An Analysis of the Telegraph Project in British India in the Second Half of the Nineteenth Century

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Abstract

The British in India are identified as the pioneers of telegraphy which they developed in spite of circumstances said to be difficult. Historians and scholars assume that this westernizing project in the second half of the nineteenth century had an imperial rationale. But, as a modernizing infrastructure, the growing telegraphic network in British India had during that period various impacts advantageous for the colonizers or the colonized.

Key Words: British India, telegraph, William O'Shaughnessy, Lord Dalhousie, Benthamism.

Introduction

In the second half of the nineteenth century, British India was the scene of a communicative revolution brought about by an aspect of Western technology. The telegraphic enterprise in British India is commonly said to be a feat of engineering combining science with planning and perseverance.[1] Critics see its usefulness as being for both the colonial cause and the Indian people.

1- Telegraph Installation

The telegraphic enterprise in British India is commonly said to be a feat of engineering combining science with planning and perseverance, in other words, technical and human resources.

Anglo-Indian by professional vocation within the East India Company[2], the Irish assistant surgeon William Brooke O'Shaughnessy put down his name in history as the establisher of telegraphic communication in British India. Prior to this achievement, the scientist had laid an experimental background in India itself. He invented an advanced kind of electrical engine namely the silver chloride battery. This technical realization, added to his confidence in electricity's potentialities for mankind's advantage and his will to serve his adoptive colony

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[1] Dutt. R, 1902, <u>The Economic History of India under Early British Rule</u>, London, Kegan Paul, p. 431.

[2] The English East India Company was founded in 1600 by courtesy of Queen Elizabeth I who signed a monopolistic joint-stock charter authorizing it to trade eastwards between the Cape of Good Hope and the Straits of Magellan. The company leadership resided with the collectivity of a Governor, a Deputy-Governor, and twenty-four annually-elected officers. Sherman. A. A, 1976, "Pressure from Leadenhall: The East India Company Lobby, 1660-1678 in <u>The Business History Review</u>, Vol. 50, No. 3, pp. 329-355, London, The President and Fellows of Harvard College, p. 332.

would spur his examination of the feasibility of telegraphic communication across British India.[1]

Therein, telegraphic communication was equally preluded by another technical progress made in 1839: O'Shaughnessy set up an experimental line near Calcutta, which showed the relevance of useful steps for a more efficient achievement. This experiment brought the conclusion that it was possible for an induction coil to convey coded shocks for manual reception by a line user. This, in its turn, constituted a peripheral invention that O'Shaughnessy could then develop thanks to other discoveries of his own. It is said that he succeeded in getting good transmission of signals by associating hydraulic potentialities with electricity along a considerable distance, involving him using miles of iron wire on trees and the Hooghly River. This experiment was not to be his final specimen of telegraph installation, but it demonstrated the need for subaquatic metallic circuits for the purpose of the project lying ahead, which makes O'Shaughnessy one of the fathers of submarine telegraphy. All his preliminary testing works were, according to Gorman, auspicious leading him to deduce that telegraph lines as long as hundreds of miles would be, once set up, easily operable.[2]

Because setting up even an initial simple experimental line was reckoned as a highly-expensive project, telegraph installation in British India proved to be not financially independent though achieved by private hands.[3] O'Shaughnessy is said to have been certain of his enterprise's viability, yet this was not enough. O'Shaughnessy formally solicited in 1850 the board of directors of the East India Company for funding while having the advocacy of Lord Dalhousie. As a utilitarian[4] of considerable administrative wizardry, the latter is deemed by many historians the most effective of British India's rulers partly on account of his devotion to technological westernization therein. In fact, Dalhousie is claimed to be of a pragmatic mind open to new ideas in favour of economic betterment of the colony through a wider commercial exploit.[5] He ended as an active promoter of telegraphy in British India.[6] It is stated that upon a test done successfully on telegraphy in the colony by O'Shaughnessy, the latter was appointed Superintendent of Electronic Telegraphs in 1850 by Dalhousie who would permit the spending of £ 217,000 just over the next six years for the construction of 4,000

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[1] Gorman. M, 1971, "Sir William O'Shaughnessy, Lord Dalhousie, and the Establishment of the Telegraph System in India" in Technology and Culture, Vol. 12, No. 4, pp. 581-601, Baltimore, the Johns Hopkins University Press, pp. 582, 583.

[2] Ibid. , p. 583.

[3] Dalziel. N, 2006, Historical Atlas of the British Empire, London, Penguin Group, p. 88.

