The Plantation Enclave, the Colonial State and Healthcare: A Study of the Tea Industry of Jalpaiguri Duars (1902-1947)

Supam Biswas

Abstract:

During the pioneering years of tea plantation, medical care was probably not available in the tea gardens in Duars. Hunter found that the principal endemic diseases in duars were malaria and blackwater fever. On the initiative of the Indian Government, the Malaria Commission of the Royal Society, London, visited duars in 1902. The members included J.W.W. Stephens, S.R. Christophers and C.W.W. Daniels. Based on the reports of Christophers and Bentley, the Government of Bengal and Assam formed the Duars Committee in 1910 for the improvement of the sanitary and medical condition of the duars region. They emphasised imparting training to the resident doctors, the establishment of dispensaries and recommended provision of potable water and quinine in coolie lines to prevent various diseases. Milligan commented in 1919 that the chief need of the district was an increase in the number of qualified doctors. This paper is an attempt to study the nature of various diseases, including the shortage of qualified doctors, and also to argue that disease control acted as a mode of colonial power, governance and intervention in areas of productivity.

Keywords:

Tea Gardens, Planters, Doctors, Duars Planters' Association, Christophers and Bentley, Jalpaiguri Labour Act.

Introduction:

The biggest field of investment by the Europeans in North Bengal was the tea plantation industry. Production of tea in colonial North Bengal was concentrated virtually in two districts, such as Darjeeling and Jalpaiguri. The first commercial tea estate was opened at Tukvar Darjeeling in 1850, followed by the Steinthall and Alubari tea estate in 1852 (Desai 2014: 89). Tea plants had been introduced and rose at *Tukvar* to the North by Captain Masson, at Kurseong by Mr Smith. In Terai, the first European tea estate was Chamta, established in 1862. The foundation of the first tea estate laid down in Duars was the Gazuldoba tea estate in 1874. Most of the gardens were under European control (Mitra 1951: ixii)

The introduction of the plantation economy in the Darjeeling hills lent opportunities to many Europeans from different classes and backgrounds to get employment in tea companies. They joined the gardens as managers and assistant managers (Bagchi 2000:161-2). According to Baidon, "During the last few years, the Indian tea districts have

come to the notice of people in England as a field for capitalists and as a working sphere for many young fellows who could not get into the right thing at home. They have not felt good enough for the Church, not situations enough for the Bar... for a fair professional beginning, the tea districts solved the problem of what to do" (Baidon 1882: 35). Interestingly, O'Malley has described some special features which the tea planters must acquire. According to him, the planter must have known an agriculturist, engineer, and architect, and to some extent, of a doctor (O'Malley 1907: 109).

The population of the tea gardens established in duars was almost entirely an immigrant one, recruited every year from Chhotanagpur and the Santhal Parganas. Of the people who came into the tea garden every year, only a small portion was permanently settled. Hunter found that the principal endemic diseases in duars were malarious fevers. The Europeans and people of other places coming to this area were attacked by them very often (Hunter 1876: 321).

Healthcare in the Initial Years:

Black–water fever appears to be mainly confined to Europeans, Bengali *babu*s and tradesmen, *dhobi*s, and servants drawn from the town–dwelling classes of Bengal (Ghosh 1970: 54). Fredrick Corbyn, a surgeon in the British army, described this fever as *'*terai fever*'* in 1843. Cholera was prevalent in epidemic form in Duars. David Rennie described this region as 'more dreaded' in comparison with the terai. G.G. Webb had referred to the region as the 'planter's grave' (Bhattacharya 2012: 82). Lady Canning was caught by fever on her return journey from Darjeeling and breathed her last (Annual Report 1869: 137).

