Resilient communities: household, state, and ecology in south-eastern Panjab, c. 1750-1880

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Chapter 1: The Making of a Frontier

The frontier in South Asia between settled cultivation and the mobile worlds of the desert, savannah, ocean, and mountain has historically been fluid. Demographic change, political shifts and climatological factors have together given it form. They have also rendered it porous: as elsewhere in Asia, here, settled and mobile have overlapped with each other such that this 'silent frontier' has functioned less as a hermetic separation and far more as a zone of interaction and fusion.[1]

If, as scholars such as Jos Gommans, David Ludden, and André Wink have separately and differently argued, it is the mobile frontiers of South Asia that have shaped the subcontinent's history, the areas that constituted this shifting frontier were also very diverse.[2] Differences in geography and location carried implications for the manner and direction in which it was prone to moving. In this chapter therefore, I will provide a sketch of the part of the South Asian frontier that is the subject of this dissertation, which I simply designate 'south-eastern Panjab'. This formed one of two extensions of the nomadic Arid Zone in the Indian subcontinent, the other being the Deccan Plateau (see Map 1).[3] Its location on the fringes of the nomadic world meant that it was variously and contradictorily perceived as a subversive, martial, political, and cultural margin by the settled states to its east, but also as a lucrative commercial corridor and an ideal breeding ground for cattle and horses, so crucial to early modern armies. In this chapter then, I will devote my attention to those factors—geographical, political, and economic—that historically rendered this region a peculiar kind of frontier, at once peripheral and profitable.

The analysis is divided into five sections. The first of these considers the segmented political landscape of the region, both at the end of the eighteenth century, and historically. The second provides a climatic background to south-eastern Panjab and highlights its position as a climatic frontier, between the Arid Zone to the west and the more humid climate of the Gangetic Plains. The third section considers the implications of climate and location for rural livelihoods. It argues that while sedentary cultivation remained a marginal and uncertain pursuit, livestock-breeding, soldiering, and raiding were lucrative professions. At the same time, husbanding populations were nonetheless vulnerable to scarcity, and the fourth section reflects briefly on the history and contributing factors of famine in the region. In the final section, I provide a short overview of the various itinerant service groups that constituted part of the regional economy, and were sustained by the patronage of local notables and rural populations.

Mapping a frontier

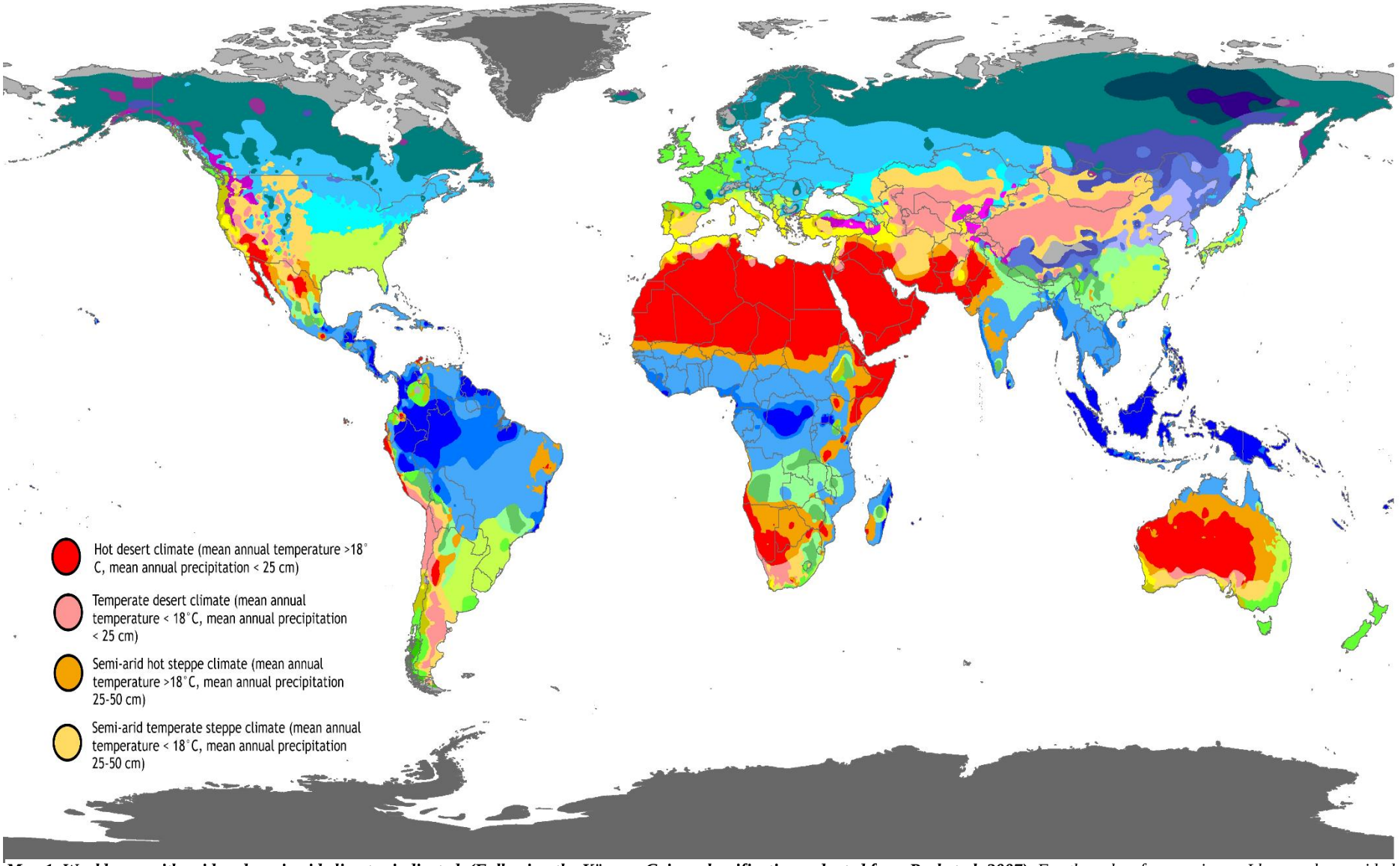
The region that I refer to in this study as 'south-eastern Panjab' stretched from the Yamuna river in the east to the Satlaj river in the west.[4] To the south and west it was bound by the Thar desert and the Aravalli hills, while to the north the land stretched as a plain for some distance until the Siwaliks, the Himalayan foothills (see Map 2). While it possessed a certain topographical unity, at the end of the eighteenth century it was a political mosaic. Formally, it still constituted part of the Mughal Empire, whose court was at Delhi; yet the effective power of the Mughals had declined significantly over the course of the

[1] Jos Gommans, 'The Silent Frontier of South Asia, c. A.D. 1100-1800', *Journal of World History* 9, 1 (1998), 1-23.

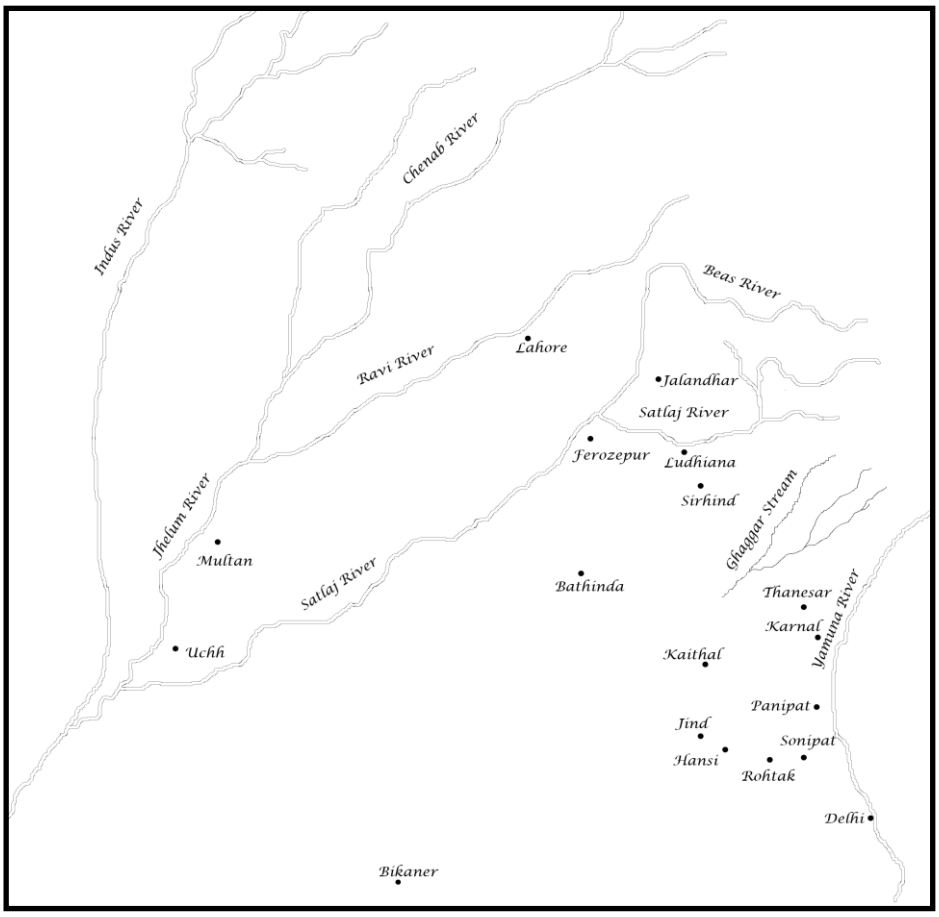
[2] Ibid; David Ludden, 'History Outside Civilisation and the Mobility of South Asia', *South Asia: Journal of South Asian Studies* 17, 1 (1 June 1994), 13; A. Wink, *Al-Hind, the Making of the Indo-Islamic World*, Vol. III, 2nd ed., (Brill, 2004), 79-80.

[3] Gommans, 'Silent Frontier', 5-6.

[4] Ibid.



Map 1. World map with arid and semi-arid climates indicated. (Following the Köppen-Geiger classification; adapted from Peel et al, 2007). *For the sake of convenience, I have only provided a key for the climates that fall within the category of arid (group B). For a full key and explanation of the norms followed, see here: http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007-supplement.zip*



Map 2. The Indus Plains

eighteenth century. More fundamentally however, this region had arguably always been a zone of political intransigence, such that the decline of Mughal influence itself did not dramatically alter the political dynamics of the region.[5] Historically, this flat plain provided an easy point of entry into the subcontinent to armies approaching from the north-west. On the edge of the Arid Zone and the agrarian country east of the Yamuna, it 'delivered its rulers the best of both worlds: mobile power and sedentary investment'.[6] Nomadic armies had yielded a number of Indian princely houses, not least of which was the Mughal dynasty itself. Not all invasions were, however, followed by attempts at state building. The Persian ruler Nadir Shah, for instance, whose armies swept through Afghanistan and up to the city of Delhi in 1739, retreated after a few weeks of raids attended by slaughter, having extracted a commitment from the Mughal emperor to pay tribute annually.[7] Although Nadir's raids were remembered for the scale of the devastation that they wrought, raiding itself was a common and indispensable tool for extending political influence in the region.[8]

Thereafter, even though it served as capital to successive Central Asian dynasties from the Mamluks to the Mughals, the city does not appear to have achieved an urban existence independent of the court and army.Indeed, it retained a distinctly rural nature. Describing the city's 'mud and thatch houses' in the early 1660s, the French physician François Bernier wrote that 'I always represent to

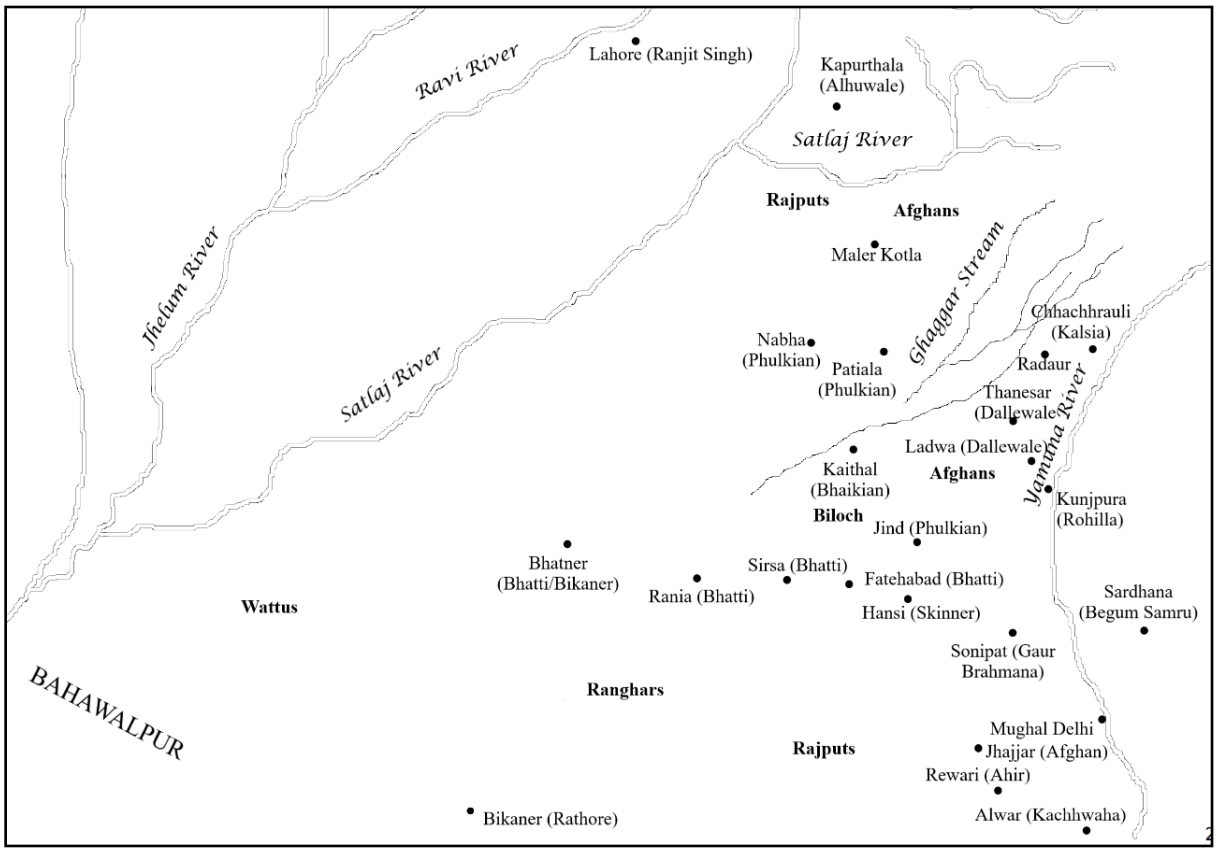
[5] C. A. Bayly, *Rulers, Townsmen and Bazaars: North Indian Society in the Age of British Expansion 1770-1870*, (Third Edition, Oxford University Press, 2012), 11-14.

