirukkalakkunram (Chengalpattu taluk, of 1388). The only instance of a similar transaction from the intermediate zone comes from Tiruvanakkoyil (Madhurantakam taluk, 353 and 356 of 1911 dated in 1398 and 1404 respectively).
19. ARE 346 of 1954–55 from Kanchipuram and SII/XVII/721 from Tirumullaivayal (Saidapet taluk); both are dated in 1403.
20. *Sarvamānya-iraiyili* grants of land are documented in records of 1399 from Devanur (Tindivanam taluk, 244 of 1927–28); of 1429 from Vayalur (Tiruvallur taluk, 365 of 1908); of 1452 from Tirumullaivayal (Saidapet taluk, SII/XVII/737); and a fifteenth-century inscription from Vadamahadevamangalam (Polur taluk, 56 of 1933–34).

    For similar grants of villages, see the epigraphical records of 1406 from Madam (Wandiwash taluk, 236 of 1919); of 1429 from Viralur (Polur taluk, 350 of 1912); of 1431 from Agaram (Vellore taluk, ARE 281 of 1977–78); of 1516 from Kanchipuram (ARE 474 of 1919); and of 1518 from Salukki (Wandiwash taluk, ARE 466 of 1920).
21. For references to the sales of land by temples for the specific purpose of meeting their tax obligations see an inscription of 1383 from Tiruppanangadu (Cheyyar taluk, 241 of 1906); and another of 1371 from Kunnattur (Sriperumbudur taluk, 192 of 1929–30). See also inscriptions of 1380 from Melpallipatti (Chengam taluk, 272 of 1960–61), of 1383 from Tiruppanangadu (251 of 1906) and a fifteenth-century record from Kariyandal (Tiruvannamalai taluk, 189 of 1963–64)—all of which record the sales of land by auctions to temples.

    The sale of ritual positions to individuals for a similar reason is documented in inscriptions of 1391 from Tiruppanangadu (239 of 1906) and of 1406 from Kanchipuram (280 of 1955–56).
22. For such instances, see inscriptions of 1371 from Kunnattur (Sriperumbudur taluk, 192 of 1929–30), of 1410 from Valuvur (Wandiwash taluk, 62 of 1908), of 1438 from Kanchipuram (ARE 301 of 1954–55), of 1506 from Tirukkoyilur (330 of 1921), of 1522 from Tiruvarangulam (Pudukkottai

district, 313 of 1914), and of 1537 from Kalahasti (ARE 179 of 1924). In all these instances, cultivators sold their lands to the local temples, sometimes "at a loss" to themselves as it was laconically put in the Tirukkoyilur inscription.

23. For other instances of sales of land by temples see inscriptions of 1372 from Tiruppachur (Tiruvallur taluk, ARE 155 of 1929–30); of 1384 from Ponnur (Wandiwash taluk, ARE 407 of 1928–29); of 1404 from Perunagar (Kanchipuram taluk, ARE 368 of 1923); of 1435 from Tiruvalangadu (Tiruttani taluk, 454 of 1905); of 1467 from Kanchipuram (658 of 1919); of 1531 from Devikapuram (373 of 1912); and of 1543 from Takkolam (Arkonam taluk, 269 of 1921).
24. Consider, for instance, an epigraph of 1397 from Tiruppanangadu (Cheyyar taluk, 254 of 1906) documenting the sale of land by an individual to the *ūravar*. For the purchase of land by an individual from the *kīlavan* (headman) of a village, and from the *ūravar* of another, see a record of 1381 from Kunnattur (Sriperumbudur taluk, ARE 193 of 1929–30).
25. More grants of land as stipendiary remunerations were found in the more fertile regions (e.g., SII/XVII/761; 573, 585 of 1919; 82 of 1934–35; ARE 240 of 1910; 175 of 1916; 229, 231 of 1919; 126 of 1921; 280 of 1952–53; 321, 322 of 1954–55; 135 of 1956–57), than in the intermediate zones (e.g., 355, 356, 395 of 1912; 308 of 1919; 511 of 1937–38; 196 of 1973–74; ARE 197 of 1973–74). Finally, there were three records from the Cheyyar (236 and 252 of 1906) and Arkonam (27 of 1911) taluks. In four cases, *nāyaka*s donated land for the express purpose of providing the recipient with an income, a *jīvitam* (living), to perform particular ritual functions in the temples (355 and 375 of 1912; ARE 244 of 1922; 322 of 1954–55). So too was the case with two of the grants made by regal donors (ARE 175 of 1916; 182 of 1929–30), and private individuals (511 of 1937–38; ARE 321 of 1954–55).
26. Eighteen of the 21 records of this type come from the intermediate regions: see SII/XVII/754; 187 of 1963–64; 352, 353, 365, 366, 367, 369, 372, 375, 387, 389 of 1912; ARE 2, 3 of 1919; 31 of 1933–34; 137 of 1943–44. Two similar records are found in the more fertile areas (ARE 550 of 1919; 67 of 1934–35); and one in the outer marches (ARE 299 of 1912).
27. Since cultivators rarely made donative grants, it is not suprising that there are few references to *kīlvāram* in the inscriptional record. A solitary reference to *kīlvari*, which may refer to *kīlvāram*, comes from a Tirupati inscription from the reign of Sadasivadevaraya, TTDES/V/133.
28. For gifts of taxes by people of the *parru* (revenue-districts) see chapter 2. Members of *nāḍu* assemblies are also reported to have made gifts of taxes, see EI/XVI/8; 59 of 1914, ARE 1914–15, para 14; 211, 257, 261 of 1928–29; 44 of 1933–34; 188 of 1968–69. For the grant of taxes by those controlling land in villages (*ūravar*) see SII/XVII/732, 737; IMP/NA/215-a; 366 of 1911; 213, 377 of 1912; 384 of 1914; 138 of 1916; 308 of 1921; 22 of 1923–24; 216 of 1936–37. References to the grant of taxes by members of the governing councils (*sabhaiyār*) of villages held by *brāhmaṇa*-s come from SII/XVII/737; 396 of 1911; 205 of 1913; 144 of 1943–44; 83 of 1953–54.
29. TTDES/V/66; 33 of 1921; 193 of 1929–30; 126 of 1933–34.

30. See, for example, a record of the reign of Virupaksha I (1404–05) documenting the grant of land to a temple from Devanur (Gingee taluk, ARE 300 of 1928–29). For other instances barring the removal of cultivators from lands granted to temples (*kudinīngā-dēvadāna*) see a record of 1383 from Tiruppanangadu (Cheyyar taluk, 232 of 1906); of 1398 and 1404 from Tiruvanakkoyil (Madhurantakam taluk, 353, 356 of 1911); of 1461 from Devanur (ARE 305 of 1928–29); and a fifteenth-century inscription from Eyil (Gingee taluk, 232 of 1906).
31. For *vetti*, see an inscription of 1428 from Tiruppachur (Tiruvallur taluk, 157 of 1929–30); two inscriptions of the reign of Devaraya II from Tirumullaivayal (Saidapet taluk, SII/XVII/736) and Tiruvorriyur (same taluk, 226 of 1912) and a lithic record of 1570 from Sangam (Nellore taluk, NDI/II/N/105). All references to *veṭṭi-vari* are confined to the more arid parts of Padaividu *rajyam* with the earliest Vijayanagara references to *veṭṭi-vari* being in a 1370 epigraph from Vedal (Wandiwash taluk, 78 of 1908); and of 1407 from Veppambattu (Vellore taluk, SII/I/55). All subsequent references to *vetti-vari* come from sixteenth-century inscriptions from Devikapuram, see 352, 353, 354, 375 of 1912. For *nīr-kūli*, see records of 1504 from Devikapuram (395 of 1912); of the reign of Vīra Narasimharāya (1505–09) from Kondangi (Chengalpattu taluk, 54 of 1934–35) and of the reign of Krishnadēvarāya from Tiruvalangadu (Tiruttani taluk, 473 of 1905). Other cognate terms include *ēri-mīn-paṇam*: SII/I/55; 232 of 1906; 78 of 1908; *ēri-mīn-pāṭṭam*, 194 of 1921; 145 of 1924; *ēri-mīn-vīr-mudal*: 167 of 1943–44; *ēri-mīn-vilai-pon*: 47 of 1933–34; *ēri-mīn-pāci-pāṭṭam*: TTDES/I/199, 200; *pāci-pāṭṭam*: 285 of 1938–39; see also *vīr-paṇam*, 78 of 1908; 203 of 1921.
32. References to *kuḍimai* come from a 1370 epigraph from Vedal (Wandiwash taluk, 78 of 1908); and one of the fifteenth-century from Pali (Walajapet taluk, 262 of 1959–60). Other cognate terms include *āl-amanji*, see records of 1406 from Kanchipuram (280 of 1956–57); of 1504 from Devikapuram (395 of 1912); and of 1545 from Narasingapuram (250 of 1910); and *pēr-kaḍamai* ("personal duty") 350 of 1911; 352, 353, 354, 368, 375 and 389 of 1912; 203 of 1923; 113 of 1933–34; 79 and 185 of 1943–44. *Madil-amañji* may refer to unpaid, *corvée* labor for construction, i.e., *madil* or wall + *amañji* ("forced labour, unpaid labour," *Tamil Lexicon*, p.101), 375 of 1912, a record of 1352 from Devikapuram.
33. *Ūr-cilavu*: 193 of 1936–37; *ūr-viniyōgam*, 381 of 1923; for *viniyōgam* being synonymous with *cilavu* or expenses see the *Tamil Lexicon*, p. 3678.
34. This was in fact the case in the nineteenth and early twentieth centuries, see Kumar (1965) and Gough (1981); for similarities with the Chola period, see Karashima (1984: 40–55) and Heitzman (1997: 66–72).
35. A record of 1496 from Devikapuram (Arni taluk, 359 of 1912) and another of 1431 from Agaram (Vellore taluk, ARE 281 of 1977–78) refers to the *sarvamānya iraiyili* grants of villages.
36. For two records of the gift of land after purchase from Tiruvanakkoyil (Madhurantakam taluk) dated in 1398 and 1404 see 353 and 356 of 1911; for similar records from Villiyanur dated in 1379 and 1536 see ARE 184 and 181 of 1936–37.

37. It has been argued that the demographic growth made possible by intensive farming facilitated an expansion in nonagricultural occupations to such a degree that by the early eighteenth century when population growth rates began to stabilize, there was "a secular rise in the cost of labor" due to high wages in the sectors of commerce and craft production (Smith 1980: 105–06; Bray 1986: 153).
38. For construction of irrigation tanks and the clearing of jungles and wastes for cultivation in Burma in the fourteenth and fifteenth centuries by Toungoo, Taungdwingyi, and Ava dynasties, see Lieberman (1991: 6).
39. In France, where rents had been fixed in monetary terms (and not as certain weights of gold or silver), Bloch (1966: 120) notes that the "result was that the successor of a lord who in 1258 had received one pound was paid the same amount in 1465; but while the lord of 1258 received the equivalent of about 112 modern francs, his heir of 1465 had to make do with 40 francs." For eastern Normandy, see Bois (1984: 256); for England, see Hilton (1973: 48–49).
40 Between the end of the fifteenth century and the 1630s, Le Roy Ladurie (1987: 98–99) estimates that the wages of reapers fell by 45 percent—from one-tenth of the crop to 5.5 percent; see also Bois (1984: 268).

2 Global Roots of Local Politics: State Formation in an Eastern Mirror

1 Some historians have attributed the nomadic breakout from the Central Asian steppe to droughts, which reduced pasture lands. However, periods of the most marked migrations—around 400, 1200, and 1600—were periods of unusual cold and wet temperatures rather than hot and dry. Climatic conditions also do not explain why the breakouts were directed towards the east, west, and the south when pasture lands were more abundant toward the north. Other historians have taken the opposite hypothesis: that colder and wetter weather by extending the cold freeze prevented animals weakened by the winter from grazing in the spring. Yet others argue that the cold and wet temperatures, by making pastures better, increased the numbers of animals and thus amplified the push outward (Adshead 2000: 131–32).
2. The greater mobility and maneuverability of light cavalries and the gradual expansion of cultivation, which decreased the habitats suitable for elephants, drove the pachyderm from the battlefield though the elephant retained its importance for ceremonial and ritual purposes as well as its use in transportation and construction, especially of items that could not easily be broken up (Digby 1971: 51; Wink 1997: 95–110).
3. Christopher Beckwith (1991: 185) reports that the best horses in China were bred in modern-day Kansi and Ningsia. Yunnan was also an important center of horse breeding and traded horses not only to the Southern Song but also to Bengal, which served as a trans-shipment point to the Deccan as well as to China (Yang 2004: 299–300). In India, the best regions for

horse-breeding—Sind, Rajasthan, and parts of the Punjab—resembled Central Asia more than the rest of the subcontinent and coincidentally also marked the limit of Mongol advance, and the quality of horses appear to have declined markedly in the southern and eastern parts of the subcontinent. Conditions for breeding horses however improved considerably in the upper north-east and in upper Burma (Digby 1971: 26; Wink 1997: 83–84; Gommans 2002: 113–14). For unsuccessful Ming attempts to breed horses in south China, see Mitsutaka (1971) and Perdue (2005: 69).

4. Sometimes terms of trade could become onerous for the Chinese as when the Oirats' emissaries bearing tribute rose sharply from less than a hundred men to over two thousand in the mid-fifteenth century despite Chinese protests because the emissaries had to be fed and rewarded (Barfield 1989: 239–42).
5. Nuniz (1970: 294, 354–55, 357–60, 362, 370), Paes (1970: 269–70), Sewell (1970: 97, 131, 143), Nilakanta Sastri (1966: 274), Mahalingam (1969–75: II, 127), Parks (1927: 274–76), Parry (1967: 191–92), Stein (1980: 400–03; 1985b: 80), Richards (1983: 198–201), Digby (1971: 23–49; 1982: 147–49, 154, 158), Gommans (2002: 114–17), and Wink (1997: 83–87).
6. A silver *tanka* was the standard coin of the Delhi Sultanate since the reign of Iltutmish (1220–1235) and contained 172.8 grains (11.09 grams) of silver (see also Digby 1971: 37–41).
7. These prices seem much more plausible than the 300–800 *pardao*s per horse reported by Ludovico di Varthema (see Temple 1923: 51). The *pardao* or *pagoda*—European variants of the Tamil *varāha*—was a gold coin varying between 50 and 53 grains (Bidie 1883).
8. It was only toward the end of the eighteenth and the early nineteenth centuries, with the creation of tea and coffee plantations, that the intensive exploitation of forests began in India—a process that picked up considerable steam with the construction of railways in the mid-nineteenth century. By the late nineteenth century, forests still comprised some 22 percent of the land area—and in some places like Madhya Pradesh, almost 40 percent (Deloche 1993: 7).
9. The two brothers had been captured and taken to Delhi in the sultan's service and Muhammad bin Tughlaq was so confident of their loyalty, that he sent them to relieve Malik Mohammad, his governor at Kampili who was being besieged by the Hoysala forces under Ballala III and Prolaya Nayaka of the Reddi Kingdom of Addanki and Kondavidu (Nilakanta Sastri 1966: 236–37; see also Srikantaya 1938).
10. It is plausible that the volume of surplus extracted by the sultans of Delhi did not represent an increase from that extracted by earlier regimes (Mukhia 1981: 292). The significant change, under the sultanate, was the concentration of the "pre-medieval assemblage of a 'formidable number of taxes and cesses'" into "a *single* claim on the surplus" (Habib 1983: 27).
11. For the Mughal Empire, see Habib (1969, 1999) and Richards (1975).
12. The first evidence for the rearing of the mulberry silkworm comes from early fifteenth-century Bengal. Before that, the domestic silk industry relied on inferior silk-producing insects: the tesar and eri silk (Habib 1978: 290; Habib 1980a: 28–29; Habib 1980b: 28).

13. Similarly, increased contacts with the market transformed peasant production in medieval China considerably, see Elvin (1973: 167–68, 170–72).
14. Despite competitive hostility between the Ottomans and the Mamluks, there was some military cooperation between them against the Portuguese. In 1511, the Ottoman Sultan sent firearms, gunpowder, and other military supplies to the Mamluks and Ottoman sailors and military experts successfully helped the Mamluks repulse a Portuguese attack in the Hijaz region in 1517 (Ozbaran 1988: 78–79).
15. To make their cannons move vertically, they adapted trunnions—a cylindrical pivot on the sides of the cannons that permit it to be raised or lowered without affecting the carriage on which it was mounted—from European and Ottoman military architects. To allow the cannons to move laterally, they adapted the Portuguese idea of mounting guns on swivel forks attacked to the gun's trunnions (Eaton and Wagoner 2014: 25–29).
16. In the early 1640s, Sebastian Manrique (1927: 227) thought that the "bonducos" at Lahore were "poorly made," but it is not clear whether this referred to arquebuses or match-locks (Habib 1980b: 17).
17. A Chinese observer in the early sixteenth century observed: "The Franks use guns with great skill. The Chinese, on the other hand, blow off their fingers, their hands, and even their arms" (quoted in Cipolla 1965: 116; Parker 1988: 189, n.7).
18. Later during Wu Sangui's rebellion against the Qing, the imperial court directed the Belgian-born Jesuit priest, Ferdinand Verbiest, to cast light cannons that could easily be transported over rugged terrain in Yunnan (Di Cosmo 2001: 131–32).
19. Earlier, Nuno da Cunha, governor of *Estado da India* between 1529 and 1538, had to take measures to ensure that his troops assembled regularly for target practice and did not pawn their weapons for drinks (Scammell 1980: 4).
20. Military slaves, "natally alienated and socially dead," were preferred because their lack of legal and social status increased their dependence on their masters and ensured their loyalties (Kumar 1994: 23–34).
21. The dual division of castes is peculiar to the Tamil country and southern Karnataka (*balagey* and *eḍagey* in Kannada) and its origins are not clear. In one case, it is even recorded that the Jains were associated with the "left-hand" (*eḍagey*) castes in Karnataka until 1368 when the Vijayanagara king, Bukkaraya, intervened in a dispute between the Vaishnavas and the Jains and decreed that the latter be henceforth classified as *balagey* (Stein 1980: 201–03). It had been assumed that the "right-hand" castes were associated with agricultural activities and the "left-hand" castes with nonagricultural occupations even though some exceptions such as the *kaikkōḷa* weavers being of the "left-hand" and the *saliya* weavers being of the "right-hand" division were noted (Sinopoli 2003: 102). More recently, Y. Subbarayalu (2001: 22–30) has suggested that the meaning of the terms evolved over time. By his account, the *valangai–iḍangai* classification initially denoted the absorption of nonsedentarized peoples as armed auxiliaries in Chola forces in the eleventh century. Later, as the process of sedentarization proceeded

apace, the divisions denoted new peasants as opposed to the older landowning groups. Finally, by the fourteenth and fifteenth century, it denoted all "direct producers."

22. The Aduthurai inscription had erroneously been taken to be a Chola inscription by Nilakanta Sastri (1975: 552) and Vanamamalai (1968). For a different reading of this inscription see Subbarayalu, (1983: 127); and Karashima (1984: xxxv, n. 35).
23. An inscription of 1426 from Tevur (Thanjavur district) records that the yield of tax revenues increased from 200 *paṇam* to 2,000 within a year due to the imposition, and subsequent farming out (*kuṭṭagai*), of a poll tax, the *mullāyi avvaiyār magamai*, by the *adhikāri*-s, SII/XVII/562 (cited in Karashima 1992: 148). Other instances have been reported in 1388 from Tiruppulivanam (Kanchipuram taluk, 201 of 1923), in 1418 from Puliparakoyil (Chengalpattu district, 294 of 1910), in 1427 from Takkolam (Arkonam taluk, 270 of 1921) and Tirumullaivayil (Saidapet taluk, SII/XVII/736), in 1428 from Tiruppasur (Tiruvallur taluk, 152 of 1929–30) and Chidambaram (376 of 1913), in 1446 from Kilur (Tirukkoyilur taluk, 23 of 1905), and in 1464 and in 1482 from Kugaiyur (Kallakurichchi taluk, 96 and 103 of 1918, ARE 1917–18, para 69).
24. For instance, a 1447 inscription from Kugaiyur (Kallakurichchi taluk) records a petition from the *nāṭṭār* of Magadai-*maṇḍalam* to Vasudeva Nayakkar [and?] Tirumalai Nayakkar stating that the practice of measuring wet and dry lands with an 18-foot rod caused much hardship among the people. Thereupon, it was ordered that the length of the rod be increased by two feet (97 of 1918, ARE 1917–18, para 69). Similarly, an imprecisely dated fifteenth-century inscription from Pennadam (Vriddhachalam taluk) states that those who used a measuring rod other than the *muvāyiravan-kol* [the linear measurement of which was indicated by two marks cut on the stone, approximately 15 feet apart] would be punished in the same way as enemies of the gods, the village, and the *nāḍu* (249 of 1928–29, ARE 1928–29, para 78). See also inscriptions from Tiruvamattur (Villupuram taluk) and a 1404 inscription from Elavanasur (Tirukkoyilur taluk, 491 of 1937–38).
25. Similarly, in the widespread rebellion that occurred in 1330 in the Delhi Sultanate when Muhammad Tughluq raised revenue demands, the rebels were largely rich peasants, as "the weak and resourceless peasants were made completely prostrate" (Habib 1983: 33; see also Habib 1984: 22). For similar movements and strategies in precapitalist Europe, see Faith (1981) and Rudé (1980).
26. The report of a conflict between the *iḍangai* and the *valangai*, which lasted four years and led to the loss of lives comes from an inscription of 1383 from Kudimallur (or Gudimallur, Walajapet taluk, 422 of 1905); see also an inscription of the mid-fourteenth century from Malayampattu (Gudiyattam taluk, 185 of 1921, ARE 1920–21, para 47). Two undated records from Nazarethpettai (Sriperumbudur taluk, 204, 205 of 1949–50) detail agreements between these two class clusters.