During the pioneering years of tea plantation, medical care was probably not available in the tea gardens. Ashley Eden first thought about the health care of the tea garden employees. He first proposed the establishment of a hospital for Europeans in Darjeeling in 1881. In Darjeeling hill, according to S.O. Bishop, the planters initially were beyond the purview of the European medical service. For this reason, he recommended the Government of Bengal to ensure that each planter should pay a monthly visit to the doctors stationed in Darjeeling and Kurseong (Bishop 1888: 113). On the initiative of the Indian Government, the Malaria Commission of the Royal Society, London, visited duars in 1902. The members included J.W.W. Stephens, S.R. Christophers and C.W.W. Daniels (Bhattacharya 2007: 246).

Dreadful Diseases in Tea Gardens:

J.A. Milligan, the Surveyor and Settlement officer, wrote that after arriving in the district of Jalpaiguri in 1906, his first job was to attend the funeral of a European planter. He quotes Backett, who wrote in 1872 that "After the month of March the duars are very unhealthy, but we had to stay out much longer than that". Milligan appealed to the Government to form a committee with experts to improve the health system of the district (Milligan 1919: 16). As a consequence, a committee was formed consisting of Christophers and Bentley. Both of them have shown in their report that the cholera disease came from neighbouring

gardens, or sometimes from the outside. The massive influx of labourers from outside and their regular shifting to gardens spread the endemic diseases on a large scale. Their report was considered to be the first to study the health care of the tea gardens of Duars. They further added that the constant immigration of labourers from one garden to another not only spread malaria in various gardens but also facilitated the outbreak of other diseases, like Cholera and dysentery. Besides, smallpox epidemics also spread out, and unfortunately, the labourers could not take smallpox vaccination for their financial constraints to pay for this (Christophers and Bentley 1911: 63-8).

In 1918–1919, the disease first appeared in the Chulsa tea estate. The Civil Surgeon of the District reported that a few Marwari shopkeepers on their return from Calcutta had borne the disease and were responsible for spreading it in the study area. The new Duars Tea Company submitted the report that testifies to the same fact. It was stated that "during the first week of December, new coolies came from Chhotanagpur and infected others". The Tandoo tea estate reported that the disease was first noticed in their garden early in December by an infected woman from Tandoo Basti. At Meenglas tea estate, the infection was introduced from the bazaar. Similar reports came from Chengmari tea estate that "a *Kaya* (Marwari Shopkeeper) brought the disease from a neighbour bazaar. Infection was brought by Marwari merchants who kept it concealed till the whole area was affected and the endemic gradually spread to the neighbouring villages". The investigation of Dr. Stephens, Christophers and Captain S.P. James shows that a large number of people lost their lives due to malaria (Bhattacharya 2012: 82).

Significantly, the death rate from Malaria fevers was highest in duars. An overwhelming portion of the tea labourer population died due to malaria. The District Health Officer, Jalpaiguri, informed the Government regarding the increase in the number of malaria cases. The disease took the form of endemic mainly in tea gardens, whereas in all the other villages it was sporadic. The Europeans who stayed in duars were terribly affected by malaria. The endemic could not promptly be checked owing to imperfect and delayed notification.

Besides the tea labourers, the condition of peasants also became worse. The indebtedness of the poor peasants significantly increased once they caught the disease during the harvesting months, since they did not have the capacity to replace the loss of their labour. Inability to work for a long period was economically more burdensome to them. Malarial fever thus proved to be an economic calamity for colonial Bengal.

Death rates from Malaria per Mile (1925 -1926)

District	1925	1926	Increase or decrease	Fever Indices, 1926
Jalpaiguri	21.8	23.1	+1.3	38.0
Darjeeling	11.4	9.9	-1.5	16.3

(Suranjan Das and Achintya Kumar Dutta (ed.), *Dreadful Diseases in Colonial Bengal*, Primus Books, New Delhi, 2021, pp. 64-65.)

