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The political economy of the Ganga River : highway of state formation in Mughal India, c.1600-1800

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Chapter 4

The *Ganga-economy*: Peasant-Producers and Commodities

*Like Two great arms the Indus and Brahmaputra completely clasp themselves round the Himalayan Ranges so that all the rain that falls and all the snow that melts whether on their northern or southern flanks, is bound to come into India. Geographically the Himalayas belong as much to Tibet as to India, but these river systems bring all the benefits of these mountains to India alone.*¹

*Patna réunit aujourd'hui tous les avantages que l'entrepôt du commerce et le siège du gouvernement peuvent procurer à une ville.*²

Introduction

In the previous chapters we have seen how interactions between the forces of drier and humid ecological zones have historically shaped the economic and political processes on the Ganga plain. This chapter delves deeper into the economic interaction between these ecological zones by focusing on the contacts between sedentary society of the Ganga plain's productive hinterlands and the mobile people from the maritime zone. This exercise aims to give the reader a broad view of the commercial economy of Bihar, juxtaposing the hinterland with the overseas commerce of the European Companies. The present chapter therefore discusses the producers of commodities, such as peasants, saltpeter producers and weavers, and those involved with the exchange economy, such as brokers, suppliers and intermediary merchants. The producers of goods and the merchants and brokers were active agents of the commercial economy of the region. Along with human agency, this chapter further describes the production of and growing demand for the two most important commodities, namely opium and saltpeter. It shows the economic potential of the region, which was perfectly capable of meeting the needs of an increasingly globalized economy. As we already noted in Chapter 3, during the early modern period the Ganga River emerged as a focal point of the economy and provided a fluvial link between the coast and the hinterland and facilitated large-scale maritime commerce in the commodities of the region. However, without human ingenuity, entrepreneurship and an infusion of liquid money a river in

¹ Cameron Morrison, *A new geography of the Indian empire and Ceylon* (London: Nelson, 1926), 67 cited in Kingsley Davis, *The population of India and Pakistan* (New York: Russell & Russell, 1968), 9.

² Comte de Modave, *Voyage en Inde du Comte de Modave, 1773–1776 (Nouveaux Mémoires sur L'état Actuel du Bengale et de L'Indoustan)*, ed. Jean Deloche (Paris: École Française d'Extrême-Orient, 1971), 130. Patna today meets all the benefits of trade and the warehouse that the seat of government can bring to a city.

itself cannot ensure a thriving commerce and prosperity. In a way the early modern economic dynamic on the Ganga plain is a familiar one. As we have discussed in Chapter 2, the migration and settlement of the Indo-Aryan speakers with their cattle wealth transformed the agricultural economy. Yet again, after the horse-warrior revolution the arid zone warriors and traders brought about large scale changes in the agricultural and commercial economies. In the early modern period, when commerce boomed the river became a far more important source of riches and profit. When exposed to mismanagement and neglect the river contributed to poverty by causing recurring floods and devastations of large magnitude.³

In modern India Bihar is considered to be one of the poorest provinces. The cause of its poverty has generally been attributed to many factors including a lack of infrastructure and resources. However, before Bihar was split into two provinces, the region was rich in mineral resources, accounting for the forty percent of India's total production, and the roots of its impoverishment can be sought in the policies of the later colonial and post-colonial regimes.⁴ In the past, especially in early modern period, Bihar was one of the most productive and resourceful regions of South Asia. Its local economy thrived thanks to the productivity of the land, mineral and crafts productions, and the robust long-distance trade through the river and overland routes. In the seventeenth and eighteenth centuries, the source of prosperity for Bihar can easily be located in its ability to cater to the external demand for its resources and a regular infusion of precious metals, which catalysed the productivity, and industriousness of the people. I suggest that it was primarily the interaction between the mobile resources such as bullion brought in by the long-distance merchants and the productive capacity of the region to keep up with external demands that ensured a booming economy during the age of maritime commerce. Because of the coast-centred approach of maritime historians, the Ganga River has been glossed over in the treatment of the economy of the eastern plain encompassing Bihar. As I hope to demonstrate, the two contrasting ecological spheres, the hinterlands and the maritime zones, interacted in ways that generated wide-ranging economic and political results in the early modern period. A review article by David Washbrook summarizes the problems of the eighteenth-century historiography of South Asia and concludes that the chief difficulty

³ Praveen Singh, "The colonial state, zamindars and the politics of flood control in north Bihar (1850–1945)," *IESHR* 45:2 (2008): 239–59.

⁴ Anthropologists have also documented the grim poverty in contemporary Bihar. For Bihar accounting for forty percent of total mineral resource of India, see Tiane Doan de Champassak and Arvind N. Das, "Bihar's lawless ways," *UNESCO Courier* (Feb. 1999): 3–8. For early information on the exploitation of mines in Ramghur to the south of the Ganga, see BL, APAC, IOR, P/70/16, Bengal Board of Revenue Proceedings, Calcutta the 28th June 1786. Further, in 1816, the Commissioner J. Deane reported that "a considerable quantity of Iron, Tale [Table?] Cutlery, Guns, Swords, Kaunch and other articles from Monghyr, and the Hills to the South in their passage to Napaul and the countries on the North side of the Ganges." See, BL, APAC, IOR, P/111/68, BBRP (Customs), Camp Culwar Zillah Shahabad the 31st August 1816.

arises from reading history backwards and imputing nineteenth- and twentieth-century historical developments to the eighteenth century.⁵

The literature dealing with the economic and political history of the eighteenth century is highly polarized and presents divergent and even contradictory interpretations of the region's political economy. Old imperialist historiography's depiction of political chaos and economic decline in the eighteenth century often resonates in nationalist historiography. While imperialist historiography depicts a gloomy picture of the eighteenth century in order to justify colonial ascendancy to power, nationalist historiography utilizes the same myth to lament the colonial takeover. In both these historiographical traditions, history itself becomes victim of ideological appropriation while actual events, long-term economic, and political processes and their infrastructural basis, the areas of growth and pockets of decline, marginalized groups and collaborators, and the advantages and disadvantages of the new regime hardly enter into debate.

Although good progress has since been made in our understanding of such problems as the continuity of several Mughal institutions into the colonial period, the expansion of agriculture and commercial economy, the question of Mughal decline still eludes scholarly agreement.⁶ Research by the so-called Aligarh School and "revisionist" historians on the nature of polity and economy in eighteenth-century South Asia and factors leading to Mughal decline remain inconclusive. While older historians failed to provide firm and solid evidence of decline and degeneration in the economy and polity after the death of Aurangzeb in 1707, revisionist scholars, too, admit that "treatment of the eighteenth century is hypothetical."⁷ As the polarity of this debate has been discussed in a recent work by Binay Bhushan Chaudhuri, it hardly needs repetition here. The present study strives to furnish evidence from the hitherto under-utilized Dutch archives to improve upon the inadequacies of the imperialist, nationalist and revisionist scholars' understanding of the eighteenth-century political economy. In the last chapter of this study, I shall review the question of Mughal decline by examining the weakening imperial control over the Ganga in the eighteenth century.

In this chapter, once again I zoom in on Bihar which forms the crossroad between Hindustan and the Bengal delta, and endeavour to underline the solid infrastructural basis of the economy from a relatively long-term perspective. It defies

⁵ D. A. Washbrook, "Eighteenth-century issues in South Asia," *JESHO* 44:3 (2001): 372–83. See also for the problems of projecting modern geographical categories such as Bengal for explaining early modern economy of the region, Tirthankar Roy, "Where is Bengal? Situating an Indian region in the early modern world economy," *Past and Present* 213 (2011): 115–146.

⁶ See in particular Seema Alavi, ed., *The eighteenth century in India: debates in Indian history and society* (New Delhi: Oxford University Press, 2002) and P. J. Marshall, ed., *The eighteenth century in Indian history: evolution or revolution?* (New Delhi: Oxford University Press, 2003); see also a review essay dealing with the questions on eighteenth century South Asian history, Robert Travers, "The eighteenth century in Indian history: A review essay," *Eighteenth-Century Studies* 40: 3 (2007): 492–508.

⁷ Binay Bhushan Chaudhuri, *Peasant history of late pre-colonial and colonial India*, in the series, *History of science, philosophy and culture in Indian civilization*, genl. ed. D. P. Chattopadhyaya, vol. 8, pt. 2 (New Delhi: PHISPC Publications, 2008), 49–100.

logic that such an apparently robust infrastructure could simply collapse in the span of a few decades following the colonial takeover in the second half of the eighteenth century. This is precisely one of the problems that I will try to tackle in the course of this study. The present chapter is organized in two parts. The first part describes the human agency involved in the production processes. It estimates the total population of early modern Bihar and projects a possible figure for the urban population. Subsequently, it describes the life and work of peasants, *koeris* (the caste which grew opium), *nunias* (the caste-members of which worked as saltpeter scrapers), weavers, boatmen, and militia. The seasonality of the labour market in agricultural and non-agricultural sectors is described in the context of the environmental predispositions of different areas within Bihar. The second part discusses specific commodities and tries to situate them in their respective historical contexts. Each of the major commodities has its own historical trajectory in terms of its significance as a trade item for long-distance markets. Overall, this chapter buttresses the point that these commodities paved the way for an expanded money supply in the region. In the course of time, growing prosperity engendered political and economic realignments that characterized much of the eighteenth century, a story to be addressed in the rest of this study.

Section I: Labour Market

The previous chapter discussed the natural arteries of communication linking the urban centres and the fertile humid zones of the Ganga plain. While the productive hinterlands and arteries of communications were necessary preconditions, the mere existence of such a natural infrastructure did not lead to a booming economy. The transformation of productive zones into a vibrant economy depended on at least three more factors: an industrious population ready to supply labour, demands generated by the supra-regional and global economy and a constant infusion of liquid money. The labour force was deployed in agricultural and craft productions in order to meet the growing demands of food and the marketable commodities that were readily vendible against hard cash. Therefore, in the following paragraphs, I shall discuss the population first.

Population Estimates

A cursory glance at the modern population map of India shows the humid zones of the Ganga plain, especially the tract between 80 and 88 degree longitude to the north of Ganga, to be one of the most densely populated regions in South Asia.⁸ We do not have population data for the early modern period but the qualitative evidence strongly suggests a high population density in the areas of the rice-based economy on the Ganga plain. Various population estimates of early modern India are fraught with problems as they are based on inferential evidence. Because the pre-colonial regimes in South Asia

⁸ O. H. K. Spate and A. T. A Learmonth, *India and Pakistan: Land, people and economy* (London: Methuen, 1972); see the population map facing p. 121. According to the 1961 census, the population density was more than 750 people per square kilometre.

never attempted a head count of the subject population, the demographic debate is open to conjecture, yet in spite of various gaps in quantitative evidence scholars have tried to estimate the population of South Asia. The British colonial administrator-scholar, W.H. Moreland, calculated the population of the whole of India at the death of Akbar to be about 100 million people.⁹ Moreland's method was based on the density of cultivated area and was critiqued by Irfan Habib and Shireen Moosvi, both of whom suggest figures of between 136 and 150 million for South Asia in 1600.¹⁰ This figure is an upward revision of Kingsley Davis's estimate of 125 million.¹¹ Rejecting Davis's stagnant population hypothesis for the Mughal period, Habib suggests that the population actually grew until the eighteenth century at the annual compound rate of 0.14, which was lower than the annual compound rate of 0.21 percent during the nineteenth century. It is generally agreed by the scholars that the population of South Asia (comprising contemporary India, Pakistan and Bangladesh) would have been around 200 million in 1800.¹²

There are several estimates of population for the Bengal Presidency. By the end of the eighteenth century, British officials attempted to calculate the population of Bengal, Bihar, and Banaras using many indirect calculations. The population totals range from a low of 22 million to a high of over 39 million, with many figures in-between for the years 1789 and 1801. In 1789, based upon an "opinion survey" of district collectors, the population was estimated to be 22 million, while William Jones guessed it to be 24 million. According to Walter Hamilton, the figure stood at 39,679,000 for Bengal, Bihar, and Banaras at the turn of the century.¹³ In the 1790s, Bengal civil servant Henry Thomas Colebrooke employed various methodologies from land under tillage to the consumption of salt and food grains to estimate the macro regional population of Bengal and Bihar. Generalizing on the survey of leaseholders and ground rent payers in Purnia district, and taking five persons per family,

⁹ W. H. Moreland, *India at the death of Akbar: An economic study* (1920; repr. Delhi: Atma Ram & Sons, 1962), 9–21.

¹⁰ Shireen Moosvi, *The economy of the Mughal Empire c. 1595: A statistical study* (Delhi: Oxford University Press, 1987), 395–406; see also Shireen Moosvi, "The Indian economic experience 1600–1900: A quantitative study," in *The making of history: essays presented to Irfan Habib*, ed. K. N. Panikkar, Terence J. Byres and Utsa Patnaik (London: Anthem Press, 2002), 329–31; Irfan Habib, "Population," in *The Cambridge economic history of India, c. 1250–c. 1750*, ed. Tapan Raychaudhuri and Irfan Habib, vol. 1 (Cambridge: Cambridge University Press, 1982), 163.

¹¹ Davis, *The population of India and Pakistan*, 26.

¹² Habib, "Population," 165–67; see also Leela Visaria and Pravin Visaria, "Population (1757–1947)," in *The Cambridge economic history of India, c. 1757–c. 1970*, ed. Dharma Kumar, vol. 2 (Cambridge: Cambridge University Press, 1983), 466, for different figures for the year 1800 ranging from a low of 139 million to a high of 214 million. Scholars such as Morris D. Morris also accepts 200 million population for the beginning of 1800; see his "The growth of large-scale industry to 1947," in *The Cambridge economic history of India*, ed. Kumar, 554.

