

### 3 ‘A Cinchona Disease’ Making Burdwan Fever

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The truth of the matter is that the terms “epidemic, “time”, and “space” are the most general abstractions, which we can form and if we bring them together, the result must be something very vague and visionary . . . An abstract term “epidemic influence” is invented or utilized, and made to do as a substantive “theory” of a more occult or quasi-learned description . . . The whole process is a melancholy exhibition of false generalising.<sup>1</sup>

It is curious to note how mankind is led by watchwords. Be it religion, politics, or popular science, the commanding officer of the hour issues the countersign, and the sect, party, or society catches it up, and it is repeated, and echoed and re-echoed until the sound becomes faint, or the voice is deadened by the higher tone of new utterance. It is a strange phase of human life, this system of watchwords . . .<sup>2</sup>

In many ways Assam fever, Malta fever, Nagpur fever, Hong Kong fever, Amritsar fever, Peshawar fever, Niger fever, Mauritius fever, Bulam fever and Burdwan fever constituted disparate episodes within a shared history of colonial correspondence. In different moments of the nineteenth century, medical bureaucrats recognised them as epidemics attributable predominantly to malaria. Particular patterns of bureaucratic reporting recurrently identified maladies by referring to place-names. Such associations of place-names with maladies ended up circulating enduring impressions about lands, landscapes and people.

This chapter examines the making of Burdwan fever. Burdwan in the 1870s was a part of the Bengal presidency in British India. Burdwan was both the name of a division within the Bengal presidency as well as a district within the Burdwan division. Hooghly, Howrah and Midnapur were amongst the other districts within the Burdwan division.

<sup>1</sup> Anonymous, ‘Prominent Fallacies in Epidemiology’, *IMG*, 8 (1 July 1873), 188–189.

<sup>2</sup> Anonymous, ‘Draining Bengal’, *IMG*, 7 (September 1872), 209.

Divisions and districts represented geographical units for organising civil administration and revenue-extraction. In various official registers, the Burdwan fever featured as a malarial epidemic that hit the Burdwan division of the Bengal presidency in British India in the late 1860s and early 1870s. In these records, Burdwan fever, the malarial epidemic and 'Lower Bengal Epidemic fever' often tended to figure interchangeably as almost identical categories.<sup>3</sup> The making of Burdwan fever was intimately connected to government discourses about malaria ostensibly prevailing in the Burdwan division and beyond.

Existing histories of Burdwan fever have explained this malarial epidemic as an event, characterised by the simultaneous manifestation of a single, fairly homogenous, monolithic malady in a million bodies.<sup>4</sup> Instead, expressions such as Burdwan fever and the malarial epidemic can also be understood as historically produced labels: shorthand expressions that provided convenient points of reference to a dispersed set of officials. Numerous bureaucratic reports in the second half of the century in Bengal presented the malarial epidemic as a flexible medical metaphor, which could be invoked to explain myriad expressions of physical unease, varying over time and across space.<sup>5</sup>

Historians have frequently defined epidemics as ontologically accessible phases of countless deaths and ceaseless sufferings. Critiques of colonial medicine have justifiably appropriated epidemics as excuses to highlight various historical processes ranging from government exploitation to mismanagement.<sup>6</sup> In the process, the category epidemic itself has often been inherited from the colonial archive at face value. Analysing the makings of such categories can reinforce critiques of colonial medicine. This chapter then refrains from probing into *why* there had been a malarial epidemic in Bengal in the nineteenth century. Nor is

<sup>3</sup> See, for example, L. Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever Reviewed and Compared with the Present Assam Epidemic Malarial Fever (Kala-Azar)', *IMG* 32 (November 1897), 401–408; G. C. Roy, *The Causes, Symptoms and Treatment of Burdwan Fever. Or the Epidemic Fever of Lower Bengal* (Calcutta: Thacker, Spink and Co, 1876); J. H. French, *Endemic Fever in Lower Bengal, Commonly called Burdwan Fever* (Calcutta: Thacker, Spink 1875).

<sup>4</sup> For instance, A. Samanta, *Malarial Fever in Colonial Bengal, 1820–1939, Social History of an Epidemic* (Kolkata: Firma KLM, 2002); S. Sarma, *The Ecology and the Epidemic: A Study on the 19th-century Controversy* (Calcutta: India Book Exchange, 1999).

<sup>5</sup> For a study of the different meanings associated with 'malaria' in nineteenth-century British India and beyond, see R. Deb Roy, 'Mal-Areas of Health: Dispersed Histories of a Diagnostic Category', *Economic and Political Weekly*, 42, 2 (13 January 2007), 13–19.

<sup>6</sup> In relation to the history of Burdwan fever this is most evident in Samanta, *Malarial Fever*; and Sarma, *The Ecology and the Epidemic*.

it a study of the inadequate responses of the colonial government or the reactions of the local landed proprietors. Instead, it asks *how* a series of dispersed and dissimilar debilities could be put together as a single, continuous epidemic of malaria over a considerable period of time.

The biopolitical production of Burdwan fever needs to be located within the exigencies and apparatuses of imperial rule. Burdwan fever was occasioned by interactions between the overlapping worlds of pharmaceutical business, colonial governance, medical knowledge and vernacular markets (in land, prints and drugs). In these imperially enabled worlds, as the following pages will reveal, a drug could precede and delimit understandings about the malady it was meant to cure.

The production of Burdwan fever was also built upon ascribing active, lifelike, causal properties to inanimate nonhumans, particularly a range of plants. These processes were connected to the reinforcement of various layers of prejudices about colonised humans. Mark Harrison and David Arnold have shown already how official reports about Burdwan fever were deeply implicated in the discriminating discourses of race, class and civilisation.<sup>7</sup> Ultimately, the epidemic was not a passive and impotent biopolitical construct. While being occasioned by the Empire in British India, reports about the epidemic in turn reconstituted Burdwan as one of the many malarial localities in the colonial world. There was no 'local' that always and already existed as a natural geographical entity on the map of the British Empire. Locations like Burdwan were defined as the 'local' through conscious strategies of knowledge gathering initiated by the colonial state. Such strategies enabled cultural and medical stereotypes to proliferate. But, if at one level the making of Burdwan fever reveals the ways in which malaria emerged as a trope for colonial bureaucrats to make sense of localities in the interiors of British India; malaria itself did not merely remain a distant and unchanging medical jargon imported from Europe. Instead, the anecdotes, debilities, intellectuals, landscapes, landowners, markets, officials, peasants and plants encountered in the localities of Bengal in the late 1860s and especially in the 1870s, in turn, increasingly became accommodated within the existing global narratives about malaria.

<sup>7</sup> M. Harrison, "'Hot Beds of Disease': Malaria and Civilisation in Nineteenth-Century British India", *Parassitologia* 40 (1998), 11–18; D. Arnold, "'An Ancient Race Outworn": Malaria and Race in Colonial India', in W. Ernst and B. Harris (eds.), *Race, Society and Medicine: 1700–1960* (London: Routledge, 1999), 123–143; D. Arnold, *Science, Technology and Medicine in Colonial India* (Cambridge: Cambridge University Press, 2000), 78–80.

'Malarial Subjects'<sup>8</sup>

Contemporary sources described Burdwan fever as a spectacular disruption of the prevailing ways of life. It provided an occasion for dramatic lamentation for a world that was lost:

Its ravages have not yet been repaired, the ruined villages have not been yet rebuilt, jungle still flourishes where populous hamlets once stood, and many of those who fled before the fever have not returned . . .<sup>9</sup>

Rev Neale's school numbering 130 boys is now deserted . . .<sup>10</sup>

. . . the rich and the poor of all ages and castes have suffered alike; consequently, dwelling houses of all descriptions in equal proportions are to be seen in various stages of decay and ruin . . . many large 'barees' [houses] in which there were formerly thirty and forty residents, have now been left with perhaps one solitary occupant; whole mohullahs and streets have been deserted, and large villages which formerly told their residents by thousands can now almost number them by hundreds . . .<sup>11</sup>

Ironically, reports about the epidemic also revealed a vocabulary which claimed to articulate and explain daily bodily niggles. These bureaucratic reports were couched in a language endorsed by institutional science, and seemed convincing, respectable and legitimate. In these reports, varieties of physical unease figured as necessary preconditions, symptoms, sequels or simulations of a collectively experienced malady.

The epidemic appeared to have unleashed itself at a time when there was no dearth of Bengali texts on malaria. Jodunath Mukhopadhyay, for instance, narrated detailed case-histories of individual patients suffering from malaria in successive medical texts published in Bengali through the 1870s.<sup>12</sup> He suggested that malaria expressed itself not necessarily by gifting fluctuating temperatures readable on the thermometric scale, or by assuming a contagious character inflicting innumerable mortalities. Instead, the impact of malaria on the body, Mukhopadhyay believed, could make one feel 'not sick, but out of sorts'. Malaria did not necessarily cause illness but rather 'a slight deviation from health'.<sup>13</sup>

<sup>8</sup> J. Fayer, 'First Troonian lecture on Climate and the Fevers of India', *Lancet*, 119, 3055 (March 18, 1882), 423–426.

<sup>9</sup> Rogers, 'The lower Bengal (Burdwan) epidemic fever', 401.

<sup>10</sup> General, Medical, File 6, Prog-34–36, July 1873 (WBSA).

<sup>11</sup> Home, Public, 7 May 1870, 65–71 A (NAI).

<sup>12</sup> Jodunath Mukhopadhyay was a medical practitioner, who held a 'license for medicine and surgery' recognised by the colonial state. Between 1872 and 1880 he published at least eight medical manuals in Bengali. Mukhopadhyay and his works await more intense and detailed attention from historians.

<sup>13</sup> J. Mukhopadhyay, *Saral Jvar Chikitsa, Prothom Bhag (Curing Fevers, Part I)* (Calcutta: Sri Nityananda Ghosh, 1878), 39, 49, 50, 67. It would be misleading to suggest that

Malaria therefore figured as an onerous agent which could be invoked to explain a wide variety of maladies. Such maladies included diarrhoea, nausea, headache, infections on the eyeball, abscess on the female breast or in the ear, secretion of pus, or a general unlocatable malaise.<sup>14</sup> At the same time, malaria figured as a cause behind potentially fatal conditions like cardiovascular arrests. Mukhopadhyay identified experiences of unease such as general lassitude, repeated acts of yawning, the need to stretch oneself, pain in the ankle, wind, intense regular sluggishness, irritation and pain around the ear, as inevitable preconditions in a body which should anticipate another attack of malarial fever.<sup>15</sup>

It is hardly surprising then that the malarial epidemic figured as an occasion when medical practitioners could itemise these sensations as objects of medical knowledge. As items of medical knowledge, these appeared as predictable, manageable and curable categories. Dr Gopaul Chunder Roy's extensively cited account of the epidemic associated the frequent drying up of the tongue, accumulation of brown sores on the teeth and lips, bloated face, oedematous limbs, mouth ulcers, inflammation of the gum, loose teeth and swollen-bleeding gums as probable expressions of malaria in the body.<sup>16</sup>

Many commentators on malaria in the 1870s including Roy, Joseph Fayerer, C. F. Oldham and his anonymous reviewer in the *Indian Medical Gazette*,<sup>17</sup> had classified malarial diseases in terms of their predictable rhythms of recurrence. However, careful analysis of the caveats and qualifications accompanying discussions about such expected rhythms of malarial diseases suggests that categories like intermittent, remittent and malarial fever were flexible and commodious. Such labels were inscribed upon different forms of debilities, which manifested in the body with various symptoms and in diverse rhythms.<sup>18</sup>

such trends were unique to Bengal or to Burdwan fever. Mukhopadhyay's understandings were shared across a variety of contexts. See A. Christie, 'On Latent Malarial Disease', *Medical Times and Gazette London*, 1 (11 May 1872), 550; Home, Medical Board, 21 October 1858, 14 (NAI); Home, Medical, January 1877, 47–48 B (NAI); Note the categories 'masked' and 'pernicious malaria' and 'malarial cachexia' in Fayerer, 'First Troonian lecture', 426 and 467–470.