27. See *Kōyilolugu*, a contemporary Tamil literary text in Nilakanta Sastri and Venkataramanayya (1946: II, 56, III, 42; see also Palat 1981: 192–95; Nilakanta Sastri 1966: 215–37; Richards 1983: 197; Thomas 1985: 7–12, 14–15).
28. Among these were the Udayagiri, Penugonda, Chandragiri, Padaividu, Tiruvadi, Mulavayi, Aruga, and Tuluva *rajya*s (Mahalingam 1969–75: I, 185; Saletore 1934: I, 79, 168; Krishnaswami 1964: 161; Venkataramanayya 1935: 143–45). Inscriptions also refer to a Tiruchirapalli *rajya* and a Valudilampattu-*uchāvaḍi* with *chāvaḍi* or *uchāvaḍi* sometimes being used instead of *rajya*. There are also references to the administration of these units by an officer titled *uchāvaḍi-pradhāni* (e.g., 245, 254 of 1928–29 from Pennadam, Vriddhachalam taluk, in the year 1429) (see also Subbarayalu 1984).
29. TTDES: I, 192, 199, 200, 201, 202, 203, 204; ARE, 294 of 1910, 1910–11, para 11; Saletore (1934: 154–76).
30. ARE, 172 of 1916. The orders issued by Srigirinatha in compliance with the imperial edict were engraved on the temple walls (ARE, 173 of 1916). There are numerous similar instances of grants of (taxes from) villages by reigning Vijayanagara monarchs through his provincial officers, sometimes made at the latter's behest (e.g., TTDES: V, 17; ARE, Cp.11 of 1905–06; Cp.12 of 1924–25; SII: I, 44, 46; IMP: III, Nellore, 571-A).
31. For Kulottungachola III, see ARE, 73 of 1908. For the Later Pandyas, ARE, 419 of 1905; 89 of 1908; 59, 307, 309, 310 of 1909; 237 of 1921; 94, 95, 97 of 1935–36; 134 of 1956–57; 154 of 1961–62. For Sambuvarayas, ARE, 230 of 1901; 416, 420, 425 of 1905; 362 of 1911; 64 of 1922; 377 of 1923; 139 of 1924; 17 of 1932–33; 28, 72, 92 of 1933–34; 218 of 1934–35.
32. TTDES: V, 154; ARE, 23 of 1904; 425 of 1905; 241 of 1906; 309 of 1912; 226 of 1913; 216 of 1917; 92, 109 of 1918, 1917–18, para 68; 510 of 1921, 1921–22, para 43; 246, 254 of 1928–29; 113 and para 56 of 1936–37; 490 and para 64 of 1937–38; 313 of 1954–55; 387 and p.17 of 1958–59. When all the taxes from a *paṛṛu* were granted, usually to a temple, such *paṛṛu* were henceforth termed *jīvita-paṛṛu* (e.g., ARE 59 of 1914, 1914–15, para 44).
33. TTDES/V/154; 24 of 1904; SII/XVII/255, 256, 625; ARE, 425 of 1905; 241 of 1906; 54, 58, 59 of 1909; 362 of 1911; 309, 347 of 1912; 30, 226 of 1913, 1912–13, para 54; 230 of 1916, 1915–16, pp.139–40; 216 of 1917; 92, 109 of 1918; 510 of 1921; 139 of 1924; 211, 215, 246, 250, 254, 269, 401, para 59 of 1928–29; 174 of 1932–33; 28, 125, para 29 of 1933–34; 17 of 1934–35; 113 of 1936–37; 41, 404, 490 of 1937–38; 24 of 1944–45 313 of 1954–55; 387 of 1958–59.
34. ARE, 343 of 1908; 58 of 1909; 222, 225 of 1916; 93, 106, 107 of 1933–34; 1 of 1934–35.
35. *Iraṇḍāyiravēlip paṛṛu* has been mentioned as being in the Āmūr-*kōṭṭam* (ARE 310 of 1909; 222 of 1916; 118 of 1933–34; 27 of 1934–35; 201 of 1962; EI: III, 24) and Kalattūr-*kōṭṭam* (ARE 334 of 1908; 17 of 1932–33), both in Padaividu-*rāya*, and in Sengāttu-*kōṭṭam* in Chandragiri-*rajya* (ARE, 256 of 1910; Cp. 8 of 1932–33). The *kōṭṭam* was a territorial unit peculiar

to the northern region of the Tamil country known as Tondai *mandalam* and appear to have denoted an agro-climatic region with specific historical patterns of peasant settlements (Palat 1981:126–35, 407–08).

36. As a rule, a *śīrmai* was composed of contiguous groupings of villages. There were, however, exceptions. For instance, Jagadvāchchēri-*śīrmai* included villages both in Meyyūr-*nāḍu* in Palakunra-*kōṭṭam* and in Tanigai-*nāḍu* in Kunravardhana-*kōṭṭam* (TTDES: IV, 129); see also ARE, Cp.18 of 1953–54.
37. The *nāyaka* suffix, which pre-dates Vijayanagara rule, was a title held by high officials and did not necessarily mark holders of revenue assignments, see Karashima (2002: 18–20).
38. ARE, Cp.9 of 1912–13; 238, 249 of 1916; 169 of 1929–30; 64 of 1933–34; 368, para 10 of 1936–37; TTDES: II, 87; III, 90, 213; NDI: II, Nellore taluk, 34A; IV, Gudur taluk, 108.
39. For instance, Sadasivadevaraya granted Mappēḍu-*śīmai* (named after Mappedu, Tiruvallur taluk, Chengalpattu district) to the Singisura-mudaiya-Tambiranar temple as a *dēvasthānam*, ARE, 61 of 1947–48.
40. Nuniz reports that during the reign of Achyutadevaraya, 11 *nāyakkar*s received a combined total of 4,535,000 gold *pardaos* annually. From these revenues they were to remit a total of 1,228,666.67/1,288,666.67 (there is a discrepancy in his account here) *pardaos* to the emperor. In addition, they were to supply 151,700 foot-soldiers, 239,000 horses, and 225 elephants to the imperial army (Nuniz 1970: 354–55, 357–60, 366–70; see also Sewell 1970: 131, 143; Nilakanta Sastri 1966: 254–56, 274, 286; Mahalingam 1969–75: I, 28, 35–36). These figures were probably very exaggerated. Indeed, the *Rāyavācaka* estimates were more modest, as Venkataramanayya (1935: 122–23) observes.
41. Evidence of crops grown is provided by the long lists of taxes that were to be paid on the lands leased to *nāyakkar* and others. Among the taxes enumerated were those on wet (*nancey*) and dry (*puncey*) crops, plantains (*vālai*), turmeric (*mañjal*), ginger (*iñji*), palmyra palms (*tennamaram*) and sugarcane (*karumbu*), see 353, 354, 368, 375 and 389 of 1912. On general characteristics of these "intermediate" regions see Ludden (1978: 3; 1985: 52–67) and Ratnam (1966: 12–16).
42. See, for instance, 31 of 1933–34 dated in 1541 from Valaiyattur (Walajapet taluk) and 366 of 1912 dated in 1521 from Devikapuram (Arni taluk).
43. See an inscription of 1467 from Kanchipuram (658 of 1919).
44. Such instances are reported by a 1380 inscription from Melpallipatti (Chengam taluk, 262 of 1960–61); by five inscriptions from Tiruvamattur (Villupuram taluk)—one from the reign of Kampana Udaiyar (40 of 1922), one each in 1383 and 1513 (31 and 13 of 1922), and two that are imprecisely dated (11 and 66 of 1922); two imprecisely dated inscriptions from Tellar (Wandiwash taluk, 59 and 61 of 1934–35); and an inscription of the reign of Virupäksha I (1404–05) from Devanur (Gingee taluk, 300 of 1928–29).

    An inscription of 1515 from Arakandanallur (Tirukkoyilur taluk, 194 of 1934–35) refers to the lease of land by a gōpāla-setti. For references to lease of lands by imperial administrative officials see infra.

45. Instances of the lease of lands were, however, confined to areas administered directly by the imperial administrative bureaucracy. The singular absence of references to leases of land in *śīrmai* assigned to *nāyakkar* is explicable by the *nāyakkar* themselves undertaking measures to extend the arable and to expand craft production.
46. 389 (May 13, 1513), 353 (January 7, 1519), 352 (January 21, 1519), and 369 (February 16, 1921). For other instances of the lease of land by *nāyakkar*, see an inscription of 1492 from Tenmahadevamangalam (Polur taluk, 46 of 1933–34, ARE 1933–34, para 32), which documents the lease of land (*kāṇipaṛṛu*) by the *Kavarai-nāyakkar* led by Mallaiyan; and a 1552 record from Arakandanallur (Tirukkoyilur taluk, 164 of 1934–35), which states that the village of Vaiyappanayakkarayanpettai was leased as *kāṇipaṛṛu* to Mäkkaya-Nayaka.
47. 354 (February 28, 1505) and 368 (February 16, 1521) of 1912.
48. 375 of 1912 (August 7, 1530).
49. 367 of 1912 (March 29, 1529).
50. Permission to settle cultivators is also specifically mentioned in an inscription referring to the sale of *tirunāmattukkāṇi* land at Suvarappundi by the authorities of the Devikapuram temple to their counterparts at the Vadakayilayam temple for 300 *paṇam* in 1531 (ARE 373 of 1912). For another instance of a temple being granted the right to settle cultivators, see an inscription of 1520, which records the grant of a village to the temple at Senganmal (near Taiyur, Chengalpattu taluk, 225 of 1916) by Sellappar Naras[imha]raya Nāyakkar.
51. 352, and 389 of 1912; see also inscriptions from Attavampadi (Polur taluk, 92 of 1941), Valaiyattur (Walajapet taluk, 31 of 1933–34, dated in 1540), Manalurpet (Tirukkoyilur taluk, 470 of 1937–38, dated 1560), and Chidambaram (360 of 1913, dated 1596).
52. 389 of 1912; see also 353 and 375 of 1912. Another inscription (354 of 1912) contains a list of over 36 taxes levied from the village of Mannarpakkam leased as *ulavu-kāṇiyāṭci* by Nayinam-pillai, a shepherd of Devikapuram on similar terms. However, this record does not specify the sum to be paid as rental in lieu of these taxes.
53. Significantly, in both these cases, there is no reference to the lessee being granted the right to settle cultivators—perhaps suggesting that these lands were already under the plough.
54. The earliest recorded instance comes from an inscription of 1472 from Kanchipuram, which states that the donor, Bumappa-nāyakkar, purchased two hamlets of Pullaipakkam from the *brāhmaṇar* of that village for 340 *pon*, and donated these hamlets to the Kamakshiamman temple, reserving for himself the right of cultivation and the donor's share of the *prasādam*, 340 of 1954–55; see also TTDES/V/83 dated in 1546 and TTDES/V/139 of 1552. For some examples from the Telugu country, see Talbot (2001: 102).
55. See inscriptions of 1515 from Arakandanallur (194 of 1934–35); of 1516 from Tirukkoyilur (252 of 1934–35); of 1521 from Nerkunam (219 of 1921) and Tirukkoyilur (321 and 325 of 1921); and of 1522, also from Tirukkoyilur (333 of 1921). References to the ownership of land by *gōpāla-śeṭṭis* are limited to inscriptions from this taluk.

56. Such instances are reported in inscription of 1371 from Kunnattur (Sriperumbudur taluk, 192 of 1929–30), of 1506 from Tirukkoyilur (330 of 1921) and of 1522 from Tiruvarangulam (Pudukkottai district, 313 of 1914). In all these instances, cultivators sold their lands to the local temples, sometimes "at a loss" to themselves as it was laconically put in the Tirukkoyilur inscription.
57. This was in contrast to the Ottoman rulers who did not venture out of Istanbul frequently before the nineteenth century since control of the city conferred powerful charisma and authority on the sultan (Dale 2010: 78; Kirli 2009: 290–92).
58. See, for instance, inscriptions of 1515–1517 documenting Krishnadëvaräya's tour of the Tamil country from the following places: Tirupati (TTDES/III/76–78, 80); Kalahasti (SII/VIII/495); Elavanasur (Tirukkoyilur taluk, 142 of 1906); Neyvanai (or Tirunelvennai, Tirukkoyilur taluk, 381 of 1908); Chidambaram (371 of 1913); Nagalapuram (Ponneri taluk, 628 of 1904); Sendamangalam (Tindivanam taluk, 74 of 1903); and from Tirthanagari (Cuddalore taluk, 125, 175 of 1904).
59. Habib (1969: 51–2) suggests "that a relatively small acreage under cash crops would have yielded in value a far larger proportion of the total produce. Thus, for example, while the area under cash crops (sugarcane and cotton) is estimated at 8.0 per cent of the total area sown for the autumn harvest in a *pargana* in Eastern Rajasthan in 1690, as against 72.9 per cent under foodgrains, the percentage in terms of the value of the total produce work out at 32.6 per cent and 60.6 per cent respectively."
60. Some 60 years later, when the Italian Ludovico di Varthema arrived at Vijayanagara City, he noted that while the poor went about their business wearing only a cloth wrapped around their waists, the wealthier inhabitants also wore short shirts and turbans of gold and silk (Temple 1923: 53). Varthema's account was endorsed Nuniz (1970: 363) who reported that Achyutadevaraya was splendidly attired in a doublet, a skirt of fine patola silk, and a richly brocaded cap.
61. In 1634, when the English went to the Sumatran town of Indragiri to buy pepper, they spent two days in vain looking for the town before learning that the whole population had moved to a place three days' journey upriver due to an Achenese invasion. Indeed, the Portuguese were able to capture Melaka more than a hundred years earlier only because the Sultan had withdrawn his forces thinking that they would follow the regional model of fighting and leave after sacking the city (Reid 1988: 123).

3 Commercialism without Capitalism: Labor-Intensive Manufacturing and the Growth of Trade

1. For similar developments under the Delhi Sultanate and the Mughal Empire, see Habib, (1965: 53; 1969: 41, 77) and Khan, (1976: 115).

2. See inscriptions of 1388 from Perunagar (Kanchipuram taluk, 370 of 1903); of 1399 from Melpadi (Chittoor taluk, 106 of 1921) and Devanur (Tindivanam taluk, 241 of 1927–28); of 1406 from Madam (Wandiwash taluk, 236 of 1919); of 1408 from Vedal (same taluk, 75 of 1908); of 1416 from Kanchipuram (573 of 1919); and a series of inscriptions from Devikapuram dated in 1505, 1513, 1519 (two), 1521 and 1530 (354, 389, 352, 353, 368 and 375 of 1912 respectively); see also a fourteenth-century epigraph from Tiruppanagadu (Cheyyar taluk, 242 of 1906); two fifteenth-century inscriptions from Kariyandal (Tiruvannamalai taluk, 187, 189 of 1963–63); and one from Anapattur (Cheyyar taluk, 189 of 1968–69); a record of the reign of Immadi Narasimharaya (1491–1505) from Salavakkam (Kanchipuram taluk, 400 of 1923); and another of the reign of Krishnadevaraya from Chakramallur (Tiruttani taluk, 185 of 1943–44); see also TTDES/II/53, 54, 55; V/176. For a reference to *kaḍamai-āyam*, see TTDES/I/199, 200.
3. References to *nel-vargam* are to be found in records of 1407 from Veppambattu (Vellore taluk, SII/I/55); of 1408 from Vedal (Wandiwash taluk, 75 of 1908); and of 1513 and 1519 from Devikapuram (389, 353 of 1912); see also TTDES/II/18; III/91.
4. For *ariśi-kānam* see fifteenth-century records from Tirumullaivayal (Saidapet taluk, SII/XVII/736) and Tiruvorriyur (same taluk, 226 of 1912).
5. *Ari-kānam* is mentioned in a solitary record of 1428 from Tiruppachur (Tiruvallur taluk, 157 of 1929–30).
6. See a record of 1408 from Vedal (Wandiwash taluk, 75 of 1908); and records of 1505, 1513, and 1519 from Devikapuram (354, 389, 352 and 353 of 1912); see also TTDES/I/199, 200; II/18; III/91.
7. *Ponvari* is mentioned in records of 1370 and 1408 from Vedal (78, 75 of 1908); of the fourteenth century from Tirupparkadal (Cheyyar taluk, 242 of 1906); of 1416 from Kanchipuram (573 of 1919); of the fifteenth century from Kariyandal (189 of 1963–64); and of 1505 from Devikapuram (354 of 1912); see also TTDES/I/ 199, 200; II/53, 54, 55; V/85-A.
8. 78 of 1908 (Vedal, dated to 1370); 241 of 1927–28 (Devanur, 1399); 236 of 1919 (Madam, 1406); 497 of 1926 (Veppur, Walajapet taluk, 1432); see also *dhanya-vargam*, TTDES/I/199, 200; II/4.
9. TTDES/II/14.
10. Two exceptions to this practice can be found in inscriptions of Saluva Narasimha's time from the Telugu country, which refer to the monthly collection of taxes from weavers, see ARE 318 of 1909–10; SII/XVII/221 and C. P. Brown (ed.), *Local Records*, Madras: Oriental Manuscripts Library, 1862, IV, pp. 324–28—all cited in Ramaswami (1979: 128, fn.4).
11. Such instances have been reported in a late fourteenth-century inscription from Pattanam (Walajapet taluk, 79 of 1943–44), in 1420 from Marangiyur (Tirukkoyilur taluk, 104 of 1935–36), in 1446 from Vriddhachalam (68 of 1918), in two inscriptions from the reign of Mallikärjuna (1447–1465) from Kunnattur (Sriperumbudur taluk, 207 and 217 of 1929–30), in 1478 from Nerkunam (Tirukkoyilur taluk, 208 of 1934–35), in 1484 from Tirukkachchur (Chengalpattu taluk, 318 of 1909), in 1491 from Ponnur (Wandiwash taluk, 414 of 1928–29), in 1514 from Arasankoyil

(Madhurantakam taluk, 307 of 1921), in 1553 from Tenmahadevamangalam (Polur taluk, 52 of 1933–34) and in 1560 from Narattampundi (a hamlet of Pundi in Polur taluk, 380 of 1925).

Imprecisely dated Vijayanagara inscriptions documenting reduced rates of taxation for the first few years of artisans, especially weavers, setting up shop in settlements also come from two locations in Chengalpattu taluk—Manamadi (228 of 1930–31) and Palur (41 of 1932–33)—and from Kodungalur (Wandiwash taluk, 138 of 1904); see also ARE 140 of 1915–16 and 628 of 1920 (cited in Ramaswami 1979: 129–30).

12. Christopher Bayly (1985: 586) has a slightly lower estimate—12 percent. Mark Elvin (1973: 176) estimates that at least 10 percent of the population of twelfth-century China lived in urban areas.
13. For the use of small copper and lead coins in the Sultanate of Golconda see Moreland (1967) and Joshi (1943). For copper coinages of the Deccan Sultanates, the Vijayanagara empire and the *nāyaka* rulers of Madurai, Thanjavur, and Tirunelveli see Bruce II, Deyell, Rhodes and Spengler (1981: 76–80, 87–88).
14. In Ma-Huan's (1970: 141) account of Quilon on the Malabar coast not under the Vijayanagara *Raya*s, the *pa-nan* was said to be a gold coin of 60 percent purity, with a diameter of 0.46 inches, a gold content of 3.45 grains, and weighing 0.00719 ounce troy.
15. In 1442, 'Abd-er-Razzak reported that 6 silver *tares* were equivalent to 1 gold *paṇam* (Major 1974: 26). However, when Ludovico di Varthema visited the Vijayanagara empire some 66 years later, 16 of these silver coins were demanded in exchange for a gold *paṇam* (Temple 1923: 53).

    The fall in the gold price of silver perhaps mirrored the increased bullion flows from Europe to Asia after the mid-fourteenth century as a consequence of the plague, which caused "a dramatic increase in the *per capita* wealth of the survivors," reflected in the unbridled hedonism of the post-plague era—the heightened luxury consumption of urban dwellers, the increasing architectural ornamentation of buildings, and so on (Lopez et al. 1970: 97 ff.; Miskimin 1964, 1983; Munro 1983). On the resulting bullion famine see also Vilar (1984: 36–58), Day (1978), Perlin (1987), and more problematically, Patterson (1972).
16. Examples of these two different extremes would be coins, which were merely struck on one side by a simple die and others on which the names of local officials were carefully inscribed. A plausible alternative explanation for these two instances is that only in one of these cases were the coins actually used as currency; and that the other case may have represented other uses—for example, coin as commemorative tokens, or even as weights. In the absence of more detailed analyses, particularly the lack of any reference in inscriptional or literary sources to the use of circular copper weights or commemorative medals, this latter possibility however seems unlikely.
17. Though Ma-Huan (1970: 141) was surprised that merchants of Quilon did not use a "calculating-plate" or abacus, he was impressed by their mathematical skills, noting that they did not make "the slightest mistake." For favorable references to the accounting skills and methods of merchants in

Gujarat and the Coromandel see Pires (1967: 41–42), Dames (1918–21: II, 125), and Meilink-Roelofsz (1962: 35–36).