The table shows a better indication of the prevalence of malaria in the tea-producing zones of Bengal. These indices are based on the proportion borne by new admissions due to malaria fever in various dispensaries and hospitals to the total number of admissions due to all causes. It also showed that during the two years in the report, the incidence of malaria was reduced, and the death rate showed a decrease in 1926, especially in Darjeeling (Das and Dutta 2021: 64-5). The main reason behind this development was that the Europeans, tea labourers, staff and the residents started to take 5 grains of quinine on a regular basis. Leaflets were widely circulated in the tea gardens containing the preventive measures to fight against malaria. Dr. Russel Amies has reported that without blood examination, it is impossible to specify the persons bearing malaria parasites. In order to cut down the initial number of cases, it is necessary to arrange a complete course of treatment with quinine (Indian Medical Gazette: 1931). The factory at Mungpoo has the utmost capacity of producing 60,000 lbs. of quinine per annum (Lt. Col. Chatterji: 1939)

Cholera rarely took the form of an epidemic. The disease spread northwards from the state of Coochbehar, and also from Rangpur and Purnea districts, where it was virulent. It then advanced into the duars. In many places, people left their houses and fled. The disease was observed to have followed the main line of road as it spread at Titaliya and Siliguri (Kushari 1981: 271). It was spread by contamination of food and flies. By realising the gravity of the situation, the Duars Planters' Association (DPA) requested the government of Bengal to appoint inspectors to examine the foods sold in the *hat*s near the tea estates. On the recommendation of the Commissioner of Rajshahi, the District board of Jalpaiguri appointed a sanitary inspector to inspect food for sale in the local *hats* (Bhattacharya 2007: 198).

The Measures Taken by Various Authorities:

According to the reports of Christophers and Bentley, the tea labourers in Terai–Duars and Darjeeling were not under any contractual agreement. The statistics for maintaining their birth and death in different gardens were found to be incomplete. Christophers and Bentley advised the management to maintain their borders, register the exact number of labourers and keep the birth and death statistics correct. They were paid much lower wages than their requirements; as a result, they were deprived of nutritious food. But the management did not maintain proper records, as it would enhance the Government's interference in their estates, which they never wanted. However, on the basis of the reports of Christophers and Bentley, the Government of Bengal and Assam formed the Duars Committee in 1910 for the improvement of the sanitary and medical conditions of the said region. They emphasised imparting training to the resident doctors, the establishment of dispensaries and also recommended the provision of potable water and quinine in coolie lines to prevent various diseases. The chairman of the Committee was S.J. Monahan. The first District

Health Officer was appointed by the board in 1921 (Griffiths 1967: 355). Milligan commented in 1919 that the chief need of the district was an increase in the number of qualified doctors (Milligan 1919: 17). During the post-World War I, the influenza epidemic had caused high mortality rates in the tea estate and therefore, the tea gardens faced an acute labour crisis.

The British Civil Surgeons agreed with the management of the tea estates on the view that the disease was being spread by contamination of food and milk by flies. The DPA, therefore, appointed inspectors to examine the foods sold in the *hat*s (weekly markets). In the annual proceedings of the DPA for 1918–1919, the chairman staunchly blamed the 'outside coolies' for the spread of epidemics (DPA Report 1920: 125-6). The Rose Institute of Calcutta played a crucial role in the improvement of the sanitary conditions of the duars region. After independence, Dr. B.C. Roy, the then Chief Minister of West Bengal, assumed special measures to eradicate malaria from the duars region (Ghosh 1970: 59)

Under the Jalpaiguri Labour Act (JLA), the provincial government suggested the appointment of the Deputy Sanitary Commissioner of Rajshahi Circle, the Sanitary Commissioner of Bengal, to look after the dreadful diseases. It was said that the District Civil Surgeon must visit the tea gardens at least sixty times in a year and make recommendations for the benefit of their health. Initially, it was proposed to start in western Duars for 5 years. R.G. Griffin, Deputy Sanitary Commissioner and the Special Officer in charge of the ongoing hookworm campaign, were appointed under the Jalpaiguri Labour Act (JLA). He noted that most of the tea workers relied on *kutcha* wells for water. However, Griffin's hookworm experiment was limited only to the European tea estates (Bhattacharya 2007: 198). The companies, controlled by the Managing Houses, had to redress the cost of sanitation and health care for both the labourer and staffs of the gardens. A branch of the Lady Minto Indian Nursing Association (LMINA) of Jalpaiguri district proposed for the appointment of two nurses who would provide services to the tea planter families in the district at the time of childbirth or for any lingering diseases. It was decided that each garden would pay Rs. 2500 as annual salaries to those nurses (Bhattacharya 2012: 82).