[6] Gommans, *Silent Frontier*, 15.

[7] Jadunath Sarkar, *Later Mughals, vol. II* (Calcutta: M. C. Sarkar and Sons, 1922), 374-5.

[8] See Chapter 2.

myself Delhi as a collection of many villages, or as a military encampment with a few more conveniences than are usually found in such places'.[9] When abandoned, as it repeatedly was, by court and army, its urban character faded as well, leaving it, in the words of one traveller, as no more than 'an abode of shepherds'.[10] Yet, although this disjointed history of settlement has birthed a mythology about the 'seven cities of Delhi', it was in fact characteristic of most sites in south-eastern Panjab. Passing through the region, the Mughal patriarch Babur noted with surprise how quickly hamlets would emerge and vanish, an observation echoed by colonial officers as late as the 1880s.[11]



Map 3. Regional polities, c.1800

Rather than searching for clear political boundaries, it is more fruitful to focus on the contesting and overlapping tiers of power in south-eastern Panjab (see Map 3). As the eighteenth century drew to a close, there were a host of political entrepreneurs seeking a firmer foothold in the region, beneath the overarching, nominal authority of the Mughal emperor. These men came from a broad cross-section of socio-economic classes. There was, for instance, Mirza Najaf Khan, an Iranian nobleman with ties to the Safavids, who served a variety of noble houses in northern India, as well as the East India Company,

[9] François Bernier and Archibald Constable, *Travels in the Mogul Empire, A.D. 1656-1668* (Oxford University Press, 1916), 426.

[10] Johannes De Laet cited in Chetan Singh, *Region and Empire: Panjab in the Seventeenth Century* (Delhi etc: Oxford University Press, 1991), 96. De Laet had not been to India himself, but was quoting someone who had.

[11] Zahiruddin Muhammad Babur, *The Babur Nama in English*, trans. Annette Susannah Beveridge (London: Luzac, 1922). James Wilson later remarked of Sirsa district in the 1870s that, 'the people are unusually prone to wander (…) even after having lived in a place for some years a colonist (…) thinks it no hardship to quit the village with his family, cattle and household goods and migrate to a more favourable spot'. James Wilson, *Sirsa: Final Report on the Revision of Settlement of the Sirsa District, 1879-83. J Wilson. Calcutta, 1884* (Calcutta: Calcutta Central Press, 1884), 211 (henceforth, *SR Sirsa*).

before becoming a prominent Mughal courtier.[12] At the other end of class spectrum was Nawab Adina Beg, who was born into an Arain (husbanding) family. Having served in a variety of clerical positions, Adina Beg rose from being a revenue collector near Ludhiana to being made governor of Panjab. Although nominally a client of the Mughals, he had served a number of their rivals as well, not least of which the Ramgarhia Sikh *misal* (warband), and the Marathas. [13]

Independently of these talented mercenaries and professional administrators, who offered their services to different dispensations, there were also martial lineages like the various Sikh *misals* and the Marathas, whose relationship with the Mughals fluctuated between cooperation and conflict. These groups, whose composition is explored in the following chapter, were originally highly inclusive, a strategy that enabled them to swell their ranks, and made them a force to be reckoned with. Since the 1730s, the Marathas had launched a succession of raids on the Delhi region and had taken the Mughal Emperor under their official 'guardianship' in 1752-3.[14] While they were a presence to be reckoned with, their base was in the Deccan. In south-eastern Panjab, their rule was established by raiding, collecting tribute from merchants and rural populations, and granting revenue assignments to their various clients in an attempt to expand their administrative machinery in the region. However, many of these clients had shifting loyalties, and the Marathas' foothold in Panjab was repeatedly contested.

Amongst the foremost challengers of Maratha rule in south-eastern Panjab were the Sikhs. By the mid-eighteenth century, the Sikh Khalsa—the military vanguard that had been united by the tenth Sikh preceptor, Guru Gobind Sikh—had split into twelve bands or *misals*. Of these, leaders of the Phulkian, Bhaikian, Bhangi, Dallewalia, and Krorsinghia *misals* established states of different sizes in south-eastern Panjab. The largest of these polities was the Patiala state, founded by the Phulkian warlord Alha Singh. Other smaller chieftaincies of this same *misal* included Jind and Nabha, while the fourth large Sikh state of Kaithal belonged to the Bhaikian lineage. [15] Belonging to the larger Sikh congregation, or even the same *misal*, did not prevent these polities from competing with each other. Besides these larger states, there were a number of chieftains who had succeeded in carving out small principalities for themselves. These included Arnauli, Ferozepur, Radaur, Chachhrauli, Thanesar, and Ambala. By the early nineteenth century, these states of south-eastern Panjab found themselves caught in the rivalry between the Company on the one hand, and the powerful Sikh Empire of Maharaja Ranjit Singh of Lahore, on the other. Many, like the Phulkians, chose to ally themselves with the British. Others remained more ambivalent, and those, like Arnauli, who sided with Lahore in the Anglo-Sikh wars (1845-46, 1848-49), were subsequently reduced to the state of British revenue assignees (*jagirdars*). [16]

The rise of the Sikh states was not only a source of concern to the Mughal emperor, but also to older socio-political elites in south-eastern Panjab. Afghans, for example, had long been an important presence in the region, as the suffix 'Afghana' that is added to many place-names also reveals. The Afghans traded, amongst other things, in the high-quality horses that were a military necessity until the nineteenth century.[17] This trade made them wealthy and influential, and the eighteenth century saw the

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[12] Jadunath Sarkar, *Fall Of The Mughal Empire, vol. III* (Calcutta: S.N. Sarkar, 1938), 39-42.

[13] Henry Miers Elliot, *The History of India, as Told by Its Own Historians: The Muhammadan Period*, ed. John Dowson, vol. 8, Cambridge Library Collection - Perspectives from the Royal Asiatic Society (Cambridge: Cambridge University Press, 2013), 167-8, n.1; Purnima Dhavan, *When Sparrows Became Hawks: The Making of the Sikh Warrior Tradition, 1699-1799* (New York, New York ; Oxford: Oxford University Press, 2011), 82.

[14] Stewart Gordon, The Marathas 1600-1818 (Cambridge [etc.]: Cambridge University Press, 1993), 138.

[15] Dhavan, *Sparrows*, 17.

[16] C. U. Aitchison, *A Collection Of Treaties, Engagements, and Sunnuds Relating To India And Neighbouring Countrires, Vol.VI. The Treaties, &c., Relating to the Punjab, Sind, and Beloochistan, and Central Asia*. (Calcutta: Foreign Office Press, 1876), 61-2.

[17] Jos J. L. Gommans, *The Rise of the Indo-Afghan Empire, c.1710-1780*, Brill's Indological Library, Vol. 8 (Leiden etc.: Brill, 1995), 79-96.

blossoming of a number of new Afghan principalities in the region, such as that of Jhajjar and Kunjpura. Independent of these principalities, however, was an older Afghan population in south-eastern Panjab that practiced a mixture of trade, livestock-rearing, and soldiering. Other Central Asian ethnicities were also present in the region, such as the Baloch, who were camel-drivers, and who had held the site of Jind before being evicted by the Sikh warlord Ajit Singh.[18] In addition, there were a number of mixed husbanding populations of unspecified ethnicity, such as Gujars, Rajputs, Bhattis, and Ahirs. Each of these communities sustained themselves through a mixture of raiding, husbanding, and soldiering, their leaders using their local influence as a bargaining chip with external polities such as the Marathas and Mughals, to gain honours and offices. These positions were usually, however, simply a stepping-stone on the way to becoming an autonomous *raja* or *nawab*.[19]

A Climatic Background

Geologically, south-eastern Panjab constitutes part of the Indo-Gangetic Plains. This vast alluvial belt, stretching from the Bay of Bengal in the east to the Rann of Kutch in the west, owes its origin and continued existence to the flooding of the Indus and Ganga rivers and their respective tributaries.[20] These are perennial rivers, fed by snowmelt from the Himalayan mountains. As they descend from their mountain springs, these waters collect sediment and deposit it in the large trough at the foot of the Himalayas, which was created by the collision of the Indian and Chinese tectonic plates approximately 20 million years before present. Due to the continued movement northwards of the Indian plate (between 2-5 cm annually)[21], the river-courses of both the Indus and Ganga systems are prone to fluctuations. The Yamuna, for instance, now a major Gangetic tributary, once fed into the Indus system.[22] Such dramatic changes, however, are usually cumulative (even if swift in terms of geological time), and are constituted by many minor and imperceptible shifts.

Their common geological origins notwithstanding, the Indo-Gangetic Plains are climatically quite diverse. The country east of the Yamuna river tends to be more humid than the country to its west. South-eastern Panjab itself represents a mix of these two climates, although leaning towards aridity. This aridity is the product of a prolonged period of desertification which, albeit peppered with more humid interludes, has affected the region since roughly c.4000-1000 BC.[23] Until then, as was true of the Indus valley and the Thar desert too, south-eastern Panjab supported fresh water sources and received more rainfall than it has since.[24] It has been speculated that this desertification was the product of human activity, specifically of the extension of agriculture beyond a certain threshold.[25] Whether or not this was the case, the aridity of the broad Indus region has not been significantly reversed since. If anything, the desert has continued to expand, presently extending at a pace of 0.5 km annually in the direction of Delhi.[26] This aridity has rendered rivers and streams especially important as sources of water. Yet, in contrast with the trans-Satlaj tracts, there are very few streams to be found in south-eastern Panjab, all

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[18] Skinner, *Tazkirat al-umara*, f.191r.

[19] See Chapter 2.

[20] O. H. K Spate et al., *India and Pakistan. A General and Regional Geography*. (Third Edition; London, 1967), 41.

[21] D. K. Pal et al., 'Role of Microtopography in the Formation of Sodic Soils in the Semi-Arid Part of the Indo-Gangetic Plains, India', *Catena* 51, no. 1 (2003): 3–31, at 4.