18. ARE Cp. 5, 6, and 8 of 1921; ARE, 1921, pt. 2, para 79 cited in Ramaswami (1985a: 418, fn.7); see also Nilakanta Sastri and Venkataramanayya (1946: III, 88–93).
19. A record of 1569 from Tiruvannamalai (427 of 1928–29) and two imprecisely dated records—one from Manamadi (Chengalpattu taluk, 226 of 1930–31) and the other from Jambai (Tirukkoyilur taluk, 440 of 1937–38)—refer specifically to weekly markets. An undated inscription from Palur (Chengalpattu taluk, 36 of 1932–33) mentions a monthly market, while a record of 1543 from Tirumalareddipalle (Punganur taluk, Chitoor district, 159 of 1933–34) refers to a periodic fair at Kadiri. P. Shanmugam (1989: 41) also reports a few Vijayanagara-era inscriptions referring to the establishment of weekly markets in Senji, Tenmahadevimangalam, Aradapatti, and Gidangil.

    A reference to markets in *śīrmai*s comes from a 1548 inscription from Koduru (Kamalapuram taluk, Cuddapah district), which registers the grant of market duties (*pēntasunkam*) by Mahāmandalēsvara Pasupala Timanaya-dēva-Mahāräya from the village, which was said to be in the Ghandikota-*śīma* given him as *amaranāyankara* by Mahāmaṇḍalēśvara Nandela Timmayadēva-Mahārāya, 244 of 1937–38. In this context, a 1382 inscription from Belur (Belur district, Karnataka), which lists 27 settlements including Udayagiri, Adoni, Kanchipuram, Sadras, Gutti, Mulavay, Chandragiri, Padaividu, Honavar, Mangaluru, Telakanambi, and Singapattana where weekly fairs (*sante*) were held, is truly unique, see *Epigraphica Carnatica*, V, Belur taluk, #75 (cited in Ramaswami 1979: 126; 1985b: 309; 1985a: 432, fn. 96).
20. For instance, Mines (1984: 17–18) reports that customary practices among *kaikkōḷar* were spread over relatively small areas: while some practiced endogamous marriages, others were exogamous; some ate meat, while others were vegetarians; in some *kaikkōḷa* communities widows were permitted to remarry, but not in others; and so on.
21. Though the *banjāra*s' own traditions state that they came to the Deccan only with Shah Jahan's campaign of 1630 (Brennig 1975: 233), there are earlier references to them operating in the region such as during Sikander Lodi's Dholpur campaign (Deloche 1993: 248).
22. The history of technology in precolonial India has been sorely neglected. For some pioneering efforts, see the work of Habib (1978, 1978–79, 1980a, 1980b, 1982b). However, as Vijaya Ramaswami's work on textile manufacture in medieval South India clearly illustrates, Habib is unfamiliar with, and therefore neglects, the South Indian evidence.
23. Habib (1978: 291) had speculated that the practice of weaving carpets on the vertical loom was perhaps introduced from Iran during the time of the Delhi Sultanate, though definite evidence for this craft exists only from the Mughal period. However, Ramaswami (1980: 229–30) had discovered evidence testifying to the existence of vertical looms an inscription of 1184 from Shikapur taluk in the Shimoga District of Karnataka (*Epigraphica*

Carnatica, VII, Sk., 145) in early medieval South India. From this, it may be inferred that the vertical loom was brought to the Tamil country around the time of the Vijayanagara conquest.

24. On the basis of an inscription from Tiruvottur (Cheyyar taluk, SII/VII/98) of the year 1001, which refers to the *achchu-tari*, Ramaswami suggests that the patterned loom was in use by the eleventh century in South India. She allows, however, that this could have been an innovation introduced to the region either from the northern subcontinent or from Arabia or Iran since an epigraph of 1538 from Tirupati (TTDES/IV/112) refers to a meeting of yarn and cloth merchants, which stipulates that the practice of weaving with the *achchukkattu* was to be the exclusive preserve of Muslim weavers (Ramaswami 1980: 233–34; 1985b: 299–300; 1985a: 424).
25. Though the Chinese may well have known the principle of a steam engine, the first-known steam engine was built in 1691 by Denis Papin, and in 1698, Thomas Savery built a steam engine that used a vacuum to suck up water (Mokyr 1990: 84).
26. According to the MacKenzie Manuscripts, the *paṭṭunūlkārār* were originally migrants from Saurashtra in present-day Gujarat State (Breckenridge 1985b: 44–45).
27. However, the *Oxford English Dictionary* (1933 ed., II, p.32) suggests that the etymological origins of the word "calico"—which first appeared in English as "kalyko" in 1540—may be traced to Calicut, the port where Vasco da Gama first landed.
28. While cautious about generalizing on the basis of a single record, Ramaswami (1979: 127; 1985b: 315; 1985a: 433) believes that it points to mercantile control over craft production. Her deduction that this meeting of merchants from several regions indicates the existence of a "merchant corporation" is, however, untenable since a recognition of a commonality of interests is not always manifested in an organizational form. It must also be recognized that any systematic mercantile control over craft production must have been confined to the production of luxury goods since there is no indication of any mechanism, which would enable merchants to control the production of low-value fabrics dispersed all over the subcontinent and integrated through a complex web of overlapping circuits of exchange.
29. See, for instance, inscriptions of 1451 from Gorantala (Anantpur district, ARE 818 of 1917), of 1531 from Animala (Cuddapah district, 200 of 1937–38), and of 1586 from Kanchipuram (SII/I/446) cited in Ramaswami (1985b: 308); see also Chicherov (1971: 51–55). For daily purchases of thread by weavers in seventeenth- and eighteenth-century China, see Elvin (1973: 253, 270–73).
30. A servant of the English East India Company noted, in 1739, that the demand for cloth from South India was "greater than all the weavers in the country can manufacture" (quoted in Parthasarathi 1998: 85).
31. Unless otherwise stated, the following discussion on the organization of craft guilds is based on the documentation in Ramaswami (1985a: 429–31; 1979: 130–31). It should be noted, however, that my interpretation of the evidence is at times sharply divergent from hers.

32. See, for instance, a 1457 record from Kanchipuram (315 of 1954–55), two records of 1485 from Idaiyur (Tirukkoyilur taluk, 291 of 1928–29) and Tiruvennainallur (in the same taluk, 473 of 1921), and a mid-sixteenth century inscription of the reign of Achyutadëvaräya from Villiyanur (Pondicherry, 201 of 1936–37); see also ARE 1936–37, para 61 and ARE 237 of 1902.
33. For North India, which is better served with historical sources, Irfan Habib (1982b: 78) estimates that technological innovations and the migration of substantial numbers of craftsmen from the Islamic West led to a sixfold increase in craft production between the fourteenth and fifteenth centuries.
34. Population estimates of the subcontinent before detailed decennial censuses were instituted in the late nineteenth century were based on the most fragile evidentiary bases imaginable. The most authoritative estimates—based on statistics contained in the *Ä'ïn-i Akbarï* and subjecting these figures to a host of questionable assumptions, ranging from calculations of crop yields to man:land ratios extrapolated from 1900, and the ability of imperial administrations to mobilize armed retainers—vary between 100 and 182.3 million in 1600. These figures appear to be grossly inflated as the best approximations for the population of the world in 1650 range from 465 to 545 million. In these calculations, Asia accounted for 250 to 330 million, while Europe (east of the Urals) was said to have had between 100 and 103 million people. In other words, if estimates of Indian historians are to be accepted, the subcontinental population dwarfed, or at best equaled, the population of China. On prime facie grounds, since China and Western Europe are better served with historical sources, this seems implausible. All that can safely be asserted is that the population magnitudes since 1500 were very high since contemporary European travellers invariably expressed their astonishment at its magnitude. For discussions of pre-colonial population estimates see Habib (1982c); for world population estimates see Braudel (1981: 42).
35. Landownership by the *kaikkōḷar* is indicated by two inscriptions from Perunagar (Kanchipuram taluk) dated in 1404 and 1563, respectively (368 and 346 of 1923), a 1404 record from Tiruvanakkoyil (Madhurantakam taluk, 356 of 1911), a 1426 inscription from Nerkunam (Tirukkoyilur taluk, 209 of 1934–35) and a 1554 record from Idaiyur (also in Tirukkoyilur taluk, 285 of 1928–29). See also ARE 57 of 1932–33 and SII/IV/370 (cited in Ramaswami 1979: 133, fn.2); and inscriptions of 1532 (ARE 452 of 1913–14) and 1550 (ARE 720 of 1962–63) (cited in Ramaswami 1985a: 419, fn.13).
36. For donations of land to temples by *kaikkōḷar*, see a fourteenth-century inscription from Sirudavur (Chengalpattu taluk, 92 of 1933–34) and a record of 1398 from Tiruvanakkoyil (Madhurantakam taluk, 353 of 1911). See also ARE 36 of 1937–38 and 34 of 1920 (cited in Ramaswami 1979: 132–22; 1985a: 434).
37. For other instances, see 407 of 1928–29, which records the reconstruction of the *mahāmaṇṭapa* of the temple at Ponnur (Wandiwash taluk) in 1384 and a record of 1404 from Achyutamangalam (Nannilam taluk, Thanjavur district, 401 of 1925). See also ARE 602, 603 and 607 of 1916–17 from

Sevval in Tirunelveli district (cited in Ramaswami 1979: 133, fn.4). For donations by collective groups of *kaikkōḷar* see a record of 1337 from Tirupati (TTDES/I/108), an inscription of the reign of Harihararāya from Kanchipuram (366 of 1923), an epigraph of 1469 from Tirupparkadal (Wandiwash taluk, SII/XVII/758), another of 1597 from Kallidaikurichchi (Tirunelveli district, 318 of 1916–17), and the following undated records—one from Udaiyarkudi (Chidambaram taluk, 613 of 1920–21) and two from Ambasamudram (Tirunelveli district, 312, 313 of 1916–17) (cited in Ramaswami 1979: 132–34; 1985a: 434–35).

38. SII/VI/219, 220; NDI/II/21. Significantly these two inscriptions are from the Telugu country.
39. See a fourteenth-century record from Chengalpattu district, 261 of 1909–10.
40. See an inscription of 1429 from Tiruvagavur (Papanasam taluk, Thanjavur district, 59 of 1914).
41. ARE 602, 603, 606 of 1916–17 dated in 1506 from Tirunelveli district (cited in Ramaswami 1979: 134).
42. Gingee taluk, 300 of 1928–29; for other instances of *kaikkōḷa-mudaliyar* leasing land along with other temple functionaries see 11 early sixteenth-century inscriptions from Devikapuram (Arni taluk)—372, 389, 352 and 353, 368 and 369, 365, 367, 375, 373, and 356 of 1912 dated in 1509, 1513, 1519, 1521, 1524, 1529, 1530, 1531 and 1533 respectively. Similarly, a fourteenth-century record from Tirukkalakkunram (Chengalpattu taluk) indicated that *kaikkōḷar* arbitrated a case involving the theft of 850 *pon* from the Vadagirīśvara temple, SII/V/479. For other indications of the involvement of *kaikkōḷar* in the administrative affairs of temples see three inscriptions from Tiruvorriyur (Saidapet taluk) dated in 1369, 1371, and during the reign of Harihararaya II, respectively (196, 195 and 208 of 1912); a record of 1404 from Tiruvanakkoyil (Madhurantakam taluk, 356 of 1911), of 1410 from Valuvur (Wandiwash taluk, 62 of 1908, ARE 1908–09, para 67), of the reign of Achyutadevaraya (1529–1542) from Idaiyur (Tirukkoyilur taluk, 277 of 1928–29), of 1555 from Elavanasur (Tirukkoyilur taluk, 486 of 1937–38) and of 1601 from Manamadi (Chengalpattu taluk, 218 of 1930–31). See also an inscription of 1532 (ARE 452 of 1913) (cited in Alayev 1982a: 318); 356 of 1912 (Devikapuram, Arni taluk, 365 of 1912, dated in the year 1524); see also ARE 467 from Tirunelveli district (cited in Ramaswami 1979: 134); ARE 244 of 1932–33 from Tirunelveli district (cited in Ramaswami 1979: 134).
43. ARE 429 and 538 of 1913–14, pt.2, para 19 (cited in Ramaswami 1985a: 421).
44. An inscription of the reign of Devaraya documenting the grant of these privileges comes from Brahmadesam (Villupuram taluk, 158 of 1918). For similar instances, see a fifteenth-century inscription from Tirvannamalai (SII/VIII/155); three inscriptions of 1485 from Tiruvennainallur (473 of 1921) and Idaiyur (291 of 1928–29), both in Tirukkoyilur taluk, and from Tiruttalur in Cuddalore taluk (422 of 1925); an inscription of 1500 from Tiruvandarkoyil (Pondicherry, 368 of 1917, ARE 1917–18, p. 166); and an

inscription of the reign of Srirangadevaraya (1572–1585) from Tiruvamattur (Villupuram taluk, 65 of 1922). See also Ramaswami (1979: 134; 1985a: 435). For ritual privileges offered to weavers, oil-pressers and merchants see also records of 1513 (ARE 454 of 1916), of 1552 (ARE 107 of 1941–42), of 1563 (ARE 357 of 1939–40) and a sixteenth-century inscription (ARE 133 of 1941–42) (cited in Alayev 1982a: 318, fn. 7).

45. SII/VI/252, 257 (cited in Ramaswami 1979: 134–35; 1985a: 436–37). See also three identical records from Tiruvorriyur (Saidapet taluk) dated in 1369, 1371, and during the reign of Harihararaya II (1377–1404), respectively, which records decisions made by the *kaikkōḷar*, the *nāṭṭār*, the *ishṭabaṭṭaliyār*, the *dēvaraḍiyār*, the *sokkattiyār*, and the *muttukkārār* regarding the order of precedence to be followed during ritual services by the *ishṭabattaliyār* and the *dēvaraḍiyār*, 196, 195 and 208 of 1912.
46. 221 of 1929–30 (cited in Ramaswami 1985a: 436).
47. ARE 293 of 1928–29, para 54; 273 of 1939–40, para 101 (cited in Ramaswami 1985a: 436).
48. See, for instance, a 1535 inscription from Tirukkachchiyur (Chengalpattu district), which documents the honors accorded to the *nāṭṭuvar* (dancers), 68 of 1932–33.
49. SII/1/122; see also Ramaswami (1985a: 437; 1979: 135).
50. For instance, a 1563 inscription from Perunagar (Kanchipuram taluk, 346 of 1923) records the agreement of the *sthānattār* of the Bhairava temple in that village to cultivate lands belonging to the *kaikkōḷa-mudaliyar* of Puliyur (in Saidapet taluk) and to pay the taxes due from these lands to the temple treasury.
51. See an inscription of 1410 from Valuvur (Wandiwash taluk, 62 of 1908). Interestingly, an epigraph of the mid-fifteenth century from Mangadu (Chengalpattu taluk) records an agreement among the villagers prohibiting the alienation of land within the village, even as dowry, to outsiders, 354 of 1908, ARE 1908–09, para 67; see also a similar but imprecisely dated inscription from the Tirumurthi Hills (Udumalpet taluk, Coimbatore district, 186 of 1922).
52. Similarly other inscriptions refer to the *kaikkōḷar* as belonging to the merchant community, *kāśāya vargattār pala paṭṭadaiyār*, see, for instance, an inscription of the reign of Vīra Vijaya Bhūpatiräya from Tirukkalakkunram (63 of 1909) and an imprecisely dated sixteenth-century Vijayanagara record from Kulattur (Chengalpattu taluk, 16 of 1934–35); see also Ramaswami (1979: 126).
53. For an almost identical dispute between the *kaikkōḷar* and the *ilaivāṇiyar*, see a record of the reign of Sadäsivadevaraya (1542–76) from Tiruvamattur (Villupuram taluk, 41 of 1922). An inscription of the reign of Achyutadevaräya also records the return of the *kaikkōḷa-dēvaraḍiyar* to Idaiyur (Tirukkoyilur taluk) after their ritual honors had been restored to them by an administrative official, 277 of 1928–29. Similarly, a record of 1601 from Manamadi (Chengalpattu taluk) records that the *kaikkōḷar* had been about to emigrate due to the insinuation of the merchants in the administration of the temple. Their migration was forestalled when Senjama-Nayaka, the *dalavāy* of

Venkatapatidëvaräya ruled that merchants had no rights of administration in the concerned temples, 218 of 1930–31.

54 Frederick Mote has recently suggested that by the mid-seventeenth century, even by conservative assumptions, the Chinese population was around 268 million. He maintains that a 0.3 percent growth rate is more plausible than a growth rate of 0.87 that had been extrapolated from one eighteenth-century period to the whole century. Under these assumptions, even if the dislocations caused by the Manchu invasions may have constrained population growth, by 1700, it may be estimated that the Chinese population was around 275 million. This would indicate that the population at the end of the eighteenth century was around 313 million (Mote 1999: 744–45, 904–05). The evidentiary base of these hypotheses has however not been widely accepted by historians of China.

4 A World-Economy Matures (Circa 1450–1650)

1 In a dispute between India and Portugal concerning the right of passage over Indian territory to the Portuguese enclaves of Dadra-Nagal Haveli in 1960, the International Court of Justice ruled that the grant of Dadra and Nagar Haveli to the Portuguese by the Marathas in 1783 and 1785 represented assignments of revenue rather than the transfer of sovereignty, see Alexandrowicz (1967: 4–8).

2. Issawi (1970: 248, 250, fn. 23) states that craft production in Alexandria never really recovered after the raid of 1365 by Crusaders and that a similar process of decline occurred in Damascus when Timur deported its artisans; see also Lopez (1970: 117ff).

3. Between the eleventh and the fourteenth centuries, differing ratios between gold and silver in Europe and the eastern Mediterranean meant that when precious metals moved between the two zones in tandem, each flowed to the zone where its price was higher (Watson 1967). Since West Asia and the Land of the Nile did not have domestic sources of precious metals, these regions depended on gold supplies from western Sudan (*bilād al-takrūr*) and on the trade deficit Europe had with the eastern Mediterranean. These supplies were interrupted in the late fourteenth century by dynastic wars and anarchy in western Sudan and by the sharp decline in European silver production in the fourteenth century due to the exhaustion of mines, flooding, caveins, and the rising cost of labor due to the demographic declines caused by the Black Death. With the partial exception of Venice (which was the beneficiary of inflows of gold through the "German road"), this led to declines of coinage in Europe, West Asia, and Egypt, which lasted almost till the mid-fifteenth century, and some places even reverted to barter (Day 1978; Shoshan 1982).

4. "al-Makrizi narrates that after the economic crisis in 1404, people were compelled to dress themselves in the woolen stuffs imported by European merchants. But the import of European textiles was surely not the consequence

of this crisis. Sometime earlier Sultan Barkuk (1382–99) had ordered his courtiers to wear other fabrics than the customary silk. In fact, the prices of Oriental [i.e., West Asian] textiles had risen very much owing to the rise in wages, which was itself a consequence of the shortage of skilled workers. al-Makrizi bitterly complained about the difficulty of finding workers and the rise in wages" (Ashtor 1976: 307, see also 305–11; Issawi 1970: 256–58). Abraham Udovitch estimates that wages of "a simple urban worker [in Egypt] rose 122 per cent from the end of the thirteenth century to the beginning of the fifteenth" (Lopez, Miskimin, and Udovitch 1970: 121).

5. Ashtor, charting the precipitous decline of grain and bread prices in Egypt and Syria argues that the "downward trend of grain prices was certainly not the result of increased output. On the contrary, Arabic authors of the later middle ages complain bitterly of the decline of agriculture and the decrease of the cultivated area" (Ashtor 1976: 315, see also, 310–31; Issawi 1970: 247–50, 255–56).
6. By the late fourteenth century, as a reflection of these closer ties, the Rasulid sultan of Aden received a petition from the *qâzî* of Calicut requesting permission to read the *k̲hutba* in his name for the Iranian and Rumi Muslims living in the Malabar port (Subrahmanyam 1995: 758).
7. Examples are inscriptions of 1364 from Nellore (NDI/II/N/78), of 1376 from Tirukkalakkunram (173 of 1932–33, ARE 1932–33, para 37), and of 1379 from Srimushnam (Chidambaram taluk, 360 of 1958–59).
8. For a recent survey of maritime relations between China and locations on the subcontinent, see Sen (2006).
9. Chengalpattu taluk, 170 of 1932–33, 170 of 1932–33, ARE 1932–33, para 37.
10. For a list of ports on the Coromandel coast, see Saletore (1934: I, 78), Lach (1965), and Arasaratnam (1986: 7–38).
11. For a synthesis of land and water communications, see Deloche (1993 ; 1994); see also Mahalingam (1969–75: II, 158. 162–6) and Appadorai (1936: II, 611–12).
12. See, for example, an inscription of 1429 from Elavanasur (Tirukkoyilur taluk, ARE 490 of 1937–38); or another of 1520 from Rishivandyam (Kallakurichchi taluk, ARE 111 of 1943–44).
13. For composite accounts of the use of cowries for small-scale transactions, see Pires, (1967: I, 94–95), Meilink-Roelofsz (1962: 66, 69–70, 85), Sircar (1945), De (1952), and especially Heimann (1980). Cowries, as both Johnson and Heimann demonstrate, were used as ballast for ships returning to Bengal. For an index of the magnitude of the flow of cowries take the report of Pyrard de Laval, a Frenchman shipwrecked in the Maldives, who saw 30 to 40 ships loaded with the shells departing for Bengal in 1602 (Johnson 1970b: 20). For scattered remarks on seventeenth-century overland movements of cowries see Fryer (1909: 219); for the eighteenth-century see Marshall (1976: 86).
14. For a synthetic analysis of *badam* as a form of currency, see Perlin (1987).
15. Pierre Vilar (1984: 97–98) reports that by the early sixteenth century, the Portuguese shipped 500,000 kilos of copper each year to India from Africa and Europe.