The Contributions of British and Indian physicians (*Daktar*):

Most white tea planters of the hills enjoyed the services of British physicians in Darjeeling and Kurseong. In 1930, the first enquiry about the health condition of labour in tea gardens was conducted by the Royal Commission on Labour. The next important enquiry took place by D.V. Rege in 1943- 45. These reports exhibit the condition of labour in the plantation of Jalpaiguri from 1920 to 1945. During the time of the survey, it was found that ten out of fifteen sampled gardens have provision for indoor accommodation. Only four gardens had arrangements for cooking food for the inpatients. A few gardens pay a daily *hazira* to a relative of the inpatient to act as attendant and cook food for him (Ghosh 1970: 55).

There was a marked difference between the European and the Indian owned tea gardens concerning the medical and sanitary facilities. In the European gardens like Goodricks, Duncuns and Macleod, the provision for piped drinking water was available for the workers. Hay Arthur, an assistant of Ronald Ross, was the chief medical officer of the tea gardens of Macleod, Tata and Duncan houses. These big houses, under the supervision of Hay Arthur, took preventive steps to stop the spread of malaria in their gardens. However, despite precautionary steps and medical awareness programmes among the gardeners, the labourers had to develop an indigenous system to fight against black water fever. The *Kols, Santhals, Oraons* and *Mundas* used the leaves of *Ahoi* as a febrifuge against black water fever. Being overwhelmingly impressed with this indigenous medical idea, the British used this method to treat patients suffering from blackwater fever. Even the management had to appoint qualified doctor *babus*. But in the case of Indians, mainly in the Bengali-owned gardens, such a type of medical facility was not available on a large scale. The harsh reality was that a large portion of the funds of the District Board had been allocated to the European gardens (Ghosh 2011: 169).

In 1914, the workers were reported to suffer from ulcers. Christophers and Bentley reported that ulcers occurred in the rainy season and could incapacitate a worker. In the first annual report (1914) on the working of the Jalpaiguri Labour Act, the Civil Surgeon of Jalpaiguri has remarked that the ulcers caused more sickness than malaria in the tea estates. By realising the gravity of the situation, he recommended a 'scientific enquiry' to look into the situation. As a consequence, the Duars Planters Association (DPA) consulted with its British medical officers, who were organised in the northern Bengal branch of the British Medical Association, and suggested for an enquiry into the causes of the situation (Bhattacharya 2012: 109).

In 1918, there were only nine qualified doctors among one hundred and six tea estates in duars. In 1919, the Civil Surgeon Major Munro commented that there were only eight European doctors with British qualifications in the European tea estates. He also added that out of one hundred and twenty-nine tea estates, only one hundred and nine tea estates were under proper medical supervision. By realising the gravity of the situation, the first District Health Officer was appointed in 1921 by the Jalpaiguri District Board (Letter 1920: 16).

In 1923, Dr. Curjel of the Women's Medical Service told in her reported that the doctors employed in tea estates rarely possess a registerable qualification. The main reason behind the lack of qualified doctors was that the qualified Bengalis from Calcutta were not willing to work in the remote tea gardens. In addition, the salary offered is too low to attract better-trained men. In 1923, only five tea gardens like Atiabari, Bullabari, Binnaguri, Kilcott and Hantapara in Duars had resident doctors having registered qualifications. They usually wear a shirt, half pants and a hat. Horse and cycle were their main mode of transportation to visit the coolie lines (Christophers and Bentley 1911: 27). The Indian doctors joined in European gardens as Assistant Medical Officers, and they had no respect. The British ICS Officials appointed in small districts generally refused to consult Indian Civil surgeons for

their families. They petitioned the Government of India to arrange for European practitioners from the army or military camps for their families (Bhattacharya 2007: 178).