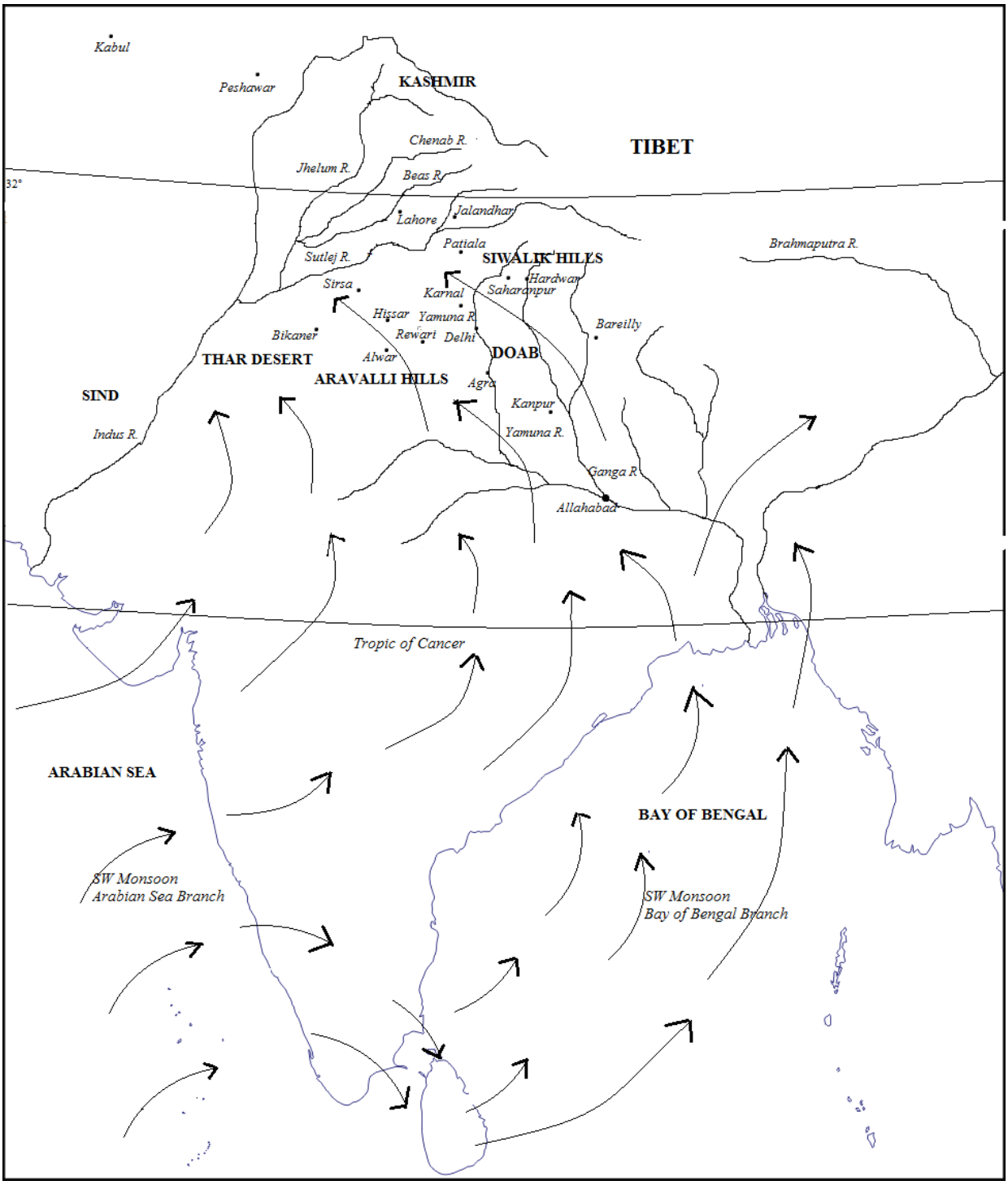
[22] Spate et al, *India and Pakistan*, 42.

[23] Marco Madella and Dorian Q. Fuller, 'Palaeoecology and the Harappan Civilisation of South Asia: A Reconsideration', *Quaternary Science Reviews* 25, no. 11 (1 June 2006): 1283–1301, at 1285-6.

[24] Reid A. Bryson and Thomas J. Murray, *Climates of Hunger: Mankind and the World's Changing Weather* (University of Wisconsin Press, 1979), 110.

[25] Ibid., 111-113; see also pp. 44-46 below.

[26] Surendra Singh Chauhan, 'Desertification Control and Management of Land Degradation in the Thar Desert of India', *The Environmentalist the International Journal for All Environmental Professionals*, 23, no.3: 219.



Map 4. The South-West Monsoons

of which, moreover, were rainfed. The most significant of these is the Ghaggar-Hakra, although the Sahibi, Indri, Chautang and Kashauti Nadi may be mentioned as well (see Map 2). Of these channels, the Ghaggar-Hakra and Chautang were created by the shifting course of the Yamuna river, while the others were mountain streams originating in the low outcrops of the Aravalli hills to the south-west of Rohtak, bordering on Mewat. In the event of heavy rains, however, these mountain streams came down to the plains with great force, flooding the countryside and even creating reservoirs of considerable size, such as the Najafgarh *jhil*.

For the most part, therefore, south-eastern Panjab is dependent upon precipitation for relief from its aridity. As is true of much of South Asia, the region receives most of its rainfall from the humid ocean-to-land winds known as *monsoons*. Of these winds, two in particular are relevant to the Indian subcontinent: the North-East/winter monsoons that bring rain to parts of the Coromandel Coast from October to December, and the South-West/summer monsoons, which bring heavy rainfall to much of South Asia from July through September (see Map 4). The latter monsoon splits into two branches as it hits peninsular India. The western, or Arabian Sea branch, ascends the Malabar Coast and brings rain to the Western Ghats. The eastern, or Bay of Bengal branch, travels over Bengal, to the eastern reaches of the Himalayas as well as further west to the Indo-Gangetic Plain. The summer monsoons bring South Asia approximately 70% of its total annual rainfall.[27] While both its branches do traverse south-eastern Panjab, they rarely bring more than 300-800 mm of rain to the region, for reasons discussed below.

Not only do the monsoons bring relatively meagre rainfall to south-eastern Panjab: they are also quite erratic, their timing and the amount of moisture they carry are subject to considerable variation. To try to understand why this might be the case, it is helpful to know how the monsoons function in the first place. In brief, these humid winds constitute one arm of a larger wind-system that spans Central Asia and the Indian Ocean region. The direction of the airflow is determined by the variations in the temperature of land and sea; the land both heating and cooling quicker than the oceans. In the winter, the cooler land temperatures create heavy, dense currents of air, which blow towards the Indian Ocean. In the summer, the flow is reversed, as the warmer terrestrial temperatures create a zone of low-pressure that then sucks in moist winds from the seas.[28]

Aberrant, unseasonable temperatures, therefore, alter the timing and strength of the monsoons, potentially leading to drought. Myriad factors might cause such aberrations. Over the last thirty years, the importance of the El Niño Southern Oscillation has been emphasized in this regard. The 'El Niño' is a periodic aberrant heating of the Pacific Ocean off the coast of Peru, which has been shown to impact local weather in other parts of the world, including South Asia. A mild, or 'minor El Niño' seems to occur once every 3.5 years, with largely localized consequences. 'Major El Niños', on the other hand, occur on average once every six years, precipitating unusually hot and humid weather in the Western Hemisphere (particularly, North America), and abnormally cool and dry weather in the Eastern Hemisphere (particularly eastern Africa and the Indian Ocean region).[29] It appears that it is in the more arid regions that El Niño tends to affect rainfall the most, which, in the case of South Asia, is the area that constitutes the Western Ghats, as well as present-day Gujarat, Rajasthan, Panjab and Haryana.[30]

Despite the paucity of data, some research has been conducted to identify historical El Niños and their impact on local weather in different parts of the world.[31] The results of these investigations are quite striking. For instance, of the twelve droughts that appear to have struck some part of northern India (including south-eastern Panjab) in the century 1783-1882, no fewer than eight (1783, 1803, 1814, 1824, 1837, 1860, 1868 and 1877) coincide with other climatic disasters—drought in China, aberrant flooding by the Nile river—suggestive of an El Niño event.[32] Nonetheless, this correlation does not establish causation. It must especially be emphasised that the relationship between the El Niño oscillation and the

[27] Calculated on the basis of Spate, *India and Pakistan*, 44.

[28] César Caviedes, *El Niño in History: Storming through the Ages* (University Press of Florida, 2001), 119.

[29] Ibid., 9.

[30] Mike Davis, *Late Victorian Holocausts: El Niño Famines and the Making of the Third World* (Verso: 2002), 240.

[31] Peter Whetton and Ian Rutherfurd, 'Historical ENSO Teleconnections in the Eastern Hemisphere', *Climatic Change an Interdisciplinary, International Journal Devoted to the Description, Causes and Implications of Climatic Change*. 28, no. 3 (1994), 221-253.

[32] Ibid., 241-6.

monsoon, specifically the South-West monsoon, is far more complicated than the schematic explanation given here suggests, and is mediated by numerous factors. One of these, for example, appears to be whether South Asia is experiencing an epoch of above- or below-average monsoons which appear to alternate every thirty years.[33] More significantly, there seem to have been numerous years in the nineteenth and twentieth centuries, during which a severe El Niño event has *not* affected the South West monsoon, leading some scientists to suggest that 'small-scale processes or local [climatic] phenomena' are at least equally important as larger climatic oscillations in shaping the South Asian monsoons.[34]

What, then, might some of these local factors be? Research on climate change over the course of the last forty years has suggested that human activity, specifically land use, is one of them. As mentioned previously, it appears that deforestation has significantly contributed to the development of the Thar desert and of arid conditions in much of the Indus valley, as far east as south-eastern Panjab. The South West monsoons, although extending to this region, do not drop much rainfall here. According to Bryson and Murray, this is not so much because these winds lack moisture by the time they ascend the peninsula. To the contrary, they claim that the monsoons over the Thar carry four times the water vapour as the wind over most deserts, and 80 per cent of the vapour as over tropical rain forests. Yet, this humid air does not ascend, cool, and condense and thereby lead to rainfall. Instead, it demonstrates a propensity to sink. Bryson and Murray, writing in 1979, speculated that this might be because of the large quantity of dust suspended in the air in this region: dust released into the atmosphere by deforestation and grazing. The presence of this dust, they speculated, reduced the ground's temperature by absorbing some of the sun's heat and light, which in turn meant that 'not as many day-time updrafts which could bubble up moist air far enough to produce rain are created'.[35] More recent climatological research has tended to validate Bryson and Murray's tentative explanation, if adding to our knowledge about the restrictive impact of dust upon precipitation.[36] On the whole, this body of research holds that dust is 'the seed by which the desert reproduces itself'.[37] Beyond a certain point, these scholars suggest that deforestation, intensive farming, unrestricted grazing and the desertification attendant upon them can induce more permanent, large-scale climatic changes as well, including changes to the wind systems of which the monsoons are part.[38]

It is also possible that from the mid-eighteenth century, under the pressure of agrarian expansion, south-eastern Panjab—like other parts of northern India—grew more arid.[39] Comparing colonial with Mughal sources, there appears to be an increase in the number of droughts in the region in the nineteenth century as compared to the preceding two hundred years, although this might simply reflect the poverty of our data for the earlier period. Some settlement officers were also of the opinion that south-eastern Panjab was 'drying up'. Denzil Ibbetson, writing of the western reaches of the Bangar (the 'Nardak'),

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[33] Davis, *Late Victorian Holocausts*, 235-6.

[34] R. Bhatla et al., 'Variability of summer monsoon rainfall over Indo-Gangetic plains in relation to El-Niño/La-Niña.' *Natural Hazards* 78.2 (2015), 851.

[35] Bryson and Muray, *Climates of Hunger*, 112.

[36] Epule et al., 'The Causes, Effects and Challenges of Sahelian Droughts: A Critical Review', *Regional Environmental Change* 14, 1 (2014), 3.

[37] Bryson and Murray, *Climates of Hunger*, 112.

[38] N. Devaraju, Govindasamy Bala, and Angshuman Modak, 'Effects of Large-Scale Deforestation on Precipitation in the Monsoon Regions: Remote versus Local Effects', *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 11 (2015), 3261. The authors speculate that only large-scale deforestation, across the entire Indian subcontinent (for example), would lead to a shift in the Inter-Tropical Convergence Zone and the Hadley cell, two airflows that also influence the South Asian monsoons. Like Bryson and Murray, however, they believe that localized deforestation leads to an increase in surface temperatures and changes in local patterns of rainfall.

[39] C. A. Bayly, *Rulers*, 103.

thought that the numerous abandoned wells in this region suggested that it was once much less arid. Similarly, James Wilson, in his monumental report on the Sirsa district (1883), noted that the relative shallowness of old wells in the area suggested that water was once closer to the surface than it had been in the region nineteenth century.[40] He had also heard from his predecessor that 'old inhabitants remembered the time when rainfall was much more plentiful and seasonable and that even within his own recollection there had been a perceptible diminution in the rainfall.' Wilson was, however, uncertain about how this hearsay ought to be interpreted, given that the rainfall in 1849-56 was similar to the average rainfall at the time of his writing. Moreover, he had also met 'old inhabitants' who felt that rainfall had improved since and because of the extension of cultivation.[41] Although Wilson does not specify which places these seemingly contradictory observations pertain to, they might both have been true if the precipitation received by different villages was in fact influenced by the history of their land use. For the moment, however, this remains no more than conjecture.

It must also be noted that there is a diversity of views on the origins of desert and savannahs alike. As Melissa Leach and James Fairhead demonstrated in their study of landscape-evolution in Guinea, while there is disagreement on the relative weight of different factors, both scientists and policy makers have often tended to treat aridity as an outcome of land degradation caused by short-sighted farming practices. Yet, as Leach and Fairhead showed, forest cover in Guinea in fact increased in tandem with agriculture, indicating that savanna-dwellers and cultivators had developed practices to maintain 'forest islands' on the edges of their settlements.[42] Moreover, while acknowledging the importance of local land-use practices, more recent studies have suggested that the aridification of the Harappan zone, within which the driest (north-western) parts of our region fell, was underway by 4000-1000 cal BC.[43] This in turn suggests that changing patterns of habitation and land-use in the Harappan period were, if anything, an adaptation to an increasingly dry climate, rather than its cause. As a recent analysis puts it, the 'transition to a drier, yet oscillating, climate, with marked annual (or few-year lasting) variations in rainfall' likely necessitated 'the adoption of flexible and opportunistic strategies to cope with an unpredictable alternation of wet and dry years'.[44] Itinerant subsistence, which combined pastoralism with sporadic and variable agriculture, was one such strategy. So, as we shall see, were soldiering and raiding, albeit these were predatory, rather than productive, activities.