16. For the debate surrounding Hasan's work, see also Prakash and Krishnamurthy (1970), Habib (1982a), and Hasan (1970).
17. For instance, from the Dutch and English records of the 1630s, which report that the Surat mint turned out coins worth between Rs. 6,000 and Rs. 9,000 per day, she suggests that coins worth Rs. 2,920,000 (i.e., 8,000 × 365) were minted in 1636. Correlating this figure with coins found in Uttar Pradesh treasure troves, she takes each surviving coin to represent "253,913 rupee coins actually minted." Applying this 1:253,913 ratio to coins found in Uttar Pradesh hoards, she arrives at the total coin output of all Mughal mints between 1556 and 1705. These figures are then converted to metric tons on the assumption that 1 ton equals Rs.90,324.8 rupee coins of 170.88 grains of pure silver, thus giving her an estimate of silver influx into the Mughal Empire. The number of questionable assumptions that nestle snugly behind these figures—ranging from assumptions of unchanging mint technology to constant rates of output for widely dispersed mints, to the atypicality of her base year when Gujarat trade was just beginning to revive after the devastating famine of 1630—should be obvious. For critiques of such methodological postulates, see Perlin (1987: 342–66) and Prakash (2001: 71–72).
18. The names in italics are words that the translator was unable to identify.
19. Pires (1967: 243) had reported that an earlier Sultan, Mudhafar, had ordered ocean-going junks to be built and had dispatched them with merchants and merchandise. For the participation of Melakan nobility, royal bureaucrats and the kings of Pahang, Kampar and Indragiri (all tributaries to the Sultan of Melaka), see Meilink-Roelofsz (1962: 52–54).
20. A Kanchipuram inscription (SII/I/446) of 1586, for instance, refers to the grant of customs duties from muslin and patola silk exported by the *nānādēśi* merchants; and of 1622 from Narayanavanam (Puttur taluk, 377 of 1911).
21. For instance, inscriptions from Animala (Kamalapuram taluk, Cuddapah district) record the gift of tolls (*magamai*) on cotton yarn and cloth by the *Vïra Balañja* guild in 1531 (200 of 1937–38) and in 1532 (201, 202 of 1937–38). Similarly, a 1680 record from Lepakshi in the Golconda Sultanate refers to a meeting (*samaya pekkandru*) of the *ayyavōle*, *svadēśi*, *nānādēśi*, and *ubhaya-nānādēśi* merchants, and their donation of incomes derived from looms (ARE Cp.18 of 1917–18 cited in Ramaswami 1979: 126).
22. Barendse (2002: 70, n.10) suggests that the oral transmission of navigational knowledge among hereditary guilds of pilots, and secrecy surrounding this information, may have been responsible for navigators from Arabia and the subcontinent never "discovering" Australia despite sailing in the waters of the eastern Indian Ocean archipelago for a thousand years before the Europeans.
23. In response to the introduction of a silver-based currency in the Mughal Empire, there was a relative decline in north Indian copper coinages between 1620 and 1670. For the increasing flows of copper to the subcontinent in the late seventeenth and early eighteenth centuries, see Glamann (1953; 1958: 248–51), Furber (1965), Raychaudhuri (1962: 194–96), and Moosvi

(1987b: 71, 83–88); for copper coinages, see Pridmore (1975), Bruce II, Deyell, Rhodes and Spengler (1981), Moosvi (1987b), and especially Habib (1987), which includes an appendix by John Deyell discussing the relative anonymity of copper mints; and for the growth of a mass market for copper coins, see Perlin (1987).

24. The most important exceptions to this generalization were the smaller coastal states on the southern peninsula—especially Travancore and Calicut on the west and the *nayaka* kingdoms of the Coromandel—which, by virtue of their diminutive size were dependent to a proportionately greater extent on the revenues derived from sea-borne commerce. However, Hans Van Santen has argued that the Mughal rulers, and Shah Jahan in particular, took steps to protect Indian merchants (especially Muslim traders) from increased European encroachment (Das Gupta 1985: 486).
25. The immediate effect of the Portuguese intrusion into the Indian Ocean was, of course, devastating for the Venetians, leading eventually to an abandonment of Venetian state monopoly in the carriage of pepper and other spices from Beirut and Alexandria in 1514 (Wake 1979: 373–74). For contemporary Arabian accounts, see Serjeant (1963).
26. Observing parallels between Portuguese and Ottoman expansions in the sixteenth century, Andrew Hess (1970: 1916) has argued that the South Arabian coast emerged as a naval frontier between these two empires because "the economic structure of each empire encouraged an imperial standoff, for the new sea frontier also marked the limits of effective expansion for an empire whose economic claims were largely agricultural and for a state whose interests were primarily commercial."
27. However, when the Kunjalis assumed the trappings of royalty at the turn of the seventeenth century, the Samudri Raja cooperated with the Portuguese in destroying them (Prange 2011b: 1287).
28. It has been estimated that one in eight vessels sailing from Lisbon or Goa in the first half of the sixteenth century, and one in five between 1550 and 1650 were either captured or wrecked (Parry 1967: 195).
29. By the late 1530s and early 1540s increasing quantities of Sumatran pepper were being shipped from Aceh and Pidie (conquered by Aceh in 1521) to the Red Sea ports in open defiance of Portuguese embargoes (Boxer 1969: 416–17). It has been estimated that while annual consignments of pepper to Portugal in the 1530s and 1540s amounted to 24,000 quintals (or 22,000 quintals after allowing for shrinkage, spoilage and losses), in the 1550s these consignments fell to 17,000 quintals of marketable pepper per year. By the 1590s, annual average import of marketable pepper to Lisbon had fallen to approximately 9,300 quintals (Wake 1979: 382–83).
30. Most of this trade was carried in ships built to a Portuguese design in India (Boxer 1969: 427–28).
31. When one of these Melaka-bound Coromandel carracks was captured in 1602 by a joint Anglo-Dutch pirateering venture led by Sir James Lancaster and Joris van Spilberghen, its captors were amazed at the size of its cargo—960 bales of coarse textiles and 120 chests of more valuable fabrics, besides rice, vegetable oil, and provisions for its crew of 600. The one-eighth share

of this booty accruing to the Dutch was valued at 16,500 *rials*, implying that the total value of the cargo was 132,000 *rials* (Subrahmanyam 1990b: 162); see also ibid., pp. 314–15.

32. Ralph Fitch records the arrival of ships laden with the painted cloth of Masulipatnam and Sao Thome at Pegu and other Burmese ports (Foster 1975: 34). Tangential support for this hypothesis is also derived from early seventeenth-century Dutch sources, which record that the customary determination of demand for textiles compelled them to purchase cloth from weaving villages in the southern Coromandel and transport them to markets in the Indonesian archipelago via their factories in the northern Coromandel (Brennig 1975: 22–24).
33. This reorientation of commodity flows was caused also by the decline of the First Taung-ngu Empire in Burma in the late sixteenth century, which led to the rise of regional elites capable of enforcing local embargoes on the movements of men and foodgrains and to the capture of the southeastern littoral with its important port of Martaban by Naresuan, the King of Siam (Lieberman 1984: 38–46; Subrahmanyam 1990b: 146–47).
34. Since 1547–1548, a mint at Goa factored a gold coin named *Sao Tomé* of equal purity to other units of account circulating in the region—the Vijayanagara *varāha*s, Mughal *muhar*s, Venetian *ducats*, Ottoman *sequins*, and the *ashrafi*s of Hormuz (Boxer 1977: 60).
35. Braudel (1972: I, 452) had estimated that about 60,000 tonnes of silver and 5,000 tonnes of gold were in circulation in Europe and the Mediterranean before the discoveries of precious metals in the Americas. Ward Barrett (1990: 225, 242–43, tables 7.1, 7.3) estimates that in the sixteenth century, about 17,000 tonnes of silver and 280 tonnes of gold were produced in the Americas. He estimates that in the seventeenth century, Europe retained about 720 tonnes of silver or its equivalent of American production, and exported 510 tonnes of silver and silver equivalent.
36. The flow of silver from the Persian Gulf alone is reported to have been worth 2,000,000 *cruzados* or 41.7 metric tons (Steensgaard 1974: 199; Moosvi 1987b: 61). This trade was far surpassed by the flows from the Red Sea ports, which were connected to Cairo and Alexandria, around the Cape of Good Hope and from the Pacific via the Bay of Bengal and Cape Comorin (Moosvi 1987b: 61–62).
37. Fitch reports that the Portuguese carried 200,000 *cruzados* each year to China from Goa (Foster 1975: 41; Boxer 1963: 7; Moloughney and Xia Weizhong 1997). In 1601, one of the three carracks dispatched from Goa to Macao was shipwrecked off the coast of Kwangtung. Apart from spices, this ship's cargo contained 400,000 *pardaos* worth of Spanish *reals* (Boxer 1963: 62–63). In quantitative terms this amounts to 9,000–11,000 kilos (Atwell 1977: 3).
38. Though reliable figures for Japanese silver production during the sixteenth and seventeenth century are unavailable an indication of its magnitude may be gleaned from a few contemporary reports. For instance, it was reported that 10,000 kg of silver was transported as tribute to Hideyoshi in the late sixteenth century from the Ikuna silver mine. In the early seventeenth century,

it was similarly reported that 12,000 kg was paid as tribute to Ieyasu from a single shaft of the Iwami mine (Kobata 1965: 248).

39. Though the ratio of gold to silver was fixed at 1:10 in Japan in 1592, it soon oscillated between 1:12 and 1:13. In contemporary Spain, the corresponding ratio was between 1:12.5 and 1:14, while at Guangzhou it was 1:5.5. It may also be noted that both the Ming ban on direct trade between China and Japan as a response to the activities of the *wakö* pirates, and the Japanese invasion of Korea (1592–1598), which stimulated Japanese demand for gold, facilitated the Portuguese intermediation (Boxer 1963: 2; Boxer 1977: 63; Flynn & Giraldez 1995b: 206; Atwell 1998: 397; Pearson 2001: 23); for comparative bimetallic ratios in China, Japan, and Spain see also Atwell (1982: 82, table 4) and Yuan (1981: 266); and for bimetallic ratios between China, Korea, and Japan, see (Kobata 1965: 250–54). It has been estimated that despite the Ming ban on direct trade with Japan, as much as 19,875 kg of Japanese silver may have been imported annually to the Zhejian (Chekien) and Fujian (Fukien) provinces even before the arrival of the Portuguese (Rawski 1972: 76).
40. For exports of Chinese copper coins to Japan, see also Brown (1951: 16–32); and for bimetallic ratios between copper and silver in China see Atwell (1982: 84, table 5).
41. The following discussion focuses on the activities of the English and Dutch East India Companies. For accounts of the Portuguese India Company and the Danish *Dansk Ostindiske Kompagni*, which maintained relatively minor presences in Asian waters see Disney (1978) and Subrahmanyam (1990b: 181–82, 185–86, 189–90, 240–43).
42. Another reason for the Dutch turning toward the Indian subcontinent was that the Portuguese continued, even after their expulsion from Indonesia, to sell Coromandel textiles there—an activity obviously disadvantageous to the Dutch company.
43. While the European market for pepper was estimated to have been no more than 3.4 million lb in 1611, the VOC was ordering between 4.2 and 6 million lb a year between 1615 and 1620. In addition, the Portuguese *Estado* and the English East India Company imported about 1.9 million lb a year during the same period. As a consequence, prices dropped sharply in Europe leading to a slump in the 1620s, but imports rose again in the following decades (Wake 1979: 390–91).
44. Over the long run, it is questionable whether territorial subjugation was a sound strategy. George Masselman argued that the reason for the VOC being in debt to the tune of 4 million guilders, after 90 years of commercial operations in the East Indies, was the high cost of maintaining their monopsony position in these islands (Wallerstein 1980b: 49, fn. 77).
45. For instance, Om Prakash (1985: 157 ff.) has shown that the VOC sold cloves, mace, and nutmeg from its monopsonies in Amboina and in the Bandas at Surat during the 1670s and the early 1680s at prices higher than at Amsterdam. Similarly, the company obtained a gross profit of 837 percent from its sales of cloves in Bengal during the same period. Within the next 40 years, this already astonishing figure had risen to 1,306 percent.

46. The decline in silver flows to Asia appears after 1635 appears to have been caused by a shortage of mercury in Mexico that lasted till the 1660s, as well as tighter controls imposed on exports from upper Peru (Atwell 2005: 472, n. 11).
47. Additionally, by virtue of their territorial subjugation of the Indonesian islands, the Dutch were able to gain control of Sumatran gold, which, however, was of modest proportions (Gaastra 1986: 105). The English and the Dutch were also reported to have exported gold from Thailand (where the ratio of gold to silver was 1:3 according to contemporary Dutch officials) and from Vietnam and Sumatra to Japan in the early seventeenth century (Kobata 1965: 255).
48. In 1615, of the total value of goods sent out by the VOC to the East Indies, goods accounted for only 6 percent, the remainder being treasure. Even when the company began to obtain significant quantities of gold and silver from China and Japan by the mid-seventeenth century, goods still accounted for only 45 percent of the cargo received from Amsterdam at Batavia (Prakash 1985: 11–12).
49. It has been estimated that both the Dutch and the Chinese were each shipping out approximately 25,000 *piculs* of Japanese copper each year after 1610 (Brown 1951: 35).
50. In fact, after 1636 when the Qutb Shahs accepted Mughal suzereignty, Golconda silver rupees were struck by dies approved by the Mughal emperors (Joshi 1943: 85; Richards 1975: 35; Brennig 1975: 161).
51. Spices, especially cloves and nutmeg, continued to flow through capillaries of the Malay-Indonesian trade network to English factories at Aceh, Bantam, Makassar, Banda, Jambi, and Pattani, see Bassett (1958). For an excellent narrative account of the events leading to the Bungaya Treaty of 1667 between the Dutch and the Sultanate of Gowa which led to the ban of all Europeans other than officials of the VOC from the Celebes, see Andaya (1981: 733–136).
52. For a discussion of the EIC's problems of financial stringency and organization, see Chaudhuri (1965).
53. Even before the extremely limited size of the Asian market for English woolens became apparent to the directors of the company, bullion formed as much as 70 percent of the value of goods carried on the First Voyage (1601–1603) (Chaudhuri 1965: 13).
54. The Safavid alliance with the Portuguese had soured on account of the rough treatment meted out by the Portuguese on traders under the Shah's protection, and after the conclusion of a treaty between the Safavids and the Ottomans in 1618, there was little need to continue the alliance. The Court of Directors of the East India Company in London were opposed to an alliance against the Portuguese and therefore an alliance was clandestinely concluded between the Shah and English factors in India (McCabe 1999: 136–37; Matthee 1999: 96–111). The English did not, however, derive much benefit from the ouster of the Portuguese as restrictions imposed on the export of bullion from England due to an economic downturn in the early 1620s meant that opportunities to export silk from the Safavid domains were

slender and hence the fall of Hormuz, though important, was not decisive for the decline of Portuguese maritime dominance. The main result was a reorientation of arteries of trade in the Persian Gulf from Hormuz to Gombroon (or Gamron in Dutch) that was now called Bandar Abbas (Meilink-Roelofsz 1980: 5–6, 26; Matthee 1999: 106).

55. English neutrality in the early phases of the Thirty Years' War led to a considerable expansion of English trade, demonstrated both by the rise of customs revenues at Dover, and of the English share of the carrying trade. For instance, it was stipulated in the Anglo-Spanish Treaty of 1630 that "coin and bullion *owned* by the Spanish government which was normally shipped via Genoa to meet political and military expenses in Flanders was henceforth to be re-routed up the Atlantic coast under the protection of English shipping. Part of the money, one-third, was to be sent to the Tower to be minted into English coin in return for bills of exchange on Antwerp. Later, . . . the security of the route being demonstrated, it was used by Genovese merchants operating on private account from Madrid" (Taylor 1972: 240). Or, for the Portuguese freighting of English vessels to Brazil and the East Indies, see Kepler (1972: 261).
56. Apart from Dutch opposition to the English on the southern Coromandel coasts, Chaudhuri (1965: 201) suggests that one of the reasons for the EIC's neglect of the Coromandel trade "lay in the undeveloped state of English slave-trade to Africa in the pre-Restoration era."
57. The Dutch were never a threat since their exports of cheap Coromandel textiles to ports on the Red Sea and the Persian Gulf were limited to the more expensive varieties (Das Gupta 1982: 415–16).
58. Malaya is also reported to have stationed an agent at Pegu (Moreland 1967: 46; Brennig 1977: 325).
59. In addition to these goods, the vessel had carried five more elephants and 5,000 *pagodas* of gold, which had belonged to Mir Kamal al-din Jamal and was therefore confiscated (Subrahmanyam 1990b: 317–18; see also Raychaudhuri 1962: 35–36).
60. The position of the Portuguese settlement at Sao Tome was also undermined by the forcible diversion of the coastal trade to Pulicat by the Dutch, (Raychaudhuri 1962: 61).
61. For instance, a Portuguese carrack returning from Melaka to Nagappattinam, which was captured by the Dutch in 1631, carried a cargo worth 50,000 *florins*, of which 41,000 *florins* was in gold (Subrahmanyam 1990b: 204; see also Chaudhuri 1982: 389; Furber 1965).
62. Joust Schouten had reported after the Dutch conquest of Melaka that he had been told by the merchants there that the Portuguese brought at least 24 varieties of cloth each year, largely for re-export to places further east. He estimated that approximately 51,600 pieces of cloth, valued at 80,000 *reals* per shipping season were conveyed along this route (Subrahmanyam 1990b: 204–05).
63. The phrase "collective corporate bodies of people who comprised these dual caste-clusters" is used to indicate that, while individual communities comprising these dichotomous collectivities quarreled with each other within

their own divisions, or against some communities in the other, there were no conflicts between the collective *valangai* community and the collective *iḍangai* community. For references to disputes between two branches of the *kammālar*—the blacksmiths and the goldsmiths—in 1526, see ARE 44 of 1916–17 from Attur, Ramanathapuram district; and early seventeenth-century records from Kallidaikurichchi in Tirunelveli district, ARE 309, 378 of 1916–17, para 56. For a reference to a conflict between the *kammālar* of the *iḍangai* community and the *vēllāla*-s among the *valangai*, see ARE 47 of 1921–22, pt.2; see also Ramaswami (1985a: 440).

64. For conflicts between the *valangai* and *iḍangai* communities in the English East India Company's settlement at Madras in the early 1650s see Brennig (1975: 69–73), Ramaswami (1985c: 143, 162–66), and Appadurai (1973: 247–54). For conflicts between these two class-clusters in the eighteenth century, see Lewandowski (1985: 163–65), Appadurai (1973: 254–56), and Chaudhuri (1978b: 308–09).
65. Tavernier (1977: I, 24) observed that "in India a village must be very small indeed, if it has not a money-changer, called shroff (*sarraf*), who acts as banker to make remittances of money and issue letters of exchange." The use of bills of exchange was so brisk and routine that in Ahmedabad, "merchants made their payments, or adjusted their obligations, almost entirely through transfer of paper. The prevalence of the system is shown also by the fact that almost any order of payment by anyone (such as a noble's order of payment of salaries to his troops) could become commercial paper, discounted by the *sarraf*s" (Habib 1969: 73).
66. For the impact of English trade in Indian textiles, see Chaudhuri (1978b: 262–72). "We may compare this to a labour force of c.70,000 slaves in the sugar colonies [in the western hemisphere—R.A.P] producing, c. 600 grammes of sugar a year for each European" (Steensgaard 1985: 232).

Epilogue

1. Of course, as Dirlik and others recognize, the very intellectual foundations of history—its truth claims, theoretical categories, spatialities, and temporalities—is rooted in the European Enlightenment and its institutionalization in universities across the world has led to the silencing of other ways of perceiving the past. However, it is not clear how these other, non-European ways of the past, being based on different epistemological traditions, can be brought into a productive dialogue. Moreover, since capitalism is the first truly global system, it is not clear how these other ways of perceiving the past can contribute to contemporary debates.

Glossary

agrahāra, *brahmadēya*	settlements where Brahmins have special legal rights
amaram	revenue assignment (South India)
banjāra-s	a community of specialist traders
brāhmaṇa, brāhmaṇar	brahmins
cheṭṭi, *cheṭṭiyar*	trading caste/community
dēvadāna	grant to a temple
iḍangai	"left-hand" caste cluster
iqta'	revenue assignment (North India)
iraiyili	tax-free
kaḍamai	land tax
kaikkōla, *kaikkōlar*	dominant community of weavers
kīlvāram	"inferior share" accruing to the cultivators
kuḍinīnga	"without removing the cultivators"
mēlvāram	superior share of the products of the soil
nāḍu	basic unit of agrarian society (Tamil country)
nānādēsi	a corporate body of merchants
nāṭṭār	collegial bodies of landowners in a *nāḍu*
nāyaka. nāyakkar	suffix to indicate a high official
nāyakkāṭṭana-śīrmai	revenue assignment (Vijayanagara)
paṛaiya, *paṛaiyar*	ritually impure landless laborers
parru	revenue district
rajya, *rajyam*	province
sarvamānya	a bequest granting "all benefits"
śīma, *śīrmai*	revenue assignment (South India)
uḍaiyār	land owning peasantry
ulavu-kāniyāṭci	right of cultivation
valangai	"right-hand" caste cluster
vēḷḷālar	dominant landowning caste

Bibliography

Adshead, Samuel Adrian Miles. (2000). *China in World History*. New York: St. Martin's Press.