One of the major reasons for British doctors coming to a dangerous place like the tea gardens of North Bengal was the emerging job crisis in Britain. Medical graduates in Britain were getting overcrowded day by day. Considering the health issues of Europeans employed in tea gardens, the British Government issued an advertisement to recruit doctors for tea gardens. This opened up new horizons of employment for them. Moreover, there were ample opportunities to earn money by working in the gardens as well as by doing private practices. Therefore, an appointment to the Indian Medical Service became more lucrative to the young medical men from Britain. Since then, tea gardens became their new workplace (Harrison 1994: 11).

As mentioned above, the British doctors were generally employed to see the Europeans. Labourers were referred to them only in case of emergency (Arbuthnott 1904: 8). For this service, they charged a huge amount. For example, they charged Rs. 100/- for a patient who broke a collar bone. For every subsequent visit, they charged Rs. 50. Some of the European doctors were entrepreneurs also. Hawkins was himself an entrepreneur. He had shares in tea gardens and owned a soda–making factory. He earned huge money from this profitable enterprise because whisky and soda were both favourite items among the planters. In 1920, there were nearly nine European medical officers in European tea gardens in duars. Their main duty was to supervise the proper supply of medicines and visit each garden once a week. (Bhattacharya 2012: 70-6).

The Role of Bengali doctor *babu*s:

The Bengali doctor *babus* mainly worked under the managers of the garden. They were responsible for looking after the medical condition of the tea labourers and staff of the garden (Annual Report 1915: 5). They had to maintain the birth and death rates of the garden. To the labourers, they were commonly known as *'Daktar'.* In the pioneering days of tea plantation in duars, there was a dearth of qualified or university-educated physicians in tea gardens. This gap was fulfilled by the *daktar babus* (Chatterjee 2011: 138). They had to receive a modest income from the management and resided within the tea estate. In European gardens, they were not promoted to managerial positions. In 1910, there was one *daktar babu* for 1500 labourers in duars. Christophers and Bentley strongly criticised the recruitment of Bengali *daktar babus* due to their general lack of qualifications and incompetence. Despite their lack of qualifications, the European planters highly preferred to recruit them in their gardens due to their local experiences. They were familiar with the local working conditions. Moreover, they also perform a clerk's duty. For this reason, the European planters asked permission from the Government to recruit these native doctors for their gardens. They promised to replace them with qualified doctors (Bhattacharya 2012: 80-1).

The Annual Report on the Working of the Jalpaiguri Labour Act 1944 reported that 44 tea gardens in duars had no qualified resident doctor. In Bengali–owned tea gardens, there was a severe dearth of well–qualified doctors. Some gardens had only compounders (Ghosh 1970: 55). A few well acclaimed Bengali doctors of duars were Dr. Dilip Chakrabarty (Dheklapara tea estate), Dr. Sachin Sen (Satali tea estate), Dr. S. Chakrabarty (Saily tea estate) and Dr. Hemanta Roy (Tirhana tea estate), Dr. Satyendra Krishna Sengupta (Vijayanagar tea estate) of terai region. Sitram Pramanik, an ayurvedic practitioner of the Jalpaiguri town, was appointed to fight against the endemic diseases. A good number of doctors of Jackson Medical School, established in 1930 in Jalpaiguri town, devoted their lives to the development of the health system in duars. For example, Dr. Sarajit Baghci, Dr. Sukumar Sen, Dr. Horen Hore, Dr. Sachin Dasgupta, Dr. Panu Majumder, Dr. Manotosh Roy, Dr. Romen Sen and others deserved to be mentioned here (Ghosh 2011: 178).