¹³ Walter Hamilton, *The east India gazetteer; containing particular descriptions of the empires, kingdoms, principalities, provinces, cities, towns, districts, fortresses, harbours, rivers, lakes, &c. of Hindostan, and the adjacent countries, India beyond the Ganges, and the eastern archipelago; together with sketches of the manners, customs, institutions, agriculture, commerce, manufactures, revenues, population, castes, religion, history, &c. of their various inhabitants*, vol. 2 (London, 1828), 190.

Colebrooke calculated 203 people per square mile for the entire area of the *Diwani* provinces. According to this method, 119,217 square miles area of Bengal and Bihar gives a figure of a little over 24 million.¹⁴ Historians like Sumit Guha and Rajat Datta have suggested different estimates for the Bengal Presidency. Guha estimates its population to be a little over 33 million in 1790-92 and close to 36 million in 1800-02; Datta gives the figures of 22 million for 1789 and 27 million for 1800. Guha estimates that the population grew at about 1 percent annually between 1789 and 1822, while Datta suggests a rate of more than 2 percent.¹⁵ A recent paper from the Population Studies Unit of the Indian Statistical Institute suggests a moderate rate of 0.5 percent for Bihar and 0.8 percent for Bengal during the second half of the eighteenth century.¹⁶

In order to arrive at a reasonable population figure for Bihar we may rely on the method of calculating backwards from the census figure of 1901. Assuming that the annual rate of population growth was the same as the sub-continental growth rate (i.e. 0.21 percent) for the nineteenth century, we can gain a general idea of the population of Bihar at the turn of the century. According to the 1901 census, Bihar had 27 million people. By deducting the 21 percent growth during the nineteenth century, we are left with a population estimate of about 22 million in 1801. Given the fertility and relatively higher population density of Bihar, the province would have had a higher growth rate than the sub-continent as a whole. Adjusting this disparity, Mahalanobis and Bhattacharya conclude that Bihar would have had around 20 million souls at the turn of the century.¹⁷ If Habib's assumption of 0.14 percent compound annual population growth for the seventeenth and eighteenth centuries is correct, then Bihar's population in 1700 would have been around 17 million and a little more than 14.5 million in 1600. In other words, Bihar had almost ten percent of the total population of the subcontinent at the death of Akbar, and probably the same share two hundred years later.¹⁸

¹⁴ Henry Thomas Colebrooke, *Remarks on husbandry and internal commerce of Bengal* (London, 1806), 14–30; see also Miscellaneous Tracts, “On population of Bengal,” *The Asiatic annual register, or, a view of the history of Hindustan, and of the politics, commerce and literature of Asia, for the year 1802* (London, 1803), 41–46.

¹⁵ Rajat Datta, *Society, economy and the market: commercialization in rural Bengal c. 1760–1800* (New Delhi: Manohar, 2000), 265–66; Sumit Guha, *Health and population in South Asia: From earliest times to the present* (New Delhi: Permanent Black, 2001), 37–42.

¹⁶ Rama Deb Roy, “Population of the province of Bengal, 1751–1801,” Population Studies Unit, Indian Statistical Institute, New Delhi, internet resources at: http://dmo.econ.msu.ru/epc2001_history/Authors/Rama/RamaRoy.htm (accessed on 20 Feb. 2012).

¹⁷ P. C. Mahalanobis and D. Bhattacharya, “Growth of Population in India and Pakistan, 1801–1961,” *Artha Vijnan* 18:1 (1976): 1–10.

¹⁸ Assuming 200 million for 1800, Bihar had a little over 10 percent of the total Indian subcontinent's population, see Morris, “The growth of large-scale industry to 1947,” in *The Cambridge economic history of India*, ed. Kumar, 554. According to the 1991 census, Bihar (with Jharkhand) had 86.3 million people while the total Indian population was 891.9 million. According to these figures, Bihar roughly approximated the 10 percent population figure, although adding Pakistan and Bangladesh would lower it somewhat. For the population of Bihar in 1991, see <http://www.lib.virginia.edu/area-studies/SouthAsia/bihar/population.html> (accessed 22 Feb. 2013) and for the Indian total population in 1991, see http://data.worldbank.org/indicator/SP.POP.TOTL?page=4&order=wbapi_data_value_2008%20wbapi_data_value%20wbapi_data_value-first&sort=desc (accessed on 22 Feb. 2013).

Urban Population

According to Habib, in the Mughal Empire at least fifteen percent of the population lived in urban centres, which he defines as a habitation site with more than 5000 people.¹⁹ James Heitzman, whose smallest “urban” units constituted of parganas with 3000 inhabitants, agrees with Habib’s fifteen percent estimate.²⁰ If this is accurate, and assuming a total population of 17 million, the urban population of Bihar in 1700 would have been more than 2.5 million people. In order to verify this I shall make an attempt to calculate the population of the primary urban units such as parganas, *qasbas* (small market towns), *sarkars* (revenue districts) and larger urban centres such as Patna. Scholars have suggested that in Bihar there were 246 parganas in 1685, during the reign of Aurangzeb. These parganas were the lesser administrative units of the Mughal Empire where the lower-ranked civil and military officials were stationed, merchants transacted their business, and artisans performed their duties. They were the centres where agrarian and local craft produces were converted into money for taxation. Following Heitzman’s estimates for the population of the parganas, and supposing that the figure of 246 parganas remained constant till 1700, there would have been around 738,000 people living in the parganas. There were eight sarkars of at least about 20,000 people in the Bihar suba, for a total of around 160,000 people. We do not have a precise figure for the number of secondary towns such as Chhapra, Daulatganj, Siwan, Revelganj, Fatuha, Mau, Lakhawar, Nawada, and Gaya, but if we assume there were twenty with an average population of 10,000, they would have made for another 200,000 urbanites.²¹ In 1700 Patna would have had at least 200,000 residents if not more. Based on these figures, imperfect as they are, the total urban population of Bihar would have been about 1.3 million at the turn of the eighteenth century or roughly 7.5 percent of the total population of the province. If the urban and rural proportion of population in 1901 is any sort of guide, then it appears that in Bihar and Bengal the urban population constituted of only 5 percent at the turn of the twentieth century while other parts of the subcontinent had a proportionally much higher urban population.²²

¹⁹ Habib, “Population,” 163–71; see also Satish Chandra, *Medieval India: From Sultanat to the Mughals—Mughal Empire (1526–1748)*, pt. 2 (New Delhi: Har-Anand, 2006), 364–65.

²⁰ James Heitzman, *The city in South Asia* (London: Routledge, 2008), 79.

²¹ Anand A. Yang, *Bazaar India: Markets, society, and the colonial state in Gangetic Bihar* (New Delhi: Munshiram Manoharlal, 2000), 178. For Chhapra, Yang gives a figure of 43,500 in 1813 and for Siwan around 8,840 in the same year. Daulatganj, near Chhapra was another secondary level urban centre where the VOC had rented a place for which it paid f.206–8 as rent (about 160 rupees), see NA, VOC, Inv. Nr. 2849, “Memorie ...ontworpen en nagelaten aan den Heer Adriaan Bisdom aankomende Directeur der Bengaalsche Directie door den oud eerste secretaris van welm: Haar Hoog Edelens en afgaande Directeur Louis Tallefert, omme zig daar na in het manieiment van zaken zo verre te reguleeren, als zijn edele behangen of dienstig oordeelen zal tot dat men tijding van Haar Hoog Ed: goedvinden aangaande dies inhoude zal ontfangen hebben,” (hereafter, MvO Luis Tallefert to Adriaan Bisdom), signed by Louis Tallefert at Hugli on 27.10.1755, fo. 157v.; the disparity in the population figures of Chhapra (43,500) and Siwan (8,840), as well as some overlap in their function as administrative centres or their being parganas or qasbas, can be remedied by taking a median population of 10,000 for all secondary level urban centres.

²² Visaria and Visaria, “Population (1757–1947),” 517.

One may suspect that the trend was not different in the earlier centuries if we consider the relative dense population in the areas of predominantly rice-based economy.

The basic structure of the most of the parganas, sarkars and other urban centres remained in place in course of the eighteenth century so the urban population in 1800 was probably around 7.5 percent, too. In the eighteenth century, shifts and changes often were counter-balanced between growth and decline. For example, the process of urbanization in Patna entailed a number of realignments in the course of the period. Many trading centres within the city lost out while others emerged as new loci of economic activity. The rise of Marufganj at the cost of Nawabganj and Mandiganj has been explicated by a change of patron. Nawab Ikramdaula had founded Marufganj in 1764 and later the English East India Company patronized it. In the late eighteenth and the nineteenth century, Marufganj received most of the boats laden with goods²³ and presumably attracted more people and settlements there. In other parts of Bihar, too, such readjustments have been documented in recent studies that underscore changes in the rural economy and local urban centres such as qasbas and *ganjs* (grain-markets), which were developing into relatively larger economic centres in a rural setting.²⁴ Towns such as Munger, Bhagalpur, and Rajmahal each had populations of more than twenty thousand in the first decade of the nineteenth century.²⁵ Even if 7 to 8 percent people lived in the urban centres of Bihar, the livelihood and material requirements of an overwhelming number of rural inhabitants were connected to the urban centres. For example, a part of the population would have lived alternatively in rural and urban areas depending upon the requirements of the agricultural and urban economies and the employment available there.

If we can rely on the figures of foreign travellers, we get some idea of the population density of the Patna city. The earliest such estimation of Patna's population comes from the Portuguese traveller Sebastian Manrique who puts the figure at 200,000 people around 1640, not including "the great number of strangers" drawn to the town

²³ Yang, *Bazaar India*, 99.

²⁴ Kumkum Chatterjee, *Merchants, politics and society in early modern India: Bihar, 1733–1820* (Leiden: Brill, 1996), 19–26. *Ganjs* like Daudnagar in Gaya, Dimia Gola and Hanumanganj in Purnia were fairly large markets in the early nineteenth century. They had substantial hinterland in the surrounding village areas which provided services and commodities.

²⁵ The population of Munger was estimated to be 30,000 in the early nineteenth century, see *The tourist or sketch book of the times*, 1:33 (Monday, March 25, 1833) in *The tourist: A literary and anti-slavery journal under the superintendence of the agency anti-slavery society* (London, 1833), 269; see also Reginald Heber, *Bishop Heber in northern India: Selections from Heber's Journal*, ed. M. A. Laird (Cambridge: Cambridge University Press, 1971), 109; S. Bhattacharya, "Eastern India," in *The Cambridge economic history of India*, ed. Dharma Kumar, vol.2. (Cambridge: Cambridge University Press, 1983), at p. 278 Bhattacharya cites Buchanan's figure of 30,000 population for the towns of Munger and Bhagalpur. For Bhagalpur the number of house in the town was assumed to be 5000 in the early nineteenth century, see Robert Montgomery Martin, *The history, antiquities, topography, and statistics of eastern India; comprising the districts of Behar, Shahabad, Bhagulpoor, Goruckpoor, Dinajepoor, Puraniya, Rungpoor, & Assam in relation to their geology, mineralogy, botany, agriculture, commerce, manufactures, fine arts, population, religion, education, statistics, etc.* in 3 vols., vol. 2, *Bhagulpoor, Goruckpoor, and Dinajepoor* (London, 1838), 27.

by its vast trade.²⁶ A few decades later, John Marshall remarked that between 90,000 to 135,000 people died in and around Patna in the terrible famine of 1671. Marshall claims that he received the figure of dead people from the “Cotwall Chabootry” (the office of the local authority) and therefore it can be relied upon.²⁷ In any case, the huge death toll in and around Patna points to the population density of the area. Thomas Twining, who passed through Patna in the late eighteenth century, assumed that city had 300,000 inhabitants.²⁸ In the early nineteenth century Francis Buchanan estimated the population of Patna to be 312,000 as he computed 52,000 houses with six members each.²⁹ Anand Yang has suggested that this figure might not be too far from reality as the population of Patna was drawn from a twenty square mile area. The censuses of the late nineteenth century counted people in area only in the nine square mile core of city, which likely explains the apparent decline in Patna’s population.³⁰

Apart from the large number of inhabitants at Patna, thousands of people visited the town from the surrounding areas. Quite a large number of people depended on the markets, local as well as regional, for cloth, agricultural tools, spices, salt, areca nuts, vermillion, camphor, coconuts, conch shell, and other necessities.³¹ At the same time, peasants living in the villages produced commodities such as saltpeter, opium, cottons, ghee (clarified butter), and grains to be collected by the merchants based at the local and regional level markets. Before discussing the region’s main exports, I shall briefly mention the peasant-producers who were closely linked with the exchange economy.

Peasants and other Servicemen

Given the nature of our data, it is impossible to say exactly how many people were employed in agricultural and craft productions or as militiamen or sepoys, porters, nunias, manjhis and so on. Yet, the fragmentary evidence suggests their ubiquitous presence in and around the production and marketing centres. Often the manufacturers of commodities were peasants who combined their food production activity with craft-

²⁶ Fray Sebastien Manrique, *Travels of Fray Sebastien Manrique, 1629–1643: A translation of the Itinerario de las Misiones Orientales*, intro. and notes by Lt.-Col. C. Eckford Luard and Father H. Hosten, S.J. (Oxford: Hakluyt Society, 1927), 140.

²⁷ John Marshall, *John Marshall in India: Noted and observation in Bengal 1668–1672*, ed. Shafaat Ahmad Khan (London: Oxford University Press, 1927), 152–53.

²⁸ Thomas Twining, *Travels in India a hundred years ago with a visit to the United States being notes and reminiscences by Thomas Twining a civil servant of the Honorable East India Company*, ed. William H. G. Twining (London, 1893), 135.