———. (2004). *T'ang China: The Rise of the East in World History*. Basingstoke: Palgrave Macmillan.

Aiyangar, S. Krishnaswami. (1924). *Sources of Vijayanagara History*. Madras: University of Madras.

Alayev, Leonid B. (1982a). "Non-Agricultural Production: South India." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c. 1200–c.1750*, Cambridge: Cambridge University Press 315–24.

———. (1982b). "The Systems of Agricultural Production: South India." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 226–34.

Alexandrowicz, Charles Henry. (1967). *An Introduction to the History of the Law of Nations in the East Indies (16th 17th and 18th Centuries)*. Oxford: Clarendon Press.

Allsen, Thomas. (2001). *Culture and Conquest in Mongol Eurasia*. Cambridge: Cambridge University Press.

———. (2002). "The Circulation of Military Technology in the Mongolian Empire." In N. Di Cosmo (ed.), *Warfare in Inner Asian History (500–1800)*, Leiden: Brill 265–93.

———. (2009). "Mongols as Vectors for Cultural Transmission." In N. Di Cosmo, A. J. Frank, and P. B. Golden (eds.), *The Cambridge History of Inner Asia: The Chinggisid Age*, Cambridge: Cambridge University Press 135–54.

Andaya, Barbara W., and Leonard Y. Andaya. (1982). *A History of Malaysia*. London: Macmillan.

Andaya, Leonard Y. (1981). *The Heritage of Arung Palakka: A History of South Sulawesi (Celebes) in the Seventeenth Century*. The Hague: Martinus Nijhoff.

Anderson, E. N. (1988). *The Food of China*. New Haven, CT: Yale University Press.

Andrade, Tonio. (2010). "Beyond Guns, Germs, and Steel: European Expansion and Maritime Asia, 1400–1750." *Journal of Early Modern History* XIV(2), 165–82.

Anthony, Robert J. (2003). *Like Froth Floating on the Sea: The World of Pirates and Seafarers in Late Imperial South China*. Berkeley, CA: University of California Press.

Appadorai, A. (1936). *Economic and Social Conditions in Southern India (1000–1500 A.D.)*. Madras: University of Madras. 2 vols.

Appadurai, Arjun. (1973). "Right- and Left-Hand Castes in South India." *Indian Economic and Social History Review* XI(2–3, June-September), 216–59.

Appadurai, Arjun and Carol Appadurai Breckenridge. (1976). "The South Indian Temple: Authority, Honour, and Redistribution." *Contributions to Indian Sociology*, new series, X(2), 187–211.

Arasaratnam, Sinnapah. (1978). "Indian Commercial Groups and European Traders, 1600–1800: Changing Relationships in South-eastern India." *South Asia* New Series I(2, September), 42–53.

———. (1986). *Merchants, Companies, and Commerce on the Coromandel Coast, 1650–1740*. Delhi: Oxford University Press.

Arrighi, Giovanni. (2007). *Adam Smith in Beijing: Lineages of the Twenty-First Century*. London: Verso.

Ashtor, Eliahyu. (1976). *A Social and Economic History of the Near East in the Middle Ages*. Berkeley: University of California Press.

Attman, Artur. (1981). *The Bullion Flows Between Europe and the East, 1000–1750*. Translated by E. Green and A. Green. Goteburg: Kungl. Vetenskaps- och Vitterhets-samhallet.

Atwell, William S. (1977). "Notes on Silver, Foreign Trade and the Late Ming Economy." *Ch'ing-shin wen-ti* III(8, December), 1–33.

———. (1982). "International Bullion Flows and the Chinese Economy, *circa* 1530–1650." *Past & Present* (95, May), 68–90.

———. (1998). "Ming China and the Emerging World Economy, c.1470–1650." In D. Twitchett and F. W. Mote (eds.), *The Cambridge History of China*, vol. VIII, 2, *The Ming Dynasty, 1368–1644*, Cambridge: Cambridge University Press 376–416.

———. (2002). "Time, Money, and the Weather: Ming China and the 'Great Depression' of the Mid-Fifteenth Century." *Journal of Asian Studies* LXI (1, Feb), 83–113.

———. (2005). "Another Look at Silver Imports into China, ca.1635–1644." *Journal of World History* XVI(4), 467–89.

Babur. (1922). *The Baburnama in English*. Translated by A. S. Beveridge. London: Luzac & Co. 2 vols.

Barendse, Rene J. (2002). *The Arabian Seas: The Indian Ocean World of the Seventeenth Century*. Armonk, NY: M. E. Sharpe.

Barfield, Thomas J. (1989). *The Perilous Frontier: Nomadic Empires and China*. London: Basil Blackwell.

Barrett, Ward. (1990). "World Bullion Flows, 1450–1800." In J. D. Tracy (ed.), *The Rise of Merchant Empires: Long-Distance Trade in the Early Modern World, 1350–1750*, Cambridge: Cambridge University Press 224–54.

Bassett, D. K. (1958). "English Trade in the Celebes, 1613–1667." *Journal of the Malayan Branch of the Royal Asiatic Society* XXXI(1), 1–39.

Bayly, Christopher A. (1983). *Rulers, Townsmen and Bazaars: North Indian Society in the Age of British Expansion, 1770–1870*. Cambridge: Cambridge University Press.

———. (1985). "State and Economy in India Over Seven Hundred Years." *Economic History Review* second series, XXXVIII(4, November), 583–96.

———. (1988). *Indian Society and the Making of the British Empire*. Cambridge: Cambridge University Press.

Beckwith, Christopher I. (1991). "The Impact of the Horse and Silk Trade on the Economies of T'ang China and the Uighur Empire: On the Importance of International Commerce in the Early Middle Ages." *Journal of the Economic and Social History of the Orient* XXXIV (2), 183–98.

Benton, Lauren. (2005). "Legal Spaces of Empire: Piracy and the Origins of Ocean Regionalism." *Comparative Studies in Society and History* XLVII (4, October), 700–24.

Bernier, François. (1916). *Travels in the Mughal Empire, A.D. 1656–1668*. Translated by A. Constable and V. A. Smith. London: Oxford University Press.

Bidie, G. (1883). "The Pagoda or Varaha Coins of Southern India." *Journal of the Asiatic Society of Bengal* LIII (Pt. 1), 33–55.

Black, Jeremy. (2000). *War and the World: Military Power and the Fate of Continents, 1450–2000*. New Haven, CT: Yale University Press.

Blake, Stephen P. (1987). "The Structure of Monetary Exchange in North India: The Provinces of Agra, Delhi, and Lahore in 1600." In J. F. Richards (ed.), *The Imperial Monetary System of Mughal India*, Delhi: Oxford University Press 100–36.

Blaut, Jim. (1992). "Fourteen Ninety-Two." *Political Geography* XI(4, July), 355–85.

Bloch, Marc. (1966). *French Rural History: An Essay on Its Basic Characteristics*. Translated by J. Sondheimer. Berkeley, CA: University of California Press.

Blusse, Leonard. (1979). "Chinese Trade to Batavia During the Days of the V.O.C." *Archipel* XVIII, 195–213.

Bois, Guy. (1984). *The Crisis of Feudalism: Economy and Society in Eastern Normandy*. Cambridge: Cambridge University Press.

Boomgaard, Peter. (2003). "In the Shadow of Rice: Roots and Tubers in Indonesian History, 1500–1950." *Agricultural History* LXXVII(4, Fall), 582–610.

Boxer, Charles R. (1963). *The Great Ship from Amacon: Annals of Macao and the Old Japan Trade, 1555–1640*. Lisbon: Centro de Estudos Historicos Ultramarinos.

———. (1969). "A Note on Portuguese Reactions to the Revival of the Red Sea Spice Trade and the Rise of Atjeh, 1540–1600." *Journal of Southeast Asian History* X(3), 415–28.

———. (1977). *The Portuguese Seaborne Empire, 1414–1825*. London: Hutchinson.

Braudel, Fernand. (1972). *The Mediterranean and the Mediterranean World in the Age of Philip II*. Translated by S. Reynolds. New York: Harper & Row. 2 vols.

———. (1977). *Afterthoughts on Material Civilization and Capitalism*. Baltimore, MD: The Johns Hopkins University Press.

Boxer, Charles R. (1981). *Civilization and Capitalism, 15th–18th Century*, vol. I, *The Structures of Everyday Life* Translated by S. Reynolds. New York: Harper & Row.

———. (1982). *Civilization and Capitalism, 15th–18th Century*, vol. II, *The Wheels of Commerce*. Translated by S. Reynolds. New York: Harper & Row.

———. (1984). *Civilization and Capitalism, 15–18th Century*, vol. III, *The Perspective of the World*. Translated by S. Reynolds. New York: Harper & Row.

———. (1994). *A History of Civilizations*. Translated by R. Mayne. New York: Penguin.

Bray, Francesca. (1983). "Patterns of Evolution in Rice-Growing Societies." *Journal of Peasant Studies* XI(1), 3–33.

———. (1984). *Science and Civilisation in China*, vol. VI, *Biology and Biological Technology: Agriculture*, Edited by J. Needham. Cambridge: Cambridge University Press.

———. (1986). *Rice Economies: Technology and Development in Asian Societies*. Oxford: Basil Blackwell.

Breckenridge, Carol Appadurai. (1985a). "Scale and Social Formation in South India, 1350–1750." In R. E. Frykenberg and P. Kolenda (eds.), *Studies of South India: An Anthropology of Recent Research and Scholarship*, Madras: New Era 51–66.

———. (1985b). "Social Storage and the Extension of Agriculture in South India, 1350–1750." In A. L. Dallappicola and S. Z.-A. Lallemant (eds.), *Vijayanagara: City and Empire—New Currents of Research*, vol. I, *Texts*, Stuttgart: Steiner Verlag 41–72.

Brennig, Joseph J. (1975). "The Textile Trade of Seventeenth-Century Northern Coromandel: A Study of a Pre-Modern Asian Export Economy." Ph.D. dissertation, University of Wisconsin, Madison.

———. (1977). "Chief Merchants and the European Enclaves of Seventeenth Century Coromandel." *Modern Asian Studies* XI(3), 321–40.

———. (1983). "Silver in Seventeenth-Century Surat: Monetary Circulation and the Price Revolution in Mughal India." In J. F. Richards (ed.), *Precious Metals in the Late Medieval and Early Modern Worlds*, Durham, NC: Carolina Academic Press 477–96.

———. (1990). "Textile Producers and Production in Late Seventeenth Century Coromandel." In S. Subrahmanyam (ed.), *Merchants, Markets and the State in Early Modern India*, Delhi: Oxford University Press 66–89.

Broadberry, Stephen and Bishnupriya Gupta (2006). "The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500–1800." *Economic History Review* LIX(1), 2–31.

Brook, Timothy. (1999). *The Confusions of Pleasure: Commerce and Culture in Ming China*. Berkeley: University of California Press.

Brown, Delmer M. (1951). *Money Economy in Medieval Japan: A Study in the Use of Coins*. New Haven, CT: Institute of Far Eastern Languages.

Bruce II, Colin R., John S. Deyell, N. Rhodes, and W. F. Spengler. (1981). *The Standard Guide to South Asian Coins and Paper Money since 1556 A.D.* Iola, WI: Krause Publications.

Burrow, Thomas and Murray Barnson Emeneau. (1961). *A Dravidian Etymological Dictionary*. Oxford: Clarendon Press.
Campos, Joachim Joseph A. (1979). *History of the Portuguese in Bengal with Maps and Illustrations*. Patna: Janaki Praksasham.
Chakravarti, Ranabir. (1991). "Horse Trade and Piracy at Tana (Thana, Maharashtra, India): Gleanings from Marco Polo." *Journal of the Economic and Social History of the Orient* XXXIV (3), 159–82.
———. (1999). "Early Medieval Bengal and the Trade in Horses: A Note." *Journal of the Economic and Social History of the Orient* XLII(2), 194–211.
Champakalakshmi, R. (1981). "Peasant State and Society in Medieval South India: A Review Article." *Indian Economic and Social History Review* XVIII (3–4, July-Dec), 411–26.
———. (1986). "Urbanisation in Medieval Tamil Nadu." In S. Bhattacharya and R. Thapar (eds.), *Situating Indian History (for Sarvepalli Gopal)*, Delhi: Oxford University Press 34–105.
Chao, Kang. (1986). *Man and Land in Chinese History: An Economic Analysis*. Stanford, CA: Stanford University Press.
Chase, Kenneth. (2003). *Firearms: A Global History*. New York: Cambridge University Press.
Chaudhuri, Kirti N. (1965). *The English East India Company: The Study of an Early Joint-Stock Company, 1600–1640*. London: Frank Cass.
———. (1978a). "Some Reflections on the Town and Country in Mughal India." *Modern Asian Studies* XII(1, July), 77–96.
———. (1978b). *The Trading World of Asia and the English East India Company, 1660–1760*. Cambridge: Cambridge University Press.
———. (1979). "Markets and Traders in India During the Seventeenth and Eighteenth Centuries." In K. N. Chaudhuri and C. J. Dewey (eds.), *Economy and Society: Essays in Indian Economic and Social History*, Delhi: Oxford University Press 143–62.
———. (1982). "European Trade with India." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 382–406.
———. (1985). *Trade and Civilisation in the Indian Ocean: An Economic History from the Rise of Islam to 1750*. Cambridge: Cambridge University Press.
———. (1990). *Asia before Europe: Economy and Civilisation in the Indian Ocean*. Cambridge: Cambridge University Press.
Chicherov, Aleksander Ivanovich (1971). *India: Economic Development in the 16th–18th Centuries—An Outline History of Crafts and Trades*. Moscow: Nauka.
Cipolla, Carlo M. (1965). *Guns, Sails and Empires: Technological Innovation and the Early Phases of European Expansion, 1400–1700*. London: Minerva Press.
Clarence-Smith, William Gervase. (2009). "The Production of Cotton Textiles in Early Modern South-east Asia." In G. Riello and P. Parthasarathi (eds.), *The Spinning World: A Global History of Cotton Textiles, 1200–1850*, Oxford: Oxford University Press 127–42.
Creel, Herrlee Glessner. (1965). "The Role of the Horse in Chinese History." *American Historical Review* LXX(3, April), 647–72.

Crosby, Alfred W. (1972). *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport, CT: Greenwood.

Curtin, Philip D. (1985). *Cross-Cultural Trade in World History*. Cambridge: Cambridge University Press.

Dale, Stephen Frederic. (2010). *The Muslim Empires of the Ottomans, Safavids, and Mughals*. Cambridge: Cambridge University Press.

Dames, Mansel Longworth (ed.) (1918–21). *The Book of Duarte Barbosa: An Account of the Countries Bordering on the Indian Ocean and Their Inhabitants Written by Duarte Barbosa and Completed About the Year 1518 A.D.*, Translated by H. E. J. Stanley. London: Hakluyt Society. 2 vols.

Dardess, John W. (2003). "Did the Mongols Matter? Territory, Power, and the Intelligentsia in China from the Northern Song to the Early Ming." In P. J. Smith and R. von Glahn (eds.), *The Song-Yuan-Ming Transition in Chinese History*, Cambridge, MA: Harvard University Press 111–34.

Das Gupta, Ashin. (1967). *Malabar in Asian Trade, 1740–1800*. Cambridge: Cambridge University Press.

———. (1970). "Trade and Politics in 18th Century India." In D. S. Richards (ed.), *Islam and the Trade of Asia: A Colloquium*, Oxford: Cassirer 181–214.

———. (1982). "Indian Merchants and the Trade in the Indian Ocean, *c.* 1500–1750." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1700*, Cambridge: Cambridge University Press 407–33.

———. (1984). "Indian Merchants in the Age of Partnership. 1500–1800." In D. Tripathi (ed.), *Business Communities in India: A Historical Perspective*, Delhi: Manohar 27–39.

———. (1985). "Indian Merchants and the Western Indian Ocean: The Early Seventeenth Century." *Modern Asian Studies* XIX(3, July), 481–99.

Davis, Mike. (2001). *Late Victorian Holocausts: El Niño Famines and the Making of the Third World*. London: Verso.

Day, John. (1978). "The Bullion Famine of the Fifteenth Century." *Past & Present*(79, May), 3–54.

De, Sushil Chandra. (1952). "The Cowry Currency in India." *Orissa Historical Research Journal* I(1), 1–10.

de Vries, Jan. (2003). "Connecting Europe and Asia: A Quantitative Analysis of the Cape-route Trade, 1497–1795." In D. O. Flynn, A. Giraldez, and R. von Glahn (eds.), *Global Connections and Monetary History, 1470–1800*, Aldershot: Ashgate 35–106.

Deloche, Jean. (1993). *Transport and Communications in India Prior to Steam Locomotion*, vol. I, *Land Transport*. Translated by J. Walker. Delhi: Oxford University Press.

———. (1994). *Transport and Communications in India Prior to Steam Locomotion*, vol. II, *Water Transport*. Translated by J. Walker. Delhi: Oxford University Press.

———. (2007). *Studies on Fortification in India*. Pondicherry: Ecole Francaise d'extreme-Orient.

Deyell, John S. (1976). "Numismatic Methodology in the Estimation of Mughal Currency Output." *Indian Economic and Social History Review* XIII(3, July), 393–401.

Di Cosmo, Nicola. (2001). "European Technology and Manchu Power: Reflections on the 'Military Revolution' in Seventeenth-Century China." In S. Sogner (ed.), *Making Sense of Global History: The XIXth International Congress of the Historical Sciences, Oslo 2000, Commemorative Volume*, Oslo: Universitetsforlaget Oslo 119–39.

———. (2004). "Did Guns Matter? Firearms and the Qing Experience." In L. A. Struve (ed.), *The Qing Formation in World-Historical Time*. Cambridge, MA: Harvard University Press 121–66.

Digby, Simon. (1971). *War-Horse and Elephant in the Delhi Sultanate*. Oxford: Oxford University Press.

———. (1982). "The Maritime Trade of India." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1700*, Cambridge: Cambridge University Press 125–59.

Dirks, Nicholas B. (1987). *The Hollow Crown: Ethnohistory of an Indian Kingdom*. Cambridge: Cambridge University Press.

Dirlik, Arif. (1999). "Is There History After Eurocentrism? Globalism, Postcolonialism, and the Disavowal of History." *Cultural Critique*(42, Spring), 1–34.

———. (2002). "History Without a Center? Reflections on Eurocentrism." In E. Fuchs and B. Stuchtey (eds.), *Across Cultural Borders: Historiography in Global Perspective*, Lanham, MD: Rowman & Littlefield 247–84.

———. (2003). "Confounding Metaphors, Inventions of the World: What is World History For?" In B. Stuchtey and E. Fuchs (eds.), *Writing World History, 1800–2000*, Oxford: Oxford University Press 91–133.

Disney, Anthony R. (1978). *Twilight of the Pepper Empire: Portuguese Trade in Southwest India in the Early Seventeenth Century*. Cambridge, MA: Harvard University Press.

Dols, Michael W. (1977). *The Black Death in the Middle East*. Princeton, NJ: Princeton University Press.

Duby, Georges. (1981). *Rural Economy and Country Life in the Medieval West*. Translated by C. Postan. Columbia, SC: University of South Carolina Press.

Eaton, Richard M. (1993). *The Rise of Islam and the Bengal Frontier, 1204–1760*. Berkeley: University of California Press.

———. (2009). "'Kiss My Foot,' Said the King: Firearms, Diplomacy, and the Battle for Raichur, 1520." *Modern Asian Studies* XLIII(1), 289–313.

Eaton, Richard M and Phillip B. Wagoner. (2014). "Warfare on the Deccan Plateau, 1450–1600: A Military Revolution in Early Modern India." *Journal of World History* XXV (1), 5–50.

Elliot, Mark C. (2001). *The Manchu Way: The Eight Banners and Ethnic Identity in Late Imperial China*. Stanford, CA: Stanford University Press.

Elliot, Walter. (1886). *The Coins of Southern India*. London: Trubner & Co.

Elvin, Mark. (1973). *The Pattern of the Chinese Past*. Stanford, CA: Stanford University Press.