<sup>14</sup> J. Mukhopadhyay, *Quinine* (Calcutta, 1893), 57–90.

<sup>15</sup> Mukhopadhyay, *Saral Jvāra Chitiksa*, 39, 49, 50, 67.

<sup>16</sup> Roy, *The Causes, Symptoms and Treatment of Burdwan Fever*, 84, 98–100. Roy's work was widely circulated and reviewed. For a brief overview of the ways it was received in the *Lancet*, *Medical Times and Gazette*, *Medical Press and Circular* and *The Doctor* see Home, Medical, June 1879, 1–5 A (NAI).

<sup>17</sup> Anonymous, 'Review of C. F. Oldham, *What is Malaria? And Why Is It Most Intense in Hot Climates?*' *IMG*, 6 (1 May 1871), 99 and 100.

<sup>18</sup> For instance, see W. Hensman, 'Remarks on Malaria', Appendix no. L, in *Army Medical Department Report For the Year 1866*, Volume viii, 1868, 505–511; Fayerer, 'First Troonian lecture', 467–470.

Who then could be defined as a 'malarial subject' in the 1870s in Burdwan? Roy suggested that unexceptional attacks of malaria seldom deterred their victims from eating, drinking and bathing as usual.<sup>19</sup> The unhappy effects of malaria became a natural phenomenon, part and parcel of the necessary constituents of their body. Most would remain without fever for months or years and yet the slightest cause could upset the balance of health. Thus malarial subjects could be someone suffering from pigmentation of the skin, bleeding from the nose or from the rectum, mental inaptitude, rheumatism, night-blindness, impotence or pregnant women weakened by the embolism of the heart and women suffering from menstrual flux.<sup>20</sup>

### 'Cinchona Disease'

Surgeon Major Albert M. Vercherie inspected several cases reported as malarial in the Burdwan town in September 1873. In his diary, he referred to the case of a dhobi's daughter, who happened to be a patient of one Dina Bondhu Dutt, a local physician. She was recorded in the official registers as suffering from malaria. In the fourteen days Vercherie kept track of her it was found that she was gradually diagnosed with the following maladies successively: typhus, enteric fever, cholera, relapsing fever. 'I heard from Dr French that the case became complicated by pleuro-pneumonia about thirteen or fourteen day of disease'.<sup>21</sup> Thus, individual case histories reveal that those who were labelled as suffering from malaria could be diagnosed with different diseases in different phases of the same course of illness. This example also specifies some of the numerous designations, apart from malaria, which were available to medical science for explaining a similar set of clinical symptoms.

How could such confusion, presented by an overabundance of closely related diagnostic tropes, be resolved? Jodunath Mukhopadhyay narrated a similar experience of attending to a little girl, eight to ten years of age. She was initially diagnosed to suffer from cholera. When the relevant fever mixtures and stimulants failed, and the physician was about to give up the 'case', he decided to gamble with quinine. Subsequently, the girl recovered. Mukhopadhyay narrated this experience to suggest that the malarial identity of a particular form of physical unease could be

<sup>19</sup> Roy, *The Causes, Symptoms and Treatment of Burdwan Fever*, 75.

<sup>20</sup> *Ibid.*, 84 and 94–105.

<sup>21</sup> A. M. Vercherie, 'Extracts From a Diary Kept During a Visit to Burdwan', *IMG*, 8 (1 November 1873), 287–289.

determined by how a body reacted to quinine.<sup>22</sup> He hinted at how quinine was often invoked as a diagnostic tool in quick-fix pharmacological tests. Such examples can be multiplied.<sup>23</sup>

In many more ways, the malarial epidemic owed itself to quinine. Decades before dispersed expressions of quotidian debilities in various parts of Bengal began being projected as diverse articulations of single, continuous malarial epidemic, quinine had already been convincingly advertised as the quintessential remedy of every form of malarial disease. Such advertisements were vigorously reiterated in the official registers at various moments in the 1850s.<sup>24</sup> Quinine was confidently acknowledged not only as a febrifuge, but also as a prophylactic. This is evident, for example, in the military files of the government. In various military regiments in British India, specific doses of quinine formed a part of the mandatory breakfast.<sup>25</sup> Even when officials like Lieutenant G. S. Hills doubted the labelling of an epidemic as malarial, they nonetheless consumed daily preventive doses of quinine.<sup>26</sup>

As late as 1874, many colonial officials sounded unsure about the malarial character of Burdwan fever. For instance, Dr Albert Vercherie, a member of the Indian Medical Service, was convinced that it was typhus.<sup>27</sup> Lieutenant Governor Sir Richard Temple, writing a decade after Hills, was equally hesitant to attribute the series of maladies in contemporary Bengal to 'any particular cause'.<sup>28</sup> Such doubts amongst some of the senior officials about the precise cause of fever, ill health and death, and whether they could be collectively

<sup>22</sup> Mukhopadhyay, *Saral Jvara Chitiksa*, 103–106.

<sup>23</sup> Quinine acted as an agent in similar diagnostic tests. See for instance, W. A. Green, Inspector General of Hospitals, Lower Provinces, to Secretary, Government of Bengal, – No. 40, dated Fort William, 15 April 1868. Municipal, Sanitation, Prog 14–15, June 1868 (WBSA). See also R. T. Lyons, 'The Burdwan Fever', *IMG*, 7 (1 August 1872), 204–205. Such tests were arranged to confirm the malarial identity of 'epidemics' in other instances as well. For instance, see, Home, Sanitary, August 1882, 97–103 A (NAI). See also G. Bernard, 'Was it Malarious Fever or Sun Stroke Cured by Quinine?', *IMG*, (March 1), 1870; P. Sanyal, 'Remittent Fever e Quinine' (Quinine in Remittent Fever), *Chikitsa Sammilani*, 4, 1 (1887), 243.

<sup>24</sup> For instance, A. Bryson, 'Navy Medical Report Number XV on the Prophylactic Influence of Quinine', *Medical Times and Gazette of London*, viii (New Series, 1854), 6–7; D. Blair, 'On the Employment of Quinine in West India Fevers', *Lancet*, 52, 1308, (23 September 1848), 344.

<sup>25</sup> Home, Medical Board, 21 October 1858, File no. 14; 28 October 1858, File no. 52, 2 December 1858. File no. 58, (NAI).

<sup>26</sup> G. S. Hills, Executive Engineer, Shillong Division, to H. L. Dampier, Commissioner of the Nuddea Division, dated 31 December 1864. Home, Public, 7 March 1868, 140–143 A (NAI).

<sup>27</sup> Vercherie, 'Extracts from a Diary', 8–12.

<sup>28</sup> Richard Temple, 'The Causes of, and Remedies for the Burdwan Fever', dated 25 August 1875. Home, Medical, November 1875, 53–55A (NAI).

considered as expressions of a single general outbreak, persisted in the 1870s.

However, there seemed to circulate a consensus that quinine could be its unquestionable remedy. Years before doubts over the malarial character of the epidemic could be conclusively resolved, quinine had made its way into the interiors of Bengal.<sup>29</sup> The indiscriminate use of quinine was being condemned even in government correspondences in the early 1870s.<sup>30</sup> Official files in Bengal reveal, through most of the late 1860s and the early 1870s, organised efforts to procure additional quinine from the Madras and Bombay presidencies to combat the outbreak.<sup>31</sup> They also reveal efforts to requisition quinine from England,<sup>32</sup> tracking the details of its journey from England,<sup>33</sup> measuring its stock in the rapidly exhausting medical stores,<sup>34</sup> and requesting the military department to spare some for the civil department.<sup>35</sup> There was correspondence between officials placed at different levels in the subdivision, districts and divisions towards supervising the distribution of quinine. Such distributions were carried out in the villages through panchayats and dispensaries.<sup>36</sup> These suggest how the units of revenue-extraction began to be projected as units for affording relief.

From the 1850s, the careers of malarial diseases and quinine were repeatedly written about as inseparable parts of a single, shared history. Widely circulating publications in medical journals,<sup>37</sup> stories narrating past glories of the Jesuit Bark,<sup>38</sup> reports of adventures into the interiors of the Peruvian forests,<sup>39</sup> the foundational programmatic statements written by the early managers of cinchona plantations in India<sup>40</sup> informed official understandings. This resulted in impressions that quinine and malarial diseases were invariably associated. The presence of one seemed to imply the presence of another. At a time when official characterisation of dispersed debilities and deaths in Bengal suffered from imprecision,

<sup>29</sup> Home, Public, April 1872, 508 A (NAI).

<sup>30</sup> General, Medical, May 1872, 92–93 B (WBSA).

<sup>31</sup> Home, Public, September 1872, 441–444A (NAI).

<sup>32</sup> Home, Public, December 1872, 344–353 A (NAI).

<sup>33</sup> Home, Public, September 1872, 441–444A (NAI).

<sup>34</sup> Home, Public, August 1872, 574–577 A (NAI).

<sup>35</sup> Home, Public, December 1872, 344–353 A (NAI).

<sup>36</sup> See General, Sanitation, July 1870, Prog. 8–10 (WBSA).

<sup>37</sup> Bryson, 'Navy Medical Report', 607; Blair, 'On the Employment of Quinine', 344.

<sup>38</sup> For instance, C. R. Markham, *A Memoir of the Lady Ana de Osorio, Countess of Cinchon and Vice Queen of Peru (A.D. 1629–1639) With a Plea for the Correct Spelling of the Cinchona Genus*, (London: Trübner & Co, 1874).

<sup>39</sup> C. R. Markham, *Travels in Peru and India* (London: John Murray, 1862).

<sup>40</sup> As quoted, for instance, in Home, Medical, January 1884, 9–11 A (NAI).

governmental alacrity in distributing quinine contributed to the reinforcement of the malarial identity of the epidemic.

An understanding that the introduction of quinine into Bengal immediately preceded the outbreak of the epidemic was reflected in various publications in the late nineteenth century. In an anonymous editorial entitled 'Burdwan Fever', the homoeopathic journal, *Calcutta Journal of Medicine*, described the epidemic as a consequence of the introduction of quinine in Bengal. The editorial characterised the epidemic as a 'Cinchona disease' that resulted from the side effects of consuming regular doses of quinine to stave off intermittent fever. It argued that while quinine relieved the body from milder and temporary forms of intermittent fever, it plagued the body with a worse and enduring form of disease (i.e., Cinchona disease).