²⁹ Francis Buchanan, *An account of the Districts of Bihar and Patna in 1811–1812*, vol. 1 (Patna: Bihar and Orissa Research Society, n.d.), 61. Naqvi also discounts the possibility of any population decline in Patna in the eighteenth century; see Hameeda Khatoon Naqvi, *Urban centres and industries in upper India, 1556–1803* (Bombay: Asia Publishing House, 1968), 126.

³⁰ Yang, *Bazaar India*, 93–100.

³¹ NA, VOC, Inv. Nr. 9615, “Memorie wegens diverse verkoghts coopmanschappen, mitsgaders hare prijzen en quantiteit ten comptoir Pattena verhandeld in den jare [1675–1684],” Hugli, 20.09.1684, pp. 291–93, for the commodities sold in Patna by the VOC between 1675 and 1684; see also Tilottama Mukherjee, “Markets in Eighteenth Century Bengal Economy,” *IESHR* 48:2 (2011): 167–68.

production.³² As will become evident from our discussion below, the majority of service providers such as boatmen, porters, militia, and pater-men were also drawn from the peasantry. First I shall begin with the opium-growing peasants of Bihar, the *koeris* or *khoijdrij* of the Dutch sources. Unfortunately we lack precise information on the number of opium growers in the seventeenth and eighteenth centuries. However, if nineteenth-century colonial reports can be taken as a guide we may arrive at a plausible estimate of the number of people involved with opium culture in previous centuries.

Under the Banaras Opium Agency, the aggregate area of land under poppy cultivation was 107,823 *bigha* (a measurement of land ranging from 22,500 to and 27,225 square feet, with considerable regional variations) in 1849–50 and the total produce of opium was 18,191 *man* (a variable measure of weight; the Patna *man* weighed 72½ Dutch pounds or 35.7 kilogram).³³ The number of *lumberdars* (primary contractors) contracting with the Company was 21,549 and there were 106,147 under-cultivators. If we assume each cultivator had family of five, then more than half a million people were directly linked to opium cultivation under the Banaras Opium Agency alone.³⁴ I could not find similar data for the Bihar Opium Agency, but *The Baptist Magazine for 1846* gives useful clues about both the total produce and the total area under opium cultivation. The magazine reports that the whole of “Behar agency” produced 25,000 *man*. “Taking the average produce at ten seers for a beegah, it will amount to about 100,000 beegahs of land on which the poppy is cultivated in the whole of the above districts.”³⁵ Ten *ser* per *bigha* for Bihar is undoubtedly an inflated figure and even the Banaras Agency seems to have produced just six to eight *ser* a *bigha* on an average. If the opium land in Bihar was more fertile and well-irrigated, reducing the reported figure to only eight *ser* per *bigha* still means that the land under poppy cultivation was no less than 125,000 *bigha*, for a total output of 25,000 *man* of opium. Therefore, even if we make room for the better productivity of land compare to Banaras, the number of cultivators to work up the huge land acreage must have exceeded that of the Banaras Agency. If we allow for one under-cultivator per *bigha*, following the Banaras norm, then not less than 125,000 under-cultivators tilled the land for opium. Further, the labour-intensive cultivation of opium was possible only by the collective labour of the entire family.³⁶ Therefore, considering the average farmer having a family of five, more than six hundred thousand people were attached to opium cultivation. At least half of this labour force might have consisted of women and

³² Tapan Raychaudhuri, “The mid-eighteenth-century background,” in *The Cambridge economic history of India*, ed. Kumar, 21.

³³ During the colonial period a *man* was standardized at 40 *ser* equivalent to 100 lbs. troy and a *ser* weighed 2½ lbs. troy.

³⁴ W. C. B. Eatwell, “On the system of cultivating the poppy and of preparing opium in the Benares opium agency, with a brief sketch of the constitution of the department,” *Selections from the Records of the Bengal Government*, 1 (Calcutta, 1851), 5–6.

³⁵ “Effects of the cultivation of opium in India upon the moral and social interests of the population,” *The Baptist Magazine for 1846*, 38 (1846) (London, 1846), 210.

³⁶ Gyan Prakash, *Bonded histories: Genealogies of labor servitude in colonial India* (Cambridge: Cambridge University Press, 1990), 127.

children who carried out such subsidiary tasks as collecting the poppy juice, drying the poppy-petals, weeding and extracting seeds from the poppy capsules, while the heavier tasks such as tilling, putting manure, and irrigating were performed exclusively by men.³⁷

According to a Dutch source of 1688, Bihar produced about 8,700 man of opium. Assuming that the productivity of the land and techniques of production did not change drastically between the seventeenth and eighteenth centuries, and further assuming that the seventeenth century's smaller bigha (22,500 square feet as against 27,225 square feet bigha during the colonial period) produced six *ser* opium on an average, the total acreage under production in the late seventeen century would have been 52,200 bigha.³⁸ Allowing one bigha for each cultivator with a family of five gives a figure of 260,000 people being directly involved with poppy cultivation in Bihar in the late seventeenth century. These people's livelihood was directly linked to the market for opium. Since the demand of opium grew in the course of the eighteenth century, the number of peasants involved in its production would have increased correspondingly.

Saltpeter and textiles were other important commodities the production of which employed a considerable number of people, although it is difficult to ascertain the precise number of nunias and weavers. Therefore, I shall use the qualitative data to suggest the possible number of people involved with these commodity productions. According to an early twentieth-century source, around 50,469 workers were employed in 281 *kothis* (production centres or manufactories), which produced about 19,438.8 tonnes of saltpeter.³⁹ In the 1770s, after the Company assumed monopoly over saltpeter production, it is assumed the European ships carried 4,500 tonnes of Indian saltpeter, of which at least 90 percent was exported from Calcutta. Therefore, deducting ten percent, which would have been collected in southern and western India, Bihar produced more than 4000 tonnes in the 1770s. Based on the early twentieth-century employment ratio, production would have employed more than ten thousand nunias. But this number presents many difficulties. First of all, the production techniques would likely have been more labour-intensive in the eighteenth century than later, when better tools were used for scraping the silt, copper, and iron pans for boiling the raw saltpeter and so on under more organized production system. In the seventeenth and eighteenth centuries, unorganized individual families of nunias worked at saltpeter extraction, collection, boiling, and refining with the primitive tools and techniques and the entire process tended to be labour intensive. In fact, the early twentieth-century reference gives the

³⁷ Shireen Moosvi, *People, taxation and trade in Mughal India* (New Delhi: Oxford University Press, 2008), 136–41.

³⁸ Under the East India Company rule the measurement of a bigha increased by 4,775 square feet from the precolonial bigha of 22,500 square feet.

³⁹ Sir George Watt, *The commercial products of India, being an abridgement of "The dictionary of the economic products of India"* (London: John Murray, 1908), 972–75; see also James W. Frey, "The Indian saltpeter trade, the military revolution, and the rise of Britain as a global superpower," *The Historian* 71:3 (2009): 553.

number of those who were on the payroll of the colonial government but does not include the transporters, fuel suppliers, *asamiyas* (petty contractors or intermediaries), and others do not come into picture. As the eighteenth-century saltpeter production process would have required a larger labour force, we may presume that not less than twenty thousand *nunias* and an additionally ten thousand fuel collectors and transporters were needed to produce 4,000 tonnes of saltpeter. If each of these *nunias* and other labourers had a family of five, then about 150,000 people were directly involved with saltpeter production in the second half of the eighteenth century. Rather than claiming it to be an absolute figure, this is more of a conjecture that suggests the large labour force employed in the saltpeter industry.

Our sources do not give a clear idea about the numbers of weavers in Bihar, but qualitative evidence suggests their preponderance in the districts along the Ganga. While surveying Bihar in the early nineteenth century, Buchanan reports that there were about 20,682 houses of cotton and silk weavers in the districts of Behar and Patna. Yang indicates that there were 170 villages of weavers in the Patna district alone at the turn of the nineteenth century.⁴⁰ To the north of Ganga, in Saran district, there were about 60,000 people employed in weaving and textile manufacturing in the early nineteenth century.⁴¹ Bhagalpur was another important textile weaving centre with a good number of weavers who specialized in weaving mixed piece goods made of silk and cotton.⁴² From the above sources, it appears that a considerable number of people found employment in textile production in Bihar. Furthermore, if we add to these cotton growers, petty merchants who traded in raw cotton, cotton-carders and thread-makers, then several more thousand—perhaps even some hundred thousand—people would have been involved in the textile sector of the economy. Even though we do not have an absolute number of weavers, the qualitative evidence suggests a large number of people involved in cotton-textile production in early modern Bihar.

Apart from these commodity and craft producers, there were other servicemen such as *manjhis*, *sipahis* (or sepoys), *baladiyas* (bullock drivers) and the artisans such as leather workers, ironsmiths, carpenters, and a host of others.⁴³ Given the constraints of our sources, it is not possible to calculate their exact number but their presence at parganas, qasbas, sarkars, and bigger townships is undeniable. Perhaps instead of striving to count their heads, it is more important to find their place in the overall economy. For example, the early modern economy of Bihar would have been inconceivable without the contributions of peasant-producers, labourers and servicemen, even though most were not employed on a year-round basis. Most came

⁴⁰ Francis Buchanan, *An account of the districts of Bihar and Patna in 1811–1812*, vol. 2 (Patna: Bihar and Orissa Research Society, n.d.), table 41, 772; see also Yang, *Bazaar India*, 76.

⁴¹ Arjan de Haan, "Migration and livelihoods in historical perspective: A case study of Bihar, India," *Journal of Development Studies* 38:5 (2002): 118.

⁴² Colebrooke, *Remarks on husbandry*, 178.

⁴³ For the various occupational groups in Bihar, see George A. Grierson, *Bihar peasant life: Being a discursive catalogue of the people of that province, with many illustrations from photographs taken by the author* (Calcutta, 1885), 46–116.

from the peasantry and continued to be peasants while taking up jobs as militiamen, boatmen, porters, and so on. These service-men would have constituted yet another segment of the workers' population which inhabited alternately the rural and urban areas and met labour demands in both places. They would have provided vital links between urban and rural societies and exchanged goods, ideas and information between these two places. Perhaps their agency would have been crucial in inspiring and guiding others in rural society to move out during the lean agricultural season. The dynamic of the labour market depended on attracting peasants from rural areas and employing them as militia, boatmen, porters, and so on in urban centres.

Seasonal Labour

The pioneering study of Dirk Kolff on the ethno-military history of Hindustan remains an authoritative contribution to the study of pre- and early-modern labour markets in northern India. The important work of Gyan Prakash also takes a long-term view to explain the servitude of agricultural labourers in south Bihar during the colonial period. As Prakash's focus remains primarily on *kamias*, or members of the landless agricultural labour caste, the craft-producers and labourers employed in non-agricultural productions do not get adequate attention.⁴⁴ Apart from these two studies, labour historians have hardly looked into the early modern period to explain the emergence and functioning of the labour market. Although issues such as working conditions, wages, and employment at the sites of production such as mines, jute factories and tea-plantations are discussed in contemporary works on labour, hardly any work illuminates the pre-history of the supply side of the labour market.⁴⁵ To throw more light on that subject, this section will examine the economic and environmental factors that were crucial for the functioning of labour market in Bihar during the seventeenth and eighteenth centuries. Further, this section will focus on the labour force, which was tied to the Ganga economy, and on the labourers who often gravitated towards the river in search of employment as boatmen, rowers, and transporters. Scattered references from European Companies' records enable us to reflect on wages, employment patterns, and the seasonality of labour demands. The Dutch sources also enable us to consider the military strength of the chieftains or zamindars along the banks of the Ganga in the eighteenth century. The chieftains' militias were largely drawn from the peasant class and even though they worked as infantry- or cavalrymen, they continued to be peasants for a greater part of the year.

Before discussing specific instances of the labour force employed by the European Companies and indigenous chieftains, I will briefly describe the seasonality of labour demands in agricultural works and the regions that contributed to the surplus

⁴⁴ D. H. A. Kolff, *Naukar, Rajput and sepoy: The ethnohistory of the military labour market in Hindustan, 1450–1850* (Cambridge: Cambridge University Press, 1990); Prakash, *Bonded histories*.

⁴⁵ Samita Sen, *Women and labour in late colonial India: The Bengal jute industry* (Cambridge: Cambridge University Press), 27–28. Sen has mentioned some of the areas of Bihar that supplied labour. For example Saran was the foremost supplier of labourers who went to work in the jute mills during lean agricultural months.

labour force to be hired out periodically. Anand Yang has studied the seasonal pattern of labour migration from Saran district. Based on the British civil servant George A. Grierson's observations and other colonial documents, Yang suggests that the peak agricultural season lasted from June-July to November-December, when most of the bhadaï and aghani crops were cultivated and harvested. In the areas where rabi crops were not very promising and consisted of only cash crops, the period from December to May was the slack season, when the bulk of labourers moved out seeking employment.⁴⁶ According to Tirthankar Roy, the migrant labourers of peasant background coming from northern India to Calcutta during the colonial period retained "a toe-hold in the rural economy."⁴⁷

In the relatively drier regions such as Shahabad, Gaya, Munger, Saran, and Hajipur rabi and kharif crops were sown depending upon the availability of water. Therefore, in the areas along the riverbanks, and in those places where water resources could be managed artificially, the kharif-paddy crop was sowed in June-July. After the crop was harvested and brought home in November-December the peasants and labourers had a lean agricultural season until the next sowing season. Conversely, in areas away from the riverbanks, and where water was scarce, rabi crops normally predominated. The rabi crops required some agricultural work only during the sowing and harvesting seasons, that is in December and in April. As the drier marches could not absorb its entire labour potential for agricultural works, many peasants experienced a long lean season and took to supplementary employments as weavers or porters, while others moved out towards the river to find alternative employment as boatmen, rowers, transporters, militiamen and so on. Only in those regions where both rabi and kharif crops could be grown, the labour would have been in demands for six to eight months. The tradition of out migration of peasants seeking work was relatively strong in the drier ecological zones at least since the sixteenth century if not earlier.⁴⁸ For example, labour moved out from the parts of Saran, Shahabad, Gaya, and Munger compared to the humid and well-watered areas such as Tirhut.⁴⁹ The tracts along the

⁴⁶ George A. Grierson, *Bihar peasant life*, 271–85; Anand Yang, "Peasants on the move: A study of internal migration in India," *Journal of Interdisciplinary History* 10:1 (1979): 51–53. Oral testimony of Shree Chandra Kumar Jha, a retired high-school teacher and peasant in Kahua village of Darbhanga district, dated 22 December 2011. In contemporary times, the slack agricultural season begins in the winter months and the surplus labour of Darbhanga migrates to the Punjab where they are employed primarily in wheat cultivation.

