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WILLIAM O'SHAUGHNESSY – AN INNOVATOR AND ENTREPRENEUR

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William O'Shaughnessy, an Edinburgh medical graduate, accepted East India Company's service and stayed in India from 1833 to 1860. As Professor of Chemistry in Calcutta Medical College and Deputy Assay Master in Calcutta Mint, he conducted researches in toxicology, chemistry, metallurgy, galvanic electricity, and subsequently constructed the first telegraph line between Calcutta and Diamond Harbour. He erected 11000 miles of telegraph lines and organised relevant activities for which he is known as the 'Father of the Indian Telegraph'. The paper gives a detailed picture of bouquet and brickbats he received in his pursuit, the strong adversaries he created in the process, and the circumstances under which he was forced to retire under humiliation. The whole episode reflects the trait of a "pioneer innovator", an artificial dispute between experimental science and technological entrepreneurship and a shift in government policy arising out of personality clashes as well as colonial subordination.

Sir William Brooke O'Shaughnessy, born in Limerick (Ireland) in 1809, graduated M.D. from University of Edinburgh in 1829. engaged in teaching and research in Edinburgh and London during 1829-33, entered the East India Company's service as an Assistant Surgeon and arrived in Calcutta in 1833. He worked as a Professor of Chemistry in Calcutta Medical College, was engaged in research on toxicology, chemistry, metallurgy and galvanic electricity during 1835-39 and worked as Deputy Assay Master in Calcutta Mint. He conducted telegraph experiments in Shibpur Botanical Garden in 1839, constructed the first telegraph line between Calcutta and Diamond Harbour in 1851 and extended the line to Kedgeree in 1852. He erected 4000 miles of telegraph lines in India during 1853-56, expanded the telegraph lines to 11,000 miles during 1858-60 and left India for good in June 1860 to retire in London as the Director General of Telegraphs in October 1861. Except for brief spells of home deputation, O'Shaughnessy spent 27 years of his life at Calcutta first as a surgeon-turned-chemist-turned-electrician and then as the father of the Indian telegraph. During his service period, he earned many laurels from his government in the form of promotions, financial rewards, acclaims from the Governor General, Knighthood and Fellowship of the Royal Society. But little is published on conflicts, admonitions and brickbats that he encountered in his pursuit. A study of O'Shaughnessy's work and trait answers some important historiographic questions on diffusion of technology in a colonial context, interaction of science and technology, innovation and entrepreneurship and age-old conflict between bureaucrats and technocrats – the phenomena that govern proliferation of technology even today[1].

DIFFUSION OF TECHNOLOGY

O'Shaughnessy's activities in India during the 1830s conform in many respects

to the picture of a 'colonial scientist' as drawn by George Basalla in his three-phase model[2]. In the first phase of Basalla's model, the colony provides a source for European science mainly in the fields of botany, zoology, geophysics, astronomy and anthropology. The investigations are made primarily for mastering the environment and canvassing its economic potentialities. According to Basalla, proper colonial science begins in the second phase when the range of scientific studies expand to suit the requirements of the colony and development of technological subjects starts. Basalla's third phase is characterised by the institution of an independent scientific and technological tradition in the colony. The transition from Phase II to Phase III, however, is fairly complex. Attempts to establish self-reliant scientific and technological traditions are spurred either by a strong feeling of political or cultural nationalism, or by dynamic personalities.

Such a dynamic personality emerges from the accounts of Basalla, Fleming[3] and Watanabe[4]. He may be a native or a European but in either case he has generally received some or most of his education and training in European institutions. He is concerned about the membership and honours of European societies and publishes papers in European journals. Quite often there is a feeling of 'absentee landlordship', implying hierarchical subordination of colonial scientists to European scholars, but the work of a small number of gifted individuals challenges or surpasses the work of European savants and these few men become heroes of colonial science. Such a colonial scientist organises local institutions, publishes journals, educates local scientists and technicians and tries to build up a new self-reliant approach that eventually results in the transition from Phase II to Phase III. The descriptions present a picture of a 'great man' whose genius, national (in this case colonial) pride and perseverance worked together in establishing a new indigenous scientific and technological tradition. This picture will be useful in analysing the work and personal traits of O'Shaughnessy, the telegraph pioneer in India.