It is not intermittent fever . . . on the contrary, it is another and worse disease than intermittent fever; it is a Cinchona-disease worse than intermittent fever . . .<sup>41</sup>

Such impressions survived well into the last decade of the nineteenth century. The Bengali journal *Chikitsa Sammilani* in 1893 blasted the government policy of distributing quinine at cheap rates from the post offices for causing general sickness and fever in rural Bengal.<sup>42</sup>

### ' . . . Opportunity of the Epidemic . . . '

The careers of malarial epidemic and quinine in Bengal were caught up in a symbiotic relation. The figure of quinine was invoked to provide precision to the malarial identity of the epidemic. The epidemic was conceived to have unleashed itself at a time when the credibility of quinine itself was being called into question. Contemporary files quoted extensively from bureaucratic reports that were published earlier in the 1860s which expressed doubts about quinine's potential as either a febrifuge or a prophylactic. The epidemic proved to be an occasion when the usefulness of quinine as an effective drug could be tested once again.<sup>43</sup>

<sup>41</sup> Anonymous, 'Burdwan fever', *Calcutta Journal of Medicine*, 6, 6 (June 1873), 198.

<sup>42</sup> Anonymous, 'Quinine i malaria' (Quinine is malaria), *Chikitsa Sammilani*, 9, 10 (1893), 402–405. Such trends of attributing malarial fever to the intake of quinine have been witnessed in other contexts. For instance, see, W. B. Cohen, 'Malaria and French Imperialism', *Journal of African History*, 24 (1983), 29; A. S. Mackinnon, 'Of Oxford Bags and Twirling Canes: The State, Popular Responses, and Zulu Antimalaria Assistants in the Early-Twentieth Century Zululand Malaria Campaigns', *Radical History Review*, 80 (Spring, 2001), 76–100.

<sup>43</sup> J. Elliot, *Report on Epidemic Remittent and Intermittent Fever Occurring in Parts of Burdwan and Nuddea Divisions* (Calcutta: Bengal Secretariat Office, 1863), quoted in Home, Public, 7 May 1870, 65–71 A (NAI). Similar impressions were subsequently elaborated in Bengali medical texts. Anonymous, 'Bhati', *Anubikshan*, 1, 6 (1875), 185–188.

Scepticisms involving quinine acquired at least two forms. There were suspicions about the usefulness of quinine as a drug itself. Some authors argued that the merits of administering quinine had been exaggerated.<sup>44</sup> Another set of complaints was concerned with the rapid depletion of pure quinine from the market. The distribution of quinine, it was alleged, fell into the hands of 'unqualified imposters' and 'mischievous quacks' who frequently tampered with its purity, producing adulterated versions. Quinine gave them access to quick, easy money despite its weak curative functions. Writing in June 1869, the Sanitary Commissioner of Bengal expressed concern about the rapidly depleting faith in quinine in a context when different corrupt versions circulated in the market under the same name.

Under the existing circumstances, when a villager himself, or a member of his family, is weakened by fever in a malarious district, it is customary for him to purchase *what is called quinine* from some village Apothecary who deals in medicines, which he sends for to Calcutta. In many instances I have examined and tasted the *so called quinine mixture* of the Bengal villages, and often found it be an altogether spurious and useless remedy; and yet for a small quantity of this and similar preparations, it is common for a villager to give two or three rupees at a time; – the consequence being that the poor man remains uncured, whilst at the same time he is being beggared.<sup>45</sup>

How could the distribution of state-endorsed pure quinine be ensured? It was suggested that the government could depend on 'reliable agents' at the village level. Such agents included 'headmasters of village schools' and gurus at the pathshalas.<sup>46</sup>

What constituted this quinine, which the state in India was keen on marketing as 'pure'? Government factories had repeatedly failed to produce pure quinine in India till then. These factories managed to yield instead several substitutes of quinine: quinovium, quinidine, cinchonidine, cinchonine, etc. The government appeared keen on endorsing these substitutes as acceptable variations of pure quinine. These substitutes were often regarded as adulterated quinine, while the state contested such allegations. Quinine continued to be advertised as an exotic drug which was very difficult to produce, and could not be procured

<sup>44</sup> W. J. Moore, 'The Value of Quinine', *IMG* (1 August 1870), 160–163.

<sup>45</sup> D. B. Smith, Sanitary Commissioner of Bengal, to A. Mackenzie, Officiating Junior Secretary to the Government of Bengal, dated Darjeeling 5 June 1869. Home, Public, January 1870, 15–29 A (NAI). See also, J. M. Tagore, Honorary Secretary to the British Indian Association to S. C. Bayley, Junior Secretary to the Government of Bengal dated 18 March 1864. General, General, April 1864, Prog 23–25 (WBSA).

<sup>46</sup> General, Medical, July 1873, Prog 192, 1–4 A (WBSA).

easily, but its virtue could only be sensed from the healing qualities of its substitutes.

I had frequently been told that sulphate of quinine sold by native druggists in Calcutta and mofussil was largely adulterated by mixing it with flour, magnesia, arrowroot and other articles. I was therefore agreeably surprised to find that after analysis . . . were not adulterated by any foreign substances, but were either pure cinchonidine, or contained cinchonine, which are alkaloids found in the Cinchona bark, and which cannot be distinguished from quinine by the naked eye or unless by analysis . . .<sup>47</sup>

The epidemic confirmed the supply of bodies affected by malaria. The epidemic provided an 'opportunity' to verify the purities of different drugs circulating as quinine in the medical market. These tests also aimed to enquire whether the extracts of raw unprocessed cinchona barks or the substitutes could cure malarial patients. If confirmed, the government could give up its tedious projects of manufacturing pure quinine in India. In a correspondence drafted in July 1872, the Lieutenant Governor instructed the Inspector General of Civil Hospitals to 'take *opportunity of the epidemic* to test the capabilities of the cinchona bark':

The Lieutenant Governor desires that opportunity may be taken of the epidemic fever in Burdwan to test the use there of the cinchona bark which has already been ordered to be sent, in order to ascertain the capabilities of the bark when used as a simple infusion with boiling water. His Honor would like to find out whether a simple infusion of the bark is a really reliable febrifuge.<sup>48</sup>

I have noted in the earlier section how quinine acted as a diagnostic tool in determining the malarial identity of various maladies. Here, it appears that bodies identified as malarial were, in turn, employed to verify the quality of quinine in circulation. The epidemic became thus an occasion to test the medical efficacy of different extracts of cinchona barks or the raw bark itself.

### 'Local'

The configuration and ordering of myriad sensations of physical unease into a particular epidemic in nineteenth-century Bengal was conditioned

<sup>47</sup> S. Wauchope, Officiating Commissioner of Police, Calcutta, to the Officiating Secretary, Government of Bengal, Judicial Department. No.1238 dated Calcutta, 16 October 1872. General, Medical, October 1872, Prog 6–8 (WBSA). See also, Anonymous, 'Adulterated Sulphate of Quinine', *IMG*, 7 (1 August 1872), 187.

<sup>48</sup> J. Ware Edgale, Officiating Junior Secretary to the Government of Bengal to Inspector General of Hospitals, Lower Provinces. Dated Calcutta, 6 July 1872. General, Industry-Science, 5, July 1872 (WBSA).

by an emergent culture of bureaucratic correspondence. The colonial medical bureaucracy and the intricate network of correspondences sustained by it shaped the acts of reporting, recording and recapitulating the epidemic.<sup>49</sup> These converged in different moments with commentaries in the vernacular press and in the medical journals, deliberations solicited from the perceived experts of local/subdivisional knowledge, retrospective literary works and postcolonial histories to provide credibility to the projected story of the malarial epidemic.

The bureaucratic correspondences reveal an intimate engagement with the geography of interior localities. Almost coinciding with the first Census Report presented in 1871, the demand for aetiology of a coherent epidemic converged with an aggravated desire for knowledge of the locality. The causes of the epidemic, it was argued, were inherent in 'the numbers and the classes of the population, of tenures and rents, rates of wages and prices of food'. A series of twelve questions were circulated from the office of the Governor General in Council and the 'local officers' were 'specially desired to give in their periodical reports all they know...'.<sup>50</sup>

The locality had to be known in credible ways. Such knowledge found expression in the languages of science, governance and improvement. Some of the correspondents appeared aware that, in the process, they were correcting or adding to some of the limitations of the census returns of 1871 or the statements of the Registrar General.<sup>51</sup> These questionnaires were not merely circulated to the 'local officers' within the Burdwan division. To avoid similar epidemics in the near future, accumulation of detailed information about the interior of neighbouring divisions was solicited. The Commissioners of Chotanagpur, Chittagong, Orissa divisions, for instance, had to summarise the responses of district officers placed under them.<sup>52</sup>

Most of these questions enquired about the living conditions of 'the people'.

<sup>49</sup> Besides, these reports recognised the units of revenue extraction as the geographical frames of reference, i.e., the presidency, subdivisions, thanas, districts, etc. These reports show how these categories were being naturalised as rigid boundaries. Any transgression beyond the borders of one district was taken note of, and accounted for. It seemed commonsensical that the diseases should be confined to one particular division or district. Diseases reported to spread beyond one district into another were considered to flout some natural principle and taken note of. For instance, Roy, *Burdwan Fever*, 57; Rogers, 'The lower Bengal (Burdwan) epidemic fever', 402–403.

<sup>50</sup> R. Temple, 'The Causes of, and Remedies for the Burdwan Fever' dated 25 August 1875. Home, Medical, November 1875, 53–55A (NAI).

<sup>51</sup> G. Campbell, 'Minute: Hooghly Fever and Conditions of the Ryots', *Ibid.*

<sup>52</sup> *Ibid.*

What is the usual food of the mass of the people? What is estimated to be the weight of rice eaten ordinarily by each man, woman and child? And how many meals are eaten daily? . . . Is there any ground for thinking that the people stint themselves in such necessaries as rice, salt etc? . . . Have daily labourers any difficulty in procuring the means of subsistence? Are beggars or paupers common? . . . Are the people clothed more poorly than twenty years ago?<sup>53</sup>

Responses to these questions varied. Predictably, prevalence of poverty and hunger amongst 'the people' was denied in most official responses. The Magistrate of Hooghly, Mr Pellew considered paupers and beggars almost as figures of the past. 'The practice of the lower classes congregating uninvited at feasts and picking up scraps has almost died out', he thought. However, another set of officials led by Colonel Haig and Dr Saunders argued in their reports that the epidemic could be convincingly explained in terms of poverty and inadequate access to food. They suggested that the poorer classes in Hooghly and Burdwan districts were 'under-fed and ill-nourished'. This made them 'predisposed' to the miasmatic poison.<sup>54</sup> It is difficult to ascertain whether a humanitarian instinct inspired the reports of Haig and Saunders. However, quite clearly, hunger and chronic dearth provided these authors with a credible language in which to describe the epidemic. Hunger seemed to have figured as a probable cause behind fever epidemics in other parts of the contemporary world. The reports of Colonel Haig and Dr Saunders referred to the 'hunger theory of fever', which was apparently invoked to explain events in distant Germany and Great Britain. It was claimed that this theory was established in Ireland in the post-famine literature of the 1840s.<sup>55</sup> The reports of Colonel Haig and Dr Saunders portrayed Burdwan fever as a reenactment of that proven medical understanding. Thus, 'insufficiency of food' seemed to provide one of the commensurate and convincing explanations for the epidemic. In the process, it reinforced the assumption that the epidemic could be narrated as a homogenous and monolithic event.