The Health Inspectors of the Municipalities, who worked under the supervision of the Director of Public Instruction, were assigned the duties of imparting education on medical awareness among the students. They organised vaccination camps to fight against the pox in different parts of the district. It was estimated that about 28248 vaccinations were given. Around 1907, several dispensaries were opened by the District Board at Alipurduar, Falakata, Patgram and Tetuliya. Outdoor dispensaries were opened at Boda, Maynaguri and Kumargram. Around 1928, public health centres grew up at the local police stations. A few physicians in the district started to provide medical services at their own cost and set up dispensaries like Popular Pharmacy, Sarala Pharmacy and North Bengal Medical Store. Several individual organisations, like Ramakrishna Mission and Marwari *Dharamshala,* provided free health services. During World War II, a military health camp was also organised at Baikunthapur palace, Jalpaiguri (Sengupta 2020: 312-5).

The Christian Missionaries and the Group Medical Officers:

The Christian Missionaries played an important role in the improvement of the medical condition of the tea gardens. The vacuum of medical care in the tea gardens being undertaken by the *Ojha*s was filled by the missionaries. The church of Scotland Mission introduced several dispensaries in Kalimpong, Nimbong, Kizom and Sukhiapokhri. Among them, the Charteris Hospital of Kalimpong was the most prominent (O'Malley 1907: 75). In 1937, a Catholic Mission established a small dispensary at Bhogibhita and Gayaganga tea estate. They served the medical treatment and provided medicines for both the tea labourers and villagers residing outside the gardens (Bhattacharya 2012: 81).

Besides the doctors, there were also Group Medical officers who generally visited the gardens once a week. They supervised the performances of the resident doctors and advised on better medical conditions in the gardens. They got their remuneration from each tea garden. Very serious cases were referred to the Civil Hospital, Jalpaiguri. For improving the medical condition, the European planters had to establish the Duars and Darjeeling

Medical Association. 10 out of 15 sampled gardens had provisions for indoor accommodation. A number of private hospitals were set up for the medical benefits of the planters and their family (Ghosh 1970: 55). For the benefit of the Indians, Rai Bahadur Sashi Bhusan Dey donated a huge amount of money for setting up the T.B. Hospital in Calcutta and a branch of it in Kurseong (S.B. Dey Sanatorium). It ushered in a new epoch in the medical history of North Bengal to serve the tuberculosis-affected people. The number of beds in the Sanatorium was 33 in 1939, and it had increased to 58 in 1947. In 1940, the number of patients admitted there for treatment was 57 and later increased to 143 in 1947. (Dash 1947: 97).

Some Observations:

A question can be raised whether the colonial interventions for providing facilities in the tea gardens were prompted by a concern for the indigenous people or for European planters and their staff. Although colonial requirements were largely motivated to control the deadly viruses and keep their people safe, certain measures were also initiated to fight the dreadful diseases in the surrounding areas of tea plantations, that did bring medical benefits to the native people. The opening of dispensaries, increase of quinine grants and free distribution of quinine did check the various outbreaks of diseases to some extent. But sometimes such steps were inadequate. The number of charitable hospitals and dispensaries was extremely insufficient, often leading to the shifting of a dispensary from place to place to cope with the spread of the disease. Free quinine distributed by the Government mostly did not reach the common people, leading to black marketing (Das and Dutta 2021: 3-4).

The policy for vaccination in the Duars region, like the rest of Bengal, gradually shifted towards that of a compulsory measure to combat smallpox, with the Vaccination Act of 1880 being a key piece of legislation. While the British initially focused on smallpox, their attention later expanded to other diseases like malaria, cholera, and fever. Although the British established hospitals and dispensaries, including free vaccination programs through District Boards, the focus was often on European populations and less on the common Indian population in the Duars.