O'Shaughnessy was a European colonist, who had received most of his education and training in European institutions. He initially depended on European journals for keeping himself abreast of the latest developments in science and technology, and apparently valued the plaudits of his European contemporaries. At the same time, he was a leader in the colony, stimulating local talent and revitalising local institutions. He founded a new journal, edited another at Calcutta, and frequently contributed to both of them. He pursued original research on subjects of his own choice without yielding to the 'absentee landlordship' of European scientists[5]. All these activities point towards O'Shaughnessy's eagerness for the establishment of a self-reliant scientific and technological culture in India. He seems to be a colonial scientist belonging to the period of transition from Phase II to Phase III in Basalla's model.

Interaction of Science & Technology

O'Shaughnessy's early electrical experiments show a balanced responsiveness towards both the 'communities' – science and technology. His experiments on batteries, motors and the telegraph had bilateral objectives. In experiments primarily intended

for a deeper understanding of basic scientific knowledge, he manifested a fervent interest in their practical and economic utilisation, while in experiments of predominantly practical nature he often was aware of their theoretical implications. The electric motor was initially made for the study of 'the new science of electromagnetism', but his ultimate goal was the making of a 'light, economic and harmless engine', which could replace the 'preponderous and expensive' steam engines[6]. The electrical batteries were made 'to decide many of the points still remaining in doubt in the theory and working of the battery'?[7]. Through his experiments, O'Shaughnessy specifically supported Faraday's then controversial theory of chemical equivalents. He studied the physical and chemical properties of batteries in an exhaustive manner, and introduced new improvements, because he felt that batteries were 'the cheap and ubiquitous source of fuel, light and locomotive power'. His experiments on telegraphy[8], the explosion of the wrecks of a sunken vessel by galvanic current[9] and on lightning conductors[10] were mostly technologically motivated, but in them he speculated on the general rules of electrical action in long circuits.

In this period, we find O'Shaughnessy in a transition stage, as he gradually changed from a natural philosopher to an experimental scientist and finally to a practical engineer. Unlike some of his contemporaries like Cooke and Morse, O'Shaughnessy did not pick up telegraphy by a chance of association[11]. His interest grew within his own profession supported by his philosophy and corroborated by his scientific activities. Yet he resembled Cooke and Morse in perceiving the great potentialities of a new communication system and in collecting enough resources to translate his vision to reality.

LERNFREIHEIT

What led O'Shaughnessy to change his subject from chemistry or medicine to electricity and from science to technology? It appears that his faith in the unity of forces, his ability to translate radical speculations into practically feasible systems and the influence of contemporary scientific and technical journals played an important role in this transformation. There were various other interacting factors. O'Shaughnessy was a student of chemistry in the University of Edinburgh during 1827-29. This was a crucial time when a course of practical chemistry was introduced by D.B. Reid and bitterly resisted by T.C. Hope, the pre-eminent Professor of (theoretical) Chemistry[12]. As a student, O'Shaughnessy must have witnessed the battle between theory and practice then going on in his university in the teaching of chemistry, and like most other students was made aware of the usefulness of practical chemistry. Edinburgh University at that time followed the principles of *'lernfreiheit'* in allowing the students to choose their subjects freely. This freedom resulted in a strong feeling of responsibility and flexibility[13] that guided O'Shaughnessy in his later career. The social and political structure in British India also contributed to the flexibility of profession. With a limited number of competent Europeans available in India, a high European official was often required to occupy several posts at a time or to switch over to another important post of a different nature. A Professor of Chemistry, basically a scientist at the Medical

College, was thus deputed to a primarily technical job of the Deputy Assay Master in the Mint, and ultimately the Superintendent of Electric Telegraphs in India. It is interesting to note that in spite of this shift and his predominantly technical activities in the Telegraph Department, O'Shaughnessy was later identified as a scientist or 'theorist', possibly because of his early academic and scientific background.