Elvin, Mark. (2004). *The Retreat of the Elephants: An Environmental History of China*. New Haven, CT: Yale University Press.
Emmanuel, Arghiri. (1972). *Unequal Exchange: A Study of the Imperialism of Trade*. Translated by B. Pearce. New York: Monthly Review Press.
Faith, Rosamond. (1981). "The Class Struggle in Fourteenth Century England." In R. Samuel (ed.), *People's History and Socialist Theory*, London: Routledge & Kegan Paul 50–60.
Floor, Willem and Patrick Clawson. (2000). "Safavid Iran's Search for Silver and Gold." *International Journal of Middle East Studies* XXXII, 345–68.
Flynn, Dennis O & Arturo Giraldez. (1995a). "Arbitrage, China, and World Trade in the Early Modern Period." *Journal of the Economic and Social History of the Orient* XXXVIII(4), 429–48.
———. (1995b). "Born with a 'Silver Spoon': The Origin of World Trade in 1571." *Journal of World History* VI(2, Fall), 201–221.
Fontaine, Laurence. (1996). *History of Pedlars in Europe*. Durham, NC: Duke University Press.
Foster, William.(ed.) (1975). *Early Travels in India, 1583–1619*, Translated by. New York: AMS Press.
Frasch, Tilman. (2006). "A Engineering Expansion: Technological Progress in the Early States of South and Southeast Asia." in Workshop on Asian Expansions: The Historical Processes of Polity Expansion in Asia. Singapore.
Fryer, John. (1909). *A New Account of East India and Persia Being Nine Years' Travels, 1672–1681*, vol. I, Edited by W. Crooke. London: Hakluyt Society.
Furber, Holden. (1951). *John Company at Work: A Study of European Expansion in India in the Late Eighteenth Century*. Cambridge, MA: Harvard University Press.
———. (1965). *Rival Empires of Trade in the Orient, 1600–1800*. Minneapolis: University of Minnesota Press.
Gaastra, F. S. (1983). "The Export of Precious Metals from Europe to Asia by the Dutch East India Company, 1602–1795." In J. F. Richards (ed.), *Precious Metals in the Late Medieval and Early Modern Worlds*, Durham, NC: Carolina Academic Press 447–75.
———. (1986). "The Dutch East India Company and its Intra-Asiatic Trade in Precious Metals." In W. Fischer, R. M. McInnes, and J. Schneider (eds.), *The Emergence of a World Economy, 1500–1914: Papers of the IXth International Congress of Economic History*, Wiesbaden: Franz Steiner Verlag 97–112.
Garg, Sanjay. (2007). "Non-Metallic Currencies of India in Indian Ocean Trade and Economies." In H. P. Ray and E. A. Alpers (eds.), *Cross Currents and Community Networks: The History of the Indian Ocean World*, New Delhi: Oxford University Press 245–62.
Gates, Hill. (1996). *China's Motor: A Thousand Years of Petty Capitalism*. Ithaca, NY: Cornell University Press.
Geertz, Clifford. (1963). *Agricultural Involution: The Processes of Ecological Change in Indonesia*. Berkeley, CA: University of California Press.
Glamann, Kristof. (1953). "The Dutch East India Company's Trade in Japanese Copper, 1645–1736." *Scandinavian Economic History Review* I(1), 41–79.

———. (1958). *Dutch-Asiatic Trade, 1620–1740*. The Hague: Martinus Nijhoff.
———. (1974). "European Trade, 1500–1750." In C. M. Cipolla (ed.), *The Fontana Economic History of Europe*, vol. II, *The Sixteenth and Seventeenth Centuries*, Glasgow: William Collins 427–526.
Godelier, Maurice. (1972). *Rationality and Irrationality in Economics*. Translated by B. Pearce. New York: Monthly Review Press.
Goitein, Shelomo Dov & Mordechai Akiva Friedman. (2008). *India Traders of the Middle Ages: Documents from the Cairo Geniza ("India Book")*. Leiden: Brill.
Golas, Peter J. (1980). "Rural China in the Song." *Journal of Asian Studies* XXXIX(2), 291–325.
Goldstone, Jack A. (2002). "Efflorescences and Economic Growth in World History: Rethinking the 'Rise of the West' and the Industrial Revolution." *Journal of World History* XIII(2, Fall), 323–89.
Gommans, Jos. (1995). *The Rise of the Indo-Afghan Empire, c.1710–1780*. Leiden: E. J. Brill.
———. (1998a). "The Eurasian Frontier After the First Millennium A.D.: Reflections Along the Fringe of Time and Space." *Medieval History Journal* I(1), 125–43.
———. (1998b). "The Silent Frontier of South Asia, c. A. D. 1100–1800." *Journal of World History* IX(1, Spring), 1–23.
———. (2002). *Mughal Warfare: Indian Frontiers and High Roads to Empire, 1500–1700*. London: Routledge.
———. (2007). "Warhorse and Post-Nomadic Empire in Asia, *c.* 1000–1800." *Journal of Global History* II(1, March), 1–27.
Gommans, Jos & Dirk H. A. Kolff. (2001). "Introduction." In J. Gommans and D. H. A. Kolff (eds.), *Warfare and Weaponry in South Asia, 1000–1800*, New Delhi: Oxford University Press 1–42.
Gopal, Surendra (1975). *Commerce and Crafts in Gujarat—16th and 17th Centuries: A Study in the Impact of European Expansion on a Precapitalist Economy*. New Delhi: People's Publishing House.
Gordon, Stewart. (1994). *Marathas, Marauders, and State Formation in Eighteenth-Century India*. Delhi: Oxford University Press.
———. (1998). "The Limited Adoption of European-style Military Forces by Eighteenth-Century Rulers in India." *Indian Economic and Social History Review* XXXV(3), 229–45.
Goubert, Pierre. (1987). *The French Peasantry in the Seventeenth Century*. Translated by I. Patterson. Cambridge: Cambridge University Press.
Gough, Kathleen. (1981). *Rural Society in Southeast India*. Cambridge: Cambridge University Press.
Gourou, Pierre. (1955). *The Peasants of the Tonkin Delta: A Study of Human Geography*, vol. I. Translated by R. R. Miller. New Haven, CT: Human Relations Area Files.
Grover, B. R. (1994). "An Integrated Pattern of Commercial Life in the Rural Society of North India during the Seventeenth and Eighteenth Centuries." In S. Subrahmanyam (ed.), *Money and the Market in India, 1100–1700*, Delhi: Oxford University Press 219–55.

Gunawardana, R. A. L. H. (1984). "Intersocietal Transfer of Hydraulic Technology in Precolonial South Asia: Some Reflections Based on a Preliminary Investigation." *Southeast Asian Studies* XXII(2, September), 115–42.

Gurevitch, A. (1977). "Representations of Property during the High Middle Ages." *Economy & Society* VII(1, February), 1–30.

Habib, Irfan. (1965). "The Social Distribution of Landed Property in Pre-British India (A Historical Survey)." *Enquiry*, new series (3, Winter), 21–75.

———. (1969). "Potentialities of Capitalistic Development in Mughal India." *Journal of Economic History* XXIX (1), 32–79.

———. (1978). "Economic History of the Delhi Sultanate." *Indian Historical Review* IV(2), 287–303.

———. (1978–79). "Technology and Barriers to Social Change in Mughal India." *Indian Historical Review* V, 152–74.

———. (1980a). "Changes in Technology in Mughal India." *Studies in History* II (1, Jan), 15–39.

———. (1980b). "The Technology and Economy of Mughal India." *Indian Economic and Social History Review* XVII (1, January), 1–34.

———. (1982a). "Monetary System and Prices." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 360–81.

———. (1982b). "Non-Agricultural Production and Urban Economy." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 76–93.

———. (1982c). "Population." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 163–71.

———. (1983). "The Peasant in Indian History." In *Proceedings of the Forty-Third Session of the Indian History Congress, Kurukshtra University, Kurukshetra, 1982*, New Delhi: Indian History Congress 3–54.

———. (1984). *Peasant and Artisan Resistance in Mughal India*. Montreal: Center for Developing-Area Studies.

———. (1987). "A System of Trimetallism in the Age of the 'Price Revolution': Effects of the Silver Influx on the Mughal Monetary System (with an appendix by John S. Deyell)." In J. F. Richards (ed.), *The Imperial Monetary System of Mughal India*. Delhi: Oxford University Press 137–70.

———. (1990). "Merchant Communities in Precolonial India." In J. D. Tracy (ed.), *The Rise of Merchant Empires: Long-Distance Trade in the Early Modern World. 1350–1750*, Cambridge: Cambridge University Press.

———. (1999). *The Agrarian System of Mughal India, 1556–1707*. New Delhi: Oxford University Press.

Haider, Najaf. (1996). "Precious Metal Flows and Currency Circulation in the Mughal Empire." *Journal of the Economic and Social History of the Orient* XXXIX(3), 298–364.

———. (2007). "The Network of Monetary Exchange in the Indian Ocean Trade, 1200–1700." In H. P. Ray and E. A. Alpers (eds.), *Cross Currents and Community Networks: The History of the Indian Ocean World*, New Delhi: Oxford University Press 181–205.

Halbfass, Wilhelm. (1988). *India and Europe: An Essay in Understanding*. Albany, NY: State University of New York Press.

Hall, Kenneth R. (1977). "Price-Making and Market Hierarchy in Early Medieval South India." *Indian Economic and Social History Review* XIV(2, April), 207–30.

———. (1980). *Trade and Statecraft in the Age of the Colas*. New Delhi: Abhinav Publishers.

———. (1996). "The Textile Industry in Southeast Asia, 1400–1800." *Journal of the Economic and Social History of the Orient* XXXIX(2), 87–135.

———. (2006). "Multi-Dimensional Networking: Fifteenth-Century Indian Ocean Maritime Diaspora in Southeast Asian Perspective." *Journal of the Economic and Social History of the Orient* XLIX(4), 454–81.

Hall, Kenneth R. and George W Spencer. (1980). "The Economy of Kanchipuram: A Sacred Center in Early South India." *Journal of Urban History* VI(2, February), 127–51.

Hamilton, Earl J. (1936). *American Treasure and the Price Revolution in Spain, 1501–1650*. Cambridge, MA: Harvard University Press.

Hartwell, Robert M. (1982). "Demographic, Political, and Social Transformation of China, 750–1550." *Harvard Journal of Asiatic Studies* XLII(2), 365–422.

Hasan, Aziza. (1969). "The Silver Currency Output of the Mughal Empire and Prices in India during the 16th and 17th Centuries." *Indian Economic and Social History Review* VI(1, March), 85–116.

———. (1970). "Mughal Silver Currency Output and Prices in India in the 16th and 17th Centuries: A Reply." *Indian Economic and Social History Review* VII (1, March), 151–60.

Hayami Akira. (1986). "A Great Transformation: Social and Economic Change in Sixteenth and Seventeenth Century Japan." *Bonner Zeitschrift fur Japanologie* VIII, 3–13.

Headrick, Daniel R. (1981). *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*. New York: Oxford University Press.

Heimann, James. (1980). "Small Change and Ballast: Cowry Trade and Usage as an Example of Indian Ocean Economic History." *South Asia* New Series III, 48–69.

Heitzman, James. (1987). "State Formation in South India, 850–1280." *Indian Economic and Social History Review* XXIV (1, January), 35–61.

———. (1997). *Gifts of Power: Lordship in an Early Indian State*. New Delhi: Oxford University Press.

Hess, Andrew C. (1970). "The Evolution of the Ottoman Seaborne Empire in the Age of Oceanic Discoveries, 1453–1525." *American Historical Review* LXXV(7, December), 1892–1919.

Hilton, Rodney. (1973). *Bond Men Made Free: Medieval Peasant Movements and the English Rising of 1381*. London: Metheun & Co.

Ho, Engseng. (2006). *The Graves of Tarim: Genealogy and Mobility across the Indian Ocean*. Berkeley: Univ of California Press.

Ho, Ping-ti. (1955). "The Introduction of American Food Plants into China." *American Anthropologist* LVII(2, April), 191–201.

Ho, Ping-ti. (1956). "Early-Ripening Rice in Chinese History." *Economic History Review* 2nd series, IX(2), 200–18.

Hobson, John M. (2004). *The Eastern Origins of Western Civilisation*. Cambridge: Cambridge University Press.

Hodgson, Marshall G. S. (1974). *The Venture of Islam*, vol. III, *The Gunpowder Empires and Modern Times*. Chicago: University of Chicago Press.

Hopkins, T. K., Immanuel Wallerstein, et al. (1977). "Patterns of Development of the Modern World-System." *Review* I (2, Fall), 111–45.

Huang, Ray. (1974). *Taxation and Governmental Finance in Sixteenth-Century Ming China*. Cambridge: Cambridge University Press.

Ikuta, Shigeru. (1977). "Portuguese Trade Between Malacca and Pegu in the early Sixteenth Century." *Shiroku* X, 55–62.

Inalcik, Halil. (1980). "Military and Fiscal Transformation in the Ottoman Empire, 1600–1700." *Archivum Ottomanicum* VI, 283–337.

Ishii, Yoneo. (1978). "History and Rice-Growing." In Y. Ishii (ed.), *Thailand: A Rice-Growing Society*, Honolulu: University of Hawaii Press 15–39.

Issawi, Charles. (1970). "The Decline of Middle Eastern Trade, 1100–1850." In D. S. Richards (ed.), *Islam and the Trade of Asia: A Colloquium*, Oxford: Cassirer 245–66.

Johnson, Marion. (1970a). "The Cowrie Currencies of West Africa." *Journal of African History* XI (1), 17–49.

———. (1970b). "The Cowrie Currencies of West Africa." *Journal of African History* XI(3), 331–53.

Johnston, Alastair Iain (1995). *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History*. Princeton, NJ: Princeton University Press.

Joshi, P. M. (1943). "Coins Current in the Kingdom of Golkonda." *Journal of the Numismatic Society of India* V, 84–95.

Kaegi, Walter Emil, Jr. (1964). "The Contribution of Archery to the Turkish Conquest of Anatolia." *Speculum* XXXIX(1, January), 96–108.

Karashima, Noboru. (1984). *South Indian History and Society: Studies from Inscriptions, A.D. 850–1800*. Delhi: Oxford University Press.

———. (1992). *Towards a New Formation: South Indian Society Under Vijayanagara Rule*. Delhi: Oxford University Press.

———. (2001). "The Family of Mallappa Nayaka: Transferability of Vijayanagar *Nayakas* in Tamil Nadu." *Medieval History Journal* IV(1), 35–42.

———. (2002). *A Concordance of Nayakas: The Vijayanagar Inscriptions in South India*. New Delhi: Oxford University Press.

Karashima, Noboru, Y. Subbarayalu, and Toru Matsui (1978). *A Concordance of the Names in Cola Inscriptions*. Madurai: Sarvodaya Ilakkai Pannai. 3 vols.

Karashima, Noboru, Y. Subbarayalu, P. Shanmugam, Madhav N. Katti, and Cynthia Talbot. (1993). "A Statistical Study of Revenue Terms in Vijayanagar Inscriptions." *Journal of the Epigraphical Society of India* XIX, 37–50.

Kayoko, Fujita. (2009). "Japan Indianized: The Material Culture of Imported Textiles in Japan, 1550–1850." In G. Riello and P. Parthasarathi (eds.), *The Spinning World: A Global History of Cotton Textiles, 1200–1850*, Oxford: Oxford University Press 181–203.

Kepler, J. S. (1972). "Fiscal Aspects of the English Carrying Trade during the Thirty Years' War." *Economic History Review* 2nd Series, XXV(2, May), 261–83.

Khan, Iqtidar Alam (1976). "The Middle Classes in the Mughal Empire." In *Proceedings of the Thirty-Sixth Session of the Indian History Congress, Aligarh Muslim University, Aligarh, 1976*, New Delhi: Indian History Congress 113–41.

———. (2004). *Gunpowder and Firearms: Warfare in Medieval India*. New Delhi: Oxford University Press.

Khazanov, Anatoly M. (1983). *Nomads and the Outside World*. Madison, WI: University of Wisconsin Press.

Kirli, Cengiz. (2009). "Surveillance and Constituting the Public in the Ottoman Empire." In S. Shami (ed.), *Publics, Politics and Participation: Locating the Public Sphere in the Middle East and North Africa*, New York: Social Science Research Council 281–306.

Kobata, Atsushi. (1965). "The Production and Uses of Gold and Silver in Sixteenth- and Seventeenth-Century Japan." *Economic History Review* 2nd series, XVIII(2, August), 245–66.

———. (1981). "Production and Trade in Gold, Silver and Copper in Japan, 1450–1750." In H. Kellenbenz (ed.), *Precious Metals in the Age of Expansion: Papers of the XIVth International Congress of the Historical Sciences*, Stuttgart: Klett-Cott 274–78.

Kolff, Dirk H. A. (2002). *Naukar, Rajput and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450–1850*. Cambridge: Cambridge University Press.

Kriedte, Peter. (1983). *Peasants, Landlords and Merchant Capitalists: Europe and the World Economy, 1500–1800*. Translated by V. R. Berghahn. Cambridge: Cambridge University Press.

Krishnaswami, A. (1964). *The Tamil Country under Vijayanagar*. Annamalainagar: Annamalai University Press.

Kula, Witold. (1976). *An Economic Theory of the Feudal System: Towards a Model of the Polish Economy, 1500–1800*. Translated by L. Garner. London: New Left Books.

Kulke, Hermann. (1982). "Fragmentation and Segmentation Versus Integration? Reflections on the Concepts of Indian Feudalism and the Segmentary State in Indian History." *Studies in History* IV(2, July–Dec.), 237–64.

Kumar, Dharma (1965). *Land and Caste in South India*. Cambridge: Cambridge University Press.

Kumar, Sunil (1994). "When Slaves Were Nobles: The *Shamsî Bandagân* in the Early Delhi Sultanate." *Studies in History* X(1, n.s.), 23–52.

Kuroda, Akinobu. (2009). "The Eurasian Silver Century, 1276–1359: Commensurability and Multiplicity." *Journal of Global History* IV(2), 245–69.

Lach, Donald F. (1965). *Asia in the Making of Europe*, vol. I, *The Century of Discovery*. Chicago: University of Chicago Press.

Lane, Frederic C. (1979). *Profits from Power: Readings in Protection Rent and Violence Controlling Enterprises*. Albany, NY: State University of New York Press.

Latham, A. J. H. (1998). *Rice: The Primary Commodity*. London: Routledge.
Lattimore, Owen (1940). *Inner Asian Frontiers of China*. New York: American Geographical Society.
Le Roy Ladurie, Emmanuel (1987). *The French Peasantry, 1450–1650*. Translated by A. Sheridan. Aldershot: Scolar Press.
Lemire, Beverly. (2009). "Revising the Historical Narrative: India, Europe, and the Cotton Trade, c. 1300–1800." In G. Riello and P. Parthasarathi (eds.), *The Spinning World: A Global History of Cotton Textiles, 1200–1850*, Oxford: Oxford University Press 205–226.
Lewandowski, Susan J. (1985). "Merchants and Kingship: An Interpretation of Indian Urban History." *Journal of Urban History* XI(2, February), 151–79.
Lewis, Archibald. (1973). "Maritime Skills in the Indian Ocean, 1368–1500." *Journal of the Economic and Social History of the Orient* XVI(2–3), 238–64.
Li Bozhing. (2003). "Was There a 'Fourteenth-Century Turning Point'? Population, Land, Technology, and Farm Management." In P. J. Smith and R. von Glahn (eds.), *The Song-Yuan-Ming Transition in Chinese History*, Cambridge, MA: Harvard University Press 135–75.
Lieberman, Victor. (1984). *Burmese Administrative Cycles: Anarchy and Conquest, c.1580–1760*. Princeton, NJ: Princeton University Press.
———. (1991). "Secular Trends in Burmese Economic History, c. 1350–1830, and Their Implications for State Formation." *Modern Asian Studies* XXV (1), 24–44.
———. (1993). "Local Integration and Eurasian Analogies: Structuring Southeast Asian History, c. 1350–c. 1830." *Modern Asian Studies* XXVII(3, July), 475–572.
———. (1997). "Transcending East-West Dichotomies: State and Culture Formation in Six Ostensibly Disparate Areas." *Modern Asian Studies* XXI(3, July), 463–546.
———. (2003). *Strange Parallels: Southeast Asia in Global Context, c. 800–1830*, vol. I, *Integration on the Mainland*. Cambridge: Cambridge University Press.
Lieberman, Victor & Brendan Buckley. (2012). "The Impact of Climate on Southeast Asia, circa 950–1820: New Findings." *Modern Asian Studies* XLVI(5, Sept), 1049–96.
Lopez, Robert Sabatino, Harry A. Miskimin, and Abraham L Udovitch. (1970). "England to Egypt, 1350–1500." In M. A. Cook (ed.), *Studies in the Economic History of the Middle East from the Rise of Islam to the Present Day*, London: Oxford University Press 93–128.
Ludden, David. (1978). "Ecological Zones and the Cultural Economy of Irrigation in Southern Tamilnadu." *South Asia* I (New Series, 1), 1–13.
———. (1979). "Patronage and Irrigation in Tamil Nadu: A Long-Term View." *Indian Economic and Social History Review* XVI(3, Sept), 347–65.
———. (1985). *Peasant History in South India*. Princeton, NJ: Princeton University Press.
Ma Huan. (1970). *Ying-Yai Sheng-Lan: 'The Overall Survey of the Ocean's Shores*. Translated by J. V. G. Mills. Cambridge: Cambridge University Press.

Machado, Pedro. (2009). "Awash in a Sea of Cloth: Gujarat, Africa, and the Western Indian Ocean, 1300–1800." In G. Riello and P. Parthasarathi (eds.), *The Spinning World: A Global History of Cotton Textiles, 1200–1850*, Oxford: Oxford University Press 161–79.

Maddison, Angus. (1998). *Chinese Economic Performance in the Long Run*. Paris: OECD.

Mahalingam, T. V. (1969–75). *Administration and Social Life under Vijayanagar*. Madras: University of Madras. 2 vols.

Major, Richard Henry.(ed.) (1974). *India in the Fifteenth Century: Being a Collection of Narratives of Voyages to India in the Century Preceding the Portuguese Discovery of the Cape of Good Hope from Latin, Persian, Russian and Italian Sources Now Translated Into English*, Delhi: Deep Publishers.