⁴⁷ Tirthankar Roy, *The economic history of India, 1857–1947* (Delhi: Oxford University Press, 2000), 170–71.

⁴⁸ Kolff has convincingly demonstrated the military-soldiering of the Purabia Rajputs who came chiefly from Awadh, Bihar and the Varanasi region. See *Naukar, Rajput and sepoy*, 86–87. For an endorsement of Kolff's work and its significance for understanding peasant activism in late- and post-colonial Bihar, see Walter Hauser, "From peasant soldiering to peasant activism: Reflections on the transition of a martial tradition in the flaming fields of Bihar," *JESHO* 47:3 (2004): 401–34.

⁴⁹ C. J. Stevenson-Moore, *Final report on the survey and settlement operations in the Muzaffarpur District, 1892 to 1899* (Calcutta: Bengal Secretariat Press, 1901), 7. The settlement officer remarked that already in 1787 the people of Saran were migrating in large numbers to less-congested areas in search for work, while those in Tirhut loathed moving from their homes and preferred to live in poverty. Perhaps the settlement officer overlooked the relative food security of the region owing to the many perennially

Himalayan Terai offered greater possibilities of both the kharif and rabi crop cultivation and as a result the region required more labour for a longer period of time. Furthermore, the concentration of weavers and weaving villages appears largely in areas where agriculture was less remunerative and water resources were difficult to manage. While references to weavers come primarily from Saran, Gaya, Patna and Bhagalpur, in the Tirhut and Terai regions they are scarcely reported. Perhaps the concentration of weaving villages in a particular geographic and ecological zone of Bihar may be taken as evidence of the availability of surplus labour force as agriculture could employ only a part of it.

The important saltpeter production districts were Saran, Champaran, and Tirhut,⁵⁰ which lie to the north of Ganga. The production of saltpeter depended on the labour of lower castes such as nunias and *bildars* (earth-workers such as diggers or dike makers). Traditionally these castes constituted the landless labourers and they worked for the land-owning peasants and zamindars. Apart from working as saltpeter-scrapers, they would have also been employed as agricultural workers. Since the scraping off of saltpeter from farms and fields was done after the monsoon season ended and the boiling and refining of the substance was carried out in the drier months, the labour of nunias and bildars would have been available for paddy transplantation during the rainy season. The saltpeter production was a labour-intensive process. A source published in 1915 informs that to produce 8 to 16 pounds of crude saltpeter, nunias worked continuously for 30 to 36 hours.⁵¹ A British official who observed the process in the nineteenth century reported that each kothi employing the entire family labour of a nunia for six to nine months between October to June could produce between 634.2 and 1,115 kg of raw saltpeter.⁵² In the seventeenth and eighteenth centuries, when mostly the clay pans were used for boiling, the hours of labour would have been greater still and the refining process would have required more fuel. Unfortunately, we do not have

flowing Himalayan streams in Tirhut and other regions to the north of the Ganga. Year-round availability of water in the northern region sharply contrasts with the dry areas of Saran, Bhojpur and other districts to the south of Ganga. Obviously migration had become a norm in the less bountiful areas.

⁵⁰ Nitya Gopal Mukerji, *Handbook of Indian agriculture* (Calcutta: Thacker, 1915), 408.

⁵¹ Mukerji, *Handbook of Indian agriculture*, 409. During the mid-nineteenth century, a bildar employed for earth work in the "Ganges Canal" construction earned four rupees a month. If a nunia worked for a month collecting and refining saltpeter, it would be hard for him to produce enough saltpeter to sell for four rupees. For the monthly pay of bildars, see Jan Luccasen, "The brickmakers' strikes on the Ganges canal in 1848–1849," in Rana P. Behal and Marcel van der Linden, eds., *Coolies, capital, and colonialism: Studies in Indian labour history: International Review of Social History*, Supplement 14 (Cambridge: Cambridge University Press, 2006), 57. According to Luccasen, rather than referring to a specific caste group the sources denoted bildars as unskilled workers or assistants.

⁵² R. Montgomery Martin, *The history, antiquities, topography, and statistics of eastern India*, vol. 2 (London, 1838), 280; J. Stevenson, "On the manufacture of saltpeter as practiced by the natives of Tirhut," *Journal and Proceedings of Asiatic Society of Bengal* 2 (1833): 23–27; see also Frey, "The Indian saltpeter trade," 523; for the tools and techniques used for saltpeter collection and refining by the nunias in 1688, see NA, VOC, Inv. Nr. 1454, "Memorie bij forms van Instructie opgesteld bij Adriaan van Ommen coopman en hooft en Matheus van Heck, ... aan den ondercoopman Pieter Vrolijkchart, comptoiren Pattena en Sioppra" (hereafter, MvO Van Ommen to Vrolijkchart), signed by Adriaan van Ommen and Matheus van Hek at Chhapra on 01.06.1688, fos. 746v–47r.

any data about the terms of contracts between nunias and asamiyas. However, we know that the saltpeter business was controlled by the asamiyas and zamindars who advanced money to the nunias and that the latter paid them back in raw or refined saltpeter. Judging from their wretched conditions, the nunias worked for a bare subsistence and the profits of saltpeter trade went to the intermediaries such as asamiyas.

Labourers also came to the riverbanks and to the production and trading centres from areas where agriculture was less central to the economy. The hill people from the Chhota Nagpur Plateau and Santhal Pargana often moved out in search of jobs or profitable raids in the plain or the highways, especially during the lean agricultural seasons. Gyan Prakash mentions Rajwars who inhabited hills and jungles along the southern edge of the south Ganga plain. Apart from working as agricultural labourers for a few months, they traditionally carried out predatory raids on the plains and highways. After the mid-nineteenth century they were absorbed into the agrarian economy and their raids and robberies diminished to a large extent.⁵³ More evidence of unruly and turbulent people from the hills and jungle of southern parts of Bhagalpur are reported in early nineteenth-century colonial records.⁵⁴ As we shall notice from the early eighteenth-century Dutch records, many rowers and boatmen came down from the hills to take up temporary employment when the navigation peaked in the Ganga following the monsoon. In the nineteenth and twentieth centuries, the same hill people would find employment as migrant labourers in the mines of southern Bihar, the jute mills of Calcutta and the tea plantation of Assam.⁵⁵

It is clear from the above paragraphs that the production of textiles and saltpeter largely depended on the surplus labour from the agrarian economy. The weavers, nunias, and bildars continued to be partly employed in agricultural works and in the lean agricultural season they devoted their labour to the production of textiles and saltpeter. Their temporary employment as servicemen usually followed the rhythms of the agricultural season and the labourers went back to the fields when farming required their labour. The hill people also took up jobs as boatmen, rowers, and couriers primarily during the second half of the year, when the river traffic was at its peak in the Ganga. Subsequently, the hill people would return to their home during the drier

⁵³ Prakash, *Bonded histories*, 163–66. Bihar State Archives, Gaya Collectorate Records, Patna, vol. 2. (Issue side), letter from the Deputy Magistrate of Nawada, dated 13 April 1848, document cited by Gyan Prakash.

⁵⁴ Seema Alavi, “The company army and rural society: The invalid Thanah 1780–1830,” *MAS* 27:1 (1993): 152; BL, IOR, P/133/53, Letter no. 26. Petition of Abdul Rusul Khan Sezawal of Bhagalpur, 14 December 1819, Bengal Criminal Judicial—Lower Provinces, document cited by Alavi. The English Company raised the “hill regiments” in order to tame the turbulent hill area. The Company did so with the help of local notable, Abdul Rusul Khan, who supplied hill recruits and guaranteed their good conduct. One wonders if similar methods of jobber-captain existed in the seventeenth and early eighteenth century for supplying boatmen, runners and pions to the European Companies and other river-borne merchants.

⁵⁵ See for labour migration into the mining industry of south Bihar and tea plantations in Bengal, Prabhu Prasad Mohapatra, “Coolies and colliers: A study of the agrarian context of labour migration from Chotanagpur, 1880–1920,” *Studies in History* 1:2 (1985): 247–303.

months when the gains from predatory raids on the highways and plains could be expected to yield some profits.

In the following paragraphs I shall focus on the servicemen who were employed by the European Companies and local chieftains, usually from July–August to December–January as this was the brisk commercial season for the transportation of goods to the coastal cities and port towns.

River Folk

There is some evidence of the VOC employing servants at its different factories and warehouses in Bihar. Further, the Company regularly hired rowers, manjhis, daroghas, and militia for its river fleet. The European Companies also employed local boats with boatmen for transporting commodities. From the scattered references, it is hard to establish the ethnic identity of the labourers, but in some cases the Dutch sources do mention the names of some of its employees, as we shall see below. These names may help us conjecture about their ethnic identity. The European Companies also relied on the services of intermediary merchants, brokers, suppliers, *shroffs* (money changers) for the procurement of export goods and the sale of imported commodities and for financing their trade. Some of these intermediary merchants and brokers also constituted the service gentry who operated from Patna. Strictly speaking, not all brokers and suppliers were employees of the Companies and many of them functioned on the basis of charging commissions on the merchandise.

Evidence of the VOC hiring boats to convey its merchandise at Patna dates from at least 1646, though the terms of hire are not mentioned.⁵⁶ The practice of hiring local boats for transportation of goods remained commonplace well into the eighteenth century. The small local boats were used to collect saltpeter from Nawada and Chhapra and convey it to the main Dutch saltpeter warehouse at Fatuha. From Fatuha larger vessels and barges conveyed the saltpeter to Hugli.⁵⁷ A Dutch source called the “Patnase Cassa Boek,” or account book of Patna, gives interesting information about the expenditures on hiring of boats, employing the rowers and boatmen on monthly basis. For example, on 15 August 1755 the Company officials at Patna entered such expenditure in the account book under the following headings: expenditure on sloop and small boats f.96.19 (guilder or f.); payment of *soldijen aan land* (wages ashore?) f.721.17; the monthly salary of the local employees f.408.3.⁵⁸ For the next month, in

⁵⁶ NA, VOC, Inv. Nr. 1164, “Copia weissend door d’ oppercoopluijden Thomas van Cuijck en Jan van Iebinoq[?] in dato ultimo Januarij anno 1647,” by Martinus de Vroede and Thomas van Cuijck at Patna on 24.12. 1646, fos. 720r–721v. From another Dutch source of December 1659, we learn that because of the shortage of the means of transport—implying boats—the Company had to leave 400 lasts (one *last* equalled to 450 man) of saltpeter at Patna, see W. Ph. Coolhaas, ed., *Generale Missiven van Gouverneur-Generaal en Raden aan heren XVII der Verenigde Oostindische Compagnie*, vol. 3, 1655–1674 (’s-Gravenhage: Martinus Nijhof, 1968), 291, Maetsuyker, Hartsinck, enz. XVIII, 16.12.1659, and p. 343, Maetsuyker, Hartsinck, enz. 16.12.1660, for 40 *last* weighing 1,800 man of 68 Dutch pounds.

⁵⁷ NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdorn, 27.10.1755, fo. 158v.

⁵⁸ NA, VOC, Inv. Nr. 2873, “Cassa boeken na Patna d’ Anno 1755/56, In ’t N: Comptoire Pattena Ao: 1756,” fo. 56r.

September 1755, the Dutch account book notes the expenses on the rents of different types of boats. They paid to the “Mangies” of three big boats *f*.9, other “Mangies” of small and big boats *f*. 35.5 and the subsistence money or wages (*kostgeld*) to the rowers of small boats, which were hired to bring saltpeter from nearby places to Fatuha, *f*. 115.8.⁵⁹ For previous years the “Cassa Boek” is not available but the pattern of employing boatmen presumably would have been similar. As it is apparent from this source that the European Companies employed rowers and manjhis in August and September, that is the months immediately following the sowing season of paddy in June-July. It is likely that many peasants would have found work in these capacities after the paddy-sowing season was over. Since the names or places of the rowers and manjhis are not given in this case, we cannot identify their areas of origin with any certainty. But the sources do make a difference between the manjhis of Bihar and Bengal.⁶⁰ A Dutch record of 1724 mentions the names of eight boatmen employed by the Company in the delta.⁶¹ The way these names are spelt, they do not appear to be Bengali and I suspect them to be migrants from Bihar.

The river fleet of the VOC employed different types of functionaries, including indigenous soldiers whom the sources sometimes refer to as *gemeens* or *gemends*:. In a document called *instructie* or instruction of 1727, the Dutch officials mention the function of sixty indigenous employees hired for the river fleet. The darogha, who seems to have functioned as overseer, was Kesari Singh. Apart from the darogha, there was one Portuguese interpreter, one Persian letter-writer, one chief sepoy called a *hoofdpion*, thirty soldiers or *gemends*, three *gerriaals* (from the Hindi *gharial*, or time-keepers) or *inlandse kloklagers*, eight *kahars* (palanquin carriers), four couriers or *casset* (the Persian *qaseed* meaning, courier), three informants or *rondegangers* who normally reported to the manjhis about the safety along the route, four carpenters, and four smiths.⁶² The fleet was made up of some 148 different small and big boats. As most of the boats were hired, the number of boatmen on them is not given. The Dutch maintained some of their own boats and for these there is a remark that one boat is earmarked for four manjhis and 32 rowers, probably for the rowers’ private use and

⁵⁹ NA, VOC, Inv. Nr. 2873, “Cassa boeken na Patna d’ Anno 1755/56, In ’t N: Comptoire Pattena Ao: 1755,” fo. 31r.