INNOVATION AND ENTREPRENEURSHIP

As if to highlight the conflict between science and technology, between theory and practice, O'Shaughnessy had to encounter three professional engineers of his time, one while at work and two after his retirement in absentia. William Nairn Forbes[14] was the Mint Master and his immediate superior until 1850. Forbes introduced steam navigation on the Ganges[15], designed Kidderpore dry dock, was the architect of St Paul's Cathedral of Calcutta and prepared project reports on railway and telegraph in India. By all account he was a successful engineer. It was at his recommendation that O'Shaughnessy was appointed as the Superintendent of Telegraphs to construct the first telegraph line between Calcutta and Diamond Harbour. But Forbes and O'Shaughnessy differed on the vital question of transmission system – Forbes urging for the overhead system[16], which was already time-tested in England and O'Shaughnessy insisting on subterranean system[17], still in experimental stage.

Although there is no evidence of any conflict of personalities on this difference, the opposing views of Forbes and O'Shaughnessy reveal some interesting personal traits of character. Forbes was inherently a British engineer having a strong faith in technology practised in his own homeland. In 1828, he had counted on 'British science and practical skill' when the proposal for steam navigation in India was initiated[18]. In 1849, he likewise endorsed the British system blindly. On the contrary, O'Shaughnessy, since early days, developed a critical attitude which became characteristic of all his future activities. While in England, he criticised and corrected the widely used text of Reid's 'Practical Chemistry' and Christisons' treatise on poisons[19]. While working in India he refuted Daniell and Mullins on electrochemical theory and disagreed with Faraday on the design of lightning conductors[20]. He rejected Wishaw's gutta percha samples, declared the English overhead line unsuitable and pleaded for his own method of insulation and mechanical protection. Records show that he was wrong in his initial choice of the subterranean system, but he was not hesitant to correct himself on the basis of result of his own experiments.

These personal traits of O'Shaughnessy and Forbes resemble those of a 'pioneer innovator' and an 'imitative entrepreneur', as defined by Passer[21]. O'Shaughnessy was an independent thinker who took almost nothing on authority. In this respect, he was like Edison, whose biographers noted that Edison never accepted a statement in a scientific book without involuntarily challenging it or verifying its validity[22]. Passer observed that this is the essential quality of a 'pioneer innovator' who refuses to accept other people's judgement. The second characteristic of a pioneer innovator, as Passer identified, is that 'once he is convinced that he is right, he cannot be shaken', even

if he is wrong. Passer cited several instances where pioneer innovators like Edison and Westinghouse were wrong but still stood firm on their faith. O'Shaughnessy displayed similar doggedness, perseverance and faith in his own ideas as that required of a pioneer innovator. Forbes, on the other hand, was more like Elihu Thomson who was classified as an 'imitative entrepreneur' by Passer. Like Thomson, Forbes had a formal education and training as an engineer and was never guilty of any gross error committed by pioneer innovators like Edison or O'Shaughnessy. Like other experimental scientists, O'Shaughnessy had a mixed record of success and failure, but a great innovative spirit pervaded all his activities even in failures.

Conflict of Personalities

The period 1861-65 following O'Shaughnessy's retirement can be called the dark age of the Indian telegraph when functioning of the telegraph department under his successor Douglas was reduced to mere routine administration than innovation[23]. The opportunity was grabbed by Charles Adley[24,25] who turned out a fierce critic of O'Shaughnessy in the early 1860's and attributed the malfunctioning of telegraph to O'Shaughnessy's lack of foresight rather than Douglas' inept handling. Much of his criticism appears to have arisen from a sense of animosity and personal frustration. While employed by the East Indian Railway Company, Adley constructed and administered a 125 mile telegraph line between Calcutta and Raneegunge along the newly built railroad. He also constructed a 300 mile line between Burdwan and Patna along the river Ganges, but this line was transferred to the Government Telegraph Department in 1857 according to an agreement reached between the government and the railway company[26]. Records show that after that the two telegraph departments (railway and government) were at odds almost on every point concerning the railway telegraph line[27], but Adley could not raise his voice owing to O'Shaughnessy's strong influence over the government. Immediately after O'Shaughnessy's departure from India, Adley launched a campaign of criticism in a journal that he edited and published[28]. Through his influence in the Bengal Chamber of Commerce, Adley urged the government to place the telegraph in the hands of 'persons skilled in European technology' instead of 'mere theorists'[29]. Evidently, Adley wanted to distinguish himself from O'Shaughnessy in this manner.