That these explanations had currency is evident from brief attempts during these years at organising food relief camps for the sick poor. Such charitable camps followed the rules usually in place concerning relief to famine victims.<sup>56</sup> It is not clear from available sources how effectively these food relief camps for the sick poor really functioned.

<sup>53</sup> H. S. Cotton, Officiating Junior Secretary to the Government of Bengal to the Secretary, Government of India, Department of Revenue, Agriculture and Commerce. *Ibid.*

<sup>54</sup> *Ibid.* <sup>55</sup> Temple, 'The Causes of, and Remedies for the Burdwan Fever'.

<sup>56</sup> W. E. Ward, Magistrate and Chairman to the Municipality, Burdwan to C. T. Buckland, Commissioner of Burdwan, No. 180, dated Burdwan, 29 December 1869. *Political, Medical*, January 1870, Prog 8–13 (WBSA).

It has already been indicated that hunger and dearth did not consistently figure as a cause behind Burdwan fever. Instead, an editorial published by the *Indian Medical Gazette* in June 1873 entitled 'The Cause of Burdwan fever' ascribed it to excessive eating. It recalled how elders from within the Muslim community in a village called Munglecote had discovered that eating too much beef caused Burdwan fever. It quoted from a report submitted by the local civil surgeon:

The village of Munglecote recently suffered and is suffering very severely. The population consists chiefly of Musalmans, who consume beef so largely that a movement was set on foot by the head men and Maulavis to put a stop to it, as they thought the stimulating character of the meat produced the fever. Here we see that something besides starvation and low fat must act as a cause.

The editorial went on to ridicule the impression of these villagers. It observed that even if the 'beef eating Mussulmans' and the 'vegetarian Hindoo' occupied different 'mohullas' of the same village the epidemic did 'attack' both groups equally. The editorial concluded sarcastically 'the Munglecote theory is probably as correct as that would connect the fever with rice and greens'.<sup>57</sup>

Search for an aetiology of the epidemic also led to a series of questions involving land and land tenures. 'Are there any symptoms of pressure upon the land? Are rents rising, and are there many applicants for any vacant lands?' Summarising the responses from local officers the Lieutenant Governor of Bengal Sir George Campbell admitted that the mass of figures received was 'very wide and vague'. The answers supplied from Howrah, Burdwan, Midnapore, Hooghly, Chotanagpore, Chittagong and Orissa often differed from each other. However, this wide range of responses revealed certain strategic options that the state could adopt in relation to governance of land. In areas marked by increasing pressure on land and rise in rents, the government recommended rack-renting. Campbell argued that if the ryots had fixity of rent as the zamindars had fixity of revenue then the condition of ryots in Bengal would be more comfortable. Campbell believed that these concerns underlay 'the theory of the regulations of 1793'. However, he added that 'the practical working of the Permanent Settlement' failed to live up to the originally intended visions. The districts that had been hit by the epidemic 'do not imply that rents are more racked there than elsewhere, but that the people have not yet submitted to rack-renting to the same extent as elsewhere . . . the degree to which rent have been racked in different districts is a great degree the measure of the comfort or discomfort of the

<sup>57</sup> Anonymous, 'The Cause of Burdwan Fever', *IMG*, 8 (2 June 1873), 159–160.

people'. On the other hand localities characterised by considerable margin of wasteland were earmarked for reclamation. Once reclaimed, such areas could be made available to the land market.<sup>58</sup>

The official responses often tended to relate the epidemic to immobile labour. 'Would the people be willing to immigrate to other parts of India, or to Burma, or Assam, if assisted by the government to do so? . . . Whether the people of the fever-stricken tracts go largely to Calcutta and Howrah for work?'<sup>59</sup> These reports celebrated mobile labour by characterising it as more healthy. Chotanagpore supplied cheapest labour available in India. Labourers were recruited in the industrial regions around Calcutta and Howrah or in the plantations as far as Burma, Assam, Mauritius and Trinidad. Campbell detailed in his minute how Chotanagpore as the home of cheap, mobile, tribal labour escaped the ravages of the fever-epidemic. 'This facility of immigrating or going out for labour extends wherever *the aboriginal blood predominates*; e.g. into the Raneeunge portion of Burdwan, Bancoorah, Beerbhoom and upper Midnapore. But the fever tract is to the *east of this in an Aryan country*.'<sup>60</sup> This he contrasted with localities in Bengal affected by the epidemic. Such localities were marked by sedentary labour.

People of this part of Bengal do not emigrate . . . so long as they are not killed down by disease they go on increasing at home . . . they won't go out and work and prefer to stay at home on their patches of ground and starve.<sup>61</sup>

Such apparent concern for rescuing the people from starvation should be read with caution. It seems that official priorities predominantly lay in enabling the recruitment of cheap and mobile labour.

### 'Undergrowths'

Many contemporary official correspondences about the epidemic quoted widely from earlier reports that systematically advocated destruction of unkempt vegetation while encouraging cultivation of agricultural crops. Unlike most agricultural products, these usually uncombed vegetation failed to circulate extensively as profitable commodities in distant markets. However, those who inhabited the interiors of the fever-tracts considered some of these as cheapest sources of food. These reports suggest that most 'local officials' tended to discredit such rural vegetation, other than agricultural crops, as unwanted, rank and malarial.

Thus, the desire for acquiring knowledge about the locality was not confined to ascertaining the living conditions of the people. It extended

<sup>58</sup> Campbell, 'Minute'. <sup>59</sup> Ibid. <sup>60</sup> Ibid. <sup>61</sup> Ibid.

to consolidating information about the landscape and the vegetation it bred. In the context of Burdwan fever, an official file in 1870 carried a report originally written in 1863 in English by Sunjeeb Chunder Chatterjee, a prominent figure in Bengali literature, who intermittently occupied various colonial administrative positions in the region in the 1860s and 1870s.<sup>62</sup> In this letter Chatterjee drew attention to the difficulties in authentic gathering of knowledge in the localities. The magistrate was expected to carry out 'detailed and careful inspection of each of the infected villages' in person. This being impossible, he often distributed his responsibilities amongst the police *darogahs* under him. Overburdened with assignments themselves, the police *darogahs* in turn ended up assigning responsibility to the *fareedars* and *barkundauzes* to execute the orders transmitted to them by the magistrates. Chatterjee added that the *fareedars* and *barkundauzes* would inevitably prove incapable of exercising the discretion that was required in judging how far certain trees and plants, by their proximity to human habitations, affected public health. Besides, he doubted their ability to determine whether the entire rooting out of such vegetation secured greater benefit to the public than loss to their owners.

The mass of people on the one hand, are ignorant of the malarious influence of the jungles, and on the other hand regard them as particularly useful in screening their zenanas from exposure to the public gaze, and especially in supplying their kitchen with vegetables, fruits and fuel. Therefore they would not miss an opportunity to induce the fareedars to pass over unnoticed such portions of the jungles as lie behind their houses, and have on that account little chance of being discovered from the principal road of the village if ever the magistrate should happen to pass along it.<sup>63</sup>

To prevent these, Chatterjee recommended the appointment of three special officers with sufficient penal authority, whose 'local presence' might keep the fareedars and the villagers 'under control'. It is not clear from the records whether his recommendations were implemented.

From the mid-1860s, however, special engineers were assigned to the 'affected districts'. They were entrusted to 'examine and collect information' on any specific 'local works' that might be required for the 'sanitary

<sup>62</sup> B. Mukhopadhyay, *Sanjibchandra: Jibon o Sahitya (Sanjibchandra: His Life and Works)* (Calcutta: Pustak Biponi, 1988), 24–27; B. Chattopadhyay, 'Sanjibchandra Chattopadhyayer Jiboni (The Life of Sanjibchandra Chattopadhyay)', in J. C. Bagal (ed.), *Bankim Rachanabali Volume 2* (Calcutta: Sahitya Samsad, 1954/1890), 790–795.

<sup>63</sup> S. C. Chatterjee, Cantalpara, to A. Eden, Secretary to the Government of Bengal, dated 1 May 1863. Home, Public, 7 May 1870, 65–71 A (NAI).

improvement' of particular villages.<sup>64</sup> In 1868, in the wake of Burdwan fever, an official file reprinted the diary of one such special engineer in the Burdwan division. C. Ducas' diary was originally written in 1864, and was part of his assignment to report the causes and remedies of the extensive ill-health prevailing in the Burdwan division during that time. He reported after having visited villages Tribeni and Mugrah:

The *Kutchoo* and *ole*, both bulbous plants, thickly cover the village land, so much so that village roads have disappeared under them, and the ditches have been choked with them. The slopes of tanks are also covered with the *Kutchoo*. The bulbs of these plants are much used by the natives in daily food. The *Kutchoo* is used in place of potatoes and the *Ole* makes nice *chutney*, which is prepared in mustard oil, much in the same way mango chutney is prepared in the United Provinces... There is not a single village road to be traced, except by the foot tracks...<sup>65</sup>

After having narrated his visits to other localities including Balagore, Kanchrapara and Gooptee para, Jerat the engineer suggested his recommendations:

Where foot tracks exist, regular village roads must be of necessity constructed... So long as rank vegetation will be promoted, no engineering work can be carried out so as to ensure permanent advances... nothing can be done to assist... these *localities* when the surface of the country is scarcely visible from the covering of undergrowth, and when village paths have disappeared under them in most places...<sup>66</sup>

How could 'improvement' be guaranteed? Ducas' solution was simple: denudation of excess and rank vegetation followed by the introduction of agricultural cultivation. Similarly, Sunjeeb Chunder Chatterjee provided a list of thirty-three shrubs, creepers and plants out of which twenty-seven required to be burnt down and completely destroyed as a preventive against malaria; six of them had to be uprooted. Amongst them, Chatterjee argued, plants like *Kuchoo*, *Mankuchoo*, *Laoo*, *Shim*, *Koomra*, when methodically cultivated in the fields could be spared, while *Monsha* had to be preserved for worship.<sup>67</sup>

Such details, otherwise quotidian and mundane, emerged as credible inputs informing the bureaucrat's and the engineer's analysis of the locality. Officials preoccupied with the Burdwan fever, who circulated Chatterjee's and Ducas' narratives amongst their colleagues in the late 1860s

<sup>64</sup> H. L. Dampier, Commissioner of the Nuddea Division, to Lieutenant G. S. Hills on Special Duty, No. 127 dated 1 September 1864. Home Public, 7 March 1868, 140–143 A (NAI).

<sup>65</sup> 'Journal of the Occupation and Duties of Mr C. Ducas,' Ibid. (NAI). <sup>66</sup> Ibid.

<sup>67</sup> Chatterjee to Eden. Home, Public, 7 May 1870, 65–71 A (NAI).

were convinced that such detailed engagement with certain aspects of local vegetation could provide them with a clue to understand the causes behind the epidemic.

Similar tales about perceived shifts in subtle aspects within an elaborate landscape: the drying up of many rivers, excessive deposition of silt, shifting levels in the adjacent subsoil, inconsistent rainfall,<sup>68</sup> state initiatives at the subdivisional level that had backfired,<sup>69</sup> gossips circulating out of rural gatherings resurfaced in government reports as reliable causes behind another malarial outbreak.<sup>70</sup>

These various explanations could speak to each other in a shared vocabulary as the authors of these reports rearranged these stories by invoking some branch of science. Thus the idea of malarial Bengal as a landscape undergoing myriad range of mutations was articulated in a language endorsed by varieties of sciences. These local tales were rewritten as physical changes in the landscape,<sup>71</sup> engineering debacles,<sup>72</sup> meteorological inconsistencies,<sup>73</sup> debates concerning contagion<sup>74</sup> and so on. The epidemic was reified in these reliable and credible ways.<sup>75</sup>

The Meteorological-Malthusian theory propounded by Colonel Haig is yet another example of how current scientific knowledge was invoked in providing authentic explanations of Burdwan fever.

