Help Fight Malaria in Bengal:
A Study in the Intervention of Rockefeller Foundation

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While working on my doctoral dissertation, *Malarial Fever in Colonial Bengal: Social History of an Epidemic*, I inadvertently located some archival materials at West Bengal State Archives, India, that indicated the Rockefeller Foundation's (RF) intervention in the eradication of malaria in India. However, the information was incomplete, piecemeal and fragmented, and therefore it could not produce any meaningful narrative, far less warrant any sensible conclusion. Therefore, I could not make use of that ad hoc information in my story of government and non-government intervention in mitigating the scourge of malaria in colonial Bengal.

Subsequently, during my post-doctoral work on *Locating Epidemics in Colonial Bengal*, apart from malaria, I shifted my research focus to some other major epidemics in Bengal, and while trying to locate the responses of the governmental and non-governmental agencies in eradicating malaria in Bengal, I again stumbled on the precise role of the RF malaria eradication program in the province. This time I could not afford to ignore it any longer, and I promised myself that I would search further at the National Archives at New Delhi. My search yielded little results there as well.

Consequently, I contacted the Rockefeller Archive Center (RAC), to inquire if there were any significant materials housed at the RAC that pertained to my research. Fortunately, as many

as ten to twelve boxes of exclusively malaria in Bengal material were available, and seventy-five to one hundred boxes were accessible regarding the country as a whole.

This was indeed a remarkable revelation for me, so I decided to see those documents for myself, in my attempt to reconstruct my story of the malaria eradication program in Bengal, and the nature of intervention by the RF.

I visited the RAC in July 2011, and worked there for about a two weeks. Even within such a short period of time I managed to review almost all the major portions of the relevant documents housed there.

However, my initial interaction with the RAC documents was at first a bit frustrating because they did not strongly relate to my research region, i. e., Bengal. Most of the documents related to India in general, and material on Madras and Mysore is plentiful. Although papers on public health in India abound, files relating to the malaria eradication program in Bengal are not abundant.

Therefore, I shifted my research focus to a more comprehensive agenda of health and hygiene in Bengal and the nature of the RF intervention in this regard. Only then did working at the RAC become a truly fruitful experience for me. Apart from the malaria question, I could now lay hands on a plethora of documents that threw immense light on multiple health-related problems and their probable solutions.

The RF's International Health Board (IHB) made an enduring effort to mitigate malaria in Madras, Mysore, and elsewhere in India, in a very systematic and scientific way. It was also appreciative of the efforts made by the government of Bengal to mitigate malaria in the province, and was also enthusiastic about the health program initiated by non-governmental organizations.

Bengal was arguably the largest tract of the country overrun by malaria during the entire

colonial period. Every year no less than eighty thousand people died of the disease. The 1921 Census showed an actual diminution of population to the extent of nearly one million. The Government of Bengal under the British colonial rule was trying to grapple with the problem with its limited resources, but because of the extensive tract over which malaria was proliferating and the number of people affected, it had not succeeded in making great strides in malaria eradication. In fact, the role of the government in this regard was more in the nature of palliation rather than prevention. The colonial government hardly did anything that could possibly cost them anything or tap into their revenue.

Realizing the attitude of the government, a number of public-spirited people in Bengal started anti-malarial societies to raise money to which a contribution by the government had been added. With the help of this fund, they organized branch societies in the malaria stricken villages of Bengal. Their modus operandi was similar to one adopted in the United States, as described in the *American Journal of Medicine* (November 8, 1919). The Central Cooperative Anti-Malarial Society, in particular, had been completely successful in attaining its goals in two villages that they had targeted in 1921. They had been flooded with applications from hundreds of villages to do similar work in their respective villages, but were prevented from taking up the work due to financial constraints.

Therefore the Society approached the RF with a request for assistance in its unequal contestation to save forty-seven million people from the clutches of malaria. Dr. Gopal Chandra Chatterjee, the Secretary of the Society, requested that Dr. C.A. Bentley, Director of Public Health for Bengal, forward a letter of appeal to the RF.[1] Sometime in November 1922, Dr. Bentley forwarded the application for monetary help from the Secretary to the Central Cooperative Anti-Malarial Society. The Society, Dr. Bentley believed, was worthy of every

possible assistance, for he had personal knowledge of a number of affiliated societies and was convinced that the movement was organized along the right lines. Bentley strongly supported the application for monetary help. Completely apart from anything else, the educational effect of the work was extremely valuable, he believed.[2] The IHB of the RF, however, empathized with the concern of the Society and appreciated the work it had undertaken, but it could not help with personnel or money because the RF intimated, its primarily interest lie in the scientific research of malaria, rather than the financial support for people in distress.