⁶⁰ For the “Behaarse roeijers” or rowers from Bihar, see NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdom, 27.10. 1755, fo. 162v.; and for Bengal’s manjhi and rowers, see NA, VOC, Inv. Nr. 2862, From Hugli to Batavia 15.12.1754, “Missive van de afgaande en aankomende directeurs and raad aen den Hoog Edelens in dato 15 dec.1754,” p. 45.

⁶¹ NA, VOC, Inv. Nr. 8753, From Hulgi to Batavia 03.11.1724, “Twee copia verklaringen soo door 2 Europ: matroosen als een mangie of inlants stuurman nevens 8 zijnen roeijers belegt, nopens ’t violeeren onser vlag door Britse monttling dragende manschap,” pp. 189–193, esp. p.191 for the names of the manjhi (Narijn) and his eight rowers, Hillaram, Caljan, Lockinaet, Ramsjonder, Gopaal, Cobier, Ramsjern and Roepa. Reports bear dates of 18.08.1724 and 15.08.1724.

⁶² NA, VOC, Inv. Nr. 2075, From Hugli to Batavia 3.11.1727, “Instructie voor den manhaften capitain d’ E: Jacob Christiaan Pielat hooft en commandant mitsgaders de luytenants Jacob van der Helling en Francois Mulder...,” Hugli, 27.08.1727, p. 289. On the Indian system of dividing time during the Mughal Empire, see Stephan P. Blake, *Time in early modern Islam: Calendar, ceremony, and chronology in the Safavid, Mughal, and Ottoman empires* (Cambridge: Cambridge University Press, 2013), 59–69.

keeping their food-stuffs.⁶³ In 1770 the Dutch had close to one hundred indigenous servants employed in different capacities in their Patna, Singia and Chhapra factories, paying about f. 483 per month. From the document it appears that the majority of employees were hired seasonally.⁶⁴ The VOC regularly employed local functionaries and servicemen at least since around the mid-seventeenth century when it started buying saltpeter, opium, and textiles from Bihar.

One instance of local boat hire and the monthly pay for the *dandis* (boatmen or rowers) and *manjhis* comes from the English Company's records. In October 1764, the Company hired a number of different types of vessel to accompany the Governor of Ghiratty for the express purpose of receiving the Nawab. The rents are given on per day basis: twenty-seven boats of six oars at the rate of Rs. 1; five boats of five oars at the rate of 14 *anas* (there are 16 *anas* in 1 rupee); five boats of four oars at the rate of 12 *anas*; three boats of three oars at the rate of 10 *anas*; one boat of ten oars at the rate of 1 rupee 8 *anas*; 1 *bhaud* of four oars at the rate of 4 rupee; 1 budgerow (keel-less barge) of eight oars at the rate of 1 rupee 8 *anas*; and two budgerows of ten oars at the rate of 2 rupees 8 *anas*. The *dandis* were employed at the rate of Rs. 3 per month and the *manjhi*'s monthly pay stood at Rs. 5.⁶⁵ As we do not have consistent data for the previous period, it is hard to track the hire-rate for different types of boats and pay for the *dandis* and *manjhis* in course of the seventeenth and eighteenth centuries. Nevertheless, the above information on boat rents and pay gives some idea about the remuneration of boatmen. Indeed the river transportation attracted able-bodied rowers, boatmen, and a number of others such as sepoy, kahars, *gharials*, and couriers and so on as we already noted above. Another important sector for employing peasant labour would have been the military labour market as we find several chieftains along the Ganga maintaining substantial militia.

The Dutch sources also furnish information about some of the chiefs' military strength. Whenever the Dutch fleet plied the Ganga, for security reasons it was considered strategically prudent to seek and collect intelligence about the chieftains' cavalry and artillery. The Dutch fleet journal of 1729 reports that Raja Muhammad Asim of Kharagpur was camped along the southern banks of the Ganga between Jahangira and Sitakund near Munger with five or six hundred cavalry and artillery.⁶⁶ A year later, in 1730, the Patna fleet journal mentions a very notorious raja or chieftain,

⁶³ NA, VOC, Inv. Nr. 2075, "Instructie voor den manhaften capitain d' E: Jacob Christiaan Pielat," p. 291.

⁶⁴ NA, VOC, Inv. Nr. 3284, "Rendement vande onder volgende beschadigde goederen," From Hugli to Batavia 13.03.1770, fos. 399–428, see esp. fos. 425r–v; see also Inv. Nr. 3284, "Notitie van zodanige Inlandsche dienaars, als ter deezer kantoore absolut benodigt zijn, en onmoglijk kunnen gemist worden," Patna, 24.01.1770, pp. 171–72.

⁶⁵ BL/IO/P/1/37, Fort William the 15th October 1764, fo. 367v. Buchanan noted that the rate of boat hire was more in Calcutta than in Patna, see Buchanan, *An account of the Districts of Bihar and Patna*, 2:704.

⁶⁶ NA, VOC, Inv. Nr. 8762, From Hugli to Batavia 25.01.1730, "Journaal in form van een dagregister gehouden door den Luitenant Commandant Jacob van der Helling," entry of 7.10.1729, see p. 56 for the raja's militia along the river.

Bagtousersing (Bhagateswar Singh?) at Pepria, in the region west of Surajgarha and Samboa. It further noted that the men of this raja often robbed the merchants and controlled the passage along the Ganga. According to information gathered with the help of pions and informers, the fleet captain believed that the raja commanded a militia of 2,000 horsemen and 2,500 artillery and his control extended up to Samboa.⁶⁷ There were several other zamindars who maintained their own militia. Therefore, employment as militiamen in the service of a chieftain or warlord would have constituted another source of income for the peasants. Navigation on the Ganga peaked after the busy paddy sowing season (June-July) was over. For the chieftains too it would have been economical to employ the peasants as militia on a temporary basis during the peak navigation season for the collection of customs and tolls on the river *chowkies*.

The employment opportunity also existed for the overland transporters. Specialized groups of transporters known as *baladiyas* operated throughout the year except for four months of wet season from July to October. The references to these transporters appear more with reference to the drier areas where river navigation was impracticable. The *baladiyas* also functioned as peddling merchants carrying their own commodities from the rural areas to the local markets and vice versa. Most of them possessed capital of Rs. 5 to Rs. 50 and owned one to ten oxen, although some had Rs. 20,000 in capital.⁶⁸ Francis Buchanan reports that after the rainy season carts were used to connect Patna with the principal towns such as Danapur, Gaya, Behar, and Daudnagar. The usual rate of hire at Patna for a cart with two oxen ranged between four to eight *anas* a day. The porters were easily available in the towns and they were hired for transferring goods for a short distance.⁶⁹ Buchanan is not explicit whether these different types of transporters were peasants for a greater part of the year but such possibility cannot be ruled out.

From Colebrooke's remarks it appears that overland transportation costs were exorbitant compared to river freightage. For example, while overland carriage normally

⁶⁷ NA, VOC, Inv. Nr. 8765, From Hugli to Batavia 30.11.1730, "Instructie voor den Manhaften Capitaen D: E Jacob Willem van der Brughen," p. 1072.

⁶⁸ Buchanan, *An account of the Districts of Bihar and Patna*, 2:696; Chatterjee, *Merchants, politics and society*, 44.

⁶⁹ Buchanan, *An account of the Districts of Bihar and Patna*, 2:706–7. According to Buchanan, travellers found it difficult to obtain the service of porters in the countryside and the zamindars bound the weavers to convoy the luggage of travellers in lieu of some pecuniary benefits. In contrast at the places of production the service of transporters would have been easily available for hiring out to the local and European merchants who employed them for the collection of goods. It is well possible that at the towns, the porters were seasonal migrants who worked during the lean agricultural season and earned some extra money. During the 1620s the cost of transportation between Patna and Agra by bullock cart was about Rs. 1 5/8 to 2 a man. Further, the cart transportation seems to have some sort of organization because if the cart-men failed to reach Agra within the stipulated days then a redress could be demanded from the owner of the carts or the surety giver, see BL, APAC, IOR, G/28/1, Patna Factory Records, 1620, vol. 1, Robert Hughes and John Parker to the Agra Factory, 6 October 1620, p. 10; see also R. C. Temple, Bart, ed., "Documents relating to the first English commercial mission to Patna, 1620–1621," *The Indian Antiquary: A Journal of Oriental Research* 43 (May 1914): 83. The editor skipped some paragraphs while editing the original manuscript of Patna Factory Records of 1620–21.

cost about one rupee a man for one hundred miles, one could ship 100 man the same distance for only three to four rupees.⁷⁰ In other words, transportation by road was at least twenty times more expensive than by river. Therefore wherever the possibility of river traffic existed, water transport was far more economical and was preferred over the land carriage. For transporting goods a shorter distance some labourers found employment as porters in the Dutch warehouses, especially when the season for collection of goods peaked during the drier months, or the first half of the year.⁷¹ Apart from the transporters, some brokers or agents took long-term employment with the VOC, but their number would have been small.⁷²

In the above section, I discussed the supply side of the labour market, peasant labourers, hill people and those sectors of the economy that seasonally employed them. But before transportation, the merchandise of course needed to be produced in the farms and fields. Peasants' labour was essential to the production process, and it was only after goods were ready at the production centres that additional labour was needed to transport them on boats, oxen or on carts. The next section, therefore, discusses commodity production and the goods that attracted merchants of various descriptions from different parts of the world to the markets of Bihar.

Section II: Cash Crop and Mineral Production

The commercial economy of Bihar provided employment to the millions of peasant-producers, craftsmen, and workers who I discussed in the above section. Opium and saltpeter constituted the most important marketable commodities, followed by cotton textiles, grains, turmeric, musk, and borax, among others. The merchants purchased these goods from Bihar and transported them to long-distance markets. While section one primarily focused on the producers and labourers, section two considers the commercial goods themselves, how they were produced, the environmental zones where these goods were obtained, and their quantity and types. Our objective here is to synthesize information about producers and products. Such an exercise underlines the

⁷⁰ Colebrooke, *Remarks on husbandry*, 163–64.

⁷¹ NA, VOC, Inv. Nr. 1796, "Aparte memorie ofte Instructie, ...opgesteld bij den directeur Willem de Roo en zijn vervanger den edele heer Anthonij Huijsman" (hereafter, MvO Willem de Roo to Anthonij Huijsman), signed by Wm de Roo at Hugli on 06.11.1710, pp. 142–43.

⁷² NA, VOC, Inv. Nr. 1277, "Memoria raackende 's Comp:s voordeligen handel soo van salpeter, amphioen, muscus, witte lijwaten, borax, zeep, taruw, als verdere coopmanschappen die ten Comptoire Pattena wert gedreven..." (hereafter, Memoria raackende 's Comp:s voordeligen handel), Jacobus Verburgh comptoir Pattena tot Sioppa, 20.12.1669, fo. 1426v. The Persian writer Ramadas was replaced by Herporsaet (Har Prasad?) and got Rs. 300 per annum as his salary. According to a final report of Jacobus Verburgh, it is noted that except for the replacement of Ramdas the other indigenous employees continued in the service at the factories of Patna and Chhapra. Except for the key functionaries such as the brokers, writers and daroghas, the change of the lower rung employees or at least keeping them seasonally would have been more economical for the Company. For instance, from another *Memorie* or final report of 1710 we hear that none of the indigenous employees had been in long continuing service and experience compared to the useful and profitable services rendered to the Company by the broker Satae (Satto). See, NA, VOC, Inv. Nr. 1796, MvO Willem de Roo to Anthonij Huijsman, 06.11.1710, pp. 136–37.

vitality of the economy and its capacity to employ a large number of people. Further, a discussion on producers, products, and the productive capacity of the region is crucial to an understanding of the commercial activities of Asian and European merchants, the inflow of liquid-money and the implications for state formation. At the heart of all these economic and political developments were the goods that the peasant-producers furnished in the markets of Bihar.

Opium

Poppy (*Papaver somniferum*), or its final product opium, has been known to Eurasian societies since antiquity. The Zoroastrian text *Zend-Avesta* also mentions poppy and opium as having aesthetic effect. The use of the drug was well known to the Roman surgeons who used it as painkiller and sedative.⁷³ It was used for medicinal purposes in Near East and Egypt from the second millennium BC onwards but in India the earliest reference to the drug comes in a book on toxicology written in 862 AD by Narayan of Malabar, who mentions opium's use for the treatment of rat bites.⁷⁴ As references to the drug are virtually absent from the ancient Indian medical texts, scholars believe that opium was brought to India by Muslim traders or conquerors towards the end of the first millennium AD.⁷⁵ In the course of the second millennium AD, opium gradually began to be cultivated for medicinal uses and also for a moderate consumption in some parts of India. From the sixteenth century, if not earlier, poppy may have become an important commercial crop as it appears from the late sixteenth-century Persian record of the *Ain-i-Akbari*.⁷⁶ As the demand grew in the course of later centuries, more acreage was turned over to poppy cultivation, and in the early modern and colonial periods the drier but well-irrigated parts of the Ganga plain in Bihar and eastern Uttar Pradesh emerged as the leading producers of superior quality opium. For example, the Dutch sources frequently complain about the inferior quality of opium produced in relatively humid areas such as Purnia and northern parts of Bhagalpur, while the opium produced in dry western districts of Bihar was much sought after.⁷⁷

Opium as a narcotic drug is highly addictive for those who regularly consume it either by ingesting or smoking. Its burgeoning consumption in Southeast Asia and China created a huge market for the drug in the early modern period. Around the mid-

⁷³ Richard A. Gabriel, *Man and wound in the ancient world: A history of military medicine from Sumer to the fall of Constantinople* (Washington: Potomac Books, 2012), 80, 117, 176. For a survey of opium in pre-historic times and its psychoactive uses in early historic societies, see Carl A. Trocki, *Opium, empire and the global political economy: A study of the Asian opium trade 1750–1950* (London: Routledge, 1999), 13–19.