Chiefly due to an increase in population having outstripped the means of production, to an impoverished and under-fed condition of the great mass of the people; in fact that we now witness the last sad stage of that process by which over population, in the absence of any special counteracting or remedial measures, works its own cure . . .<sup>76</sup>

Each 'local' act of explaining the cause or course of the epidemic required ratification by the distant and dominant codes of respectable knowledge. One Babu Thakur Dass Chuckerbutty argued in a letter written to the Lieutenant Governor of Bengal in January 1871 that the epidemic was caused by the importation of a hitherto unknown plant

<sup>68</sup> E. H. Whinfield, Officiating Magistrate of Burdwan to the Commissioner of the Burdwan division. No. 129 P, dated Burdwan, 24 June, 1873. General, Medical, July 1873, File 6, Prog-34–36 (WBSA).

<sup>69</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 401–408.

<sup>70</sup> R. Mookherjee, Deputy Magistrate of Kishaghur, to E. Grey, Magistrate of Nuddea, dated 30 November 1863. Home, Public, 7 May 1870, 65–71 A (NAI).

<sup>71</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 407.

<sup>72</sup> 'Journal of the occupation and duties of Mr C. Ducas'.

<sup>73</sup> Mookherjee to Grey, Home, Public, 7 May 1870, 65–71 A (NAI). <sup>74</sup> Ibid.

<sup>75</sup> The previously mentioned trends in medical reporting were elaborately witnessed in contemporary Mauritius. See, C. Meldrum, *Weather, Health, and Forests* (Port Louis: Mercantile Record Co. Printing Establishment, 1881).

<sup>76</sup> Anonymous, 'Burdwan fever', *IMG*, 8 (1 May 1873), 126.

in Bengal. He identified this plant as *Bellaty Bharandah*. 'Its progress is simultaneous with that of the disease. Wherever this plant was propagated, the disease has arisen'. He added that if sunflower could be attributed to neutralise the effects of malaria, it was reasonable to suppose that some other plant could possess the qualities of malaria. In response C. B. Clarke, the Officiating Superintendent of the botanic garden, identified *Bellaty Bharandah* as *Iatropha glandulifera*, an American weed. He suggested that the plant had indeed somehow made its way into Bengal and formed 'a particularly obnoxious and *useless* low shrubby jungle'. However, Clarke believed that in designating this plant as the sole cause behind the epidemic Chuckerbutty was ignoring the fundamental rules of inductive logic. He added that the projected equation with sunflower was a flawed exercise of 'reversed analogy'. He suggested that Chuckerbutty's association of the introduction of sunflower with the disappearance of malarial fever was merely based on the logical method of coincidence. Sunflower caused abatement of malarial fever by enhancing ozone in the surrounding air. Clarke argued that to make his point Chuckerbutty had to show that *Belatty Bherandah* caused depletion of ozone from the air. Clarke maintained that the fallacies in Chuckerbutty's arguments surfaced as he had 'not thoroughly mastered J. S. Mill's chapter on the Method of Differences'.<sup>77</sup>

The officials deputed in the interiors of Bengal to furnish knowledge concerning the 'local' were thus uniquely placed. They could at least peep into the professional world of natural and engineering sciences while claiming to provide exotic local details. In their claim of knowing this locality and its inhabitants they provided coherence to different experiences of unease in distant regions as local variations of one commensurate malady: malaria. They were agents, however unaware or unintended, in a 'larger pathologisation of space'; a trend reflected in medical writings across local, regional and national contexts.<sup>78</sup> Thus the beginnings of revelation of the interior of the body through dissection and postmortem converged with trends of framing knowledge about the 'local' in British India that deepened possibilities towards construing medical and geographical stereotypes.

### 'Agriculture'

Lack of tolerance towards rural, unkempt, 'useless' vegetation was paralleled by encouragement of agricultural cultivation. It was argued that

<sup>77</sup> Municipal, Medical, February 1871, Prog 34–35 B (WBSA).

<sup>78</sup> Harish Naraindas, 'Poisons, Putrescence and the Weather: A Genealogy of the Advent of Tropical Medicine', *Contributions to Indian Sociology*, 30, 1 (1996), 1–35.

fallow wastelands otherwise considered malarial became harmless when reclaimed for agriculture. As a colonial official posted in a neighbouring division observed in the early 1860s: 'The germination of malaria lessened, if not prevented, by cultivating the soil...'.<sup>79</sup>

English newspapers expressed consistent concern whether the epidemic had an adverse effect on agriculture. They enquired whether the epidemic in Burdwan would cause the prices of agricultural goods to fluctuate. An editorial in the *Englishman* dated 23 October 1867 alleged that cultivation in the interiors had suffered adversely following the epidemic. The issue was considered serious enough to necessitate an immediate response. Quoting from reports of the local officials placed in Bood Bood, Cutwa, Culna, Mymaree, Serampore, Jehanabad, Oolooberiah, Shanpore, F Montresor, the Commissioner of the Burdwan division dismissed such apprehensions.<sup>80</sup>

However, it might seem simplistic to explain the projected geography of Burdwan fever in terms of the exigencies of colonial capital. In the 1860s, bamboo jungles had often been suspected to generate malaria. Mr M. J. Shaw Stewart, Collector of Canara in Western India, for instance, speculated whether prevalence of malarial fever in Soopa talook could be attributed to the great increase of bamboo jungles. To bolster further his understandings associating wild bamboo seeds with malarial fever he solicited information from Bengal. In his response Thomas Anderson, Superintendent of the Botanic Gardens in Calcutta was not very clear. He pointed out that unlike western India extensive tracts of land were not covered with wild bamboo plants in Bengal. However, Anderson noted that organised plantation of bamboo was practiced in certain villages in lower Bengal since 1857–1858. He was ambiguous whether such plantations were as liable in generating malaria as the wild bamboo plants in Western India.<sup>81</sup>

In March 1868 Dr H. T. Thompson, Civil Assistant Surgeon of Hooghly, asserted the need to preserve carefully planted bamboo trees around the villages of lower Bengal. He recognised bamboo as indispensable for protecting the inhabitants from the ill effects of malaria. Official reports suggested that 'in all rice-producing countries like Burmah,

<sup>79</sup> J. C. Snow, Civil Assistant Surgeon of Jessore, to the Magistrate of Jessore, No. 5, dated 15 January 1864. General, General, March 1864, Prog 84–85 (WBSA).

<sup>80</sup> C. F. Montresor, Commissioner of the Burdwan division, to the Officiating Secretary to the Government of Bengal No. 148, dated Burdwan, 23 October 1867. General, General, December 1867, Prog 6 (WBSA).

<sup>81</sup> M. J. Shaw Stewart, Collector of Canara to Mr W. Hart, Revenue Commissioner, Southern Division, No. 874, dated 16 April 1864. General, General, August 1864, Prog 25–28 (WBSA).

China and other malarious localities (sic)' a preventive custom of raising the houses on piles was observed. This was to allow free passage of underneath air and avoiding damp and rot. In Burma, these reports argued, abundant supply of woods of superior quality assured reasonably priced piles. Alternatively, people in the *mofussils* of Bengal followed a contrivance of their own. They erected what they called bamboo *machans* for sleeping purposes. 'By this cheap and simple arrangement, the people are protected from the damp floors and influence of malaria during the night, when the system is relaxed and more predisposed to receive it after the toil, fatigue, hunger and anxiety of the day...'.<sup>82</sup> Earlier, the uprooting of bamboo plants was also severely condemned by the British Indian Association, an influential collective of Bengali landowning interests. Its Honorary Secretary, Baboo Joteendro Mohun Tagore, underplayed suppositions that bamboo plants generated disease. He concluded by insisting, 'There is not in the country another substitute for bamboo'. The destruction of bamboo plants had to be prevented, as they required 'nourishment of years to grow into maturity'.<sup>83</sup>

In course of the 1860s, the possibility that malaria could have its origin in planting bamboo trees or rice cultivation<sup>84</sup> or in the process of maceration of jute was seriously considered in Bengal. However, unlike in the case of a range of rural uncombed vegetations, local officers could not afford to instruct the uprooting of such practices which were integral to the proliferation of the colonial economy. The harshness and alacrity of anti-malarial measures were deliberately relaxed to enable the continuation of these practices. For instance, the Lieutenant Governor of Bengal had authorised the Commissioner of Nuddea to take relevant steps under Section 62 of the Code of Criminal Procedure for preventing the maceration of jute in the immediate proximity of towns and villages. Maceration of jute was considered to affect the purity of air and cause ill health. Conveying the writ of the Lieutenant Governor, S. C. Bayley the Junior Secretary to the Government of Bengal added:

... but I am to impress upon you on the necessity of making careful provision that the preparation of Jute is not interfered with more than is absolutely necessary for sanitary purposes. I am to request the Magistrate of the district in which this process is carried on many be directed to try to induce the

<sup>82</sup> J. Sutherland, Deputy Inspector-General of Hospitals, Presidency Circle, to H. M. Macpherson, Secretary, Inspector-General of Hospitals, Lower Provinces, No. 51, dated Fort William, 13 April 1868. Municipal, Sanitation, June 1868, Prog 14–15 (WBSA).

<sup>83</sup> J. M. Tagore, Honorary Secretary to the British Indian Association to S. C. Bayley, Junior Secretary to then Government of Bengal, dated 16 July 1863. General, General, October 1863, Prog 92 (WBSA).

<sup>84</sup> General, Medical, March 1869, Prog 75–76 (WBSA).

inhabitants of large villages to fix upon some particular piece of water for this purpose...<sup>85</sup>

### 'Draining Bengal'

Official efforts towards dealing with the epidemic, in turn, sustained and reinforced the identity of Burdwan division as a malarial locality. Existing histories have commented on the elaborate pamphlets published serially in the *Hindu Patriot* by Digambar Mitra.<sup>86</sup> In such histories the pamphlet-savvy elite in Bengal appear locked in a polemical dialogue with the colonial state. These works consistently empathise with Mitra. It is suggested that powerful men in the colonial establishment ignored his suggestions towards improving stagnating drainage networks in the interiors of Bengal. Careful revision reveals that both Digambar Mitra and the representatives of the colonial state considered it necessary to reclaim stagnant swamps and to facilitate the flow of dying rivers and other drainage channels. However, they were indeed engaged in a debate while explaining the main cause behind the stagnation of waterways. Mitra considered newly constructed roads and railways under colonial supervision responsible. On the contrary, superintending engineers employed by the government blamed unprofessional construction and handling of private zamindari embankments.<sup>87</sup>

Different groups from the late 1860s proposed the 'improvement' of drainage networks in Bengal. Such groups harboured different interests and represented varying investments. Studying them reveal numerous habitations of power in the interiors of Bengal in the third quarter of the nineteenth century. In an aggressive and sustained way the government had advocated the need to 'improve' drainage networks, reclaim wastelands, promote agriculture and navigability and clear jungles. These, the government consistently maintained, were credible ways of dealing with the threat of the malarial epidemic. These measures enabled detailed and legitimate intervention of the colonial state into the interiors of Bengal. It was argued that 'such an apathetic race can only be preserved from the consequences of their own ignorance and folly by constant supervision...'<sup>88</sup> Colonial intervention in the late 1860s often took the form of 'constant supervision' of public works geared towards 'agricultural improvement'.