Nevertheless, the warm relationship between Dr. Bentley and the IHB was not diminished because of the latter's non-compliance. The RF received with thanks copies of *Malaria and Agriculture in Bengal*, a celebrated book written by Dr. C.A. Bentley, and found it very interesting and instructive. The IHB in fact distributed the copies to staff members who were most interested in malaria control elsewhere in the world.[3]

The RF's IHB had prepared a cinematographic film for illustrating the natural history of malaria and the preventive methods against that disease. This film had been screened in London at a meeting of the Royal Society of Tropical Medicine and Hygiene and at the Research Defense Society by Dr. Andrew Balfour, C.B., C.M.G. Director of the London School of Tropical Medicine and Hygiene as well. Since the subject of malaria and its prevention was crucial to the Presidency of Bengal, Bentley requested that the RF present the Bengal Public Health Department a gift copy of the film, which he hoped would be shown all over the province by the departmental publicity bureau.[4]

Dr. Victor G. Heiser, IHB Director, responded by stating that the three-reel malaria film had been prepared by the RF staff and others after considerable labor and expenses. It was, he added, of course possible to make as many prints from the negative as might be desired. The RF

was willing to let the Bengal Health Department have a copy of the film for one hundred dollars, which included shipping expenses and the cost of printing three positive reels. The original expense of preparing the negative, Heiser added, "we are glad to bear ourselves and to make that contribution to public health."[5]

The RF also evinced active interest in the malaria eradication program in Bengal. Much of the program of the colonial government in Bengal focused on creating awareness among the people concerning the causes of the disease. Government methods included the introduction of pamphlets and magic lanterns. Dr. J.F. Kendrick in Madras frequently received enquiries about moving pictures that pertained to public health subjects. The Director of Public Health and the Secretary of the Health Propaganda Board asked Dr. Kendrick to write the RF to see if they would be kind enough to give any available information about films that might be used in India, including the prices of the same.[6]

The RF, however, as we have seen, had prepared some films on malaria. Dr. J.F. Kendrick wrote to Rollin C. Dean, the RF Director, sometime in October 1925, and asked to send him the malaria film and soon, three reels of *Malaria* were sent to Bengal.[7] Additionally, a motion picture projector and some spare parts were also sent to the Calcutta School of Tropical Medicine and Hygiene.

The most crucial intervention by the RF in public health in Bengal relates to the founding, in April of 1938, of a health unit at Singur, in Hooghly district**,** some twenty-five miles from Calcutta. The area, with a population of 40,000, was well connected by rail and road, and was accessible for use as a training center by the All-India Institute of Hygiene and Public Health. The hiring of personnel and a budget had been arranged. The local residents were cooperative, and one wealthy person even promised to build a center and quarters for the staff

and a maternity home. Singur, however, was not the area which was first proposed, but all things considered, it was a better choice. The unit was proposed to come largely under the control of the All-India Institute and numerous field studies were undertaken by the department of the Institute.

The history of this Unit, however, is one of a series of Government delays and the date of beginning cooperation was put off at first until October 1, 1938. Since this action was taken, the government had pressed for a further delay, and in early 1939, an official request further deferred the date to January 1, 1939.[8]

Mrs. S.N. Mallick of Calcutta, the widow of an influential government official who was born in Singur, donated Rs 80,000 for the construction and maintenance of an office and health center building in Singur. This structure was practically completed in early January 1939, when the Governor of Bengal was expected to dedicate it. The illness of both Lord and Lady Brabourne on January 24, 1939, forced the postponement of this function. The building was expected to be a suitable and convenient center and in this respect, the Singur Unit was much better equipped than was customary in India. Dr. J.K. Bhattacharya was appointed Medical Officer of Health for the Unit on November 26, 1938. Since he had considerable experience in rural areas, in malaria study/control, and in research, IHB officials expected that he would make a good officer.[9]

By 1941, IHB officials helped prepare a memorandum in regard to the next three years of work at Singur. The IHB officials emphasized that Singur was still a cooperative project between the Government of Bengal and the IHB, and that the training of the Institute students was a concession which the IHB and the Bengal government, gladly made, even though it interrupted the smooth working of the health unit. The Institute of Public Health and Hygiene made no financial contribution to the Unit.[10]

Some IHB doctors visited Singur and talked with people and local administrative officers. They found the people interested, but they also learned that the people had no real idea about the nature of the work that was being done. On enquiry, one villager referred to the Health Unit office as a hospital, another thought it was a college, because the Institute sent men there for training. Both answers seemed to indicate that the Medical Officer of Health and his staff had not done sufficient explanatory work.[11]