[4] Utilitarianism, or Benthamism, is a doctrine promoted by Jeremy Bentham in search of common utility as its a main principle. This philosophy recommended that all Man's behaviour should aim at maximal happiness for the maximal number of people and the avoidance of human pain, which set the ideology itself on a rationalistic base favouring collective interest within society. Gregg. P, 1984, A Social and Economic History of Britain, Cheltenham, Nelson Thornes Ltd, pp. 278, 279.

[5] Gorman. M, op. cit. , pp. 584, 585.

[6] Seaman. L. C. B, 1973, Victorian England, London, Routledge, p. 344.

miles of line.[1] The promotion of the telegraph in British India is said to have spanned the second half of the nineteenth century, but it is during Dalhousie's general governorship, in the 1850s, that the telegraphic linking of the major Indian centres was achieved.[2]

Telegraph installation could only start after Dalhousie had persuaded the board of directors of the East India Company, severely beset by martial costs in the colony, that a planned line of just 80 miles should be the cornerstone of a future network of several thousands of miles. It is the personal advocacy of Dalhousie that made O'Shaughnessy obtain soon from London a favourable reply for his enterprise he was to head up.[3] The engineering skilfulness of O'Shaughnessy alone, without the technophile and utilitarian character of Dalhousie, could not have secured the approval and patronage of the company's direction.[4]

Conceding full and swift assent to O'Shaughnessy's enterprise had its cause not truly in the hierarchical status of his supporter Dalhousie as governor general but rather in the latter's exceptional professional achievement within the colonial State. Before he assured that positive response of the company's board of directors, he had been in office for four years during which he served the imperial interests in a very distinguished way if compared with his predecessors. Thus, by 1850, Dalhousie had already attained the top of his charisma and prestige both in the metropolis and periphery.[5]

O'Shaughnessy himself highlights the role played by Dalhousie to endow all British India with a telegraphic system. The Governor-General put at O'Shaughnessy's disposal men for the construction of the line and its stations, funds, and materials necessary for that initial project. Iron supply, for instance, amounted to 2800 tons. Besides, Dalhousie is said to have put all the available conveyance means in the project's service. Equipment was brought inland from Madras, Calcutta, and Bombay aboard river steamers, boats, elephants, and bullocks.[6]

Dalhousie's backing for O'Shaughnessy's telegraphic project was not limited to the abovementioned miscellaneous provision; his backing also came about in the form of bureaucratic facility that other colonial matters did not enjoy. Gorman asserts that the bureaucracy of the East India Company was usually too irritatingly complicated retarding the decision about any major concern. But, Dalhousie made O'Shaughnessy's enterprise exceptional by sparing it the numerous winding channels of administrative communication. Dalhousie insisted on and preserved the enterprise's independence of all governmental sectors except the

[1] Riddick. J. F, 2006, The History of British India: A Chronology, Westport, Praeger, p. 51.

[2] Metcalf. B. D and Metcalf. T. R, 2006, A Concise History of Modern India, New York, Cambridge University Press, p. 99.

[3] Gorman. M, op. cit. , p. 587.

[4] Arnold. D, 2004, Science, Technology and Medicine in Colonial India, New York, Cambridge University Press, pp. 114, 115.

[5] Gorman. M, op. cit. , p. 588.

[6] O'Shaughnessy. W. B, 1853, The Electric Telegraph in British India, London, S. Taylor Printer, pp. 28-48.

person of the Governor-General while his ideas and views kept harmonious with those of O'Shaughnessy, which caused the latter to be an efficient realizer and manager.[1]

The first telegraphic project subsidized by the colonial State was to result firstly in a 21-mile line stretching from Alipore near Calcutta to Diamond Harbour at a depth of 0.6 metre. The composition of the line was a series of layers of different materials carefully selected for technical and availability reasons. The core of the line was a rod made of iron for electrical conductivity and insulated by two impervious sheets of fabric charged with pitch and tar for protection against tropical heat and dampness.[2] These sheets were set spirally in adverse directions to allow for flexibility. Sand, melted rosin, and clay were utilized to reinforce the insulated rod, and specific chemical compounds to supply energy.[3] Thus, so as to sustain the line's integrity and efficiency underground, it was made solid enough to withstand the steps of bullocks, buffalos, and elephants much ambulatory around there. As for vandalizing threat, it was not totally eliminated, but the line was sufficiently hard and could not be damaged unless with specific hard tools.[4]

As part of the line was to be installed overground, O'Shaughnessy had to consider how to assure its durability in open nature. It is stated that the striking feature in here was his utilization of bamboo trees as the main supporting poles of the line. His selection of the bamboo tree was for its ability to curve with the wind after which it straightened up. Thus, the inner rod was to remain flexible enough and did not split even in the strong tropical storms.[5]