<sup>85</sup> S. C. Bayley, Junior Secretary to the Government of Bengal, to the Commissioner of the Nuddea Division, No. 6064, dated 28 December 1864. General, General, December 1864, Prog 53–54, File 1–3 (WBSA).

<sup>86</sup> Sarma, *Ecology and the Epidemic*; D. Mitter, *The Epidemic Fever in Bengal* (Calcutta: Hindu Patriot Press, 1873).

<sup>87</sup> Home, Sanitary, April 1884, 112–116 A (NAI).

<sup>88</sup> Sutherland to Macpherson, Municipal, Sanitation, June 1868, Prog 14–15 (WBSA).

In June 1872, the *Indian Medical Gazette* conveyed the admiration drainage projects had begun commanding in contemporary Bengal. It ridiculed the 'mushroom crop' of theories which had so far been furnished to explain the Burdwan fever. The journal provided an 'exhaustive catalogue of theory mongers', and ridiculed them as: supernaturalists, transcendentalists, pseudo-inductionists, hobby-riders, intuitionists and plagiarists. In contrast, the editorial privileged 'modest, laborious and cautious . . . genuine workers-men . . .' over such seekers of futile knowledge. Such 'genuine workers-men', it argued, included those who were actually fighting the epidemic by taking part in the drainage works.<sup>89</sup>

The colonial state systematically pursued the question of drainage from the late 1860s. A mammoth memorandum submitted by C. C. Adley, Executive Engineer on Special Duty in June 1869, bore a detailed programme of draining three huge swamps (i.e. at Danconee, Kathlia and Roypore) in the Hooghly district of the Burdwan division. Adley recalled how *khalls* or natural drainage channels once led from these swamps to the River Hooghly and were formerly navigable for small crafts round the year. Referring to contemporary texts on malaria available in French, Italian and English, he reinforced the understanding that Burdwan fever might have been caused by filth generating around declining rivers, stagnating channels and proliferating swamps. He located improvement schemes being initiated to resist Burdwan fever as part of a larger history. He pointed out how successful works of drainage had effectively reduced malarial fevers in Lincolnshire, Holland, Mauritius, Burgundy, Jessore and Serampore.<sup>90</sup>

Public projects of improvement would require considerable intervention into lands held by numerous proprietors. Adley initiated detailed negotiations with the 'principal proprietors' in the region relevant to the project. It was discovered that the bulk of land belonged to the Seorapooly Rajas and their co-heirs. On the behalf of the government, Adley and his colleagues interacted with other influential proprietors in the region (i.e., Baboo Joykrishna Mukherjee and Bamapada Chaudhuri). In the process crucial assurances were extracted. An elaborate list of every 'minor proprietor' in that region was solicited and collected. However, there is barely any evidence suggesting that the government bothered to engage with most of them. In course of their conversations with the principal proprietors the government revealed the commercial profits,

<sup>89</sup> Anonymous, 'The Epidemic Fever in Bengal', *IMG*, 7 (2 June 1872), 164; Anonymous, 'Draining Bengal', 209.

<sup>90</sup> C. C. Adley, Executive Engineer on special duty, to Major J. J. Hume, Officiating Superintending Engineer, Western Circle, No. 109, dated 25 June 1869. Home, Public, 12 March 1870, 167–170 A (NAI).

which were likely to result from the drainage works. It surfaced that drainage works on Dancoonee, Kathlia and Roypore would enable reclamation of 19000 bighas of cultivated and 24000 bighas of uncultivated land.

... the average present value of the cultivated land under the most favorable circumstances is 8 annas per bigha per annum; when drained, its minimum mean value would be Rs. 3 per bigha per annum; thus showing a clear additional profit to the landlords of Rs. 2–8 per bigha per annum. The value of the uncultivated land would be raised from nil to Rs. 3 per bigha per annum.<sup>91</sup>

As a consequence of reclamation of land by drainage, it was suggested, relevant landholders would reap an 'additional profit' of Rs. 47500 from cultivated land and Rs. 72000 from uncultivated land (i.e., a total additional profit of Rs. 1,19,500). Besides, it was pointed out that drainage would inevitably promote navigation and irrigation. Apart from benefiting the cultivation of sugarcane, rice and vegetables, it was expected to guarantee easier access to the Calcutta market.<sup>92</sup>

The projected economics of profit seems to have convinced Baboo Joykrishna Mookerjee as well as Raja Poorno Chunder Roy of Seorapooly. Mookerjee proposed that the initial financial burden of the project should be borne by the government. The cost was to be repaid by the landowners in instalments, spread over several years. Each landlord had to pay in proportion to the holding. Mookerjee agreed that a law had to be passed compelling landowners to join any scheme convened towards 'public good'. To these suggestions the Raja added that once the amount advanced by the government had been refunded, the drainage works and canals should become the property of the zamindars. However, the zamindars were expected to pay the government a fixed sum annually for maintenance and repairs. The Raja wished the works to remain 'under government supervision.'<sup>93</sup>

These ideas found expression in the document that made up the Hooghly and Burdwan Drainage Bill. This bill was eventually endorsed by the Lieutenant Governor and passed into an Act on 18 March 1871. Passed with the intention of facilitating drainage in the concerned districts, this bill opened up tricky questions about landownership. For the execution of this act the Lieutenant Governor had to appoint Drainage Commissioners. These commissioners had to be at least seven in number. Amongst them the majority had to be constituted of proprietors of lands which would be affected by the drainage works. Within fifteen days of notifying a proposed scheme to concerned proprietors, the commissioners had to ascertain their responses. If half amongst the

<sup>91</sup> Ibid.    <sup>92</sup> Ibid.    <sup>93</sup> Ibid.

affected proprietors assented to the proposed scheme the commissioners could proceed with it irrespective of what the other proprietors thought. If more than half amongst the relevant proprietors objected, the commissioners had to reconsider the proposed scheme. Thereafter, the commissioners as a collective could reject the scheme, modify it or proceed with it unaltered. The commissioners were thus under no compulsion to respect the objections raised by the proprietors to the schemes proposed. Once the Lieutenant Governor had sanctioned a scheme he could acquire the relevant pieces of land for public purpose. Within one month after any scheme had been completed the commissioners had to determine the sums payable by each of the proprietors of land reclaimed or improved. If the proprietor failed to pay up within one month from the day the sum was payable the commissioners could recover that sum by the sale of such lands. Where the ownership of a piece of land was in dispute or if there was more than one claimant to proprietorship the commissioners were empowered to determine the proprietor as it applied to this Act.<sup>94</sup>

Unsurprisingly, such provisions did not leave every landholder elated. Responses from these unhappy petty landholders often revealed shades of enmity between them. The following case suggests how the question of drainage revealed conflicts amongst different layers of proprietors. In a petition addressed to Adley, a 'petty zemindar' named Showdaminy Debi objected to the construction of a channel of water through the cultivated low grounds of the village she owned. Showdaminy Debi happened to be the zamindar of the village called Gobra under the Thannah Hurripal in the district of Hooghly. She wrote:

The revenue of the village (Gobra) is very poor; if the Government take the canal through the cultivated parts of the place then it will be too injurious for so petty a zemindar as I am . . . there is only one Government Khas Mehal which gives small revenue therefore it is unnecessary to have such expensive and useless canal . . . The place which your honour has selected as a site for the canal is not at all fit for the purpose, as there was no canal at any time before . . .<sup>95</sup>

The last section of the petition was most revealing:

The people who applied for cutting a canal are my enemies, and thinking me to be a helpless woman, they are merely trying to injure me by cutting a canal through the fertile grounds of my zemindary and the rent-free lands of other holders; their principal object is not to make general good, but to put their enemies into trouble . . .<sup>96</sup>

<sup>94</sup> Home, Public, 22 April 1871, 57–59 A (NAI).

<sup>95</sup> Adley to Hume, Appendix D. Home, Public, 12 March 1870, 167–170 A (NAI).

<sup>96</sup> *Ibid.*

Thus, efforts to prevent malaria often merged into projects of improvement. As indicated, such projects advocated clearance of wastelands and jungles. Once cleared these lands could be reclaimed for agriculture. The British Indian Association was a voluntary association of absentee landlords settled in Calcutta. Its members often possessed property in the form of orchards, gardens and other tracts of lands in the interiors of rural Bengal. Since the early 1860s, excessive emphasis by government representatives on the reclamation of rural land for agriculture often clashed with the interests of the members of the Association. A letter written by its Secretary, Joteendro Mohun Tagore, objected to the following observation by Dr Elliot, a senior medical bureaucrat.

... Patches of land in the centre of villages held rent-free produce only jungles. Land occupied by mangrove, plantain, and other fruit trees generally belong to people of high castes, who do not cultivate themselves, and are unwilling to let it out to others for that purpose. Until these and similar tracts are brought under cultivation and until the soil is exposed to the sun's rays at least twice in the year, I am of opinion that such places can never be healthy or habitable.

Tagore considered Elliot's recommendation of bringing under cultivation all village lands not occupied by homesteads as considerable infringement on private property. Tagore disputed the labelling of land occupied by orchards consisting of plantain, mango and other fruit trees as 'wastelands'. He urged the government against imposing sanitary improvements on villages by any means that might have semblance of force or compulsion or by any legislation, which would interfere with private property. Tagore suggested that 'reciprocation of sentiments' between 'local officers' and 'private proprietors' worked better than any form of coercion. In communicating such views to the government, Tagore functioned as an efficient spokesman of the interests of his colleagues in the British Indian Association.<sup>97</sup>

Alliances struck with influential zamindars over the issue of drainage and improvement enabled the colonial state to explore new opportunities of trade. C. T. Buckland, the Commissioner of Burdwan proposed in April 1872 the cultivation of sunflower in Burdwan and Hooghly. He referred to cases in Sonmaar, Belgium, France and Northern America where sunflower had been cultivated to 'neutralize the deleterious effects of marshy exhalations'. Buckland's message referred to a detailed report from R. T. Thompson, the civil surgeon of Hooghly. Thompson wrote about the remunerative aspects of sunflower cultivation on account of the valuable oil, which was produced in it. He suggested

<sup>97</sup> Tagore to Bayley, General, General, October 1863, Prog 92 (WBSA).

that sunflower yielded 'a beautiful clear oil' that could be cultivated all the year round in Bengal and North Western Provinces. He believed that sunflower oil tasted sweet, was nearly inodorous and that 50 per cent of its seeds contained this oil. Although sunflower oil was well adapted for machinery soaps, cerates, liniments and plasters, its chief use was thought to be as an aliment suited for culinary purposes. As an ingredient in cooking, Thomson thought that it was better than the costly olive oil. He hoped that sunflower oil, once produced in Bengal, could compete with the costly imported Spanish olive oil if not quite throw it out of the market. Once again the lure of commerce converged with the obligation to deal with the epidemic. Buckland promised that the preliminary cost of procuring sunflower seeds from Agra might be charged from the epidemic fever-fund. Joykrishna Mookerjee was again requested, along with Mr Pellew, the Magistrate of Hooghly, to arrange for these experiments in four different villages: Kolora, Kinkurbutty, Madhabpur and Ooterparah. Buckland mentioned that all these villages lay on the edge of the Dancoonee, Kathlia and Roypore swamps that formed the core of the drainage scheme in the Hooghly district. Mookerjee found it very difficult to induce the ryots to displace a known crop for an experimental one. Sources suddenly go silent on what happened next.<sup>98</sup>

Certain practices of agricultural improvement and drainage in Bengal in the 1870s stoked a series of discussions. Such discussions, quite predictably, revealed the colonial state, the influential zamindars, absentee landlords and the petty zamindars as overlapping and conflicting layers of propertied authority in the interiors of the Hooghly and Burdwan districts of Bengal. At the same time, in different narratives Burdwan and its vicinities began to appear as one of the many malarial localities in the world. Burdwan in particular or more generally Bengal, figured as one of the many regions in the world, which were in need of improving their networks of drainage. It was suggested how the British bureaucrats in Burdwan could take lessons from the French in Algeria or medics in Massachusetts or sanitary officials in Natal. The experience of drainage initiated in the Burdwan division could then be compared with other regions.