⁷⁴ Ram Nath Chopra, *Chopra's indigenous drugs of India* (1933; repr., Calcutta: U. N. Dhur, 1958), 205–6.

⁷⁵ Watt, *The commercial products of India*, 846.

⁷⁶ Abu'l-Fazl Allami, *The Ain-i Akbari*, vol. 2, *A gazetteer and administrative manual of Akbar's empire and past history of India*, trans. Col. H. S. Jarrett, ed. Sir Jadunath Sarkar (1949; rept., New Delhi: Oriental Books Reprint Corporation, 1978), 207.

⁷⁷ J. E. Schooneveld-Oosterling, ed., *Generale Missiven van Gouverneurs-Generaal en Raden aan Heren XVII der Verenigde Oostindische Compagnie*, vol. 11, 1743–1750 (Den Haag: Instituut voor Nederlandse Geschiedenis, 1997), 264, Van Imhoff XIII, 31.12.1745.

seventeenth century, the VOC procured small quantities of Malwa opium and exported to Batavia. During the seventeenth and eighteenth centuries, European and Asian merchants alike preferred Bihar opium to Malwa opium, which was grown mostly in central India.⁷⁸ One might ask why the trade in Bihar opium surged ahead of the Malwa variety during the early modern period. Recent scholarship suggests that the Malwa variety was superior in its alkaloid contents compared to the Bihar or Banaras varieties. According to Amar Farooqui during the seventeenth and eighteenth centuries the Dutch supplied the markets of Southeast Asia primarily with the Bihar variety and customers there got accustomed to its taste. In the nineteenth century the Chinese were showing a clear preference for Malwa opium, but Bihar opium continued to be traded in the Chinese market too.⁷⁹ If superior alkaloid content determined consumer taste, it is difficult to explain why Hindustani merchants who catered to Persian and Central Asian markets purchased enormous quantities of Bihar opium instead of Malwa opium. We do not know much about the Malwa opium trade before the nineteenth century, but its expansion during the nineteenth century was probably due to many other factors than simply its superior alkaloid content.⁸⁰ In the case of Bihar, we have rather detailed information about opium cultivation and trade from the seventeenth century. In the following paragraphs I shall discuss the agricultural methods employed by the peasants of Bihar to produce opium, the process of which has been described in wonderful detail in the Dutch “final reports,” or *Memorie van Overgave*, of 1688 and 1755. As the Dutch were one of the foremost buyers of Bihar opium, they keenly observed the production process of this crop.

Poppy Cultivation in Bihar

According to the Dutch report of 1688 the best soil for opium production was not clay but the one mixed with sand and known as *kewal* or *domut* having a greyish or ash colour. The opium grower, called “*khoijdrif*” in the Dutch reports, began his agricultural operations in mid-October or November, after the end of the rainy season. At first he ploughed the land and prepared it for broadcasting the opium seeds. In one *bigha* land of a hundred square cubits he sowed two and a half *ser* of seed and divided the land into several small quarters (*biddetjes*) and then filled them with water to soak

⁷⁸ George Bryan Souza, “Opium and the company: Maritime trade and imperial finances on Java, 1684–1796,” *MAS* 43:1 (2009): 123–24.

⁷⁹ Amar Farooqui, *Smuggling as subversion: colonialism, Indian merchants and the politics of opium, 1790–1843* (Oxford: Lexington Books, 2005), 98–101; Amar Farooqui, “Colonialism and competing addictions: Morphine content as historical factor,” *Social Scientist* 32:5/6 (2004): 23–27.

⁸⁰ Farooqui, *Smuggling as subversion*, 71–72. For a critique of Farooqui’s thesis of smuggling as subversion and for a complex interplay of capital and expertise put together by the British, Portuguese and Indian merchants, see Claude Markovits, “The political economy of opium smuggling in early nineteenth century India: Leakage or resistance?” *MAS* 43:1 (2009): 89–111. Though at another level, the novelist Amitav Ghosh also gives an impression that the opium trade was a common concern of the European and Indian merchants, especially at the Cantonese front. See Amitav Ghosh, *River of smoke* (New Delhi: Viking/Penguin, 2011). Apart from the superior quality of opium produced in the drier parts of Bihar, other factors behind the large market for the drug were its relative cheapness and ease of transportation through the rivers.

the soil. In due course the land developed a crust which he broke with an iron tool called a “*phoura*” (from the Hindi *fawra*, or spade) so that the seed could not get stuck beneath the crust. Then he regularly sprinkled water upon all the quarters for at least eight to fifteen days (depending on the moisture of the land) until the seeds sprouted. Irrigation then stopped because excess water could cause the tender roots of the plant to rot.⁸¹

After three-and-a-half to four months, the petals of the white flower around the poppy capsules started falling off, after which it took nine to ten days for the poppy capsules to ripen. To ascertain whether the poppy capsule was fully ripe, the peasant checked to see whether the capsule had turned a light green colour and whether it had somewhat hardened. He then commenced the process of extracting juice from the capsule. Employing a double-edged iron object called *naharin* he made two incisions being careful not to cut into the innermost pulp of the capsule. The day after making the incisions, the peasant scraped off the poppy juice that had oozed out of the capsule with an iron tool called a *sipij*. The next day the capsule was incised again in the same manner and two days later the process was repeated a third time but now the peasant gave but only one incision mark on the capsule. According to Adriaan van Ommen, representative of the VOC commissioner Van Rheede, the process was repeated four times but Tallefert limits it to three times only, though in both cases the last incision bears but a single mark on the poppy capsule.⁸²

The yield of the crop depended on environmental and natural variables. If the crop was subject to excessive unseasonal winter rains, hailstorms, or insects, the price of opium rose. If mild dry westerly winds prevailed, the poppy capsules matured properly and the juice dried evenly. On the other hand, moist easterly winds caused damage to the crop while extreme westerlies dried the poppy too much. Military movements and warfare also diminished the opium output of the region.⁸³

⁸¹ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fos. 764v–765r.; NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdom, 27.10.1755, fos. 193r–v. The Dutch merchants seem to be taking the measurement of bigha given in *Dasturu-l amal-i Alamgiri* of Auragzeb’s reign, which takes a bigha to be 100 cubits square, see Irfan Habib, *The agrarian system of Mughal India, 1556–1707*, 2nd edn. (New Delhi: Oxford University Press, 2000), 417–18; see also Stephan van Galen, “Opium in de intra-Aziatische handel, 1700–1760,” (MA thesis, Leiden University, 1995), 36. The surface area of one bigha land, according to the Van Ommen, comes to 10,000 square cubits, or 22,500 square feet.

⁸² NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 765r; NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdom, 27.10.1755, fo. 194r. See also, Om Prakash, *The Dutch East India Company and the economy of Bengal, 1630–1720* (Princeton: Princeton University Press, 1985), 57–8.

⁸³ NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdom, 27.10.1755, fos. 194r–194v; NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fos. 765r–765v; see also Suprakash Sanyal, “Ramchand Pandit’s report on opium cultivation in 18th century Bihar,” *BPP* 87:2 (1968): 181, 184; Van Galen, “Opium in de intra-Aziatische handel,” 37. In 1729, it was reported that the fight between the Nawab and chief of cavalry, Sjech Abdullah, caused the opium crop at Patna to suffer considerably and as a consequence its price rose, see W. Ph. Coolhaas, ed., *Generale Missiven van Gouverneurs-Generaal en Raden aan Heren XVII der Verenigde Oostindische Compagnie*, vol. 8, 1725–1729 (’s-Gravenhage: M. Nijhoff, 1985), 229, De Haan, Huysman, enz. XV, 31.01.1729.

In a favourable season, according to Van Ommen, a peasant could collect six or seven *ser* of poppy juice from one bigha poppy crop, and he could make an opium cake weighing up to three *ser*.⁸⁴ Taillefert notes that in a good season the peasant procured a quantity of eleven to twelve *pond* (Dutch unit of weight equivalent to approximately 1.09 lbs. *avoirdupois*, 0.49 kilogram) of poppy juice (which roughly translates into five-and-a-half to six *ser*) from one *bigha* of land and could make an opium cake weighing three, four or at the most five *pond*.⁸⁵ The Dutch scholar Van Galen assumes that Taillefert's report gives a somewhat lower yield output from one bigha of land compared to Van Ommen's earlier report.⁸⁶ As is apparent from the above Dutch reports, between the late seventeenth century and mid eighteenth century, a bigha of land produced more or less the same quantity of poppy juice. As we shall see below (Appendix I) certain parganas were the leading producer of opium and were assigned to the influential Mughal officials. Because opium could be grown in the highly fertile and irrigable land, it is possible that the cultivation was done repeatedly using the same land and productivity remained static or slightly declined. Although the Dutch *memories* or reports do not mention of the use of manure in opium cultivation but it is unlikely that manure was not used.⁸⁷

A mid-nineteenth century report on the opium cultivation in the Banaras region notes that in a favourable circumstances of soil and season a bigha of land (27,225 square feet) could produce 12 or 13 *ser* of standard opium juice. Under less favourable circumstances the yield could be anything between three and four *ser*, and the usual yield varied from 6 to 8 *ser* per bigha.⁸⁸ From this report we know that the opium lands were generally located in the vicinity of villages where facilities for manure, produced from animal waste, and water for irrigation were within easy reach. In such fertile land, it was the general practice to take a crop of corn, maize, or vegetables off the land during the rains, by September at the latest, and then dress the field for the poppy crop.⁸⁹ It clearly appears from this report that manure was normally used for poppy cultivation. As the average output was 6 to 8 *ser* from a comparatively larger size of bigha than what it had been during the time of the Dutch reports of 1688, one may assume that the productivity of the land remain static between the late seventeenth century and the mid nineteenth century.⁹⁰ On the other hand, some land could produce

⁸⁴ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 765v.

⁸⁵ NA, VOC, Inv. Nr. 2849, MvO Louis Taillefert to Adriaan Bisdom, 27.10.1755, fo. 194v.

⁸⁶ Van Galen, "Opium in de intra-Aziatische handel," 37n3.

⁸⁷ Habib, *The agrarian system*, 61. Since there was an abundance of vegetation for the fuel along the middle reaches of the Ganga plain, cow-dung must have been spared and used for agricultural purposes.

⁸⁸ Eatwell, "On the system of cultivating the poppy," 8; Naqvi has cited a source of the mid-eighteenth century, *Risala-i-zira'at*, which gives produce of opium ranging from two to five man per bigha. This yield per bigha is highly improbable in any circumstances. See Naqvi, *Urban centres and industries in upper India*, 117.

⁸⁹ Eatwell, "On the system of cultivating the poppy," 8.

⁹⁰ By the second half of the nineteenth century, the production of opium per bigha appears to have declined even further, if the source cited by Trocki is to be believed. According to the source, in 1871 a bigha (presumably of the larger size) produced four to five *ser*, see Trocki, *Opium, empire and the global political economy*, 68.

12 or 13 *ser* of poppy juice in a favourable season, which probably indicates that peasants took the initiative for improving the land and irrigation practices, and increased their use of manure.

The Dutch reports ignore the process by which the raw poppy juice was made into opium cakes, but they offer details about packing the opium cakes and selling them into the market. Once cakes were ready these were nicely wrapped up in the dried petals of poppy flower and they were regularly turned around to make them uniformly dry as long as these remained in the house of a cultivator before the *paikars* (the local small merchants) took them away. However, at the time of the valuation of the produce of the land the peasants or *paikars* sometimes hid the opium cakes in their houses and buried them because of the fear of the zamindar's or jagirdar's agents who could forcibly take their produce. Such burying damaged the quality of opium if it became damp, as could be easily detected by breaking up the cakes to reveal a dark and stale-smelling interior. There were other reasons for the deterioration of its quality and the most notorious being its adulteration. It was easy to adulterate opium with sand, or charcoal or other materials.⁹¹ There was also the possibility of cutting the opium with flour, mud, powdered charcoal, cow-dung, pounded poppy petals, and pounded seeds of different types. The Dutch took particular care to detect the adulteration because such bad quality goods could bring severe loss. Van Ommen and Tallefert suggest that the middle of an unadulterated opium cake appears sticky, shiny, and granular while an inferior one looked dull and non-granular.⁹²

Both the Dutch reports discuss about the by-products of the poppy crop, including poppy seed, dried poppy plants and the petals of the poppy capsule. Although our the Dutch reports do not go into detail about the culinary uses of poppy seed, which are non-intoxicating and used for preparing sweet-meats and certain curries. A cuisine very popular among Bengalis is called *aloo-posto* (potato with poppy seeds) and in Bihari households *posta-dana* is an ingredient for making cookies and sweetmeats. The seeds are also a source of oil after pressing in a mill (*kolhu*) run by oxen or pony. Oil was used primarily for lamps but also for consumption for the lower classes, and the poorer folks and the animals ate the cakes that resulted from pressing the seed.⁹³ Van Ommen informs us that one bigha of land yielded three man of poppy seed.⁹⁴ The cultivator spared some seed for his own requirements during the next agricultural season and sold off the rest. In around 1688 we get a general idea of the price of opium seed, which sold 1 ¼, 1 ½ to 2 man in one rupee.⁹⁵ Tallefert reports that in one bigha

⁹¹ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 765v. See also Van Galen, "Opium in de intra-Aziatische handel," 37.