As for the route of the telegraphic system, it had to be determined by the then political and military colonial interests. Having been traced by Dalhousie himself, this route went, in the shape of a crescent, northwest from Calcutta to Agra then southwards to Bombay along the Malabar Coast before turning eastwards and following the Coromandel Coast to reach Bangalore and then Madras. Also, this line as existent in 1855 included a branch going off northwest to Delhi and then Peshawar.[6]

O'Shaughnessy's skilfulness is said to have been guided by a sense of bravery. In Gorman's view, this electrician is worthy of admiration by virtue of his determination to keep ahead in his enterprise he knew well to be extremely difficult. His faith and confidence stimulated his challenging of the local environment plagued with disease and endangered by hostile opponents and wild creatures.

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[1] Gorman. M, op. cit. , pp. 587, 594, 595.
[2] Arnold. D, op. cit. , p. 115.
[3] Gorman. M, op. cit. , p. 585.
[4] O'Shaughnessy. W. B, op. cit. , pp. 58-90.
[5] Gorman. M, op. cit. , p. 586.
[6] Hamill. L, 2010, "The Social Shaping of British Communications Networks prior to the First World War" in Historical Social Research, Vol. 35, No. 01, Cambridge, Microsoft Research, academic.research.microsoft.com/Author/1284929/lynne-hamill, pp. 267, 268, 281, 282.

It is reported that his workers died of cholera. Besides, material and Indian manpower were scanty and expensive from the start. Also, for the sake of a capable staff, O'Shaughnessy had to extend the westernization he exhibited in science and technology to management: he founded special schools in India and England where his workers had first to go through trainings to do even the easiest tasks. Furthermore, nearly half of the line was to be set under water in marshes teeming with snakes and rats. In addition, mountains, rivers, and forests made the transportation of material and manpower too difficult due to the transportation means being still mostly primitive.[1] Moreover, friction sometimes erupted between the project's workers and the local villagers, and the latter replied, with the help of elephants, by damaging the line being under construction.[2] But, O'Shaughnessy's most troublesome mishap in his enterprise is said to have been the misbehaviour of English or Indian workers. Lack of punctuality, assiduity, and attention resulted in the frequency of mistakes in telegrams and failures in sending, which made him much retained by clients' complaints and forced him to institute fines for defective signallers and messengers.[3]

In spite of all these conditions, the enterprise is said to have been successful and highly estimated both in the colony and Britain, with the first telegraphic line being inaugurated for the public in December 1851. What is more, two months later, O'Shaughnessy achieved a simultaneous extension of the line from Diamond Harbour to Kedgeree near the Hooghly River.[4] Then in 1864, India saw the achievement of the first effective submarine international line linking Karachi to the Persian Gulf, tied to a land line ending at western Europe.[5] Hamill specifies that this underwater line stretched along the coast of Baluchistan at a length of 1,450 miles, linking as such India to the Ottoman Empire so that telegrams sent to Constantinople could then be dispatched to London through the land line.[6] So, if Dalhousie had secured in 1850 a remuneration promise of 20,000 rupees paid by the company to O'Shaughnessy, the court of directors in London, being still indebted to O'Shaughnessy for his accomplishment, granted the latter a bonus of 25,000 rupees and the title of knight six years later.[7] The way was well opened for gradual line extension so that by 1892 every town of a certain importance in British India had been endowed with a telegraphic office.[8] By 1901, the whole Indian telegraphic network had attained 40,000 miles.[9]

Once this initial enterprise was accomplished, O'Shaughnessy made it function as simply as it had to because of the cheap equipment being afforded for the telegraphic service and

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[1] Gorman. M, op. cit. , pp. 585, 586, 592, 594, 595.
[2] Metcalf. B. D and Metcalf. T. R, op. cit. , p. 206.
[3] Gorman. M, op. cit. , p. 595.
[4] Ibid. , p. 586.
[5] Dalziel. N, op. cit. , p. 88.
[6] Hamill. L, op. cit. , p. 272.
[7] Gorman. M, op. cit. , p. 596.
[8] Harmand. J, 1802, L'Inde, Paris, Société d'éditions scientifique, p. 126.
[9] Meiklejohn. M. J. C, 1902, The British Colonies and Dependencies, London, Holden, p. 20.

the latter being staffed mostly by Indians who considerably lacked knowledge about Western technology. Nevertheless, over time in the century, telegraphy in British India could be rendered more elaborate courtesy of continuous technical or manpower progress. This included mainly an improvement in the quality of signallers and maintenance and in managerial ability, which were all assured by a rise in the budget allotted for telegraphy in the colony.[1]

So, one may conclude that early telegraph installation in British India, though running into natural, economic, or social difficulties, owes its eventual success to technical competence embodied in the project's leader O'Shaughnessy who was capable, with governmental help, of making all necessary adaptations in a foreign risky environment.