During World War Two, the RF's program of health and hygiene in Bengal was severely compromised due to wartime activities. In a 1942 report, the RF's Dr. M.G. Belfour, lamented that much of the important activities which he had in mind for proper development of the department had not materialized. Malaria was the most prolific disease in India, and malaria investigation had not progressed for the last two years. In fact, it had retrogressed. There was no longer even an Assistant Professor of Malariology in the All India Institute for Public Health and Hygiene in Calcutta. The Assistant Professor of Public Health Administration also taught malariology. Such an arrangement was extremely unsatisfactory from the point of view of instruction in malaria control.[12]

By 1944, however, the most encouraging feature in the Far East had been the general improvement in the war situation, which applied to India as well. However, colonial India was itself still an unhappy frustrated country and the political deadlock showed no signs of a solution. In spite of the energy and toleration of the new Viceroy, the IHD observed that obstinacy and working at cross purposes, on both the Indian and British sides, continued.[13]

RF support of a leprosy program helped reduce the increase of the disease in British India through the application of the recent advances of medical science in the treatment and control of the ancient scourge.[14] The RF's activities, however, were limited almost exclusively to

cooperation with the government and schools of public health, medicine and nursing etc., and not through private or relief organizations.[15]

The RF was also interested in improving rural health services in Bengal and took a keen interest in the outcome of Dr. J.F. Kendrick's visit to Rabindranath Tagore's Santiniketan. The experience of Tagore's work, the RF officials believed, might help them in their work at Madras and in other parts of India.[16] From Calcutta Kendrick visited Bolpur, the place of Tagore experiments with rural health services, and sent a report of what he considered of "most importance." Bengal, he believed, seemed to be "alive now to the possibilities of preventive medicine." Dr. Kendrick stated that although the Bengalis were more alive and aggressive, and that Bengal was a hot bed of politics as evidenced by the Non-Cooperation Movement, steady progress in the issue of rural health programs would transpire.[17]

The School of Tropical Medicine at Calcutta, and the Institute for Research in Tropical Diseases, were at the time under the Government of Bengal. There was an active, but slow movement to combine the School and the Institute under the Government of Bengal (GOB). Dr. J.W.D. Megaw, Director of the Calcutta School of Tropical Medicine and Hygiene, wrote to the Surgeon-General with the GOB on November 15, 1922, and suggested that the GOB should approach the RF with a request for help in connection with the further development of the Calcutta School of Tropical Medicine and Hygiene.[18]

By 1943, the IHD lent a staff member to the Government of India (GOI) to serve as Director of the All India Institute of Hygiene and Public Health (AIIHPH) in Calcutta. In December 1932, after several years of planning the AIIHPH, it was formally opened by the RF. However, even before the Institute was opened, the Great Depression compelled the GOI to renege on its original promise to the RF to fund salaries and other allied expenses in return for

the RF providing the building and bearing the costs of equipping the new Institute. It was decided that two of the intended sections, maternity and child welfare, could no longer be funded.

By 1943 two improvements had occurred, the curriculum had been revised, and the teaching of microbiology, physiological hygiene and chemistry had been brought up-to-date with modern practices.[19] The course for the Diploma in Public Health (DPH) in the Sanitation and Public Health Engineering Department of the All India Institute of Hygiene and Public Health was the most satisfactory one in 1942, although it was argued by the IHD officials, that there was still much room for improvement.[20] The course consisted of fifty-three hours of lectures and one hundred forty hours of field work, an amount which IHD officials believed should be extended.

Shortly after the U.S. entered World War Two, the Department of Biochemistry began sending equipment such as sprayers and Pyrocide-20 to the U.S. Public Health Service operating on the Burma Road. The war, and particularly the Far-Eastern conflict, continued to be the determining factor in the IHD's activities and staff assignments in this part of the world. The loss of Burma resulted in the termination of the work of the U.S. Medical Commission and forced the transfer of the Malaria Studies Laboratory from Chefang on the Burma road to the neighborhood of Chungking. The military threat to India, particularly Bengal and Calcutta, affected the work and atmosphere of the All India Institute of Hygiene. Political disturbances in India in August through September of 1942 were also foreboding at that time.[21]

The principal step forwarded at this time was the mutual acceptance of a collaborative scheme between the Central Government and Bengal to provide the Institute with its own administration of a rural field community in Singur. In the era of June 30, 1943, it was expected that "the Institute will take over the administration within the next few weeks." The initial area

was to constitute the first step towards the administration of a subdivision with approximately 400,000 inhabitants. The degree of government bureaucracy in India was unique. It was not until November 25th that the Bengal Cabinet took final action and issued an order inaugurating the Singur Project for January 3, 1944.[22] The five year program was divided into two and three year periods. The short-term objective was in turn divided into two parts:

1) The preliminary elimination of arrears of vaccinations, and the establishment of facilities required for the training of self help and other workers, requiring three to six months.
2) The development of actual techniques of administration. The long-term program provided for the extension of administrative techniques to the remainder of the Serampore subdivision.