⁹² "buijten twijffelen den amphioen die deugdelijck is, sal in't open breeken der koeken, lijnigh, glansigh, en korlagtigh uijt sien, dog op de hand gestreeken wesende moet het selve van couleur rossachtigh [roosachtig] met geen korle vermengt sijn, of anders is het vervalst goet," NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 765v; see also Eatwell, "On the system of cultivating the poppy," 16.

⁹³ Watt, *The commercial products of India*, 860.

⁹⁴ The Patna man weighing 72½ Dutch pounds was equal to *man-i Shahjahani*.

⁹⁵ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 766r.

land the cultivators collected two hundred “Banden” (Ponden?) seeds or roughly 100 *ser*. Taillefert’s report of 1755 does not give prices for the seed but taking a conservative estimate and considering it would have fetched at least 1½ man a rupee in the mid-eighteenth century, then the cultivator earned about two rupees from one bigha of land.⁹⁶

According to the Dutch reports, the poppy-petals were used in packaging the opium cakes. It is not clear as what was the quantity of poppy-petals produced in one bigha of land. In 1688, the Dutch bought 90 man of poppy petals for 18 rupees, or 5 man per rupee.⁹⁷ This means poppy-petals too would have contributed a little to the peasant’s income.

Opium Quantity

The Dutch reports inform us about the total quantity of opium produced in Bihar province. Van Ommen’s report of 1688 gives the per pargana figure of opium production, each pargana’s distance from Patna, the total area of a pargana, and whether it was governed by state officials such as *faujdar* (police officer) and jagirdar or by someone else (see Appendix I). The report lists a total of about thirty-one parganas that in a normal season produced 8,700 man of opium. If weather was not favourable this figure might fall by two or three thousand man. The report further offers a broad summary of the crop’s buyers. Merchants from Allahabad, Agra and so on usually bought between 3000 to 3500 man, those from Hugli and Balasore purchased 800 to 1000 man, and the Dacka [Dhaka?] merchants got 40 to 50 man, while the internal consumption of Bihar was put at 50 to 60 man. Thus Asian/Indian merchants accounted for the sale of between 3,890 and 4,610 man. The Dutch themselves bought 600 man in 1688 at a “civil” price while in the market opium was being sold 69 to 69 ½ rupee a man. The report gives no clue about how much opium was purchased by the English and other Europeans.⁹⁸ If 4,610 man purchased by the Indian/Asian and 600 man by Dutch merchants is subtracted from 8,700 man total estimated produce in a normal crop season, there would have still remained about 3,500 man in the market. This quantity probably fed into the private Dutch and other European merchants’ trade in opium.

The report of Taillefert, prepared in 1755, also gives a somewhat similar estimate of the total produce. Taillefert mentions that there were different opinions about the quantity of opium produced in Bihar province. Without revealing his sources,

⁹⁶ NA, VOC, Inv. Nr. 2849, MvO Louis Taillefert to Adriaan Bisdorn, 27.10.1755, fo. 195v; Van Galen suggests that a cultivator could sell off 200 kilo seeds from one bigha of land, see Van Galen, “Opium in de intra-Aziatische handel,” 37. Around 1900, ten man of poppy seed sold in the wholesale markets in different parts of India ranging from about rupees 35 to 66, see Watt, *The commercial products of India*, 860.

⁹⁷ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 768v. Van Galen misreads rupees 18 for 181 which were spent to buy 90 man of poppy-petals by the Dutch in order to pack the opium in cases made from these petals, see Van Galen, “Opium in de intra-Aziatische handel,” 38.

⁹⁸ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 767v.

he states that he would prefer to stick to the one that assumed it to be 2,500 *kist* or 5,000 man (1 *kist* being equal to 2 man). However, like Van Ommen, he writes that if all the opium producing areas were properly cultivated and if circumstances were favourable, production could be 4,000 *kist* or 8,000 man. About the purchase of opium by different groups of merchants, this mid-eighteenth century report informs us that the *bovenlandsche kooplieden* (merchants from the upcountry) purchased at the best 1000 *kist* or 2000 man, while consumption in Bengal, Bihar and Orissa was assumed to be 500 *kist* and the remaining 1,700 or 1,800 *kist* were left for the Europeans. Of these the Dutch bought 700 to 800 *kist* for themselves and the rest were for the English and the French.⁹⁹

These figures about the total opium production in Bihar hide more than they actually reveal. From the Dutch reports of 1688 and 1755 one gets the impression that the production remained almost constant, while Dutch demand nearly trebled. The growing Dutch appetite shows the rapidity with which the market was expanding in the eighteenth century. We know that the Dutch private trade in opium expanded even faster and some Dutch officials were able to amass substantial capital thanks to their private trade in opium and other commodities.¹⁰⁰ As we cannot accurately determine the quantity of opium feeding the Dutch/European private trade in the eighteenth century, it is difficult to believe that opium production remained stagnant between 1688 and 1755.¹⁰¹ Also, in providing the total output of opium in Bihar, Taillefert's report discounts the produce of Purnia and Bhagalpur, which was of inferior quality and which the VOC ignored.

The Dutch procured opium in three different ways. In the third quarter of the seventeenth century, when the Company's demand was rather small, they bought directly from the *khoijdrij* or the opium growers who came to sell in the open market in May and June. In this method of procurement the Company suffered a loss as opium dried out in June and July and weighed less by the time it reached Batavia. The second method was to sign a contract with the paikars before the crop was ready, but this method also had many difficulties. Sometimes paikars went bankrupt, were harassed by the ruling authorities or tried to adulterate the goods. Thus, according to Taillefert's report, the third and best method was to buy against ready money in the month of July

⁹⁹ NA, VOC, Inv. Nr. 2849, MvO Louis Taillefert to Adriaan Bisdom, 27.10.1755, fos. 195v–196r.

¹⁰⁰ There was some rumour about the wealth of the Dutch chief merchant Van Hoorn who died in Patna in 1712. When the Mughals learned that if a Dutchman died without any heir, the director in Hugli took possession of all his wealth, the authorities were ordered to seize the wealth of the Dutch chief which was said to be to about seven *lakh* (seven hundred thousand) rupees. But the valuation of van Hoorn's property came to be a little more than two *lakh*, still an impressive sum earned by a Dutch merchant presumably by means of his private trading activities. See BL, APAC, IOR, P/1/2, Bengal Public Consultations, fos. 218r–v.

¹⁰¹ According to Prakash the quantities of such goods as opium in private trade was often equal to that of the VOC's own account, see Prakash, *The Dutch East India Company*, 84; see also J. C. Baud, "Proeve van eene geschiedenis van den handel en het verbruik van opium in Nederlandsch Indie," *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch Indie* 1 (1853): 97–8.

and August when the drying process of opium was over.¹⁰² The peasant produced opium after receiving the advance money from the paikar at the stipulated interest rate and he was free to sell it to the paikar, who of course had the first claim over the product or on the open market, depending on where he got a better price. Thus, opium growers functioned on a pattern similar to that of weavers, who also received advances and were free to sell to the credit providers or on the market.¹⁰³ A price list of Patna opium in the first quarter of the eighteenth century is given in (appendix II.)

Saltpeter

Saltpeter has been known to Indian chemists, physicians, and artisans since antiquity, when it was used for making naphtha, as well as in metallurgy and making textiles.¹⁰⁴ The Sanskrit term for saltpeter is *agni-curn*, or fire powder. A Sanskrit treatise of uncertain antiquity, the *Sukraniti*, refers to saltpeter as *suvarcilavana*, meaning well-shining salt. Some textual sources refer to the use of saltpeter for firearms and rocketry, though scholars contend that this application had little if any practical utility before the arrival of the Muslims in India.¹⁰⁵ References to the use of saltpeter in the Bengali *ban*, a kind of rocket with a range of up to a thousand yards, appear from the early fifteenth century.¹⁰⁶ Though the historical literature is often silent on the issue, there may have been a link between the easy availability of saltpeter in the Bihar region and the political power of the Jaunpur and Bengal Sultanates in the fifteenth century and, later, the formidable success of the Afghan warlord Sher Shah.¹⁰⁷ It appears that both the military use of saltpeter and its use for fireworks would have given boost to production since the fifteenth century, if not earlier. Such production and consumption of this mineral would have necessitated some kind of labour organization and capital investment even before saltpeter became a staple of long-distance trade in the seventeenth century.

The nitrate of sodium, potassium, or even ammonium (KNO₃), commonly known as saltpeter, appears as a white crust on the surface of earth because of the decomposition of human and animal excreta and vegetable refuse. The contact of air

¹⁰² NA, VOC, Inv. Nr. 2849, MvO Louis Tallefert to Adriaan Bisdom, 27.10.1755, fos. 197r-v.

¹⁰³ Prakash, *The Dutch East India Company*, 99.

¹⁰⁴ We still do not know if saltpeter played some role in the high metallurgic standard attained by the Indian black smiths during the Gupta period, a master piece of which exists as corrosion free Mehrauli cast iron pillar of Chandra Gupta Vikramaditya (375–413 AD).

¹⁰⁵ Iqtidar Alam Khan, "The role of the Mongols in introduction of gunpowder and firearms in South Asia," in *Gunpowder: The history of an international technology*, ed. Brenda J. Buchanan (Bath: Bath University Press, 1996), 33–44. For an interesting counter perspective of the Sinocentric history of technology, see Asitesh Bhattacharya, "Gunpowder and its applications in ancient India," in *Gunpowder, explosives and the state: A technological history*, ed. Brenda J. Buchanan (Aldershot: Ashgate, 2006), 42–50; see also R. Balasubramaniam and S. Jai Kishan, "Saltpetre manufacturing and marketing in medieval India," *Indian Journal of History of Science (IJHS)* 40:4 (2005): 663–72.

¹⁰⁶ The Afghan rulers, the Lodis, and Surs made the use of *ban* in their siege operations, see Iqtidar Alam Khan, "The role of the Mongols in introduction of gunpowder," in *Gunpowder: The history*, ed. Buchanan, 41.

¹⁰⁷ For the use of artillery by Sher Shah, see Iqtidar Alam Khan, "Origin and development of gunpowder technology in India: A.D. 1250–1500," *Indian Historical Review (IHR)* 4:1 (1977): 20–29.

and moisture with nitrogen compounds found in decaying matters such as alkaline soil, plant ash, and human and animal waste allow nitre to penetrate into the soil. During the summer monsoon, rainwater dissolves the chemical compounds, which gradually evaporate and form a shiny, white crust. Favourable climatic conditions combined with a relatively high human and animal population density, and an abundance of natural vegetation for fuel for boiling and refining raw saltpeter made Bihar an ideal region for the manufacture of saltpeter.¹⁰⁸ The alternation between the arid summer months and monsoon rains followed by the dry and cool winter assisted the leaching process of saltpeter. While the former accelerated the decomposition process, the latter helped drying the saltpeter grounds on which formed a crust of soft mud about the thickness of a thumb.¹⁰⁹

In relatively densely populated areas of Bihar with equally thick flora and animals, their organic waste helped the formation of a white efflorescent crust on the earth's surface after the rainy season ended. The habitation zones along the northern banks of the Ganga River such as Saran, Champaran, Hajipur, and Tirhut had been the main producing areas of saltpeter. While the population density ensured an abundance of labour, the natural vegetation supplied sufficient fuel and fire-wood needed for refining raw saltpeter. Apart from the conducive environment and large labour force and the availability of fuel, other geographical factors such as river navigation for the collection of saltpeter and its further transportation to Hugli acted in favour of the expansion of saltpeter trade from the region during the early modern period.¹¹⁰ The cheapness and superior quality of Bihar saltpeter outbid the trade in this article from some other Indian regions such as Gujarat and Coromandel where the overland transportation costs proved to be prohibitive for the European Companies. In the following paragraphs I shall describe the production processes and quantities that Bihar was able to supply.

¹⁰⁸ Paul Forchheimer, "Etymology of saltpeter," *Modern Language Notes* 67:2 (Feb., 1952): 103; James W. Frey, "The Indian saltpeter trade," 511; Colebrooke notes that "the elementary substances, which form nitrous acid, are known to have existed in the atmosphere." He also points out that the production of saltpeter is greatest when hot winds blow. He estimates the population of cattle in Bengal province to be near fifty million, see Colebrooke, *Remarks on husbandry*, 180–89; NA, Hoge Regering Batavia, Inv. Nr. 244, "Beschrijving van het Bengaalse rijk," 1757, "welkers gronden door de urine der menschen en beesten vet en dus bequamer werden tot voortsetting van desen oegst [oogst]." (trns: by the human and animal wastes these grounds are made suitable for the growth of this substance), fos. 26v–27r; see also Els M. Jacobs, *Merchant in Asia: The trade of the Dutch East India Company during the eighteenth century* (Leiden: CNWS, 2006), 400, note 54; also W. H. Moreland, *From Akbar to Aurangzeb: A study in Indian economic history*, (London: Macmillan, 1923), 118; see also <http://www.salt.org.il/saltpet.html> (accessed on 28 March 2012).

¹⁰⁹ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fos. 746r–v; see also M. A. G. de Jong, "De Salpeterhandel van de EIC en VOC 1700–1760" (MA thesis, Leiden University, 1995), 9.