If south-eastern Panjab as a whole was arid country, it must be kept in mind that even within this relatively small region, there was nonetheless considerable diversity of climate, soil, and vegetation. These differences were often subtle; however, as suggested above and corroborated by the settlement literature, local conditions were of considerable importance in shaping ecology. This was recognized by the inhabitants of the region too; and in fact, the names for the ecological zones of south-eastern Panjab that found their way into the settlement literature were borrowed by the British from the local languages

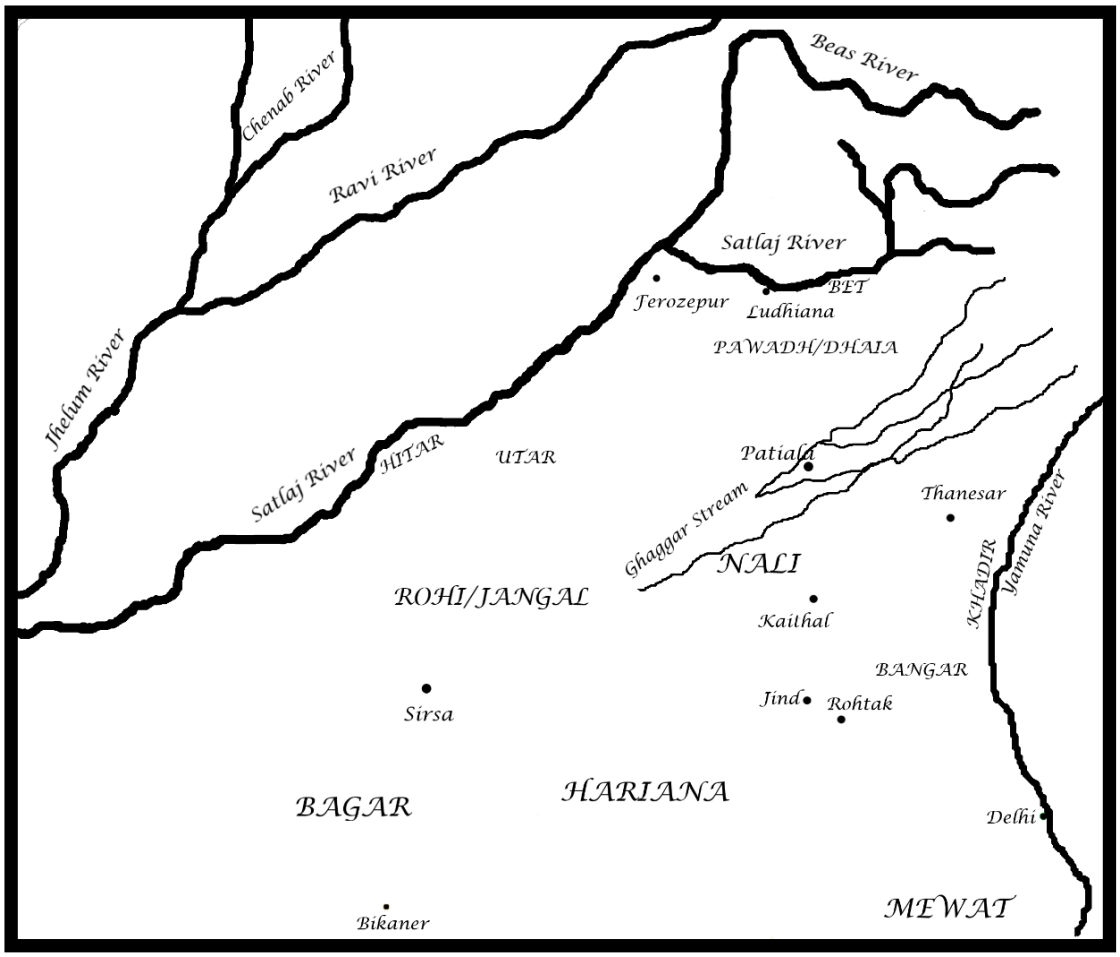
[40] Denzil Ibbetson, *Report on the Revision of Settlement of the Panipat Tahsil and Karnal Parganah of the Karnal District* (Allahabad, 1883), 16; Wilson, *SR Sirsa*, 7.

[41] Wilson, *SR Sirsa*, 9-10.

[42] See the introduction to James Fairhead and Melissa Leach, *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic*, African Studies Series 90 (Cambridge [etc.]: Cambridge University Press, 1996).

[43] Marco Madella and Dorian Q. Fuller, 'Palaeoecology and the Harappan Civilisation of South Asia: A Reconsideration', *Quaternary Science Reviews* 25, no. 11 (1 June 2006): 1283–1301.

[44] Andrea Zerboni et al., 'The End of the Holocene Humid Period in the Central Sahara and Thar Deserts: Societal Collapses or New Opportunities?', 2016, 61-62, at 62.



Map 5. Ecological zones within south-eastern Panjab

(Hindustani, Panjabi, and Bagri). Below I consider two of these ecological dimensions that are relevant to this stud and that serve to structure my analysis in Chapter 4.

The first of these pertains to elevation. Despite its apparent evenness, there are subtle differences in the level of the land across south-eastern Panjab, the product of the shifting course of its rivers. Prior to intensive canalization, these rivers drifted in opposite directions, those of the Indus system gradually but consistently shifting course in a south-westerly direction, while those of the Gangetic system shifted towards the south-east. This created a mildly undulating terrain, the old river basins being at a higher elevation than the new. Broadly speaking, the latter were considered more fertile than the former as they continued to be regularly replenished by fresh alluvial deposits brought by the rivers. Although the differences in the level of the terrain between 'upland' and 'lowland' were not usually easily visible, they were certainly considered important locally for the implications they carried for agriculture and land revenue. For instance, the boundaries of revenue assessment units ('circles' or *chaks*) often followed this divide, as was the case in the districts of Karnal, Sonipat, Panipat, Delhi and Sirsa, and where revenue rates occasionally differed substantially between them as well.[45] In south-eastern Panjab, these belts of old and new alluvium were to be found along the margins, close to the Yamuna and Satlaj rivers (see Map 5). They were given different names. In the western extreme of south-eastern Panjab, the drier 'uplands' were called Utar, while the floodplains of the Satlaj were called Hitar; north and east, in the vicinity of Ludhiana, the terms used were Dhaia and Bet respectively, and further south, in the

[45] Ibbetson, *SR Karnal*, 274.

corridor parallel to the Yamuna, Bangar and Khadar.[46] Given the slow, continuous shift of these rivers, however, the boundary between highland and lowland was both somewhat arbitrary, as well as flexible, and was often determined at an extremely local level. As a settlement officer of the Karnal district noted, 'a village in the [officially recognised] Khadar will call a high-lying portion of its area, its Bangar'.[47]

Besides elevation, proximity to the rivers itself was vitally significant for local ecology in south-eastern Panjab. Inland from the fluvial corridors, much of the region varied between desert and semi-arid grassland. In good years, the dry bed of the Ghaggar stream would be filled with water, turning the dry, sandy soil in its basin into a thick clay. This tract was called the Nali ('channel'). There were other subtle differences of climate and vegetation as well, which were often acknowledged with locally-specific appellations (Map 5). The vast grassland tract stretching south-westwards from Ludhiana, for instance, was known differently at different sites. Between roughly Ludhiana and Jind, it was called the Jangal ('grassland'). Near Sirsa, the grassland was known as 'Rohi', while further east, between Rohtak and Bhiwani, it was generally referred to as 'Hariana'. The tract stretching south-west from Sirsa, where grassland gave steadily way to desert, was known as 'Bagar'. These labels had both ecological as well as ethno-linguistic connotations. During the nineteenth century for example, the Hariana tract came to be known simply as the 'Des' (country) of a Jat *gota* calling itself 'Deswal', a *gota* that remains prominent in the region even today. Similarly, the peoples of the Bagar as well as the language they spoke came to be called 'Bagri'. 'Mewat', where the northern fringe of the Aravalli Hills was gradually subsumed within the Indo-Gangetic Plains, was the country of the 'Mewatis' or Meos. Such specific associations between ethnicity, language, and ecology were recurrent at different levels, all the way down to the locality. Indeed, there was even a popular saying according to which both the quality of groundwater and dialect, *bani aur pani*, changed every 12 *kos*, or roughly 40 kilometres.[48]

These differences in aridity and vegetation were reflected in the many minute differences in soil types in south-eastern Panjab. In general, however, these appear to have corresponded to the description 'loam'—a mixture of clay, sand, and silt (*dakkar, bhur* and *rausli* respectively). The exceptions to this were in the valleys of the Satlaj and Ghaggar, where the soil was almost entirely clay, and in the sandy Bagar tract. The quality of the earth itself hinged upon the size of soil particles which determined their ability to retain and drain water. Around the Yamuna river, these soils were finer, approaching silt. Further west, they began to approximate sand, as the size of the particles increased. This difference in soil composition is attributable to the respective regions through which the rivers of the Indus and Gangetic systems flow. The latter, traversing a more humid climate, tend to be replenished by rainfed streams as well, which does not happen as frequently for the former once they reach the plains. Thus, '[t]he Indus rivers, losing water, tend to drop their detritus early, [while] those of the Ganga, continually reinforced by the many large tributaries, carry their load much further.' The result of this is that 'the Indus soils are generally coarser'.[49]

Given its aridity, the groundwater and soils of south-eastern Panjab both tend to be saline. The lack of drainage and meagre rainfall mean that salt deposits naturally present in the soil accumulate rather than being washed away, rendering both water and soil alkaline.[50] There are exceptions to this; in the eastern fringes of the territory (the Khadar tract), groundwater is largely fresh. For the most part, however, it varies from brackish to saline.[51] Moreover, water was frequently found at a great distance

[46] Wilson, *SR Sirsa*, 12.

[47] Ibbetson, *SR Karnal*, 3.

[48] Wilson, *SR Sirsa*, 120.

[49] Arthur Geddes cited in Spate, *India and Pakistan*, 43.

[50] On the salinization of soil, see R. Chabra, *Soil Salinity and Water Quality*, 18.

[51] J. H. Boumans et al., 'Water Table Control, Reuse and Disposal of Drainage Water in Haryana', *Agricultural Water Management, Agrohydrology - Recent Developments*, 14, 1 (1 August 1988): see Fig.1, 538.

beneath the ground. That this was also the case in the nineteenth century is demonstrated by the settlement literature, and while the water table in the region has receded even further in the last fifty years, settlement officers claimed that it was not uncommon to find water to at least a depth of 40 feet, while in the districts of Sirsa and Hisar this distance was frequently 100-140 feet.

The sandy, saline soils of south-eastern Panjab supported a variety of bushes, many of which served as good fodder for livestock, although these could fail to grow in times of drought. One plant that appears to have been almost ubiquitous was called *jharberi* (*Zizyphus nummularia*), 'a small thorny bush-weed which grows … chiefly in poor lands', whose leaves (*pala*) were 'a very useful food for buffaloes, cows and goats', while camels and goats appear to have preferred it to almost any other kind of food.[52] Described as a 'species of wild plum', it grew even in times of drought. Its fruit was collected and eaten especially in lean times, while its thorns and briars were used as fuel and to make cattle sheds.[53] A similarly useful shrub was the *kair/karil* (*Capparis aphylla*), which was common both in south-eastern Panjab, but also further west in Multan.[54] Its fruit (*pinju*) was eaten, especially in times of scarcity, in the Bagar and appear to have been exported further east in pickled form.[55]

The region was, however, especially known for its nutritious fodder grasses, which some settlement officers even believed were the most important product of the district.[56] These included *dub/khabbal* (*Cynodon dactylon*), which was popularly believed to possess 'fattening and milk-producing powers'[57]; *dhaman/anjan* (*Pennisetum cenchoides*), reputed to have been 'one of the best wild grasses for cows and horses' [58]; and the coarse *dab/kusha* (*Eragrosh Cynosuroides*), which was eaten by buffaloes, and found in clayey soils or where water was close to the surface of the earth, mainly in the Karnal district.[59] Many of these grasses needed the especially arid and 'harsh' conditions of south-eastern Panjab to survive, such as the *kharimbar* (*Eleusine flagellifera*), which favoured sandy soils.[60] Similarly, the grass known as *sewan* (*Lasiurus hirsutus*) grows well in areas with moderately saline soil that receive less than 250 mm of rainfall a year. It is highly tolerant to drought and is found across North Africa, West Asia and modern-day Pakistan as well.[61]

Yet while rich in grasses, south-eastern Panjab appears not to have been very thickly wooded in the nineteenth century. Even though '[e]very village has, no doubt, more or less jungle, sometimes dignified by the name of *banni* or wood', this jungle was for the most-part constituted by low-lying brushwood.[62] These trees were never very tall, reaching at most a height of 10-12 feet and were of narrow girth, between one and two feet. An exception to this rule was the widely occurring *farash* (*Tamarisk orientalis*), a tree that thrived in saline soils, and which appears to have frequently reached a height of 60-70 feet, with a girth of 10-12 feet. Its wood was used as fuel, as was that of the common *kikaṛ*/*babul*

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[52] Wilson, *SR Sirsa*, 17; R. Maconachie, *Final Report on the Settlement of Land Revenue in the Delhi District* (Lahore, 1882), 28-9 (henceforth, *SR Delhi*).