2- Assessment

Although telegraphy in nineteenth-century British India had the inconvenience of not being fully established in terms of infrastructure and qualified staff, British or Indian contemporaries extolled its social, military, political, or economic virtues.[2]

From primitiveness, whereby railroads were not yet built; river transport was unreliable; and decent roads were scarce and not traversable in rain time, communication shifted to technology whereby now it would not take days or weeks but just some hours for news to be delivered.[3] This swiftness in communication would also serve swiftness in transport: trains needed to be guided by telegraphic signals making this means of transport not only effective but also safe.[4]

Telegraphy became so appreciated for its rapidity that it was soon introduced to journalism.[5] It is stated that *the Delhi Gazette* and *Lahore Chronicle* are the first Anglo-Indian newspapers to adopt the new infrastructure and thus expediting the diffusion of news from English ships coming to Bombay. This practice was to revolutionize journalism in British India.[6]

On the social ground, telegraphy came to serve family rapport; in this, Indians soon got accustomed to utilize the new infrastructure for such affairs as weddings, engagement, and other domestic matters. O'Shaughnessy reported that in the first year of the telegraph's operation in British India, one-third of the delivered telegrams had been for Indians.[7]

On the military ground, the usefulness of telegraphy was mostly seen at trouble time. During the Crimean War in the mid-nineteenth century, as tension was growing around

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[1] Gorman. M, op. cit. , pp. 593, 600.
[2] Ibid. , p. 601.
[3] Ibid. , p. 596.
[4] Wenzlhuemer. R, 2010, "Editorial—Telecommunication and Globalization in the Nineteenth Century" in Historical Social Research, Vol. 35, No. 1, pp. 7-18, Berlin, Leibniz-Institute for the Social Sciences, Centre for Historical Social Research, p. 11.
[5] Stein. B, 2010, A History of India, Chichester, Wiley-Blackwell, p. 258.
[6] Gorman. M, op. cit. , p. 597.
[7] Ibid.

Turkey, England was in increasing need for soldiers. So, Bombay received from London an order by ship to prepare a regiment of Indian cavalry to be sent to the combat zone. For this, Bombay and Calcutta exchanged a series of telegrams just in a few hours.[1]

Another illustrating example is the Sepoy Mutiny.[2] Shortly before the telegraphic lines were cut by Indian rioters, news of the urgency had been delivered to all the scattered telegraphic stations and thus allowing the English to act on time to regain their control of the colony. However, as Calcutta was cut off the two principal military bases, namely Bombay and Madras, it became urgent, too, to reinstate the interregional telegraphic contact. In facing the Indian revolt, the English are said to have combined successfully and for the first time civilian and military telegraphic lines to send thousands of messages while depriving the Indian mutineers from the benefit of this communicative means. The eventual British triumph and restoration of colonial rule and order are not due solely to telegraphy as weaponry had its part too, but telegraphy is said to have been a key factor in British superiority during the Anglo-Indian hostilities.[3] Triumph would have been for the Indians if their mutiny had been enacted years before the installation of the telegraph.[4]

From the start, telegraph installation in British India was a state concern.[5] The political rationale and contribution of electric telegraphy were to support the Anglo-Indian imperial ties.[6] The promotion of electric telegraphy since 1851 went within the frame of unifying and concentrating colonial rule of British India.[7] In 1853, Marx had predicted that political impact in these following words:

> "*The political unity of India, more consolidated, and extending farther than it ever did under the Great Moguls, was the first condition of its regeneration. That unity, imposed by the British sword, will now be strengthened and perpetuated by the electric telegraph.*"[8]

[1] Ibid.

[2] Headrick. D, 2010, "A Double-Edged Sword: Communications and Imperial Control in British India" in Historical Social Research, Vol. 35, No. 1, pp. 51-65, Berlin, GESIS - Leibniz-Institute for the Social Sciences, Centre for Historical Social Research, p. 51.

[3] Gorman. M, op. cit. , pp. 598, 599.

[4] Kochhar. R. K, 1993, "Science in British India. II. Indian Response" in Current Science, Vol. 64, No. 01, Bangalore, Indian Academy of Sciences, rajeshkochhar.com/data/publications/ScienceinBritishIndia-II.pdf, p. 4.