Production Processes

The profession of scraping and collecting this commodity was traditionally the work of a caste known as *nunias* who commenced their operation after the monsoon ended.¹¹¹ *Nunias* generally received working capital and remuneration from the *paikars*. After collecting the crust of earth, the *nunias* processed the raw substance by boiling it with water in large earthenware vats and then letting it cool.¹¹² After repeating this procedure a refined variety of saltpeter called *dobara* with 80 to 85 percent nitre could be obtained.¹¹³ A more refined product called *kalmi* or *dobara-cabessa* contained up to 95 percent nitre. This variety was produced by only few rich indigenous merchants for sale in the Calcutta bazaar.¹¹⁴ The Dutch also produced *kalmi* or *dobara-cabessa* variety using copper cauldrons instead of earthen pots.¹¹⁵ In the event that the output of *kalmi* could not keep pace with demand, the VOC shipped the second-grade *dobara* to Europe and refined it in the Netherlands.¹¹⁶ The entire procedure from the collection of the white substance from the earth crust to refining it for sale was done in the winter and spring seasons and thus this commodity was ready to be shipped when navigation in the Ganga eased during the rainy season, as we have already discussed in Chapter 3. In the following paragraphs, I shall briefly reflect on the organization of production.

According to John Marshall's report to the East India Company, saltpeter production was already well-organized around a hierarchy of traders and actual producers in the 1670s. For example, the English Company had contracted with and advanced money to thirty or forty *paikars* and *asamiyas* (the English wrote of them sometimes as *assomedar*) who functioned as middlemen.¹¹⁷ Marshall noted that there

¹¹¹ J. Stevenson, "On the Manufacture of Saltpeter," 23 for *loneah* or *nunia*; see also J. Stevenson, "The Indian saltpetre industry," *Nature: International Journal of Science* 88 (1912): 330–31, and J. Stevenson, "Indian saltpetre," *Nature: International Journal of Science* 99 (1917): 447–8.

¹¹² NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fos. 746–47r; NA, Hoge Regering Batavia, Inv. Nr. 244, "Beschrijving van het Bengaalse rijk," 1757, see fos. 26v–32v for a detailed description of saltpeter production and trade in Bihar. Chaudhuri uses the term *assamies* for those who extracted and refined saltpeter in Bihar, see K. N. Chaudhuri, *The trading world of Asia and the English East India Company 1660–1760* (Cambridge: Cambridge University Press, 1978), 339.

¹¹³ Els M. Jacobs, *Merchants in Asia*, 123; for a description of the production method, see Pieter van Dam, *Beschryvinge van de Oostindische Compagnie*, vol. 2 ('s-Gravenhage: Martinus Nijhof, 1932), 33.

¹¹⁴ Stevenson, "On the manufacture of saltpeter," 26–27; see also Prakash, *The Dutch East India Company*, 59.

¹¹⁵ NA, VOC, Inv. Nr. 1212, "Memorie voor d' edele heer Pieter Storthenius[?], extraordinarijs Raat van India, en Directeur over de opgeloookenen inportante commertie van Bengale en Orixia voorgesteld door den Commissaris Joan Verpoorten," (hereafter, *Memorie . . . door Joan Verpoorten*), Comptoir Piplij, 28.10.1655, fos. 211r – 225v, see esp. fo. 222v for the Dutch use of copper pans for refining saltpeter in Bihar. (voordesen hebben maar met 21: ketels te gestoot nederhandt met 15, ende is wijders gelegentht: gemaect om voortaan met 21: ketels te branden so dat de Comp: in 't aenstaande Jaer! in plaetse van de 800.000 pond die gevordert werden ten minsten 1000 a 1200.000 pond goede gesuiverde salpeter sal comen becomen...); In the early eighteenth century the English faced problems in acquiring good refined saltpeter because the *asamiyas* complained that their men refine the substance in small pots (probably of clay). The English remedied this problem by regularly supplying copper pans to their *asamiyas*, see BL, APAC, IOR, E/3/103, East India Correspondence with the East, 1602–1753, year 1726, fo. 38v.

¹¹⁶ Jacobs, *Merchants in Asia*, 123.

¹¹⁷ BL, APAC, IOR, H/47, Home Miscellaneous Series, laid before the committee of commerce 28 June 1787, see pp. 121–24 for John Marshall's report dated 16 December 1676. The reference is from p. 122.

were others who were subordinate to these peter-men, and these subordinates were most likely the under-contractors and nunias. The English had their own peter-men or contractors who were not expected to sell saltpeter to the Dutch or other merchants, but such restrictions were hardly effective and even Marshall complains of the Dutch dealings with the peter-men of the English. However, the VOC also maintained a number of saltpeter suppliers from the mid-seventeenth century onwards.

VOC documents mention many asamiyas by name. In 1660 the Dutch had twenty-one suppliers who delivered 47,303 $\frac{3}{10}$ man of raw saltpeter. The chief supplier was Goeberdhen Raij Swudhrij (Gobardhan Rai Chaudhuri) who had many under-suppliers. There is a detailed description as how much money these under-suppliers owed to the Company and how much saltpeter they were expected to deliver.¹¹⁸ From the Dutch “memorie” or final report of 1669 we also get a detailed break-up of the annual procurement of saltpeter. On average, the VOC bought around 40,000 man of saltpeter every year between 1665 and 1670.¹¹⁹

The reason for the enormous growth of the saltpeter trade from Patna since the seventeenth century was the fact that the product was incredibly cheap compared to that of Coromandel and Ava from Burma. In the 1660s, Coromandel saltpeter cost 10 pagodas or 52 $\frac{1}{2}$ guilders for a *bahar* of 480 pounds, and the same quantity of Burmese saltpeter would cost 63 guilders. In contrast, a *bahar* of Patna saltpeter—which far surpassed the others in quality—cost at most 11 guilders, or roughly five and six times cheaper compared to Coromandel and Burmese saltpeter respectively.¹²⁰ Another reason for the exponential growth of the Bihar saltpeter market was the region’s ability to keep up with expanding demand. By 1688, Bihar’s annual output of raw saltpeter was estimated to be 226,200 man, or 127,238 man of the refined product.

As this trade grew in the seventeenth and eighteenth centuries, total output and prices increased by the mid eighteenth century, and a substantial amount of liquid money found its way into the coffers of the provincial court, zamindars, and merchants. Of the twenty-eight parganas in which saltpeter was produced, about 22 percent of the total area comprised *khalisa* or crown lands while the rest of saltpeter-producing areas were administered by the holders of *jagirs* and by the zamindars. Bihar consumed only about 5.5 percent of the total production and 11.75 percent was sent to the other parts of

¹¹⁸ NA, VOC, Inv. Nr. 1232, “Relaes ofte kort schriftelijck verhael door den coopman Arnoldus van Wachtendonck op zijn wedercomst vande Pattanase besendings neffens desselffs mondelings rapport aen de edele heer Mattheus vanden Broeck directeur in Bengal, Orixia etc. in Ouglij overgegeven,” 01.09.1660, fos. 597r–604v.

¹¹⁹ NA, VOC, Inv. Nr. 1277, “Memoria raackende ’s Comp:s voordeligen handel,” 20.12.1669, fos. 1421v–1422v. For the number of *crediteuren*, creditors or saltpeter suppliers, see NA, VOC, Inv. Nr. 1232, “Relaes ofte kort schriftelijck verhael door den Coopman Arnold van Wachtendonck,” 01.09.1660, fo. 597v. Since the Patna man weighed 72 $\frac{1}{2}$ Dutch pounds, the annual export during the 1660s was to the tune of 2.9 million pounds.

¹²⁰ Wil O. Dijk, *Seventeenth-century Burma and the Dutch East India Company, 1634–1680* (Singapore: Singapore University Press, 2006), 43–4.

Bengal while a whopping 82.75 percent was exported.¹²¹ The internal and external demands for saltpeter and other commodities will be examined in the next chapter.

Conclusion

The industriousness of peasant-producers, workers, craftsmen and a host of others sustained the regional economy of Bihar. They sought to profit from their produce and got employment in different sectors of the economy. The majority of people lived in rural communities, although a small but economically more important part of population lived in urban areas. The urban centres of the Ganga plain may best be characterized as (r)urban place, quite distinct from the European fortified cities. Therefore, the number of those who straddled between the rural and urban areas would have been significant. Therefore, our estimate of urban population of Bihar at seven and half percent may be a conservative figure. If we include those who inhabited both urban and rural landscape in different months of the year, the percentage of urban population would increase significantly. More important, many people's livelihood was linked more or less directly to market-oriented economic activities, especially opium and saltpeter production and trade. The easy availability of labour and the natural arteries for communication further boosted the commercial economy of the region.

The commodities of Bihar clearly linked the region with the long-distance markets. Merchants of various standing, both Asian and Europeans, approached the regional market and bought merchandise primarily with bullion. Opium was a cash crop and ensured steady inflow of liquid money. In the course of the seventeenth and eighteenth centuries, the production of this commodity and trade expanded. This expansion meant an increased flow of cash into the region. Other commodities such as saltpeter played a similar role in the local economy. The fact that long-distance trade increased wealth and prosperity was obvious to the ruling class as well as to different merchant groups. The resulting inflow of wealth would eventually encourage centrifugal tendencies as zamindars and merchants looked increasingly to the resources and powers at the coast. In the course of time, zamindars and merchants tended to distance themselves from the imperial centre at Delhi. Did the integration of markets in the eastern Ganga plain with the maritime global economy encourage the centrifugal tendencies and contribute to the decline of the Mughal Empire? In order to explain this question in Chapter 7, the next two chapters will first examine the extent to which the local commercial economy was integrated with the overseas markets.

¹²¹ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fo. 750v; see also Prakash, *The Dutch East India Company*, 59–60.

Appendix I

Pargana	Distance and direction from Patna in kos	Area of pargana in kos	Total opium production in Patna man	Type of land	Administration
Bihar	10 / S	96	700	khalisa	faujdar
Malda	12 ½ /SE	20	500	khalisa	faujdar
Sammoij or Jamui	8 ½ /S	32	900	khalisa	<i>karori</i> ¹²²
Oukrij	15/S	22	200	khalisa	faujdar
Tilloren	9/ S:SE	25	250	jagir and khalisa	<i>mansabdar</i> (military rank holder) and <i>karori</i>
Bilhour	12/ S: to E	31	200	jagir	faujdar
Pilts	10/ SE: to E	19	200	khalisa	<i>karori</i>
Ichel	17/ SE	20	250	jagir	<i>mansabdar</i>
Geaaspour	4/ E:S:E	140	700	jagir	jagirdar/ on behalf of Wazir Asad Khan
Bhempour	3/E:S:E	12	100	khalisa	<i>karori</i>
Sjaszampour	8 ½ / E:S:E	10	100	khalisa	<i>karori</i>
Bissoork	10/ S	20	250	khalisa	<i>karori</i>
Somoot	16/S	20	250	khalisa	<i>karori</i>
Pattena		16	100	jagir	Nawab
Pholwarij	5/W	15	300	jagir	<i>request meester aan 't hoff</i>
Bellia	8 ½ / W	11	400	khalisa	on behalf of the king
Total produce of the above parganas			5400: man		

Table 4.1. Pargana-wise distribution of best-quality opium production in the late seventeenth century.¹²³

¹²² The official who assessed the land under cultivation for revenue collection; see Chandra, *Medieval India*, pt. 2, 150.

¹²³ NA, VOC, Inv. Nr. 1454, MvO Van Ommen to Vrolijkchart, 01.06.1688, fos. 766r–767v. See also, Van Galen, “Opium in de intra-Aziatische handel,” 38–39. There is a slight omission in the calculation of opium production in various parganas given in Van Galen’s MA thesis; he seems to have skipped to count the produce of Phulwari pargana.

Pargana	Distance and direction from Patna in kos	Area of pargana in kos	Total opium production in man	Type of land	Administration
Monneer	6/ W:N:W	35	100	khalisa	karori
Ara	11 ½ / W	12 parganas area not specified	700	khalisa and jagir	faujdar and mansabdar
Zijrant and Mansij	12 & 15/ NW and W: NW	12 or 14	600	khalisa	karori
Casmen	2/ N:NW	45	100	jagir	Jagirdar of 150 <i>sawar</i> (horses)
Bael and Goa	13 and 16 ½ / NW	97	500	jagir	Nawab
Bara Bareij and Siopparen	27,28 & 36/ W:NW and NW	74	250	khalisa/Jagir	faujdar and karori
Ferrua [Fatuha?]	2/ N:NE	35	200	jagir	faujdar on behalf of Patna's <i>subadar</i> (viceroy or governor of a provincial)
Melckij and Bellia	22 ½ and 40/E	86 (both of these)	200	khalisa	karori
Weslij[?]	27/ N	160	50	khalisa	karori
Rettij	8/ N: NW	40	100	jagir	15 to 20 small mansabdars
Bissara	5/ N	150	100	jagir	jagirdar/ on behalf of <i>Wazir</i> (minister Asad Khan)
Saressa and Derbenga	12 ½ and 25/ NE and E:N:E	129	150	jagir	Jagirdar and Nawab
Bagelpour, Saroij, and Sijangijra[Jahangira?]	50, 55 and 70/SE and SE to E	95 or 100 together	250	khalisa	karori
Total produce of inferior-quality opium			3300 man		
Total production (superior and inferior quality) opium of Bihar			8700 man		

Table 4.2. Pargana-wise distribution of inferior-quality opium production in the late seventeenth century.

Appendix II

Year	Patna	Hugli
1702	—	282
1703	—	304
1704	—	290
1705	—	260
1707	142	277
1711	—	363
1712	—	363
1713	208	292
1714	209	—
1716	225	—
1717	306	—
1718	252	345
1719	266	400
1720	260–280	416
1721	282–286	—
1724	214	—
1729	221–238	—

Table 4.3. The purchase price (in rupees) of opium in Patna and Hugli for each *kist* of 145 Dutch pounds.¹²⁴

¹²⁴ Van Galen, “Opium in de intra-Aziatische handel,” 41, citing *Generale Missiven*, vols. 6 and 7; also see, Coolhaas, ed., *Generale Missiven*, vol. 8:229, De Haan, Huysman, enz. XV, 31.01.1729.