On the other hand, another pertinent question that must be raised here is whether the tea garden workers willingly approved the introduction of Western medicine? It was a matter of fact that the introduction of Western medicine was often met with resistance and scepticism due to a combination of factors, including cultural beliefs, distrust towards colonial authorities, and the perception that European doctors were unqualified or ineffective. Tea Workers often adhered to traditional healing methods and beliefs, which conflicted with Western medical approaches. The colonial administration was viewed with suspicion, and this extended to the medical services they provided. Despite the initial resistance, Western medicine eventually gained more acceptances, but the legacy of distrust and cultural clash remained. In essence, the introduction of Western medicine in

the tea gardens was a complex process with limited initial acceptance due to various social, cultural, and political factors.

Selected Bibliography:

Annual Report on the Administration of the Bengal Presidency for 1868-69, Bengal Secretariat Press, Calcutta, 1869.

Arbuthnott, J.C. 1904. *Report on the Conditions of Tea Garden Labourer in the Duars of Bengal, in Madras and in Ceylon.* Shillong.

Bagchi, Amiya Kumar. 2000. *Private Investment in India 1900 – 1939.* London: Routledge.

Baidon, Samuel. 1882. *The Tea Industry: A Review of Finance and Labour*. London.

Bhattacharya, Nandini Saradindu 2007. *Disease and Practices of Settlement in a Plantation Economy: Medicine and Healthcare in Darjeeling and Duars 1860- 1947.* Ph.D. thesis, University of London

Bhattacharya, Nandini. 2012. *Contagion and Enclaves Tropical Medicine in Colonial India.* Liverpool University Press.

Bishop, S.O. 1888. *Medical Hints for the Hills.* Darjeeling.

Christophers and Bentley. 1911. *Malaria in the Duars.*

Chattrejee, Piya. 2011. *A Time for Tea: Women, Labour and Post – Colonial politics on an Indian Plantation.* Duke University Press.

Das, Suranjan and Dutta, Achintya Kumar. 2021. *Dreadful Diseases in Colonial Bengal*. New Delhi: Primus Books.

Dash, A.J. 1947. *Bengal District Gazetteers Darjeeling*. Calcutta: Bengal Secretariat Press.

Desai, Mamata. 2014. *Darjeeling, the Queen of the Hills Geo – Geo-Environmental Perception*. Kolkata: K P Bagchi & Company.

DPA (Duars Planters' Association) Report, for the year of 1918-1919. Calcutta, 1920.

Ghosh, B.C. 1970. *The Development of the Tea Industry in the District of Jalpaiguri 1869 – 1968.* Jalpaiguri, West Bengal.

Ghosh, Srabani. 2011. *The History of Medical and Health Care Systems of North Bengal from 1869 to 1969,* Unpublished Ph.D. thesis, University of North Bengal.

Griffiths, Percival. 1967. *The History of the Indian Tea Industry.* London: Weidenfield and Nicholson.

Harrison, Mark. 1994. *Public Health in British India: Anglo – Indian Preventive Medicine 1859-1914.* Cambridge.

Hunter, W.W. 1876. *A Statistical Account of Bengal.* Vol. X, London.

Indian Medical Gazette, Bulletin No. 5 of 1930 by Dr. Russel Amies, in August 1931 issue.

Kushari, Abani Mahan. 1981. West Bengal District Gazetteers Jalpaiguri. Calcutta.

Lt. Col. Chatterji, A.C. 1939. *Bengal Public Health Report, for the year 1938.* Public Health Department, Government of Bengal.

Letter from Officiating Commissioner Rajshahi Division to Secretary to Government of Bengal, 16 September 1919, Municipal/Sanitation, May 1920.

Milligan, J.A. 1919. *Final Report on the Survey and Settlement Reports in the Jalpaiguri District 1906-1916.* Calcutta.

Mitra, A. 1951. West Bengal Census Report 1951, Darjeeling District. Calcutta.

O'Malley, L.S.S. 1907. *Bengal District Gazetteers Darjeeling.* Calcutta.

Sengupta, Debkumar. 2020. ''Development of modern Medical and Health Care Facility in Jalpaiguri District since 1869'. In *Sesquicentennial Commemoration Volume of Jalpaiguri District (1869-2019),* ed. Ananda Gopal Ghosh, New Delhi: Kunal Books.