[53] 'Pergunnah Rewaree', in *Selected Reports on the Revision of Settlement under Regulation IX of 1833 in the Delhie Territory*, No.1 (Agra, 1846), 7.

[54] J. Lindsay Stewart, *Punjab Plants, Comprising Botanical and Vernacular Names, and Uses of Most of the Trees, Shrubs, and Herbs of Economical Value* (Dehra Dun: [1869] 1977), 15-16.

[55] Wilson, *SR Sirsa*, 18: '*Bagar ka mewa pilu aur pinju*', 18. For trade in *pinju*, see Stewart, *Punjab Plants*, 16.

[56] Wilson, *SR Sirsa*, 13.

[57] Stewart, *Punjab Plants*, 254.

[58] Ibid., 259.

[59] Ibid., 254-5; Ibbetson, *SR Karnal*, 13.

[60] J. F. Duthie, *The Fodder Grasses of Northern India* (Roorkee, 1888), 57.

[61] Food and Agriculture Organisation, Grassland Species (database)
http://www.fao.org/ag/agp/agpc/doc/gbase/data/pf000268.htm

[62] H. C. Fanshawe and W. E. Purser, 'Survey and Settlement of Areas in the Rohtak District', *Punjab Proceedings*, 1881, 1. British Library, London, IOR/P/1622.

(*Acacia arabica*). Both trees are also to be found across West Asia.[63] *Kikar* leaves also served as fodder, and its bark was both used for tanning leather and in medicine.[64] The bright red flowers of the *dhak* (*Butea Frondosa*), which is to be found in more humid climates such as Bengal, but also seems to have grown in somewhat stunted form in south-eastern Panjab, were used to produce dye.[65] In the more moist soils of the Khadar, date palms/*khajur* were also to be found.[66] In these sparsely wooded environs, black buck, deer, jackals, wolves, a variety of snakes (such as the poisonous *karait*) and numerous wildfowl appear to have been abundant. Fish were found in the Yamuna, Satlaj and Ghaggar rivers, and crocodiles could be seen in the marshes created by water logging. The Karnal district especially, which was covered with dense jungle in the north, was rich in game. The western reaches of the Bangar (locally known as the Nardak) had once been the Mughal emperor's favourite hunting grounds; and as late as the 1820s, tigers and lions were seen in the area.[67] Tigers were also to be found around the Satlaj until 1850 but were uncommon thereafter.[68]

'Cheena, Chori, Chakri': rural livelihoods in south-eastern Panjab

As a result of its aridity and the unpredictability of the monsoons, continuous settled cultivation in south-eastern Panjab has largely been restricted to the floodplains of its perennial rivers. Anything more than rudimentary agrarian production further in its interior has usually depended on irrigation from canals and groundwater, or the maximization of received rainwater. Yet each of these options was in turn riddled with difficulties. Prior to the technological advances that allowed for the construction of tubewells, well-irrigation was viable only where fresh groundwater was available relatively close to the earth's surface (up to roughly 30 feet). In the nineteenth century, however, groundwater in south-eastern Panjab commonly appears to have been more than 40 feet beneath the soil, and the depth increased up to 200 feet in the Bagar. Certainly, in tracts which were regularly flooded, such as the Khadar and the Hitar, the groundwater was close enough to the earth's surface to be reached and fresh enough to be worth the effort. Similarly, Rewaṛi, on the northern fringe of the Aravalli hills, was apparently renowned for its wells, as it had the fortune of being watered not only by two hill streams—the Sahibi and Kashauti—but also by springs.[69] Yet, most of south-eastern Panjab was less fortunate.

Moreover, well-digging remained an expensive proposition, attended by uncertain results: water might be located very far beneath the ground, or it might dry up or turn salty. The speculative nature of the enterprise is captured by the proverb, '*johar daman, kuan raman*', or 'for a pond, (one must have) money; for a well, divine intervention.'[70] Many chose, therefore, to build makeshift wells, rendering 'well' a mixed category indeed. According to Richard Maconachie, settlement officer of Delhi, of roughly 9,000 wells in the district, many were 'a mere hole, dug in the earth, with its sides fenced round with brush wood'. Such '*kaccha'* (crude) wells, though cheap to construct, lasted only a couple of years and were feasible only in areas where water was close to the ground. In more arid tracts, masonry wells (*pakka kuan*, *kurand ka chha*) or wooden wells (*kandwale ka chha*) which could last a few hundred years were more numerous. For example, according to the settlement report for the *pargana* Rohtak-Beri on the eastern fringes of the Hariana tract, where water was at least 50 feet beneath the ground, a

[63] Stewart, *Punjab Plants*, 92.

[64] Ibid., 51. According to James Wilson, locals said that until the 1830s, there was not a kikar tree to be found in the country, although it appeared to have been quite common at the time of his writing. James Wilson, *SR Sirsa*, 18.

[65] Stewart, *Punjab Plants*, 59-60.

[66] Ibbetson, *SR Karnal*, 10.

[67] Ibid., 5.

[68] Wilson, *SR Sirsa*, 22.

[69] 'Pergunnah Rewaree', No.2; 4.

[70] Maconachie, *SR Delhi*, 54.

pakka well cost approximately 800-1200 rupees. For comparison's sake, in the year of the report (1839), the average revenue demand from each of that *pargana's* 108 villages itself amounted to a little less than 2,500 rupees.[71]

Canal irrigation was possibly beset by even more difficulties. To begin with, like well-digging it was an expensive operation. For instance, the Sirhind Canal, built in 1882 upon the upper reaches of the Satlaj river and bringing water to the Ludhiana and Ferozepur districts as well as to the Patiala state, cost 388.7 *lakh* rupees to construct, a substantial amount of capital to mobilize.[72] Further, even if the requisite funds were collected, the yields of their investment in canals were not always certain, leading some irrigation projects simply to be shelved. In the Hisar district, for example, revenue officers had entertained the possibility of canalising the waters of the Joiya branch of the Ghaggar for some thirty years. Their hesitation stemmed from the fact that the Joiya did not flow fast enough and was prone to silting due to the modest volume of water it carried. When money was finally collected from cultivators to nonetheless attempt canalization by first adding to the Joiya's waters from the Ghaggar, 'it appeared that the slender benefits of the scheme were far outweighed by the immense cost of the operation'. The settlement officer of Hisar concluded with some acerbity that, '(t)he final result of the various proposals for improving the Joiya irrigation has thus been *nil*.'[73]

The Joiya incident brings to light another obstacle to canal cultivation in south-eastern Panjab, namely, a lack of water-sources worthy of canalization. Apart from the Satlaj and the Yamuna rivers, canals in south-eastern Panjab had to be built upon rain-fed streams (*nadis*) such as the Ghaggar, or upon seasonal lakes (*jhils*) such as the Najafgarh *jhil*. Even in the event of plentiful rains, the water supply from these canals could run thin. Moreover, the real benefit derived from the presence of a canal was determined by the elevation of the agricultural fields. Those cultivators whose land was located lower than the canal, were able to drain water directly from the distributary channel, a method known as *tod*/flow. On the other hand, cultivators whose fields were at a higher elevation than the canal, had to make use of the labour-intensive *dal*/lift method whereby they physically transferred water over an embankment into a higher channel, which was then used to water their crops. Given the laborious and time-consuming nature of the task, this method was not widely used.[74]

Where canals could be constructed, they nevertheless often significantly improved agriculture in a short period of time. Their intensive use, however, could be devastating even in the medium term. As scientists and policymakers were to rediscover in the wake of the twentieth-century 'Green Revolution', the geomorphology of south-eastern Panjab was not entirely suited to canal irrigation.[75] This is because the region's sandy soils are prone to waterlogging, which in turn renders the earth brackish. These side-effects were already visible as early as the 1850s, as a result of the British renovation and extension of the Feruz Shahi canal.[76] The sluggish flow of water led to the accumulation of alkaline deposits (*shor*,

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[71] 'Pergunnah Rohtuc Beree' in *Selected Reports*, No.2, 52, 59. It is notable however, that despite the expense, Wilson reported that in the Rohi tract of the Sirsa district, which did not have even ten serviceable wells in 1838, there were 81 *pakka* and 350 *kaccha* wells in the early 1860s. Wilson, *SR Sirsa*, 179. See Chapter 4 for further discussion.

[72] Sir William Stevenson Meyer (et al.), *Imperial Gazetteer of India*, vol.23 (Clarendon Press, 1908), 20. Accessed online 20 May 2017 at Digital South Asia Library http://dsal.uchicago.edu/reference/gazetteer/

[73] A. Anderson and P. J. Fagan, *Report of the Revised Settlement of the Hissar District, 1887-92* (Lahore: Civil and Military Gazette Press, n.d.), 9 (henceforth, *SR Hisar*).

[74] Ibbetson, *SR Karnal*, 171.

[75] R.B Singh, 'Environmental Consequences of Agricultural Development: A Case Study from the Green Revolution State of Haryana, India', *Agriculture, Ecosystems & Environment* 82, no. 1–3 (December 2000): 97–103.

[76] Ibbetson cites an administrator who had rebuked the British Government for dawdling in addressing the damage done by the Western Jamna Canal. This complaint dated to 1867, when the problems associated with the canal had

reh) in the canal-irrigated tracts of Delhi and Karnal districts, rendering these once quite fertile soils less productive, or even barren. In some cases, the build-up of water even led to the development of swamps. One settlement officer described the 'pitiful' conditions of the villagers of the Bangar tract in Karnal's Panipat *pargana*: 'they live a semi-amphibious life, their houses crumbling with the damp, crocodiles in their village ponds', with malaria epidemics being a frequent occurrence.[77] While this was perhaps a particularly extreme case, the officer believed that drought was 'almost an unmixed boon to the canal cultivator' since it was the only circumstance in which the crops were not damaged by an excess of water.[78]

Instead of canals, cultivators in south-eastern Panjab had often relied upon bunding: building embankments in a strategic way to maximize the absorption of rainfall and water transported by seasonal streams. This system of irrigation was usually organized on the level of the village or *pargana* and seems to have been especially good for sandy soils, although its utility was dependent upon the monsoons. Bunds were erected in a zigzag manner, both to graduate the flow of rainwater, as well as to distribute their flow over as large an area as possible. By doing this, not only was soil erosion prevented, but water seeped down into the substrate beneath the sand and was preserved there for many months after the monsoons had passed. Indeed, bunding was used to prepare the soil for *rabi* crops such as gram and mustard (sown in October and harvested in spring) which would then not require any further irrigation. This technique appears to have been widely used in the outreaches of the Aravalli hills which skirted the city of Delhi to the north, west and south. Bunds were also built upon small streams such as the Sahibi, the Kashauti Nadi and the Joiya; however, since their construction naturally limited the supply of water received by villages downstream, they were frequently a source of dispute and were often destroyed, if only to be rebuilt later.[79]

The difficulties of irrigation and the uncertainties of the monsoons notwithstanding, pockets of flourishing commercial cultivation did manage to develop in south-eastern Panjab. In the seventeenth century, for example, indigo appears to have been grown on the region's southern frontier with Mewat, while cotton was grown in the vicinity of Sirsa.[80] In the nineteenth century, there is no mention of indigo, but cotton appears to have grown in the Khadar tracts of the Karnal and Delhi districts, as well as in the eastern stretches of the Rohtak district. Some of the coarser cotton appears to have been sold locally. However, in 1819, the value of the cotton produced for export (chiefly to Rajputana) by the Delhi Territory was estimated by Thomas Fortescue to have been roughly 7 *lakh*/700,000 rupees. Some twenty years later, a settlement officer similarly reported that 'great quantities' of local cotton were exported by the *pargana* of Kharkauda Mandauti.[81] If this was indeed the case, then at least at the time of Fortescue's writing, cotton would have been by far the most profitable product of south-eastern Panjab,

already been around for 25 years (i.e., since the early 1840s). The renovation and extension of the canal had only begun in 1815, which therefore suggests that its negative side-effects were felt within a mere quarter of a century. Ibbetson, *SR Karnal*, 71.

[77] Ibid., 314.

[78] Ibid., 311.

[79] While settlement reports often mention the use of bunds, I have so far not been able to find extensive information upon how they operated in the nineteenth century. The information here is an extrapolation based on the manner in which bunds have been, and continue to be, used in the Mewat region. I am grateful to Deep Joshi for sharing his extensive knowledge of this subject with me.

[80] Irfan Habib, *The Agrarian System of Mughal India, 1556-1707*, 2nd rev. ed., (Oxford University Press, 2000), 47, n.67 (indigo) and 44, n.46 (cotton).