In reference to the vexed question of the Burdwan fever in Bengal, the following account by Dr Derby of Massachusetts will be found of interest . . .<sup>99</sup>

<sup>98</sup> Memorandum by C. T. Buckland, Commissioner of the Burdwan division No. 178, dated Burdwan, the 8 April 1872. Municipal, Sanitation, March 1873, Prog 16–23, File 7 (WBSA).

<sup>99</sup> Anonymous, 'Marsh Fever Produced by Obstruction of the Outlets of Subsoil Water', *IMG*, 8 (1 October 1873), 279.

It is scarcely necessary to say that what has been accomplished in the way of water supply, drainage and agricultural improvements, in Algeria can be done in India.<sup>100</sup>

John Sutherland of the Indian Medical Service wrote a report on the applicability of methods of preserving the health of troops in Algeria to reducing the mortality of troops in India.<sup>101</sup> He insisted on the introduction of the Algerian mode of drainage to deal with the epidemic in lower Bengal. The *Indian Medical Gazette* quoted from the works of Colonel Mundy and Mr Hudgkinson emphasising the similarity of the 'swamps of Australia' to those of Bengal.<sup>102</sup>

### 'Travelling Epidemic'

Did such discussions and practices inevitably converge into yet another condescending colonial statement against the poor levels of native sanitation? Was the geography of Burdwan fever explained necessarily in terms of defective networks of drainage and heinous standards of sanitation? Bureaucratic commentators like Campbell or Haig seldom associated Burdwan fever with unsanitary localities alone. Campbell concluded his minute by observing: 'all sanitary science notwithstanding... Colonel Haig truly observes that up to this time there has been much less fever in these reeking swamps than in the higher parts of Burdwan and Hooghly, where there is a sensible natural drainage...'.<sup>103</sup>

Some amongst the prevalent histories on the subject have tended to organise different contending explanations of the epidemic into a debate between two opposite positions. It has been suggested that while the emergent vernacular Bengali press, keen on resisting policies of improvement conceived by the colonial state, were explaining the epidemic in relation to the new channels of communication, construction of railway tracks, embankments, renovated roads, the colonial officials attributed the epidemic to 'indigenous' sanitary practices.<sup>104</sup>

However the fragmented nature of the official explanation to the epidemic is revealed in statements like this emanating from within the files of the colonial medical bureaucracy:

<sup>100</sup> J. Sutherland, R. S. Ellis, Joshua Paynter and C. B. Ewart, 'Report on the Causes of Reduced Mortality in the French Army Serving in Algeria', *IMG*, 8 (1 May 1873), 139.

<sup>101</sup> J. Sutherland, 'On the Causes of Endemic Fever in Lower Bengal, the Influence of Canal Irrigation in their Production in Upper India, and the Means of Prevention to be Employed', *Edinburgh Medical Journal*, 15 (June 1870), 1086–1091.

<sup>102</sup> Anonymous, 'Malaria', *IMG*, 7 (1 September 1873), 241.

<sup>103</sup> Campbell, 'Minute: Hooghly Fever and Conditions of the Ryots'.

<sup>104</sup> Samanta, *Malarial Fever in Colonial Bengal*; Sarma, *The Ecology and the Epidemic*.

The history of the epidemic itself is equally strange. It is shown to have been unaccountably capricious and fitful in its incidence, seizing indiscriminately on towns whose sanitary arrangements were the best, and others where sanitation was quite neglected, and entirely over leaping tracts which there was every reason to suppose most liable to its attacks.<sup>105</sup>

Reports published in the 1870s often suggested that the malarial epidemic was not confined to localities characterised by low lands, insufficient drainage or stagnation of water. The epidemic appeared to reveal itself in apparently contradictory geographical surfaces. Confuting some of the theories advanced to explain the epidemic, the magistrate of Hooghly wrote in 1872:

The country round Jehanabad and Myapore is high; the country round Gohaut is high also. In neither of these tracts are there any railroads, nor is there any interference with drainage. The country around Singboor is high also; round Kishtonagore is low; yet all these places have this year been remarkable for the amount of fever. The soil around Bally is sandy; at Jehanabad, clay and sand; at Myapore sand with a little clay; at Krishtonagore black clay. In all these places there are good tanks and bad tanks. The Jehanabad people have beautiful river water as well. The prisoners in the lock up there always drink river water. Yet these circumstances make no difference whatever.<sup>106</sup>

Colonial medical bureaucrats frequently explained such 'eccentric geography' of the epidemic by invoking the logic of communication. In the process they often distinguished between communication and contagion. Such distinctions figured in an extensive range of official reports.<sup>107</sup> Thus wrote Leonard Rogers:

... it progresses steadily although slowly, it has followed, like a rolling wave, the chief roads or means of communication and there was no evidence that sanitary conditions had changed to any extent during or shortly before the epidemic.<sup>108</sup>

In contemporary bureaucratic reports, malaria surfaced as a sinister entity that could communicate itself across distant regions. However, the use of the expression 'communication' in these medical bureaucratic reports might have referred to a different set of connotations than what figured in vernacular commentaries written by the Bengalis. In medical bureaucratic imagination malaria could travel even when agents

<sup>105</sup> E. C. Bayley, Secretary to the Government of India, to H. L. Dampier, Officiating Secretary to the Government of Bengal, No. 867, dated 21<sup>st</sup> February 1868. Home, Public, 7 March 1868, 140–143 A (NAI); General, Miscellaneous, August 1872, Prog 1–2 (WBSA) See also, General, Miscellaneous, August 1872, Prog 1–2 (WBSA.)

<sup>106</sup> Anonymous, 'Burdwan fever', *IMG*, 7 (August 1, 1872), 188.

<sup>107</sup> Elliot, *Report on Epidemic*; French, *Endemic Fever in Lower Bengal*; Sutherland, 'On the Causes of Endemic Fever', 1086–1091.

<sup>108</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 404.

of development like renovated roads, extensive railway tracks, embankments were not communicating it. As wrote one Dr Jackson, 'I regard the supposition that a line of railway embankment could, under any circumstances, originate a *travelling epidemic* like that in Burdwan as ridiculous and unworthy of serious consideration' [emphasis mine].<sup>109</sup>

What communicated malaria was in dispute, but there existed a belief across different sections of the medical bureaucracy that malaria was indeed travelling and was carrying the epidemic along with it. Thus, when these medical bureaucrats were referring to the 'lines of communication' they were not necessarily subscribing to the anti-government positions profoundly articulated by the likes of Digambar Mitra.<sup>110</sup> On the contrary, they were implicitly referring to and drawing from extensive imaginings of malaria as an elusive yet mobile category, represented in medical journals, published and circulated across and beyond local contexts. In these correspondences malaria itself was imagined as a substantially mobile entity that could travel like invisible waves across districts and provinces; which could remain latent in the body and travel with it across continents,<sup>111</sup> 'could drift up the ravines',<sup>112</sup> or 'it moves like mist and rolls up the hill sides, and may travel with the wind for miles...'.<sup>113</sup> The transit of malarial particles, Dr Massy of the Army Medical Department in Jaffna believed, was hampered by certain trees the leaves of which were eventually stained with black rust.<sup>114</sup>

It is in light of such imaginings one has to read the characterisation of the 'malaria fever epidemic' as a 'travelling epidemic'.

That the fever did travel is no matter for doubt. Like the waves of a flowing tide it touched a place one year and receded, reached it again next year with greater force and again receded, repeating this process until the country was wholly submerged and tide passed further on...<sup>115</sup>

... Its main feature is, as we have shown already, that it is travelling, slowly indeed, but, as some have remarked, yet travelling.<sup>116</sup>

Unlike the sweeping but uncertain marches of cholera and small pox, its progress has been slow but sure...<sup>117</sup>

<sup>109</sup> Ibid., 405.

<sup>110</sup> D. Mitra, *The Epidemic Fever in Bengal* (Calcutta: The Hindu Patriot Press), 1873.

<sup>111</sup> Christie, 'On Latent Malarial Disease', 550.

<sup>112</sup> Anonymous, 'Review of C. F. Oldham, *What is Malaria?*', 102.

<sup>113</sup> Fayer, 'First Troonian Lecture', 423–426.

<sup>114</sup> E. A. Parkes, 'Report on Hygiene for 1867', *Army Medical Department Report for the Year 1866*, Appendix xxxvi, Volume viii, 1868, 316–317.

<sup>115</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 402.

<sup>116</sup> Vercherie, 'Extracts From a Diary', 287. <sup>117</sup> Roy, *Burdwan Fever*, 57–58.

Such widely circulating stories on travel fed into the idea of malaria as an ordering principle. These imaginings bound diverse symptoms of physical unease dispersed across time and space into the radar of a coherent, continuous, single malarial epidemic. This explains how as late as 1899 Leonard Rogers could suggest a biography of Burdwan fever that boasted a lifeline spanning half a century. He extended the life of Burdwan fever back and forth and wove 'outbreaks' in Jessore in 1824, Nuddea in 1862, Mauritius in 1869, Burdwan particularly in the 1870s, Assam and Rangpur in the late 1890s as different expressions of the same unending epidemic.<sup>118</sup>

A close reading of contemporary bureaucratic correspondences reveal how the distances covered by the epidemic were represented in quantifiable terms. 'We have found it in our time to have travelled in thirteen years from Nuddea to Hughly'.<sup>119</sup> 'From Jessore it spread slowly (from 5 to 10 miles per year) from one district to another for a period of over 20 years.'<sup>120</sup> Leonard Rogers quoted the Sanitary Commissioner for Burdwan in 1874, who suggested that the epidemic followed this repetitive pattern until it left one locality for another:

During the fourth, fifth and sixth years – six years being the average duration of the fever in any place, – there was a general and slow recovery, the fever in each successive year attacked fewer persons, was of a less fatal type, and prevailed for a shorter period, finally disappearing altogether in the seventh year.<sup>121</sup>

The literature on Burdwan fever tended to bind not only distant places, but also stoked memories of different times. John Sutherland, for instance, disputed impressions that epidemic malarial fevers in Bengal were of recent origin. Bengal had known such epidemics since the sixteenth century, he argued. He attributed the destruction of the 'ancient and prosperous' city of Gour as early as 1574 to a similar epidemic. Sutherland informs us that the epidemic killed an entire Mughal contingent under Monaim Khan, a Lieutenant of Akbar, which had then held the city under siege.<sup>122</sup> Bureaucratic reports on the epidemic could also speak to similar correspondences in other parts of the contemporary world. The epidemic began to be compared with similar events in history. Thus the malarial epidemic in Burdwan in the late 1860s and 1870s was made to appear as an unexceptional phase in the history of epidemics. It fitted into a larger pattern of such epidemics in different parts of the world and in other moments in history.