Manrique, Sebastian. (1927). In C. E. Luard and H. Hosten (eds.), *Travels of Fray Sebastian Manrique (1628–41)*. London: Hakluyt Society. 2 vols.

Manucci, Niccolo. (1913). *A Pepys of Mogul India, 1653–1708 Being an Abridged Edition of the 'Storia do Mogor; of Niccolao Manucci*. Translated by W. Irvine. London: John Murray.

Margariti, Roxani Eleni. (2007). *Aden and the Indian Ocean Trade: 150 Years in the Life of a Medieval Arabian Port*. Chapel Hill, NC: University of North Carolina Press.

———. (2008). "Mercantile Networks, Port Cities, and 'Pirate' States: Conflict and Competition in the Indian Ocean World of Trade before the Sixteenth Century." *Journal of the Economic and Social History of the Orient* LI(4), 543–77.

Marks, Robert B. (1998). *Tigers, Rice, Silk, and Silt: Environment and Economy in Late Imperial South China*. Cambridge: Cambridge University Press.

Marshall, Peter J. (1976). *East India Fortunes: The British in Bengal in the Eighteenth Century*, *East India Fortunes*. Oxford: Clarendon Press.

Marx, Karl. (1977). *Capital: A Critique of Political Economy*, vol. I. Translated by B. Fowkes. New York: Vintage.

Matthee, Rudolph P. (1999). *The Politics of Trade in Safavid Iran: Silk for Silver, 1600–1730*. Cambridge: Cambridge University Press.

Mazumdar, Sucheta. (1999). "The Impact of New World Food Crops on the Diet and Economy of China and India, 1600–1900." In R. Grew (ed.), *Food in Global History*, Boulder, CO: Westview 58–78.

McCabe, Ina Baghdiantz. (1999). *The Shah's Silk for Europe's Silver: The Eurasian Trade of the Julfa Armenians in Safavid Iran and India (1530–1750)*. Atlanta, GA: Scholars Press.

McNeill, William H. (1984). *The Pursuit of Power: Technology. Armed Force, and Society since A.D. 1000*. Chicago: University of Chicago Press.

———. (1987). "The Eccentricity of Wheels, or Eurasian Transportation in Historical Perspective." *American Historical Review* XCII(5, December), 1111–126.

———. (1998). "History and the Scientific Worldview." *History and Theory* XXXVII(1, Feb), 1–13.

Meilink-Roelofsz, M. A. P. (1962). *Asian Trade and European Influence in the Indonesian Archipelago Between 1500 and about 1630*. The Hague: Martinus Nijhoff.

———. (1980). "The Structures of Trade in Asia in the Sixteenth and Seventeenth Centuries: A Critical Appraisal." *Mare Luso-Indicum* IV, 1–43.

Michell, George. (1995). *The New Cambridge History of India*, vol. I, 6, *Architecture and Art of Southern India*. Cambridge: Cambridge University Press.

Michell, George & Mark Zebrowski. (1999). *The New Cambridge History of India*, vol. I, 7, *Architecture and Art of the Deccan Sultanates*. Cambridge: Cambridge University Press.

Mines, Mattison. (1984). *The Warrior Merchants: Textiles, Trade and Territory in South India*, *Warrior Merchants*. Cambridge: Cambridge University Press.

Miskimin, Harry A. (1964). "Monetary Movements and Market Structure: Forces for Contraction in Fourteenth- and Fifteenth-Century England." *Journal of Economic History* XXIV (4, December), 470–90.

———. (1983). "Money and Monetary Movements in France and England at the End of the Middle Ages." In J. F. Richards (ed.), *Precious Metals in the Later Medieval and Early Modern Worlds*. Durham, NC: Carolina Academic Press 79–96.

Mitsutaka, Tani (1971). "A Study on Horse Administration in the Ming Period." *Acta Asiatica* XXI, 73–97.

Mokyr, Joel L. (1990). *The Lever of Riches: Technological Creativity and Economic Progress*. New York: Oxford University Press.

Moloughney, Brian and Xia Weizhong (1997). "Silver and the Fall of the Ming: A Reassessment." In D. O. Flynn and A. Giraldez (eds.), *An Expanding World: The European Impact on World History, 1450–1800*, vol. XIV, *Metals and Monies in an Emerging Global Economy*. Aldershot: Varorium.

Moosvi, Shireen. (1987a). *The Economy of the Mughal Empire, c. 1595*. Delhi: Oxford University Press.

———. (1987b). "The Silver Influx, Money Supply, Prices, and Revenue-Extraction in Mughal India." *Journal of the Economic and Social History of the Orient* XXX(1, February), 47–94.

Moreland, William Harrison.(ed.) (1934). *Peter Floris: His Voyage to the East Indies in the Globe, 1611–1615*, London: Hakluyt Society. vols.

———.(ed.) (1967). *Relations of Golkonda in the Early Seventeenth Century*, Nendeln, Liechtenstein: Kraus Reprints.

———. (1975). *From Akbar to Aurangazeb: A Study in Indian Economic History*. New York: AMS Press.

Morillo, Stephen. (1995). "Guns and Government: A Comparative Study of Europe and Japan." *Journal of World History* VI(1, Spring), 75–106.

Morris-Suzuki, Tessa. (1994). *The Technological Transformation of Japan: From the Seventeenth to the Twenty-First Century*. Cambridge: Cambridge University Press.

Morrison, Kathleen D. and Mark T. Lycett. (1997). "Inscriptions as Artifacts: Precolonial South India and the Analysis of Texts." *Journal of Archaeological Method and Theory* IV(3/4), 215–37.

Mote, Frederick W. (1999). *Imperial China, 900–1800*. Cambridge, MA: Harvard University Press.

Mukhia, Harbans. (1981). "Was There Feudalism in Indian History?" *Journal of Peasant Studies* VIII (3), 273–310.

Munro, John. (1983). "Bullion Flows and Monetary Contraction in Late Medieval England and the Low Countries." In J. F. Richards (ed.), *Precious Metals in the Later Medieval and Early Modern Worlds*. Durham, NC: Carolina Academic Press 97–158.

Murton, Brian J. (1979). "The Evolution of the Settlement Structure in Northern Kongu to 1800 A.D." In B. E. F. Beck (ed.), *Perspectives on a Regional Culture: Essays about the Coimbatore Area of South India*. New Delhi: Vikas 1–33.

Needham, Joseph. (1986). *Science and Civilisation in China*, vol. V, Pt. vii, *Chemistry and Chemical Technology: Military Technology and the Gunpowder Epic*. Cambridge: Cambridge University Press.

Nilakanta Sastri, K. A. (1966). *A History of South India from Prehistoric Times to the Fall of Vijayanagar*. Madras: Oxford University Press.

———. (1975). *The Colas*. Madras: University of Madras.

Nilakanta Sastri, K. A. and N. Venkataramanayya. (1946). *Further Sources of Vijayanagara History*. Madras: University of Madras. 3 vols.

Northup, David. (2005). "Globalization and the Great Convergence: Rethinking World History in the Long Run." *Journal of World History* XVI (3), 249–67.

Nuniz, Fernao. (1970). "Chronicle of Fernao Nuniz (written probably A.D. 1535–37)." In R. Sewell (ed.), *A Forgotten Empire–Vijayanagara: A Contribution to the History of India*. New Delhi: National Book Trust 279–376.

O'Connor, Richard A. (1995). "Agricultural Change and Ethnic Succession in Southeast Asian States: A Case for Regional Anthropology." *Journal of Asian Studies* LIV(4, November), 968–96.

Ozbaran, Salih. (1988). "The Ottomans' Role in the Diffusion of Fire-arms and Military Technology in Asia and Africa in the 16th Century." *Revue Internationale d'Histoire Militaire* LXVII, 77–83.

Paes, Domingoes. (1970). "Narrative of Domingoes Paes." In R. Sewell (ed.), *A Forgotten Empire—Vijayanagar: A Contribution to the History of India*. New Delhi: National Book Trust 229–78.

Palan, Ronen. (2003). *The Offshore World: Sovereign Markets, Virtual Places, and Nomad Millionaires*. Ithaca, NY: Cornell University Press.

Palat, Ravi Arvind. (1981). "The Agrarian System of Jayankondacolamandalam Under Vijayanagara Rule (circa A.D. 1350–1565)." M.Phil thesis, History, Jawaharlal Nehu University, New Delhi.

———. (1987). "The Vijayanagara Empire: Reintegration of the Agrarian Order of Medieval South India, 1336–1565." In H. J. M. Claessen and P. van de Velde (eds.), *Early State Dynamics*, Leiden: E. J. Brill 170–86.

———. (1988). "From World-Empire to World Economy: Southeastern India and the Emergence of the Indian Ocean World Economy (1350–1650)." Ph.D. dissertation, State University of New York at Binghamton.

———. (1991). "Symbiotic Sisters: Bay of Bengal Ports in the Indian Ocean World-Economy." In R. Kasaba (ed.), *Cities in the World-System*, Westport, CT: Greenwood 17–40.

Palat, Ravi Arvind. (1995). "Historical Transformations in Agrarian Systems Based on Wet-Rice Cultivation: Toward an Alternative Model of Social Change." In P. McMichael (ed.), *Food and Agrarian Orders in the World-Economy*, Westport, CT: Praeger 55–77.

Panchmukhi, R. S. (1936). "The Coinage of the Vijayanagara Dynasties." In *The Vijayanagara Sexcentenary Commemoration Volume*. Dharwar: G. S. Press 101–18.

Parker, Geoffrey. (1988). *The Military Revolution: Military Innovation and the Rise of the West, 1500–1800*. Cambridge: Cambridge University Press.

———. (2014). *Global Crisis: War, Climate Change & Catastrophe in the Seventeenth Century*. New Haven, CT: Yale University Press.

Parks, George B.(ed.) (1927). *The Book of Ser Marco Polo the Venetian Concerning the Kingdoms and Marvels of the East*, vol. I, Translated by H. Yule. New York: Macmillan. 2 vols.

Parry, J. H. (1967). "Transport and Trade Routes." In E. E. Rich and C. H. Wilson (eds.), *The Cambridge Economic History of Europe*, vol. IV, *The Economy of Expanding Europe in the Sixteenth and Seventeenth Centuries*. Cambridge: Cambridge University Press 155–219.

Parthasarathi, Prasannan. (1996). "Merchants and the Rise of Colonialism." In B. Stein and S. Subrahmanyam (eds.), *Institutions and Economic Change in South Asia*. Delhi: Oxford University Press 85–104.

———. (1998). "Rethinking Wages and Competitiveness in The Eighteenth Century: Britain and South India." *Past & Present* (158, Feb), 79–109.

———. (2004). "Useful Knowledge in the Indian Subcontinent." In *Global Economic History Network*. Leiden: The Netherlands.

———. (2011). *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600–1800*. Cambridge: Cambridge University Press.

Patterson, C. C. (1972). "Silver Stocks and Losses in Ancient and Medieval Times." *Economic History Review*, 2nd series XXV(2, May), 205–35.

Pearson, Michael N. (1972). "Indigenous Dominance in a Colonial Economy: The Goa *Rendas*, 1600–1670." *Mare Luso-Indicum* II, 61–73.

———. (1976). *Merchants and Rulers in Gujarat: The Response to the Portuguese in the Sixteenth Century*. Berkeley: University of California Press.

———. (1987). *The New Cambridge History of India*, vol. I, 1, *The Portuguese in India*. Cambridge: Cambridge University Press.

———. (1991). "Merchants and States." In J. D. Tracy (ed.), *The Political Economy of Merchant Empires: State Power and World Trade, 1350–1750*, Cambridge: Cambridge University Press.

———. (1998). *Port Cities and Intruders: The Swahili Coast, India, and Portugal in the Early Modern Era*. Baltimore, MD: Johns Hopkins University Press.

———. (2001). "Asia and World Precious Metal Flows in the Early Modern Period." In J. McGuire, P. Bertola, and P. Reeves (eds.), *Evolution of the World Economy, Precious Metals and India*, New Delhi: Oxford University Press 21–57.

———. (2003). *The Indian Ocean*. London: Routledge.

———. (2005). "Violence in the Early Modern Indian Ocean: Prelude to Colonialism?" In XXth International Congress of the Historical Sciences, Sydney.

———. (2007). "Studying the Indian Ocean World: Problems and Opportunities." In H. P. Ray and E. A. Alpers (eds.), *Cross Currents and Community Networks: The History of the Indian Ocean World*, New Delhi: Oxford University Press 15–33.

Perdue, Peter C. (2005). *China Marches West: The Qing Conquest of Central Eurasia*. Cambridge, MA: Harvard University Press.

Perkins, Dwight H. (1969). *Agricultural Development in China, 1368–1968*. Chicago: Aldine.

Perlin, Frank. (1983). "Proto-Industrialization and Pre-Colonial South Asia." *Past & Present* (98, February), 30–95.

———. (1984). "Changes in Production and Circulation of Money in 17th and 18th Century India: An Essay on Monetization Before Colonial Occupation." In E. van Cauwenberghe and F. Irsigler (eds.), *Minting, Monetary Circulation and Exchange Rates*, Trier: Verlag Trierer Historische Forscungen 323–60.

———. (1985). "State Formation Reconsidered." *Modern Asian Studies* XIX(3, July), 415–80.

———. (1986). "Monetary Revolution and Societal Change in Late Medieval and Early Modern Times – A Review Article." *Journal of Asian Studies* XLV(5, November), 1037–049.

———. (1987). "Money-use in Late Pre-colonial India and the International Trade in Currency Media." In J. F. Richards (ed.), *The Imperial Monetary System of Mughal India*, Delhi: Oxford University Press 232–373.

———. (1993). *The Invisible City: Monetary, Administrative, and Popular Infrastructures in Asia and Europe, 1500–1900*. Aldershot, England: Variorum.

———. (1994). *Unbroken Landscape: Commodity Category, Sign and Identity, Their Production as Myth and Knowledge from 1500*. Aldershot: Variorum.

Perrin, Noel. (1980). *Giving Up the Gun: Japan's Reversion to the Sword, 1543–1879*. Boulder, CO: Shambala.

Pires, Tome. (1967). *The Suma Oriental of Tome Pires: An Account of the East From the Red Sea to Japan: Written in Malacca in 1512–1515*. Translated by A. Cortesao. Nendeln, Lichtenstein: Kraus Reprints. 2 vols.

Polanyi, Karl. (1944). *The Great Transformation: The Political and Economic Origins of Our Time*. Boston, MA: Beacon Press.

Polanyi, Karl, Conrad M. Arensberg, and Harry W. Pearson (eds.) (1957). *Trade and Market in the Early Empires: Economies in History and Theory*, vol., Translated by. Glencoe, IL: The Free Press. vols.

Pomeranz, Kenneth. (2000). *The Great Divergence: Europe, China, and the Making of the Modern World Economy*. Princeton, NJ: Princeton University Press.

Prakash, Om. (1985). *The Dutch East India Company and the Economy of Bengal, 1630–1720*. Princeton, NJ: Princeton University Press.

———. (1986). "Precious Metal Flows in Asia and World Economic Integration in the Seventeenth Century." In W. Fischer, R. M. McInnes, and J. Schneider (eds.), *The Emergence of a World Economy, 1500–1914: Papers of the IXth International Congress of Economic History*, vol. I, Wiesbaden: Franz Steiner Verlag 83–96.

Prakash, Om. (1998a). "European Corporate Enterprises and the Politics of Trade in India, 1600–1800." In R. Mukherjee and L. Subramanian (eds.), *Politics and Trade in the Indian Ocean World: Essays in Honour of Ashin Das Gupta*, New Delhi: Oxford University Press 165–82.

———. (1998b). *The New Cambridge History of India*, vol. II, 5, *European Commercial Enterprise in Pre-Colonial India*. Cambridge: Cambridge University Press.

———. (2001). "Global Precious Metal Flows and India, 1500–1750." In J. McGuire, P. Bertola, and P. Reeves (eds.), *Evolution of the World Economy, Precious Metals, and India*. New Delhi: Oxford University Press 59–76.

Prakash, Om and J. Krishnamurthy (1970). "Mughal Silver Currency Output and Prices in India in the 16th and 17th Centuries." *Indian Economic and Social History Review* VII(1, March), 139–50.

Prange, Sebastian R. (2011a). "'Measuring by the bushel': Reweighing the Indian Ocean Pepper Trade." *Historical Research* LXXXIV (224, May), 212–35.

———. (2011b). "A Trade of 'No Dishonor': Piracy, Commerce, and Community in the Western Indian Ocean, Twelfth to Sixteenth Century." *American Historical Review* CXVI(5, Dec), 1269–293.

———. (2013). "The Contested Sea: Regimes of Maritime Violence in the Pre-Modern Indian Ocean." *Journal of Early Modern History* XVII(1), 9–33.

Pridmore, Fred. (1975). *The Coins of the British Commonwealth of Nations to the End of the Reign of George VI, 1952: India*, vol. 4, Pt. I, *East India Company Presidency Series, c. 1642–1835*. London: Spink & Son.

Purchas, Samuel. (1965). *Hakluytus Posthumus or Purchas His pilgrimes Contayning a History of the World in Sea Voyages and Lande Travells by Englishmen and Others*, vol. X. New York: AMS Press.

Quijano, Anibal and Immanuel Wallerstein. (1992). "Americanity as a Concept, or the Americas in the Modern World-System." *International Social Science Journal*, 134, 549–57.

Ragotham, Venkata. (1983). "Religious Networks and the Legitimation of Power in Fourteenth Century South India: A Study of Kumara Kampana's Politics of Intervention and Arbitration." In M. Sen (ed.), *Studies in Religion and Change*. New Delhi: Books & Books 150–66.

Raman, K. V. (1957). *The Early History of the Madras Region*. Madras: National Art Press.

Ramaswami, Vijaya. (1979). "Some Enquiries into the Conditions of Weavers in Medieval South India." *Indian Historical Review* IV(1–2), 119–40.

———. (1980). "Notes on the Textile Technology in Medieval India with Special Reference to South India." *Indian Economic and Social History Review* XVII (2, April), 227–41.

———. (1985a). "Artisans in Vijayanagar Society." *Indian Economic and Social History Review* XXII (4, October), 417–44.

———. (1985b). "The Genesis and Historical Role of the Masterweavers in South Indian Textile Production." *Journal of the Economic and Social History of the Orient* XXVIII (3, October), 294–325.

———. (1985c). *Textiles and Weavers in Medieval South India*. Delhi: Oxford University Press.

Ratnam, R. (1966). *Agricultural Development in Madras State Prior to 1900*. Madras: New Century Book House.

Rawski, Evelyn S. (1972). *Agricultural Change and the Peasant Economy in South China*. Cambridge, MA: Harvard University Press.

Raychaudhuri, Tapan. (1962). *Jan Company in the Coromandel, 1605–1690*. 'S-Gravenhage: Martinus Nijhoff.

———. (1966). *Bengal under Akbar and Jahangir: An Introductory Study in Social History*. Delhi: Munshiram Manoharlal.

———. (1982). "Inland Trade." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press 325–59.

Raychaudhuri, Tapan and Irfan Habib. (1982). "Preface." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–c.1750*, Cambridge: Cambridge University Press ix-xvi.

Reid, Anthony J. S. (1969). "Sixteenth-century Turkish Influence in Western Indonesia." *Journal of Southeast Asian History* X(3, December), 395–414.

———. (1988). *Southeast Asia in the Age of Commerce, 1450–1680*, vol. I, *The Lands Below the Winds*. New Haven, CT: Yale University Press.

———. (1990). "The System of Trade and Shipping in Maritime South and Southeast Asia, and the Effects of the Development of the Cape Route." In H. Pohl (ed.), *The European Discovery of the World and its Economic Effects on Pre-Industrial Society, 1500–1800*, Stuttgart: Franz Steiner Verlag 73–96.

———. (1993). *Southeast Asia in the Age of Commerce, 1450–1680*, vol. II, *Expansion and Crisis*. New Haven, CT: Yale University Press.

———. (1998). "Humans and Forests in Pre-Colonial Southeast Asia." In R. H. Grove, V. Damodaran, and S. Sangwan (eds.), *Nature and the Orient: The Environmental History of South and Southeast Asia*, Delhi: Oxford University Press 106–26.

———. (2007). "Aceh Between Two Worlds: An Intersection of Southeast Asia and the Indian Ocean." In H. P. Ray and E. A. Alpers (eds.), *Cross Currents and Community Networks: The History of the Indian Ocean World*, New Delhi: Oxford University Press 100–22.

———. (2009). "Southeast Asian Consumption of Indian and British Cotton Cloth, 1600–1850." In G. Riello and T. Roy (eds.), *How India Clothed the World: The World of South Asian Textiles, 1500–1850*, Leiden: Brill 31–51.

Ribero, Madalena. (2001). "The Japanese Diaspora in the Seventeenth Century according to Jesuit Sources." *Bulletin of Portuguese/Japanese Studies* III, 53–83.

Richards, John F. (1975). *Mughal Administration in Golconda*. Oxford: Clarendon Press.

———. (1981). "Mughal State Finance and the Premodern World Economy." *Comparative Studies in Society and History* XXIII (2, April), 285–308.

———. (1983). "Outflows of Precious Metals in Early Islamic India." In J. F. Richards (ed.), *Precious Metals in the Late Medieval and Early Modern Worlds*. Durham, NC: Carolina Academic Press 183–205.