The situation in the telegraph department improved considerably after Robinson took over from Douglas as the Director General. The choice of insulators in Indian lines, however, revealed a conflict of personalities. Luke observed in 1891 that 'from the time of Dr. O'Shaughnessy upto a very recent date each head of the Telegraph Department has marked his era by the invention of an insulator'[30].

O'Shaughnessy's insulators were succeeded by those made by his successor Douglas[31] and Douglas' insulators were replaced by insulators developed by his successor Robinson after 1866. In 1866, Robinson attributed the bad working of earlier Indian lines to 'the Department being inflicted with Brooke (O'Shaughnessy's) bracket and insulator both of which were most thoroughly unfit for the purpose'[32]. Soon after

Robinson's retirement, all his insulators were, however, gradually replaced by old pattern Prussian porcelain (O.P.P.) insulators[33]. Robinson is regarded in the Indian Telegraph Department as one of the ablest administrators but definitely not as an innovator.

The reason why the early innovate phase of the Indian telegraph suddenly came to an end in Robinson's period can be seen by comparing the difference in educational backgrounds and personal traits between O'Shaughnessy and Robinson. O'Shaughnessy was basically a scientist and academician with a long research career. His scientifically oriented mind and flexible approach induced him to carry on new experiments even when some of them proved failures. Robinson, like Forbes and Adley, was a trained engineer with more faith in established and well proven practices rather than in uncertain experiments. O'Shaughnessy seems to have had a trait of challenging the established authority with the results of his own experiments, whereas Robinson, by virtue of his service in the army, was accustomed to a regimentation of thought and action. O'Shaughnessy's reputation as a telegraph pioneer gave him a free hand in further experimentation at a time when telegraph technology was in a formative stage. Robinson stepped in when the telegraph was well developed in England. Still he could have pursued an innovator's career had he not been obsessed with a faith in the European supremacy over colonial science and technology. He reported in 1866: 'the great object to be kept in view is to make Europe your model..'[34]. Robinson preferred to import technology 'rather than to experiment with the invention of our Indian *savans*[35]. This conviction in the European supremacy, a lack of confidence in his own inventive ability and scepticism about the work of his illustrious scientist predecessor all worked together in bringing the innovative phase of the Indian telegraph to an end.

Pioneer Entrepreneur

While the experimental phase (1850-52) of the Indian telegraph highlights O'Shaughnessy's inventive and innovative qualities, the large scale construction phase (1852-56) helps one to judge his entrepreneurial abilities. In one respect, O'Shaughnessy surpassed many of his contemporaries. Cooke and Morse showed entrepreneurial aptitude during the experimental phase of their telegraphs, but when time came for large scale expansion, they stepped aside in favour of other professional men who were either skilled in business administration or in technical work. Thus, innovation and entrepreneurial activities were pursued by two separate groups of people with distinctly different backgrounds. In India, O'Shaughnessy led what was virtually a one-man management. On one hand he recruited men, fixed pay scales, prepared organisation charts, formulated rules for promotion and disciplinary action, set down procedures for checking and auditing and organised a department of about 1000 men posted all over India. On the other hand he set up production workshops, opened training schools for new recruits, prepared technical manuals and guided the construction work personally by visiting working parties throughout the country[36]. Simultaneously, he was carrying on experiments to determine the best types of poles, insulators and instruments. It was in fact a combination of innovative and entrepreneurial activities.

O'Shaughnessy was handicapped by one of the serious drawbacks of a public enterprise – lack of discipline, which was even then pervasive in both Indian and European members of the staff from the beginning. In 1850, O'Shaughnessy had to dismiss all Bengali operators for their refusal to leave Calcutta on duty, and in 1851 he forced a European inspector to resign for his irresponsible activities[37]. European and Eurasian boys recruited as operators during 1851-52 were occasionally guilty of misconduct towards the public. Provisions were made in the rules for the management of the telegraph department and in the Telegraph Act[38] for punishments against misconduct of the employees, but nothing stopped them from office intrigues, disrupting communication by negligence or stopping all work owing to drunkenness[39]. In complete despair O'Shaughnessy urged a gradual conversion of the department to a military organisation, so that efficient working and strict discipline could be enforced[40].