<sup>118</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 401–408.

<sup>119</sup> Roy, *Burdwan Fever*, 57–58.

<sup>120</sup> Rogers, 'The Lower Bengal (Burdwan) Epidemic Fever', 404. <sup>121</sup> *Ibid.*, 402.

<sup>122</sup> Sutherland to Macpherson, Municipal, Sanitation, June 1868, Prog 14–15 (WBSA).

## Conclusion

'Native' expert opinions about the causes and remedies of Burdwan fever were solicited. However the medical establishments of the government closely monitored such opinions. Thus 'indigenous' impressions about the epidemic often reflected the understandings and biases of the colonial state. A prize of Rs. 1000 for the best essay by a 'native' on the epidemic declared by Lord Northbrook in August 1872 provides an interesting case. The Viceroy and Governor General of India encouraged all sub-assistant surgeons to submit essays on 'The nature and causes of the fever which now prevails in and near Burdwan, and best means of preventing its continuance'. The competitors were warned that they had to adduce to facts and could not indulge in 'speculation and theorising'. All papers sent in were supposed to be examined and the prize adjudged by the Principal of the Medical College and the Officiating Sanitary Commissioner for Bengal.<sup>123</sup>

A gleaning of contemporary advertisements and medical manuals in Bengali enables us to locate 'others' operating in the medical marketplace alongside those who were configuring diverse expressions of physical unease into a continuous epidemic. This alternative archive suggests how dissimilar ordering principles could be employed to frame quotidian little debilities that were being explained and expressed through the metaphor of malaria in certain other contexts. Practitioners who were contributing to this 'other' archive were often, with some exceptions, subjected to vigorous condescension. Gopaul Chunder Roy for example spoke of 'a band of lawless resolute . . . whose prototypes we observe in quacks and empirics. These infest the country like locusts, and cause more devastation amongst humanity than the diseases which they pretend to combat'.<sup>124</sup>

Karal Chandra Chattopadhyay, for instance, attributed his healing skills to divine benevolence and his collection of medical recipes to his extensive travels across a geographical space he identified as Bharatvarsha. In a booklet entitled *Bibidha Mahaushadh*<sup>125</sup> he does not acknowledge his debt to any other individual or medical tradition. He barely met his patients in person, but interacted with them through the post, rarely finding the scope for diagnosing his patients. His patients wrote to him about their precise complaints: expressions of pain and

<sup>123</sup> General, Medical, August 1872, 147–148 B (WBSA).

<sup>124</sup> Roy, *Burdwan Fever*, 151–152.

<sup>125</sup> K. C. Chattopadhyay, *Bibidha Mahaushadh (Specifics discovered and experimented by K. C. Chatterjee)*. (Calcutta: Iswar Chandra Basu and Company and K. C. Chattopadhyay, 1876).

physical unease ranging across bleeding from the rectum, impotency, physical infirmity, gonorrhoea, ulcers, fever, mercurial disorders etc. Such complaints, as I have already noted, were co-opted otherwise within the vortex of the epidemic: as preconditions, sequels, or simulations of a single malarial malady. Chattopadhyay, in return, responded by writing back to his patients, packing the required medicines in an envelope without forgetting to mention the exact dosage and of course, the price with postage that varied with every ailment. Through advertisements in the Calcutta and Bombay newspapers his patients got to know of him and wrote testimonials acknowledging his abilities in local newspapers published from places as distant as Dinajpur, Benaras and Lahore. Advertisements published in Bengali newspapers towards the end of the 1870s suggests that Chattopadhyay was not alone in the medical market in his silence on the malarial epidemic. Nor was he the only self-proclaimed healer in Bengal to prescribe generic medicines other than quinine, or to exploit the emergent networks of postal communication to extend his trade.<sup>126</sup>

The Burdwan fever malarial epidemic in the 1870s was an epistemological and administrative configuration. There were many 'indigenous' medical actors like Chattopadhyay who represented other modes of framing diseases, alternate cosmologies and patterns of cure, and did not seem to bother or have any clue whether an epidemic had unleashed itself.

Such indifference to and disinterest in the language of the malarial epidemic, its aetiology and its management, were paralleled by sustained contemporary critiques on the idea of epidemics from within 'medical science' itself. The *Indian Medical Gazette* published a series of editorials in instalments in different volumes through the course of 1873 on a common topic entitled 'prominent fallacies in epidemiology'. These editorials described epidemics as a fallacy within medical understanding. It was argued that 'present-day epidemiology' would not qualify as an inductive science and should be considered instead as a 'pseudo-science'. These editorials placed epidemiology amongst a 'species of mild speculation with a spicing of mystery', which could merely amuse the idle and satisfy the curious. Epidemiology, it was alleged, appeared as a source of 'amusement of children, not the work of grown up men'. These editorials urged readers to rethink some of the basic assumptions associated with 'general epidemics'. General epidemics were understood as

<sup>126</sup> For instance see these advertisements. 'Morrison's Tonic', *Sambad Purna Chandroday* (30 August 1862), 1–2; 'New Apothecaries' Hall', *Somprakash* (15 April 1867) [CSSSC].

a widespread disease phenomenon spreading over time and across an extended space.<sup>127</sup>

The human mind is, moreover incessantly hankering after causes . . . An abstract term “climate” or “epidemic influence” is invented or utilized, and made to do as a substantive ‘theory’ of a more occult or quasi learned description . . . The whole process is a melancholy exhibition of false generalising.<sup>128</sup>

This questioning of the projection of epidemics as a general, widely dispersed, homogenous phenomenon was followed by considerable doubts articulated in some contemporary medical texts about the existence of malaria itself. An official correspondence drafted by Surgeon Major Moore, Superintendent-General of Dispensaries and Vaccination, Rajputana in January 1877 suggested, for instance:

. . . it is probably the uncertainty and difficulty in accepting seemingly opposed facts which have caused a minority amongst eminent medical observers both in this country and in other parts of the world, to doubt, or altogether deny the existence of any such poisonous agent as malaria. In France and Algeria Dr Burdel regards marsh poison as ‘a myth’; Armam entirely rejects it as a figment of the brain. Amongst Anglo-Indian officers, Renine writing of China says: ‘Let mud and malaria alone, it will give no one the ague’ . . . Hutchinson thinks malaria will be ‘only an old friend: Carbonic acid’; Dr Knapp, the President of the Iowa University, regards malaria as a ‘hypothetical cause’ that could never be empirically verified, which some practitioners were using as ‘cloaks for ignorance’ that would eventually ‘hinder the progress of medical science’.<sup>129</sup>

It was in such an overall context of suspicion and doubt about the integrity of both the epistemological categories malaria and epidemic that the Burdwan fever, in predominant records, was identified as a malarial epidemic – a credibly describable and sustained phase in the history of Bengal. The making of Burdwan fever epidemic can hardly be ascribed to conveniently locatable intentions or a straightforward series of causes. The history of unfolding of the epidemic hints at a ‘game of relationships’: between diagnostic protocols and pharmaceutical interests; codes of bureaucratic reporting and information gathering; medical relief, land control and commercial priorities; indenture labour market and medical geography; between the colonial government and different layers of landed proprietors. Burdwan fever reveals an intimate interplay

<sup>127</sup> Anonymous, ‘Prominent Fallacies in Epidemiology’, *IMG*, 8 (1 July 1873), 188–189.

<sup>128</sup> *Ibid.*, 217.

<sup>129</sup> Home, Medical, January 1877, 47–48 (NAI) Dr Moore elaborated his views harbouring doubts about the existence of malaria in another article. W. J. Moore, ‘An Enquiry into the Truth of the Opinions Generally Entertained Regarding Malaria’, *Indian Annals of Medical Science*, 20 (1866), 375–404.

between the histories of epidemics, empire, modernity, capitalism, environment and locality.

Consolidation of knowledge about the epidemic and colonial extraction of information about the locality happened simultaneously. While shaping these overlapping processes colonial bureaucrats in Burdwan were uniquely placed. They had access to a prolific mass of details concerning Burdwan. Further, they were entrusted with the task of repackaging them in accordance with the commensurate and cosmopolitan codes of imperial correspondence. Knowledge of the locality and the epidemic converged to stereotype the Burdwan division as a malarial landscape. Once identified as such, Burdwan began being projected along with Massachusetts, Natal, Australia, Mauritius, Assam and Algeria as one amongst many unexceptional malarial localities on the map of British Empire and beyond.

The case of Burdwan fever reveals specific historical processes through which categories like malaria, which proliferated in post-Enlightenment Europe in general and Edwardian and Victorian England in particular were made to appear as commonplace in the wider colonial world through much of the nineteenth century. Burdwan fever also provided an occasion when categories like malaria began to acquire a thicker Indian accent: Bengali names of places, peoples and plants were incorporated within the expanding vocabularies of malaria. Therefore, whilst malaria began to be described in official discourses as an intrinsic feature of the locality, 'local' debilities, landscapes, landowners, markets, personnel and vegetation were in turn inscribed as inalienable components in the global narratives about malaria.

The making of Burdwan fever witnessed the bureaucratic attribution of significant causative properties to animate and inanimate nonhumans, particularly a variety of plants, for instance, sunflower, paddy, bamboo, jute and a myriad range of unspecified vegetations referred collectively as 'undergrowths'. Such activation of plants in the bureaucratic imagination, in turn, was linked to the entrenchment of exclusionary discourses about colonised humans. Mark Harrison and David Arnold have shown how Burdwan fever was cited in administrative reports as an example of racial degeneration, effeminacy and poor attainments of civilisation in lower Bengal.<sup>130</sup> Even projected collective immunity from malaria could be perceived as an indicator of racial inferiority. The santhals recruited from Chotanagpore as indentured labourers in the distant colonial plantations, for example, were described as free from the effects of malaria. It

<sup>130</sup> Harrison, 'Hot Beds of Disease', 11–18; Arnold, 'An Ancient Race Outworn', 123–143.

was conjectured later that the so-called primitive people like the santhals were compatible with malaria because of their crude and laborious racial constitutions. Burdwan fever thus constituted yet another phase in the history of imperial biopolitics in which the ascription of *active* properties to various nonhumans coalesced with processes of dehumanisation.

In different moments of this chapter I have argued that quinine often acted as a pharmacological agent in quick-fix diagnostic tests. The malarial identity of a malady could be retrospectively established by how the relevant body responded to quinine. Thus Burdwan fever owed its identity to quinine in different ways. Malaria in the 1860s and 1870s could be associated with a range of maladies. Quinine, it appears, could determine the limits to which the category malaria could be flexed. In the next chapter I ask whether quinine itself referred to a rigid, inflexible and homogenous category. These decades were also significant in the history of manufacturing quinine in British India.