The financial collaboration of the IHD proved invaluable.[23] The Bengal Sanitary Board of the Government of Bengal, originally established to deal with the conservancy and environmental problems, evolved into a Provincial Board of Health and set up active committees on nutrition, maternity and child welfare, and biological and school health.

Another area of health that the RF took interest in was hookworm (Anchylostomiasis) in Bengal**.** Sometime in 1916, an enquiry into *Anchylostomiasis* was conducted by Major Clayton Lane in Bengal. Lane had numerous difficulties to contend with, but things appeared to have improved gradually. Lane wrote that he had overcome all his difficulties with regard to treatment and that he had examined over seven thousand people.[24] In July of 1918, Bentley wrote to Wickliffe Rose, Director of the RF, that hookworm was exceedingly prevalent in all parts of Bengal. The ratio of infection, ranged from about fifty percent in the vicinity of Calcutta, to as high as ninety percent in certain rural areas. Bentley believed that over thirty million among forty-five million people in Bengal harbored this parasite.[25] Bentley was very anxious to institute

a serious campaign throughout Bengal, especially in connection with the schools, of which there were about forty-five thousand. For this purpose he said that he required materials for exhibits, i.e., lecture charts, school charts, leaflets, etc., and therefore requested the IHD to assist him in arranging a campaign in Bengal.[26]

As with malaria, the RF produced a specific film dealing with public health measures against hookworm disease. The film *Unhooking the Hookworm* had always been sold per positive print at the exact print cost to the RF. These prices did not include any of the production costs. This film, as the one dealing with malaria, was never distributed through commercial channels, but was always sold directly to the individuals, institutions, or government department requesting these films.[27] The IHD's objectives in this regard were to interest the GOI in hookworm treatment for Indian immigrants since these laborers were spreading hookworm infection throughout the world.[28]

In fact, the RF had produced several films dealing with public health subjects. These films were developed as an aid in the control measures against various diseases. Some of these films were produced in unique languages to suit specific audiences, for example, *How to Live Long and Well* was shown in Travancore, with Malayalam and Tamil sub-titles.[29]

The malaria problem in the Damodar Valley was commented upon by the IHD in the 1950s.[30] Dr. R.B. Watson reported to Dr. G.K. Strode that the situation in the Damodar Valley was pretty bad and would get worse as time passed. All local studies and morbidity data suggested that malaria was present in almost all population groups in the Valley. In many of those groups, especially in the lower Valley in West Bengal, the disease was hyper-endemic. Malaria was prevalent among the indigenous people in the Konar Reservoir area, with a somewhat lower prevalence in the people of the Tilaiya Reservoir area in the upper valley.

Anopheles mosquitoes were commonly found throughout the delta of Bengal. The climate of the Valley was such that development of malaria parasites in mosquitoes was possible almost year round, but water for *anopheline* propagation was not generally available throughout the year, and maximum seasonal prevalence was therefore associated with rainfall. Malaria due to *culicifacies* transmission was then largely associated with the flooding of rice fields, while *fluviatilis* malaria was associated with water in channels for irrigating or draining paddies, or with natural streams after they had crested. Valley-wide data on malaria prevalence would probably show therefore, as Dr. Watson observed, rising prevalence of malaria throughout the rainy season, which was from early summer into the autumn months, and with some evidence of transmission throughout the year as well.

Watson noted that malaria control operations undertaken by the Damodar Valley Corporation (DVC) were then at that time, only available to the employees at various dam sites. Both the organization for this work and the program in operation were inadequate. Watson recommended as a first step in the creation of an organized malaria control program in the Valley, was to define the objectives of the program. The short-term objective should be, he argued, the prevention of an increase of malaria in the valley as a result of the operation of the DVC. An organization could be established upon this basis, but it should contain the basic personnel and equipment which could be used satisfactorily as a basis for an expanded program to accomplish more comprehensive, long-term objectives. The DVC should adopt as a long-term objective the eradication of malaria from the Damodar valley.