———. (1990). "The Seventeenth-Century Crisis in South Asia." *Modern Asian Studies* XXIV (4, Oct.), 625–38.

Rudé, George. (1980). *Ideology and Popular Protest*. New York: Pantheon.
Saletore, B. A. (1934). *Social and Political Life in the Vijayanagara Empire (A.D. 1346–1646)*. Madras: B. G. Paul. 2 vols.
Sansom, George Bailey. (1962). *Japan: A Short Cultural History*. New York: Appleton-Century-Crofts.
Scammell, Geoffrey Vaughn. (1980). "Indigenous Assistance in the Establishment of Portuguese Power in Asia in the Sixteenth Century." *Modern Asian Studies* XIV (1), 1–11.
———. (2000). "After Da Gama: Europe and Asia since 1498." *Modern Asian Studies* XXXIV(3), 513–43.
Schrieke, Bertram Johannes Otto. (1955). *Indonesian Sociological Studies*, vol. I. The Hague: W. van Hoeve.
Sen, Tansen. (2006). "The Formation of Chinese Maritime Networks to Southern Asia, 1200–1450." *Journal of the Economic and Social History of the Orient* XLIX(4), 421–53.
Seneviratne, Sudharshan. (1981). "Kalinga and Andhra: The Process of Secondary State Formation in Early India." In H. J. M. Claessen and P. Skalnik (eds.), *The Study of the State*, The Hague: Mouton 317–38.
Serjeant, Robert B. (1963). *The Portuguese Off the South Arabian Coast: Hadrami Chronicles, with Yemeni and European Accounts of Dutch Pirates Off Mocha in the Seventeenth Century*. Oxford: Clarendon Press.
Sewell, Robert. (1970). *A Forgotten Empire—Vijayanagara: A Contribution to the History of India*. New Delhi: National Book Trust.
Shanmugam, P. (1987). *The Revenue System of the Cholas, 850–1279*. Madras: New Era.
———. (1989). "Pattadai and Industries in the Tamil Country Under the Vijayanagar Rule." *Journal of Asian and African Studies* XXXVII, 31–49.
Shiba Yoshinobu. (1970). *Commerce and Society in Sung China*. Translated by M. Elvin. Ann Arbor, MI: University of Michigan Press.
Shinzaburo Oishi. (1990). "The Bakuhan System." In Chie Nakane and Shizaburo Oishi (eds.), *Tokugawa Japan: The Social and Economic Antecedents of Modern Japan*, Tokyo: University of Tokyo Press 11–36.
Shoshan, Boaz. (1982). "From Silver to Copper: Monetary Changes in Fifteenth-Century Egypt." *Studia Islamica*(56), 97–116.
Sigaut, Francois. (1988). "A Method for Identifying Grain Storage Techniques and its Application for European Agricultural History." *Tools & Tillage* VI (1), 3–32.
Singh, Chetan. (1988). "Centre and Periphery in the Mughal State: The Case of Seventeenth-Century Panjab." *Modern Asian Studies* XXII(2, May), 299–318.
———. (1995). "Forests, Pastoralists and Agrarian Society in Mughal India." In D. Arnold and R. Guha (eds.), *Nature, Culture, Imperialism: Essays on the Environmental History of South Asia*, Delhi: Oxford University Press 20–48.
Sinopoli, Carla M. (2003). *The Political Economy of Craft Production: Crafting Empire in South India, c. 1350–1650*. Cambridge: Cambridge University Press.

Sinor, Denis. (1972). "Horse and Pasture in Inner Asian History." *Oriens Extremis* XIX, 171–83.

Sircar, D. C. (1945). "Some Facts About the Indian Mint and Money During the Late Medieval Period." *Journal of the Numismatic Society of India* VII, 78–93.

Skinner, G. William. (1974). *Marketing and Social Structure in Rural China*. Ann Arbor, MI: Association for Asian Studies.

Smith, Paul Jakov. (2003). "Introduction: Problematizing the Song-Yuan-Ming Transition." In P. J. Smith and R. von Glahn (eds.), *The Song-Yuan-Ming Transition in Chinese History*, Cambridge, MA: Harvard University Press 1–34.

Smith, Thomas C. (1980). *The Agrarian Origins of Modern Japan*. Stanford, CA: Stanford University Press.

———. (1988). *Native Sources of Japanese Industrialization, 1750–1920*. Berkeley, CA: University of California Press.

Souyri, Pierre François. (2001). *The World Turned Upside Down: Medieval Japanese Society*. Translated by K. Roth. New York: Columbia University Press.

Spence, Jonathan. (1977). "Ch'ing." In K.-c. Chang (ed.), *Food in Chinese Culture: Anthropological and Historical Perspectives*. New Haven, CT: Yale University Press 259–94.

Spencer, George W. (1969). "Religious Networks and Royal Influence in Eleventh Century South India." *Journal of the Economic and Social History of the Orient* XII (1, February), 42–56.

Srikantaya, S. (1938). *Founders of Vijayanagara*. Bangalore: Mythic Society.

Steensgaard, Niels. (1974). *The Asian Trade Revolution of the Seventeenth Century: The East India Companies and the Decline of the Caravan Trade*. Chicago, IL: University of Chicago Press.

———. (1985). "Asian Trade and World Economy From the 15th to the 18th Centuries." In T. R. de Souza (ed.), *Indo-Portuguese History: Old issues, New Questions*, New Delhi: Concept Publishing Co. 225–35.

Stein, Burton. (1965). "Coromandel Trade in Medieval India." In J. Parker (ed.), *Merchants and Scholars: Essays in the History of Exploration and Trade Collected in Memory of James Ford Bell*. Minneapolis: University of Minnesota Press 47–62.

———. (1969). "Integration of the Agrarian Structure of South India." In R. E. Frykenberg (ed.), *Land Control and Social Structure in Indian History*. Madison, WI: University of Wisconsin Press 175–216.

———. (1977). "The Segmentary State in South Indian History." In R. G. Fox (ed.), *Realm and Region in Traditional India*, Durham, NC: Duke University Press 3–51.

———. (1980). *Peasant State and Society in Medieval South India*. New Delhi: Oxford University Press.

———. (1982). "Vijayanagara, *c.* 1350–1564." In T. Raychaudhuri and I. Habib (eds.), *The Cambridge Economic History of India*, vol. I, *c.1200–1750*. Cambridge: Cambridge University Press 102–24.

———. (1985a). "Politics, Peasants and the Deconstruction of Feudalism in Medieval India." *Journal of Peasant Studies* XII (2–3, Jan.–Apr.), 54–86.

Stein, Burton. (1985b). "Vijayanagara and the Transition to Patrimonial Systems." In A. L. Dallappicola and S. Z.-A. Lallemant (eds.), *Vijayanagara: City and Empire—New Currents of Research*, vol. I. Stuttgart: Steiner Verlag 73–97.

———. (1989). *The New Cambridge History of India*, vol. I, 2, *Vijayanagara*. Cambridge: Cambridge University Press.

———. (1991). "Towards an Indian Petty Bourgeoisie: Outline of an Approach." *Economic and Political Weekly* XXVI (4, January 26).

Steinberg, Philip E. (2001). *The Social Construction of the Ocean*. Cambridge: Cambridge University Press.

Streusand, Douglas E. (1989). *The Formation of the Mughal Empire*. Delhi: Oxford University Press.

———. (2011). *Islamic Gunpowder Empires: Ottomans, Safavids, and Mughals*. Boulder, CO: Westview.

Subbarayalu, Y. (1973). *Political Geography of the Chola Country*. Madras: State Department of Archaeology.

———. (1978). "Classification of Land and Assessment of Land Tax in Early Medieval Tamilnadu from 950 to 1300." In *Proceedings of the Indian History Congress, Thirty-Eighth Session, Utkal University, Bhubaneswar, 1977*. New Delhi: Indian History Congress 341–46.

———. (1982). "The Cola State." *Studies in History* IV (2, July–Dec.), 265–306.

———. (1983). "The Peasantry of the Tiruchirapalli District From the 13th to the 17th Centuries." In N. Karashima (ed.), *Socio-Cultural Change in Villages in Tiruchirapalli District, Tamilnadu, India*, vol. I, *Pre-Modern Period*. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa 123–31.

———. (1984). "Chavadi: An Administrative Division of the Vijayanagar Empire." In *Proceedings of the Third Annual Conference of the South Indian History Congress, Erode, 1982*. Madurai: South Indian History Congress 84–87.

———. (2001). *Studies in Cola History*. Chennai: Surabhi Patippakam.

Subbarayalu, Y. and P. Shanmugam (1983). "A Note on the Rates of Assessment under the Vijayanagar Government." In N. Karashima (ed.), *Socio-Cultural Change in Villages in Tiruchirapalli District, Tamilnadu, India*, vol. I, *Pre-Modern Period*, Tokyo: Institute for the Study of Languages and Cultures of Asia 161–68.

Subrahmanyam, Sanjay. (1987). "The Kagemusha Effect: The Portuguese Firearms and the State in Early Modern South India." *Moyen Orient & Ocean Indien* IV, 97–123.

———. (1990a). *Improvising Empire: Portuguese Trade and Settlement in the Bay of Bengal, 1500–1700*. Delhi: Oxford University Press.

———. (1990b). *The Political Economy of Commerce: Southern India, 1500–1650*. Cambridge: Cambridge University Press.

———. (1990c). "Rural Industry and Commercial Agriculture in Late Seventeenth-Century South-Eastern India." *Past & Present* 126 (February), 76–114.

———. (1994). "Precious Metal Flows and Prices in Western and Southern Asia, 1500–1750: Some Comparative and Conjunctural Aspects." In S.

Subrahmanyam (ed.), *Money and the Market in India, 1100–1700*. Delhi: Oxford University Press 186–218.

———. (1995). "Of *Imarat* and *Tijarat*: Asian Merchants and State Power in the Western Indian Ocean, 1400 to 1750." *Comparative Studies in Society and History* XXXVII (4, Oct), 750–80.

———. (1997). *The Career and Legend of Vasco da Gama*. Cambridge: Cambridge University Press.

Subrahmanyam, Sanjay and Christopher A. Bayly. (1988). "Portfolio Capitalists and the Political Economy of Early Modern India." *Indian Economic and Social History Review* XXV (4, October), 401–24.

Subrahmanyam, Sanjay and Geoffrey Parker. (2008). "Arms and the Asian: Revisiting European Firearms and Their Place in Early Modern Asia." *Revista de Cultura* 26, 12–42.

Sugihara Kaoru. (2003). "The East Asian Path of Economic Development: A Long-term Perspective." In G. Arrighi, T. Hamashita, and M. Selden (eds.), *The Resurgence of East Asia: 500, 150 and 50 Year Perspectives*. London: Routledge 78–123.

Sun Laichen. (2003). "Military Technology Transfers from Ming China and the Emergence of Northern Mainland Southeast Asia (c. 1390–1527)." *Journal of Southeast Asian Studies* XXXIV (3, Oct), 495–517.

———. (2006). "Chinese Gunpowder Technology and Dai Viet, ca. 1390–1497." In Nhung Tuyet Tran and A. J. S. Reid (eds.), *Viet Nam: Borderless Histories*. Madison, WI: University of Wisconsin Press 72–120.

Swope, Kenneth M. (2005). "Crouching Tigers, Secret Weapons: Military Technology Employed during the Sino-Japanese-Korean War, 1592–1598." *Journal of Military History* 69 (Jan), 11–42.

———. (2006). "Beyond Turtleboats: Siege Accounts from Hideyoshi's Second Invasion of Korea, 1597–98." *Sungkyun Journal of East Asian Studies* VI (1), 177–206.

Takaya, Yoshikazu. (1975). "An Ecological Interpretation of Thai History." *Journal of Southeast Asian Studies* VI(2), 190–95.

———. (1977). "Rice Growing Societies of Asia: An Ecological Approach." *South East Asian Studies (Kyoto Daigaku Tonan Ajia Kenkyu* XV (3), 442–51.

Talbot, Cynthia. (2001). *Precolonial India in Practice: Society, Region, and Identity in Medieval Andhra*. New York: Oxford University Press.

Tavernier, Jean-Baptiste. (1977). *Travels in India*. Translated by V. Ball. New Delhi: Oriental Books Reprint Corporation. 2 vols.

Taylor, Harland. (1972). "Trade, Neutrality and the 'English Road,' 1630–1648." *Economic History Review* 2nd Series, XXV (2, May), 238–60.

Temple, Richard Carnac.(ed.) (1923). *The Itinerary of Ludovico di Varthema of Bologna From 1502 to 1508*, Translated by J. W. Jones. London: Agronaut Press.

———.(ed.) (1967). *The Travels of Peter Mundy in Europe and Asia, 1608–1667*, vol. II. Nendeln, Liechtenstein: Kraus Reprints. 5 vols.

Terwiel, Barend Jan. (2002). "Burma in Early Thai Sources: An Essay on Models of Perception." In J. Gommans and J. Leider (eds.), *The Maritime Frontier of Burma: Exploring Political, Cultural and Commercial Interaction in the*

Indian Ocean World, 1200–1800. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen 9–23.

Thomas, I. Job. (1985). "Cultural Developments in Tamil Nadu during the Vijayanagara Period." In A. L. Dallappicola and S. Z.-A. Lallemant (eds.), *Vijayanagara: City and Empire—New Currents of Research*, vol. I, *Texts*, Stuttgart: Steiner Verlag 5–40.

Thompson, Helen and David Runciman. (2006). "Sovereign Debt and Private Creditors: New Legal Sanction or the Enduring Power of States?" *New Political Economy* XI(4, December), 541–55.

Tilly, Charles. (1990). *Coercion, Capital, and European States, AD 990–1990*. Cambridge, MA: Basil Blackwell.

Tsueno Sato. (1991). "Tokugawa Villages and Agriculture." In Chie Nakane and Shinzaburo Oishi (eds.), *Tokugawa Japan: The Social and Economic Antecendents of Modern Japan*. Tokyo: University of Tokyo Press 37–80.

van Leur, J. C. (1955). *Indonesian Trade and Society: Essays in Asian Social and Economic History*. The Hague: W. van Hoeve.

van Santen, H. W. (1991). "Trade between Mughal India and the Middle East, and Mughal Monetary Policy, c.1600–1660." In K. R. Haellquist (ed.), *Asian Trade Routes*. London: Curzon Press 87–95.

Vanamamalai, N. (1968). "Consolidation of Feudalism and Anti-Feudal Struggles during Chola Imperialist Rule." In R. E. Asher (ed.), *Proceedings of the Second International Conference Seminar of Tamil Studies: Madras—India, January 1968*, vol. II. Madras: International Association of Tamil Research 239–44.

Venkataramanayya, N. (1935). *Studies in the History of the Third Dynasty of Vijayanagara*. Madras: University of Madras.

Venkateswarlu, M. (1949–50). "Land Grants in Medieval Andhra." *Journal of the Andhra Historical Research Society* XX, 12–16.

Vilar, Pierre. (1984). *A History of Gold and Money, 1450–1920*. London: Verso.

Vink, Markus. (2004). "From Port-City to World-System: Spatial Constructs of Dutch-Indian Ocean Studies." *Itinerario* XXVIII (2), 45–116.

von Glahn, Richard. (1996). *Fountain of Fortune: Money and Monetary Policy in China, 1000–1700*. Berkeley: University of California Press.

Wagoner, Phillip B. (1996). "'Sultan among Hindu Kings': Dress, Titles, and the Islamicization of Hindu Culture at Vijayanagara." *Journal of Asian Studies* LV (4, November), 851–80.

———. (2014). "Money Use in the Deccan, c. 1350–1687: The Role of Vijayanagara *hons* in the Bahmani Currency System." *Indian Economic and Social History Review* LI (4), 457–80.

Wake, C. H. H. (1979). "The Changing Pattern of Europe's Pepper and Spice Imports, *ca*. 1400–1700." *Journal of European Economic History* VIII (2, Fall), 361–403.

Wallerstein, Immanuel. (1974). *The Modern World-System*, vol. 1, *Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.

———. (1980a). *The Capitalist World-Economy*. Cambridge: Cambridge University Press.
———. (1980b). *The Modern World-System*, vol. II, *Mercantilism and the Consolidation of the European World-Economy, 1600–1750*. New York: Academic Press.
———. (1982). "World-Systems Analysis: Theoretical and Interpretative Issues." In T. K. Hopkins and I. Wallerstein (eds.), *World-Systems Analysis: Theory and Methodology*. Beverly Hills, CA: Sage 91–103.
———. (1986). "The Incorporation of the Indian Subcontinent into the Capitalist World-Economy." *Economic and Political Weekly* XXI (4, January 25), PE-28–PE-39.
———. (1991). *Unthinking Social Science: The Limits of Nineteenth-Century Paradigms*. Cambridge: Polity Press.
———. (1997). "Eurocentrism and Its Avatars: The Dilemmas of Social Science." *New Left Review*, 226 (Nov–Dec), 93–107.
Warman, Arturo. (2003). *Corn & Capitalism: How a Botanical Bastard Grew to Global Dominance*. Translated by N. L. Westrate. Chapel Hill, NC: University of North Carolina Press.
Washbrook, David. (1988). "Progress and Problems: South Asian Economic and Social History, *c*. 1720–1860." *Modern Asian Studies* XXII (1), 57–96.
———. (2007). "India in the Early Modern World Economy: Modes of Production, Reproduction and Exchange." *Journal of Global History* II (1, March), 87–111.
———. (2009). "The Textile Industry and the Economy of South India, 1500–1800." In G. Riello and P. Parthasarathi (eds.), *How India Clothed the World: The World of South Asian Textiles, 1500–1800*, Leiden: Brill 173–91.
———. (2010). "Merchants, Markets, and Commerce in Early Modern South India." *Journal of the Economic and Social History of the Orient* LIII(1/2. March), 266–89.
Watabe, Tadayo. (1976). "The Glutinous Rice Zone in Thailand—Patterns of Change in Cultivated Rice." In S. Ichimura (ed.), *Southeast Asia: Nature, Society and Development*, Honolulu: University of Hawaii Press 96–113.
———. (1978). "The Development of Rice Cultivation." In Y. Ishii (ed.), *Thailand: A Rice-Growing Society*, Honolulu: University of Hawaii Press 3–14.
Watson, Andrew M. (1967). "Back to Gold—and Silver." *Economic History Review* XX (1), 1–34.
Watson, I. Bruce. (1980). *Foundation for Empire: English Private Trade in India, 1659–1760*. New Delhi: Vikas.
Weber, Max. (2002). *The Protestant Ethic and the Spirit of Capitalism*. Translated by T. Parsons. London: Routledge.
Wheatley, Paul. (1959). "Geographical Notes on Some Commodities Involved in Sung Maritime Trade." *Journal of the Malayan Branch of the Royal Asiatic Society* XXXII (2, June), 45–139.
Wills Jr., John E. (1993). "Maritime Asia, 1500–1800: The Interactive Emergence of European Domination." *American Historical Review* XCVIII (1, February), 83–105.

Wink, André. (1986). *Land and Sovereignty in India: Agrarian Society and Politics Under Eighteenth Century Maratha Svarajya*. Cambridge: Cambridge University Press.

———. (1990). *Al-Hind: The Making of the Indo-Islamic World*, vol. I, *Early Medieval India and the Expansion of Islam, 7th–11th Centuries*. Leiden: E. J. Brill.

———. (1997). *Al-Hind: The Making of the Indo-Islamic World*, vol. II, *The Slave Kings and the Islamic Conquest,, 11th–13th Centuries*. Leiden: Brill.

———. (2002). "From the Mediterranean to the Indian Ocean: Medieval History in Geographic Perspective." *Comparative Studies in Society and History* XLVI (3, April), 416–45.

———. (2004). *Al-Hind: The Making of the Indo-Islamic World*, vol. III, *Indo-Islamic Society, 14th–15th Centuries*. Leiden: Brill.

Wolf, Eric R. (1982). *Europe and the People without History*. Berkeley: University of California Press.

Wong, R. Bin. (1997). *China Transformed: Historical Change and the Limits of European Experience*. Ithaca, NY: Cornell University Press.

———. (2007). "Parallels and Divergences in Early Modern ad Modern World History: Thoughts for Framing Maritime Asia as a Region." In Proceedings of the Second COE–ARI Joint Workshop: "Dynamic Rimland and Open Heartlands: Maritime Asia as a Site of Interactions," Nagasaki, Japan, October 27–28, 2006, edited by Fujita Kayoko, Makino Naoko, and Matsumoto Mayumi. Nagasaki: Research Cluster on Global History and Maritime Asia, The 21st Century COE Program "Interface Humanities", Osaka University 309–23.

Yamamura, Kozo. (1979). "Pre-Industrial Landholding Patterns in Japan and England." In A. M. Craig (ed.), *Japan: A Comparative View*. Princeton, NJ: Princeton University Press 276–323.

———. (1988). "From Coins to Rice: Hypothesis on the *Kandaka* and *Kokudaka* Systems." *Journal of Japanese Studies* XIV (2, Summer), 341–61.

Yang, Bin. (2004). "Horses, Silver, and Cowries: Yunnan in Global Perspective." *Journal of World History* XV (3, September), 281–322.

Yuan, Tsing. (1981). "The Silver Trade Between America and China, 1550–1700." In H. Kellenbenz (ed.), *Precious Metals in the Age of Expansion: Papers of the XIVth International Congress of the Historical Sciences*. Stuttgart: Klett-Cotta 265–72.

Index