[5] Stokes. E. T, 1980, "Bureaucracy and Ideology: Britain and India in the Nineteenth Century" in Transactions of the Royal Historical Society, Vol. 30, pp. 131-156, London, Royal Historical Society, p. 144.

[6] Chakravarty. G, 2004, The Indian Mutiny and the British Imagination, New York, Cambridge University Press, pp. 36, 164.

[7] Dalziel. N, op. cit. , p. 88.

[8] Marx. K, 1853, "The Future Results of British Rule in India" in The New-York Daily Tribune, Vol. 12, No. 856, p. 217, New York, MECW, p. 217.

Then, improving communication between Britain and India gained priority in 1858 when the British crown took over, from the East India Company, the governance of the colony upon the Indian Mutiny. Improvement in imperial communication became more noticeable than before in 1870 at the completion of submarine cables between the metropolis and its periphery. Other private Western engineers rose to fame as telegraph promoters in British India. For instance, the Indo—European Telegraph Company, led by the Siemens brothers, William operating in London; Werner, Walter, and Carl in Germany and Russia, succeeded in establishing a line stretching from London to Karachi. The line, passing through Germany, Poland, Russia, under the Black Sea, and then through Georgia, carried its first message from London to Calcutta in April 1870.[1] The wanted political result of all that is told by Sarkar's following words:

> *"In British India, the political imperative unleashed by setting upon nature and the gathering together of human beings can be identified at the level of the state, which, after the mid-nineteenth century, acted as the primary instrument of India's technological reorganization. Forging India into a productive, interlocking network of irrigation works, railways and telegraphs the colonial state introduced and oversaw the establishment of modern technics. In an important sense, however, technology was not only the instrument but also the substance of state power."*[2]

By 1889, a telegram sent from any British area to any Indian destination took one and a half hours for delivery. Between 1877 and 1893, whereas telegraphic lines number in Britain rose from 42 to 54, that in British India from 29 to 69. The fact that telegraph installation was projected and carried out simultaneously in Britain and its Indian colony may be seen as an indication of how much primordial both the new technology and the invigoration of imperial communication were in the eyes of the colonists.[3]

Imperial unification courtesy of telegraphy came also in an economic context.[4] Faster news about markets and prices enhanced commercial activity.[5] This betterment in communication being accompanied by a betterment in transport, represented by colonial

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[1] Hamill. L, op. cit. , pp. 268, 273, 281.
[2] Sarkar. S, 2010, "Technical Content and Colonial Context: Situating Technical Knowledge in Nineteenth-Century Bengal" in <u>Social Scientist</u>, Vol. 38, No. 1/2, pp. 37-52, New Delhi, Social Scientist, p. 39.
[3] Hamill. L, op. cit. , pp. 274, 275.
[4] Riddick. J. F, op. cit. , p. 137.
[5] Dalziel. N, op. cit. , p. 89.

railways, boosted the demand for importation into the colony, inviting thus more British businessmen to come and make trade careers in British India.[1]

Inside the colony, better acquaintance of what happened at the social and political levels was also an outcome of the rapid expansion of the telegraphic network, which made the colonial Principalities ─Madras, Calcutta, and Bombay─ reach a better administrative coordination.[2]

The westernizing character of telegraphy in nineteenth-century British India was seen not only in the communicative novelty and speediness it presented but also in the economic opportunity it effectively gave to the colonized to set foot on a new work field. It is said that O'Shaughnessy's initial enterprise alone resulted in the creation of sixty telegraph stations, each offering employment for Indians either as white-collar workers, battery men, couriers, or signallers with possibility to evolve from novice recruits to qualified professionals.[3] This economic impact is confirmed by the Indian scholar Kochhar as follows:

> "*The role of the Indians in the scientific pursuits remained peripheral. However, as the needs of the Empire grew so did its perception of the abilities of the natives. The scientific content of the British administration in India increased steadily; and with it increased the role assigned to the Indians. As a first step, the natives moved from being coolies to calculators. In the second, they graduated to become doctors and engineers to work on the network of railways, telegraph ...*"[4]

Conclusion

So, one may conclude that telegraph installation and operation in British India in the second half of the nineteenth century, though running into natural, economic, or social difficulties, owes its eventual success to technical competence embodied in the project's leader O'Shaughnessy who was capable, with governmental help, of making all necessary adaptations in a foreign risky environment. O'Shaughnessy's position in the history of British India is not merely that of the pioneer of telegraphy but also that of the first administrator of this communicative means, which led him to attest its significant diverse workability in favour of both the British imperial cause and the Indians.

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[3] Gorman. M, op. cit. , p. 593.
[4] Kochhar. R. K, op. cit. , p. 3.

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