Malaria was a complex disease, Watson observed, probably no other disease, he believed, was associated with such a large number of professional disciplines, ranging from medicine to

geology. He therefore thought that the Corporation should immediately form an advisory body composed of competent representatives of various agencies and disciplines. [31]

Another area in which significant RF intervention occurred was its advisory role in the village health program initiated at Santiniketan**,** Bolpur by Rabindranath Tagore, the Nobel Laureate, and his Western associates, Leonard Elmhirst and Harry G. Timbres.

Timbres wrote to Dr. John C. Ferrell of the RF on May 5, 1932, and noted that he was trying to put into effect some of the ideas he had seen in Yugoslavia, particularly the cooperative ideas. It seemed to him, he wrote, that not much health work of a lasting nature could be accomplished in the village regions of India until the cooperation of the people was obtained. They could be educated to the point, he believed, where they would take an active interest in both participatory work as well as monetary contributions to its support.[32]

Timbres discussed this scheme with Colonel A.D. Stewart, Chief of the School of Hygiene and Public Health, Calcutta; with Dr. Ernest Muir, Leprosy Research Worker in the School of Tropical Medicine, Calcutta; and with Major Gordon Covell, Malaria Survey of India. They all agreed with its general principles and details. Timbres had started a malaria survey in the Santiniketan region, a region of hyper-endemicity, with a spleen rate of between fifty and ninety-five percent. Dr. John A. Ferrell responded to his overtures with keen interest and sympathy. He congratulated him on the work Dr Timbres was doing. Dr. Heiser who supervised the RF's work in the East also expressed great interest in Timbres' letter.[33]

Another of Tagore's associates working on the poet's rural health improvement program was Leonard Elmhirst, who had an important connection with the RF. Dr. Elmhirst was an Englishman, a graduate of Cambridge, England, and had taken the agricultural course at Cornell University as a preliminary to the work he had intended to engage in. Since his arrival at

Santiniketan, he started a Department of Agriculture which, although extremely tentative in its beginning, was later doing good work. Elmhirst corresponded with Dr. Heiser of the RF and met him. He asked Heiser to help him promote his cause in his personal capacity as a member on an Advisory Board. Dr. Heiser had personally expressed his keenness about the cause, but regretted that he could not join it because the RF believed it "undesirable."[34] Even private participation on the part of its staff members was often interpreted as representing the RF. Nevertheless, Dr. Elmhirst was ready to confer with his representatives in the U.S. and assist in a non-public way as much as he could. In fact, Dr. Elmhirst was told that the IHB intervenes only upon government invitation and in close connection with governmental agencies, which it believes to be ultimately responsible for the health of nations.

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The ideas and opinions expressed in this report are those of the author and are not intended to represent the Rockefeller Archive Center.

ENDNOTES:

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[4] From C.A. Bentley, Director of Public Health, to the General Director, IHB, RF, New York, USA, Calcutta, June 19, 1924, Box 201, RG 5, Series 1.2, Bengal 466, Folder 2560**,** RF, RAC.

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[8] RF, RG 5, IHB, Series 3, Subseries 404, Box 202, Folder 2475, RAC.
[9] RF, RG 5, IHB/D, Series 3, Subseries 404, Box 202, Folder 2475, RAC.
[10] RG 12.1, Officers' Diaries William P. Jacocks, Box 60, RF, RAC.
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[12] Annual Report for the Year 1942, India, Report for the Year 1942, The Far East, By M.G. Belfour, RG 5.3, Series 464, Box 204, Folder 2485, RF, RAC.
[13] Report for the period July 1943 to June 1944, By Mr. G. Balfour, RG 5.3, Series 464, Box 204, Folder 2487, RF, RAC.
[14] From The British Empire Leprosy Relief Association to Dr. Wickliffe Rose, RF, Folder 2550-2559, RG 5, IBH/D, Series 1, Correspondence Subseries 2, Box 200, 464, RAC.
[15] From F.F. Russell, Acting President to Sir Leonard Rogers, Honorable Medical Secretary, British Empire Leprosy Relief Association, RF, Folder 2550-2559, RG 5, IBH/D, Series 1, Correspondence Subseries 2, Box 200, 464, RAC.
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[18] RF, RG 5, Series 1.2, Subseries 464, Box 171, Folder 2202, RAC.
[19] RF, RG 5, IHB/D, Series 3, Subseries Report, Box 204, Folder 2486, RAC.
[20] RF, Semi-Annual Report 1942, by Brian E. Dyer, All India Institute of Hygiene and Public Health, RF, RG 5, IHB/D, Series 3, Subseries Reports, Box 204, Folder 2484, RAC.
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[24] RG 5, Series 464, Box 49, Folder 308, RAC.
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