[81] Thomas Fortescue, 'Report by Mr. T. Fortescue, Civil Commissioner Delhi, on the Customs and Town Duties of the Delhi Territory, 1820' in *Records of the Delhi Residency and Agency, Punjab Government Records Series, Vol. I*, (Lahore, 1911) 179; 'Kharkhauda Mandowtee' in *Selected Reports*, Vol.1, 35; Wilson, however, says that in the Sirsa district, 'cotton is only grown on a few wells on the Satlaj, and the area sown is insignificant'. Wilson, *SR Sirsa*, 283.

representing almost a quarter of the value of goods transited through the region from neighbouring areas (some 29 *lakh* rupees, although Fortescue says this is an approximate figure).[82] This amount in itself is not surprising, given the sums that the commodity trade appears to have generated in northern India since (at least) the eighteenth century.[83] Yet their cultivation on the fringes of south-eastern Panjab suggests the sporadic advance and retreat of settled, commercial agriculture in the region, a process that gathered momentum in the nineteenth century.

On the whole, however, such pockets remained the exception, not the rule, until at least c.1850, existing in the midst of a society where agriculture was still largely devoted to subsistence. Indeed, harvests were frequently insufficient, and food scarcity is a recurrent theme in the region's history. Those crops that were cultivated tended to be sturdy and drought-resistant grasses, primarily millets and pulses, that required relatively little care. *Bajra* (pearl millet) appears to have been grown almost ubiquitously, followed by *jowar* (sorghum), both of which also served as fodder grasses. Gram, mung, and moth (*Vigna acontifolia*, a pulse native to the subcontinent[84]) were also grown. Wheat was widely cultivated, although the availability of irrigation appears to have affected the quality of the harvest.[85] By contrast, rice, sugarcane, and fine varieties of wheat grew only in irrigated soils.[86] The tracts where irrigation was uncertain or unavailable, such as most parts of Sirsa and Hisar districts, only grew the rainfed *kharif* crop, while in Karnal, Delhi and parts of the Rohtak district, *rabi* (spring harvest) crops were grown as well.

The dependence of the cultivator upon the rains meant that crop failure was a regular occurrence. Such uncertainty made occupational elasticity a necessity of subsistence in south-eastern Panjab, as much for the cotton-cultivator as for the herdsman growing fodder grasses. This condition was succinctly captured by popular Hindustani sayings such as, *'bhains ka than, ya kuein ka muh'* and *'china, chori, chakri: hare kare kisan'*.[87] Each of these proverbs offers solutions to the farmer-herdsman in the event of a drought. The former drily states that there are only two choices: the teat of the buffalo, or the mouth of the well. The latter suggests that there are three options: growing *china* (a particularly drought-resilient strain of millet), theft/*chori*, or military service/*chakri*. Until the nineteenth century, *chori* and *chakri* were frequently resorted to, and although the British succeeded in 'pacifying' some formerly martial groups in parts of the subcontinent, they did not—by a long shot—stamp it out equally everywhere.[88]

Contrary to what the proverb suggests though, *china, chori, chakri* was not simply the last resort of the poor farmer in times of drought but rather a successful and profitable adaptation to the ecology of south-eastern Panjab. Combining the cultivation of low-maintenance, coarse but nutritious grains like millets with rearing livestock and trading animal produce was a profitable enterprise. As a settlement officer remarked in the late nineteenth century, the wealth and resilience of much of the region rested in

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[82] Fortescue, 'Customs and Town Duties', 180.

[83] Tom Kessinger, 'Regional Economy' in Dharma Kumar and Meghnad Desai, *The Cambridge Economic History of India. Vol. 2: C. 1757-c. 1970*, Cambridge Histories Online (Cambridge University Press, 1983), 247-8.

[84] Food and Agriculture Organization, 'Ecocrop' (database), http://ecocrop.fao.org/ecocrop/srv/en/cropView?id=2524 . Consulted 18 May 2017.

[85] 'Pergunnah Boruh' in *Selected Reports*, No.1, 24. At the same time, the author notes that irrigation calls for investment and is labour intensive, suggesting that a 'finer' crop was not always more profitable.

[86] For the climatic requirements of different crops, see Kenneth F. Kiple and Kriemhild Coneè Ornelas (eds.), *The Cambridge World History of Food.* Vol. 1., Cambridge Histories Online (Cambridge University Press, 2000).

[87] Maconachie, *SR Delhi*, 45 and 39.

[88] 'Banditry' will be discussed further below; see also Chapter 2. For South Asia's martial peasantry, see D. H. A. Kolff, *Naukar, Rajput, and Sepoy: The Ethnohistory of the Military Labour Market in Hindustan, 1450-1850*, (Cambridge University Press, 1990), Chapter 1.

its cattle, and pastoralism had a long history in the region.[89] Mughal sources mention the Bagar and parts of Hariana and Rohi tracts as specialists in livestock, specifically cows, buffaloes, and camels.[90] These animals were traded in periodic fairs held at sites such as Hisar and Sirsa. Just how profitable livestock breeding was might be adjudged by a comparison with the trade in cavalry horses, which from at least the sixteenth until the nineteenth century appears only to have skirted south-eastern Panjab.[91] Horses were grazed in and around Kabul and Kandahar, as well as just west of the Satlaj in the excellent pastures of the 'Lakhi jungle'. They were then either brought through Multan and Bahawalpur into Bikaner, central and southern India; or they were taken via Bhatinda to Haridwar.[92] The resources required for this trade were considerable, but it also delivered spectacular returns. Gommans speculates that a good Turki/Arabian cavalry horse fetched no less than 400 rupees, and as much as thrice that sum if a thoroughbred, a calculation that seems plausible also when compared with figures from the early nineteenth century.[93]

By comparison, the bullocks and camels that were widely traded in south-eastern Panjab were less valuable animals. Both were used for military purposes, the former to bear artillery, the latter as beasts of burden. Cattle were also bred for their milk and dairy products. Camels were used to transport goods through the sandy tracts of the Bagar further west. Precise prices for these animals are difficult to find for the precolonial period. Nonetheless, a communication of the East India Company's Military Board from 1844 provides a few indicators that allow for some reasonable speculation. Reflecting upon the record of the Hisar cattle farm for the year 1842-3, the Board noted that the drought, fodder-shortage, and the ensuing mortality of livestock had meant that only the camels had been reared profitably that year at the cost of some 82 rupees each. The cattle, on the other hand, had effectively cost the Company almost 150 rupees per animal due to the large number of casualties. These prices were high for their time, not only because of the drought, but also because the Company's standards for 'acceptable' livestock appear to have been extraordinarily high. Yet even so, they are far more modest than the price commanded by a cavalry horse.

Though cattle and camels might have been less valuable than cavalry horses per head, they were nonetheless traded in sufficiently large numbers to make the trade as a whole extremely lucrative. In addition, livestock-breeders profited from the trade in animal produce as well. The value and volume of these trades in the precolonial period is hinted at by Thomas Fortescue's detailed report from 1818-9. Listing all those taxes which the East India Company had left unchanged from the 'native *régime*', he mentions one called *Ganj Gawan*, a tax levied on the sale of 'all denominations of cattle and milk'. To his surprise, this tax had amounted to a little over 38,000 rupees in the year of his report. The city of Delhi was, in this respect, of relatively minor import. The lion's share—some 32,000 rupees—of these customs had been collected outside Delhi. Fortescue was incredulous at this considerable sum, given the diffuse nature of tax-collection, the improbability of tracking all sales, and the difficulty of preventing government *chaprasis* from simply pocketing the money they collected. Yet if his information was accurate, and 32,000 rupees did indeed filter through to the East India Company, it is

[89] Fagan and Anderson, *SR Hisar*, 2; the remark pertains to Hisar, I have generalized.

[90] Irfan Habib, *An Atlas of the Mughal Empire: Political and Economic Maps with Detailed Notes, Bibliography and Index*. Delhi [etc.]: Oxford University Press, 1982, map 4B.

[91] The overland trade in horses connecting Central Asia with Hindustan and peninsular India appears to have declined by the nineteenth century; see Jos Gommans, 'The Horse Trade in Eighteenth-Century South Asia', *Journal of the Economic and Social History of the Orient* 37 (1994): 246. However, the British did establish a horse-, bullock- and camel-breeding farm ('stud') at Hisar in 1813, Anderson and Fagan, *SR Hisar*, 62.

[92] Ibid., 230-1.

[93] A report on the horses bred at the Hisar farm from 1813 stated that the stud had succeeded in selling 28 horses that year at the average price of 1376 rupees per animal. Letter, 27 December 1816; 1154 et seq. British Library, London, IOR/F/4/543.

still possible that it represents only a shadow of the real value of the cattle trade. At any rate, in the year 1818-19, received taxes on this trade appear to have amounted to no less than a fifth of the Company's revenue receipts from south-eastern Panjab.[94]

Added to this were the taxes on animal produce. Dairy products, such as *ghi* (clarified butter) and milk were supplied in large quantities by pastoralists to cultivators and urban populations since at least the sixteenth century.[95] This appears to have been the case in the early nineteenth century as well; a British officer sent to survey the countryside of Hisar in 1815 noted that *ghi* was exported 'in every direction, particularly, however, to the Western States [presumably Patiala, Bahawalpur and Bikaner]'.[96] A cautious estimate from the late nineteenth century places the annual income earned by pastoralists of the Sirsa district from the export of *ghi* alone at 80,000 rupees.[97] The sale of meat was likewise a lucrative trade, especially in the larger cities with affluent populations. According to Fortescue, the butchers of the city of Delhi selling mutton and lamb paid a little under 8,000 rupees in 1818-19 on their trade.[98] Leather workers yielded some 3,600 rupees in taxes, while traders in cow-dung, straw, and fodder paid just under 8,500 rupees.[99] The latter was brought to the city, Fortescue writes, by a mixture of Bania traders, and service groups such as potters and milk-selling Gujars. Cow-dung was used as fuel, while fodder and grass were most likely brought to the city for households with a small number of cattle or horses to feed and house their animals.

Further, more specific evidence from the late-nineteenth points in the same direction. As late as the 1880s, the annual cattle fair at Sirsa saw herders bring as many as 19,000 bullocks, of which some 12,000 were then sold.[100] In Hisar district, the biannual cattle fairs, lasting twenty days each, were usually visited by at least 10,000 people. In the year 1890, these fairs facilitated an estimated eight *lakh* rupees worth of transactions in total, and they evidently never generated anything less than five *lakh* rupees of business cumulatively. This is already a significant sum, which does not even take into consideration the income earned at the minor cattle markets that routinely took place in the district.[101] Moreover, much of this money appears to have remained in the region: buyers of the famous cattle of *Hariana* and the *Bagar* came from as far away as Saharanpur, Meerut, Kanpur (in the Doab), as well as west of the Satlaj.[102] The Sirsa cattle-traders could therefore usually count upon selling '6,000 young bullocks for about a lakh and a half rupees in hard cash' at the principle fair in their district, a sum to which they would add by visiting other fairs in the same year in Bikaner and Punjab. This represented

[94] Fortescue, 'Customs and Town Duties', 139, says gross receipts of Company amounted to Rs. 7,20,245-4-7. For the Ganj Gawan, see ibid., 146-7. 1818-9 was also a famine year, but precisely what effect this had upon the cattle trade is difficult to estimate, see below.

[95] Habib, *Atlas*, Map 4B; Chetan Singh, *Region and Empire*, 218.

[96] 'Establishment of a Government Farm at Hisar' in *Records of the Delhi Residency*, 58.

[97] Wilson, *SR Sirsa*, 301.

[98] Ibid., 140.

[99] Ibid., 149.

[100] Wilson, *SR Sirsa*, 296.

[101] Anderson and Fagan, *SR Hisar*, 9.

[102] See Wilson, *SR Sirsa*, 297; P. J. Fagan, *Gazetteer of the Punjab: Hisar District*. Lahore: Civil and Military Gazette Press, 1893, 49 (henceforward *DG Hisar*). Fagan, settlement officer of Hisar district, claimed that the Hisar fair was becoming ever-more popular. This could have been because British controls on cattle-breeding and trade in other parts of the subcontinent were leading to the 'centralization' of the cattle trade. This is, however, a tentative explanation: I will explore this subject further in Chapter 4.

more than half the district's land revenue assessment, notwithstanding British attempts to curtail pastoralism.[103]

The commercial role of pastoralists was not restricted to the livestock and allied trades. On the contrary, well into the nineteenth century, the trading networks that spanned south-eastern Panjab, and connected it with other regions, could not have functioned without the carriage services provided by pastoralists, whether these be Afghan *powindahs*, Baloch camel-drivers, or Banjara and Gujar cattle-herders. We might distinguish two levels of trade in the region from the sixteenth century. The first of these was a trans-regional commerce that linked places as dispersed as the Thar, the Doab, Punjab and even Central Asia. Some of the commodities of this commerce were grain (wheat, rice), minerals (iron), cloth (woollen and cotton textiles), as well as luxury goods (sugar, tobacco, shawls, indigo). Grain and textiles were sold in large cities such as Delhi and Lahore. Some iron, imported from Alwar (Mewat), and sugar, from across the Yamuna, were sold in the *qasbahs* of south-eastern Panjab. For the most part, however, the region's value for this long-distance exchange was its location as a commercial corridor. The route more commonly used appears to have been the 'Grand Trunk Road', which passed through the city of Delhi and thereafter stuck close to the Yamuna river, passing entirely through the *Khadir* tract and skirting Hariana to its west.[104] Another route less used seems to have passed through the towns of Hansi and Hisar, thereafter crossing the Satlaj to Ludhiana, where it re-joined the Grand Trunk Road. Another artery connected Jhajjar (west of Delhi, on the fringes of *Hariana*) with Hisar, the Thar Desert and Sind.[105] These 'highways', as well as the smaller, *kaccha* or 'rough' routes that criss-crossed the region, became impassable during the monsoon months (unless the rains had failed).

Figure 2. Afghan horse traders, some of them resident in the region. Fraser Album, c.1815. (Source: Sotheby's Catalogue). *The men are identified on the reverse of the painting as 1. Khodadad Khan son of Mirza Bahram; 2. Mirza Bahram, an Afghan born at Kabul, a horse merchant; 3. Sayyid Khan, a Durrani Pathan, a merchant of Kandahar; 4. Nanmu Lahori, a trooper, resident at Delhi;5. Mullah Sayyidullah, a Durrani Patahn, a horse merchant of Kabul.*

[103] Wilson, *SR Sirsa*, 298. The fair in Bikaner was combined with the veneration of the hero-deity Gugga, worshipped in what is present-day Punjab, Haryana, and Himachal Pradesh. The devotional aspect of this fair will be explored in Chapter 3.

[104] Singh, *Region and Empire*, 205.

[105] Ibid., 208.

There was also regional trade between the local marts of south-eastern Panjab. In good years, the agrarian surplus of the countryside would be sent to towns such as Rewari, Sonipat, Karnal, Panipat and Delhi. Salt from Nuh (south of Gurgaon), saltpetre from the districts of Sirsa and Delhi and piece-goods from the latter district were similarly transported to myriad *qasbahs* for sale, but also found their way east of the Yamuna. Cultivators and artisans would sell their produce to the local merchant, who would arrange for its transport to the towns. In towns such as Rewari or Hisar, this merchant might have been a 'Bania', a hybrid term used to designate traders from Rajputana and Gujarat. However, in much of south-eastern Panjab, especially further away from the major trade arteries, commerce was in the hands of husbanding populations themselves, specifically pastoralists, without whom the Bania had no access to the produce of the hinterland, whether this be artisanal or agricultural. Once again, the value of this trade is indicated by the volume of taxes that it generated. In the year 1818-9, for instance, the East India Company appears to have earned more than six *lakh*/600,000 rupees just in commercial taxes levied on the import, export and transit of goods to and from south-eastern Panjab, and Fortescue estimated that this sum could rise substantially if the procedures to be followed by traders were simplified.[106] Once again, these figures likely underestimate the true value of tolls and customs levied on trade, as they do not include the taxes collected by local notables either behind the colonial state's back, or outside its jurisdiction.

As with raising livestock, soldiering and raiding, activities that overlapped to a considerable extent, could also be extremely lucrative professions. As Dirk Kolff has argued in his pioneering work on the 'military labour market', combining husbanding with soldiering was the norm in much of South Asia until the nineteenth century.[107] While Kolff argues that soldiering was resorted to by peasant populations in lean seasons, Fortescue suggests that raiding was a seasonal activity taken up by populations when there was a lull in the agricultural cycle. According to him, prior to British rule, rural communities

> 'led a very idle and warlike life, their hands producing scarcely any *Rabbee* [spring-harvest] crops. Their time was unemployed for five or six months in the year, when they usually issued forth, on horse and foot, to prosecute their plans of plunder and to capture whatever fell in their way, attacking and pillaging some village, retaliating and carrying off the cattle of others, and stripping merchants and travellers of all they possessed.'[108]

Fortescue's comments, although hardly a neutral observation, suggest that pastoral communities were especially inclined to raiding. This is not accurate; as the following chapter demonstrates, the Sikh warbands who used raids to provision themselves and extract tribute from their neighbours were social mosaics in which a variety of classes and occupational groups were represented. What is true, however, is that communities that subsisted primarily from pastoralism often made the most successful raiders. This was because of their familiarity with the terrain, and the ease with which they were able to navigate across grassland and desert. This is one of the reasons that the Bhattis, for example, were able to defy the attempts by states such as Bikaner and Patiala, and also the colonial state, to put an end to their raids.[109]

Livestock-herding and raiding being the most lucrative sectors of the precolonial rural economy in south-eastern Panjab, it was the groups that excelled in one or both of these trades that were also the politically most influential. There was thus a significant overlap between groups of political elites, who identified themselves most often as 'Rajputs', and somewhat less commonly as 'Afghans', and herding

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[106] Fortescue, 'Customs and Town Duties', 139.

[107] See D. H. A. Kolff, 'The End of an Ancien Régime: Colonial War in India, 1798-1818', in *Imperialism and War: Essays on Colonial Wars in Asia and Africa*, ed. J.A. Moor and H.L. Wesseling (Leiden: Brill, 1989).

[108] Fortescue, 'Report on the Revenue System, 115.

[109] See Chapter 3.

and raiding communities.[110] This overlap was noted by colonial officials in the nineteenth century as well, who explained their unwillingness to till the soil for a living in terms of a supposed 'slothfulness' that was characteristic of the grazier.[111]

Famine in south-eastern Panjab

The subject of famine has been mentioned in passing above; here, I will briefly consider its frequency and causes from the limited data at our disposal. Data particularly for precolonial subsistence crises is scarce, but a broad overview of dearth is nonetheless within our reach. In his classic study *The Agrarian System of Mughal India*, Irfan Habib weaves together the scattered mentions of famine found in a variety of sources, to provide us a detailed, if unavoidably incomplete, overview of scarcity in much of the Indian subcontinent in the sixteenth and seventeenth centuries. From his survey, it appears that famine in Mughal India was most common in the most arid country, specifically the Deccan and the north-western Mughal provinces, including the country around Delhi, Sirhind and Sind.[112] In and around south-eastern Panjab itself, famine appears to have struck eight times between 1554-1707: in 1554-5, 1555-6, 1572-3 (Sirhind), 1596 (all of northern India), 1615-16, 1636-7 (Panjab), 1658-62 and 1694-5 (especially the Bagar).[113] Except for the latter half of the seventeenth century, these episodes appear to have occurred roughly every twenty years. Thereafter, until the late eighteenth century, our information becomes substantially more fragmentary. We know of three significant famines in south-eastern Panjab: 1739, 1770 and the terrible *Chalisa* famine of 1782-3.[114]

Besides the incompleteness of precolonial records, there remains the question of what kind of 'famine' each of these years represents, and the differences in scale and intensity that they conceal. I would argue that, although a uniform measure of scarcity might be difficult, even impossible, to arrive at, a common denominator loosely binding these discrete cases together might yet be found. There are some indicators that suggest that in each of these incidents, a certain threshold of dearth and want appears to have been crossed. Notwithstanding their imperfect nature, the sources suggest that a few of these episodes were particularly grave. These include notably the crisis of the late 1650s, and the *Chalisa* of 1782-3, which affected not just south-eastern Panjab, but much of northern India. The latter even acquired mythic status because of its severity.[115] Yet even in the more 'minor' or localised crises, the same issues—drought, remission of land revenue, acute shortage of food, migration, vulnerability to disease and mortality—are mentioned. Although a very specific definition of famine might therefore not be within our reach, we can say that each of the years mentioned in this series represented a time when a sufficient supply of food was out of reach for a considerable section of the population.

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[110] According to Kolff, until roughly the sixteenth century, terms like 'Afghan' and 'Rajput' did not have an ethnic connotation, nor even were they indicative of status. Instead, they were purely occupational categories of soldiers. Kolff, *Naukar, Rajput, and Sepoy*, 65-115. By the eighteenth century, these terms had acquired an additional ethnic, as well as an elite connotation, through their long-term association with the Mughal state, their primary patron. 'Rajputness' was measured against the standard of the principal ruling houses of Jodhpur and Amber. Similarly, to be a 'true' Afghan, one had to emphasise one's connection to one's Central Asian fatherland (*watan*) and one's pure descent. Nile Green, 'Tribe, Diaspora, and Sainthood in Indo-Afghan History', in Green, *Making Space. Sufis and Settlers in Early Modern India.* (New Delhi: Oxford University Press, 2012), 87-89. As such, these groups remained highly diverse and stratified into the nineteenth century, depending upon their relationship to those elites who were closest to the Mughal court, or to their various clients.

[111] See Chapters 4 and 5.

[112] Habib, *Agrarian System*, 100.

[113] 1658-9 was a prolonged period of scarcity which, Habib speculates, might have been worsened by the war of succession which preceded Aurangzeb's reign, Ibid., 119.

[114] Maconachie, *SR Delhi*, 19.

[115] *Imperial Gazetteer of India, Provincial Series: Punjab*, Vol. I, 1908, 94.

Each of these years was one of inadequate or delayed rains in northern India. However, famines are not purely an expression of unfavourable climatic conditions; they also reflect a weakness in the lines of food procurement, or in the efforts to mitigate distress because a situation of scarcity is not deemed sufficiently severe to warrant action. In south-eastern Panjab, the escalation of drought to famine appears to have been a corollary of the region's very imperfect integration within networks of food exchange. Although grain certainly passed through the tract, much of it was destined for large towns such as Lahore, Agra and Delhi.[116] Habib's observation that for 'the mass of the peasantry, the local market must have been of incomparably greater significance', applies to our region well into the nineteenth century, notwithstanding the construction of a railway network from the 1850s.[117] Early British reports and accounts of the region, all agree that the small *qasbahs* and *ganjs* were important for the transit of goods and as facilitators of local trade but not as markets for imports.[118] These marts were therefore supplied either from the villages to which they were attached, or from nearby. Given the enclosed nature of the grain trade that fed south-eastern Panjab's cultivator-pastoralists, drought would either lead to famine because the crops had failed in the village, or because of scarcities in a neighbouring settlement that substantially increased the demand and therefore the cost of grain.[119]

Besides distance from markets, the specific ecology of south-eastern Panjab would also suggest that communities that relied primarily upon cultivation were less resilient to scarcity than those that practiced more hybrid livelihoods. This is not to say, however, that pastoral populations were not vulnerable to the vagaries of nature. Fodder grasses certainly grew well in south-eastern Panjab; however, they too were dependent, in varying degrees, upon the rains.[120] Successive years of drought and the ensuing scarcity of pasture could therefore lead to weakness and disease amongst cattle. The relative sturdiness of many fodder grasses often softened the blow of scarcity somewhat; yet, the loss of cattle in cases of severe drought and famine could be spectacular. In 1868-9, for instance, 65,000 reportedly cattle died in Karnal, of which 20,000 in the Nardak alone. The following sowing season, there were so few cattle were left in Sirsa district that women were allegedly being used instead to draw the ploughs.[121] The famines of 1783 and 1833 were apparently marked by similar distress.

These instances notwithstanding, the impact of natural disasters upon the cattle trade is difficult to evaluate. According to one settlement officer, 'the prospect of a drought and a scarcity of fodder in the neighbourhood bring a large number of cattle to the fair, as their owners having difficulty providing for them are anxious to sell.'[122] The sudden surge in the supply of cattle led to a drop in their prices. Yet this seems to be too simple a chain of causation. The severity and geographical scope of the drought, as well as their own resources, seemed to have shaped pastoralists' responses to scarcity. In dire cases, they might be compelled to slay their cattle to feed themselves, as did the Bhattis in 1868.[123] In the event of localized drought, however, they might choose to migrate with their cattle in search of pastures elsewhere. Given their mobility and the climatic diversity of south-eastern Panjab, they were likely to find grazing grounds without moving very far. This pattern of 'enclosed nomadism' survived well into

[116] Habib cites François Bernier, Jerome Xavier and Francisco Pelsaert, all of whom visited India in the seventeenth century and seem to have agreed on the fact that wheat, although grown in the Delhi-Agra region, was not part of the diet of the average peasant-pastoralist. Habib, *Agrarian System*, 104.

[117] Ibid., 82.

[118] 'Pergunnah Kharkhouda Mandowtee' in *Selected Reports*, No. 1, 35.

[119] Ibbetson writes that in 1837, famine in the pargana of Karnal was induced both by a poor harvest, as well as by famine in Panipat town, to its south; *SR Karnal*, 19.

[120] Ibid., 302.

[121] Ibbetson, *SR Karnal*, 20; Wilson, *SR Sirsa*, 294.

[122] Wilson, *SR Sirsa*, 297.

[123] Fagan, *DG Hisar*, 26.

the nineteenth century, and is described by Denzil Ibbetson in his report on Karnal.[124] According to him, the pastoral Rajputs of the *Nardak* (western *Bangar*) migrated from the district the moment the summer began and the streams in which that tract's fodder grasses appear primarily to have grown, began to dry up. They would take their herds north to the longitudinal valleys (*duns*) in the Siwalik foothills, returning to the Nardak only upon the commencement of the rains. Similarly, in the drought of 1860-1 which followed a lean season, 21,400 people and 47,500 cattle are said to have left the Hisar district.[125] While these figures ought to be regarded with healthy scepticism, they do indicate the scale that such distress migrations could assume.

The service economy

Besides husbanding populations, there were a number of itinerant communities who travelled the countryside offering specialized services to a broad cross-section of clients, from the elite to the poor. In the absence of systematic data, it is difficult to arrive at an estimate of the relative importance of these groups within the regional economy in the eighteenth century. In a recent article on the early modern South Asian economy, David Washbrook suggested that in the late eighteenth century, no more than 60-65% of the subcontinent's population derived its income from husbanding activities.[126] It is likely that these figures apply to south-eastern Panjab as well, where sources from the early nineteenth century suggest there existed a thriving service sector. One of these sources is Thomas Fortescue's report of 1820 on the customs and duties levied by the Mughal state on different articles produced and traded within the Company's domains in south-eastern Panjab. Fortescue's account is heavily skewed in favour of Delhi, partly because this was the largest town in the region with a population of approximately 100,000, and partly because this is also where the Mughal administrative presence was strongest.

Amongst various dues levied in the region, Fortescue mentions the *hauz kaghaz*, a tax on the production of paper in the city of Delhi. According to Fortescue, it amounted to between 2,500-3,000 rupees annually, collected from 50 paper workshops.[127] In addition to this there were taxes levied on gold leaf amounting to just under 1,500 rupees annually, that were collected by a single merchant in Delhi who had acquired a monopoly upon its production, and some 13,000 in imposts upon gold-plating.[128] Another 3,000 rupees was collected on the manufacture and sale of gold thread and lace, and another 3,000 rupees from embroidery.[129] Wooden building materials generated a sizeable amount too—some 7,000 rupees—and stone an additional 800 rupees.[130] The produce of market-gardens—flowers, fruit and vegetables—collectively yielded some 10,000 rupees.[131] Levies on the import and export of grains in the same year 1818-19 amounted to a little over 31,500 rupees.[132] Of course, much grain was simply consumed locally, making levies on its trade an imperfect indicator of the real value of cultivation. Yet, it is clear that the many specialized services, of which only some have been listed above, were an important component of the regional economy.

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[124] Wink, *Al-Hind III*, 92. Such pastoralists usually also engaged in some rough cultivation, although, as Ibbetson noted, this activity was usually 'entirely subsidiary': 'the Nardak Rajput's chief agricultural care is to secure a plentiful supply of fodder from his jawar fields.' *SR Karnal*, 294.

[125] *DG Hisar*, 23.

[126] David Washbrook, 'The Indian Economy and the British Empire', in *India and the British Empire*, ed. Douglas M Peers and Nandini Gooptu (Oxford, New York: Oxford University Press, 2016), 63-4.

[127] Fortescue, 'Customs and Duties', 144.

[128] Ibid, 151, 161.

[129] Ibid, 160.

[130] Ibid, 158.

[131] Ibid, 151, 153.

[132] Ibid,161.

In the absence of precise figures, other, qualitative indications of the robustness of the service sector are available. In his ethnographic history the *Tashrih al-aqvam*, James Skinner provides an overview of the numerous service communities that were to be found in south-eastern Panjab. Of the ninety 'worldly' (*duniyadar*), or non-ascetic, communities that he mentions, eighty-three might be classified as service groups. These include a handful of ritual specialists—Brahmans serving as priests, as well as different kinds of astrologers and magicians, and also several dozen categories of artisans, craftsmen, and performers. Most of these communities were highly specialized. For instance, the *Tashrih* names three sorts of wandering minstrel—Bhats, Doms, and Kalawants. Although each performed a similar art, they were distinguished, according to Skinner, by the site of their work. Bhats performed at court, while Kalawants accompanied armies to battle. Doms, or Mirasis, performed at the weddings of the elite.[133] Likewise, tanners (*charam-saz*) and shoe-makers (*juft-saz*) constituted two separate strands of the low-status 'Chamar' *qaum*, and were separate from the saddle-makers (*saraj*, *mochi*), even though they, too, worked with leather.[134] Such minute differentiation suggests that the demand for niche services gave rise to specialist providers, each of whom created a monopoly around a particular craft, not unlike a guild.[135] As such, the occupational specialization of service communities differed from site to site. A leather-worker in the village, was more likely to have combined tanning with the production of basic, finished wares, than one working in a town.

An important source of patronage for service communities, not just in south-eastern Panjab, but across the subcontinent, was the ruler's court. Nor was the cultivation of the arts restricted to the Mughal imperial *durbar*; smaller, regional courts made efforts to attract artists of all kinds as well. By extending patronage to poets, painters, musicians and other *hunarmandan* (virtuosos), a warlord or aspiring prince could establish himself as more than a simple soldier, but rather as a man of culture, a connoisseur of *hunar*. Thereby, he attained access to the politico-cultural universe of Persianate power in the subcontinent, even if he remained far inferior in stature to the emperor himself. South-eastern Panjab was littered with princes and warlords who sought to enhance their status through patronage. The Afghan Nawabs of Jhajjar, whose court was located south-east of Rohtak, bestowed favour on many of the artists who had left the Mughal court in the first half of the eighteenth century. Amongst them were maestros of the *tabla*, a type of drum, who even developed a new style of *tabla*-playing at the Nawab's court, which was then named for Jhajjar.[136] Likewise, the artist Ghulam Ali Khan, whose patrons included the famous Company officer William Fraser and James Skinner, also received the munificence of Jhajjar, as well as of the rajas of Alwar.[137] Begum Samru, a former courtesan who had married a warlord-mercenary of Germanic origin, forged a place for herself as a patron, too. Notable amongst her legacy is the Catholic church she had constructed at Sardhana near Meerut, which remains a site of pilgrimage to this day. She also commissioned the construction of a grand *haveli* (mansion) for herself within Shahjahanabad (Mughal Delhi).[138]

Physical mobility, however, was only one of the ways that artists and craftsmen adapted to the uncertainties of patronage. Another strategy was to be flexible in one's profession. Clearly, there were

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[133] Compare *Tashrih al-aqvam*., ff.171-72 (Bhats), ff.175-77 (Kalawants), and ff.197-8 (Doms).

[134] Compare *Tashrih al-aqvam*, ff.312-14 (Chamar juft-saz and charam-saz), with ff. 323-34 (saraj).

[135] A point previously made by David Washbrook, 'India in the Early Modern World Economy: Modes of Production, Reproduction and Exchange', *Journal of Global History* 2, no. 1 (May 2007): 87–111, at 96.

[136] James R. Kippen, 'Hindustani tala' in Alison Arnold, ed., *The Garland Encyclopedia of World Music: South Asia: The Indian Subcontinent* (London: Taylor and Francis, 2017), 133.

[137] Yuthika Sharma, *Art in between Empires: Visual Culture & Artistic Knowledge in Late Mughal Delhi 1748–1857* (ProQuest Dissertations Publishing, 2013), 181-194.

[138] For the Begum's life, see Michael H. Fisher, 'Becoming and Making 'Family' in Hindustan', in *Unfamilar Relations. Family and History in South Asia*., ed. Indrani Chatterjee (New Brunswick, N.J.: Rutgers University Press, 2004), 95–121.

limits to such occupational mobility since each art form had to be learnt in all its intricacy. Nonetheless, there remained room for service providers to adapt. According to Adrian McNeil, for instance, Dhadhis—a community of musicians found across Panjab and Rajasthan—included a wide variety of performers. They mastered diverse styles and forms adapted to their audience. In villages, for instance, they would often combine the tasks of genealogist, bard and musician, for the convenience and economy of their patrons. Where they were associated with a wealthier benefactor, such as a shrine or a court, their art was more specialized, as the engagement of a variety of niche artists reflected the patron's glory. Yet even such specialization did not restrict the Dhadhis per se, for they proved capable of moving from one niche to another. Mughal texts thus represent them variously as accomplished singers of the *dhrupad*, a spiritual couplet set to music, as well as *kalwants*, who accompanied their overlords to the battlefield, where they would sing his praises. By the late nineteenth century, the connotation of Dhadhi had changed yet again; they were now wandering bards, as well as providing musical accompaniment to courtesans, who were themselves accomplished musicians and dancers.[139]

Artists, musicians, and performers were not the only service communities who enjoyed the patronage extended by the various warlords and chieftains of south-eastern Panjab. Soldiers and military experts also constituted an important sector, in view of the constant need to expand or defend one's territories. There were a large number of mercenaries of various stripes who were active in the region in the late eighteenth and early nineteenth centuries. Some of these were Europeans, such as George Thomas, an Irishman; Michel Perron, a Frenchman; Louis Bourgogne, a Savoyard; and Walter Reinhardt 'Sombre', a Germanophone of uncertain origin. James Skinner, too, had served the Marathas before he joined the Company's service. In addition, there were famous warrior-ascetic commanders such as Anupgiri Gosain, better known as Himmat Bahadur, whose armies were used by the Company as well.[140] Others, such as the Bhatti leader Khan Bahadur Khan, as well as the Ahir commander Gujar Mal, who owed their success in part to the network of kin and dependents who fought under their command, were military entrepreneurs who founded states of their own. Still others were scribes and administrators, who combined their learning with military skill, likewise rising on occasion to become independent rulers. The rajas of Sonipat, north-west of Delhi, are an excellent example of this particular political trajectory. According to Skinner, they were Gaur Brahmans who began their political career as military commanders that were eventually granted a fiefdom of their own, which they governed more or less independently of imperial interference.[141] The careers of some of these political adventurers will be considered in the next chapter.

Conclusions

This chapter has endeavoured to provide an overview of the dynamics between ecology, livelihood, and mobility in south-eastern Panjab. It has argued that the regional rural economy was sustained in large measure by pastoralism and allied trades in livestock, dairy, and animal produce. Pastoralism represented an efficient adaptation to the specific ecology of the region. At the eastern fringe of the Arid Zone, the proverbial uncertainty of the South-Asian monsoons was especially acutely felt in south-eastern Panjab. Yet, the aridity and salinity of the soil supported a number of shrubs and grasses that provided excellent grazing for a range of livestock, from camels to sheep and goats. The bullocks raised in the region were coveted by various states, including that of the East India Company. Moreover, while crops such as wheat did not generally do well in the alkaline soils of south-eastern Panjab, it posed little hinderance to the cultivation of millets and lentils, nutritious and sturdy crops that required little

[139] Adrian Mcneil, 'Mirasis: Some Thoughts on Hereditary Musicians in Hindustani Music', *Context*, 2007, 45–58. Cf. 49-53 for the diversity within the Dhadhi community, and similarities with Kalwants.

[140] William Pinch, 'Who Was Himmat Bahadur? Gosains, Rajputs and the British in Bundelkhand, ca. 1800', *The Indian Economic and Social History Review* 35, no. 3 (1998): 293–335.

[141] *Tazkirat al-umara*, f.170v.

maintenance. Whether as a consequence of drought or local ecology, a single harvest (*ek-fasli*, as opposed to the intensive *do-fasli*, or biannual harvests supported by more fertile land) remained the norm in much of our region, even in the relatively humid fluvial corridors that formed its northern and eastern borders. Cultivation, to the extent that it was practiced, was combined with other livelihoods, and did not generally constitute the mainstay of rural households.

If climate shaped broad parameters of subsistence, the qualities of the soil and local ecology was also shaped by human activity. Over-grazing, or intensive felling of the shrubs and grasses of the savannah could quicken the erosion of the soil, which meant that even if rains did fall, moisture was not absorbed into the earth. Similarly, irrigation techniques intended to maximize the soil's agrarian productivity, whether these be the construction of wells or large canals, could often prove counter-productive. In the absence of adequate rainfall and water-harvesting techniques such as bunding, wells tended to dry up as the water-table receded further beneath the ground. Canal-use often led to waterlogging, especially in sandier soils that drained poorly. Acute waterlogging could, over time, lead to saline efflorescence in the soil, which was harmful for crops. The shaping influence that human activity exerted upon fragile local ecologies underlines the political importance of managing resources in south-eastern Panjab, a theme that will be explored in the following chapter.

Besides pastoralism and cultivation, rural populations supplemented their incomes in a variety of ways. Livestock-herders often traded in animals and animal produce as well, and husbandmen frequently turned to soldiering in lean years, or when there was a lull in the agrarian season. Such service (*naukri*, *chakri*) was in practice often indistinguishable from plunder or brigandage (*chori*), whether perpetrated by the Mughal army, or by a warlord and his retinue. However, while from the state's perspective, such brigandage was simply criminality, it also served a redistributive function, allowing rural populations to sustain themselves in lean seasons. As we shall see in the following chapter, brigandage was thus also a mode of community- and state formation, not only permitting lineages to take care of themselves, but also the client communities such as various artisans, bards, craftsmen, and servants, that constituted their network of allies.