Shortcomings in Administration

While most of O'Shaughnessy's complaints against disobedient, lethargic and negligent members of staff were genuine, there are indications that he probably demanded too much from his subordinates. Dalhousie's concern for a rapid completion of construction led O'Shaughnessy to almost a fenzied state. He personally supervised the work of construction parties in northern Indian in an adverse climate, though the government felt that it was not necessary for the Superintendent himself to accompany the working parties[41]. Soon he fell a victim to cerebral congestion and even on recovery, continued to suffer from nervous excitement[42]. He wanted a similar degree of zeal and activity from all his subordinates, particularly from his deputies, Green, Brunton and Shepherd. Soon after construction began, O'Shaughnessy became disappointed with the work of Brunton and Shepherd and recommended their dismissal. Green was, however, described as a dependable and trustworthy officer, but he could not withstand the strain of the job. Within a year he resigned on grounds of age and health, writing to O'Shaughnessy 'my spirit is with you but the body fails'[43].

The remarkable promptness with which O'Shaughnessy attended to every detail at this stage (1852-56) had its dark side too. Records show that he seldom delayed answering governmental enquiries regarding technical, financial and administrative matters. His ability to reach a quick decision and take prompt action was largely responsible for the rapid completion of construction. But the same qualities led him to make hasty and sometimes unjust decisions about his subordinates. The government felt embarrassed on such occasions and advised O'Shaughnessy to ascertain the correctness of his censures before submitting them[44]. On one occasion, O'Shaughnessy sent two letters to the government and next day sent a telegram asking that the letters be returned unopened[45]. On another occasion, in the course of several days, O'Shaughnessy submitted complaints against an officer, urged his dismissal, immediately withdrew his recommendations by a telegram, and then wrote to the government that in view of some improvements in the said officer's activities no action was necessary. Before a month was out he again asked for removal of the officer, but the government did not agree[46]. O'Shaughnessy believed[47] that there was no shame in revoking his own

decision when he felt that it was necessary for doing justice to his men, but his actions revealed to the government that in some cases at least he was doing injustice by haste.

ACCLAIMS FROM GOVERNMENT

Such criticisms from the government on specific occasions, however, did not overshadow O'Shaughnessy's real achievements. Dalhousie himself expressed dissatisfaction over O'Shaughnessy's actions on occasions relating to administrative matters of the Telegraph Department, but his dissatisfaction was not reflected in the assessment of O'Shaughnessy's work. In 1852, Dalhousie praised O'Shaughnessy profusely on the completion and operation of Calcutta Kedgeree line[48]. During the large-scale construction, he considered O'Shaughnessy's monthly progress reports highly satisfactory and conveyed his kind sentiments to O'Shaughnessy every time. He praised O'Shaughnessy on completion of Calcutta-Agra line and permitted him to stay in the hills of Mussorie with full salary and allowance when O'Shaughnessy fell sick. When the line from Calcutta to Attock was thrown open to the public in February 1855, Dalhousie conveyed the 'highest approbation of the Government' to O'Shaughnessy and reported his remarkable achievements to the Court of Directors at London[49]. In his minute dated February 19, 1856, Dalhousie recorded 'I have so often had occasion to applaud the ability, the energy, and unflagging exertion of the Superintendent, Dr O'Shaughnessy, that it would seem a superfluous repetition to express again my acknowledgements now. Nevertheless I desire to record once more, the full measure of approbation and gratitude..'[50]

Dalhousie's commendations brought O'Shaughnessy monetary rewards and honours. On recommendation of Dalhousie, O'Shughnessy was given a bonus of Rs 20,000 on completion of Calcutta-Kedgeree line in 1852. In 1855, Dalhousie decided that O'Shaughnessy should be placed on the same footing with the Director General of Post Offices and increased his salary from Rs 2,000 to Rs 3,000 per month. On completion of the large-scale construction, the Court of Directors gave him a reward of Rs 25,000. Dalhousie was frustrated when his recommendation for the award of knighthood to O'Shaughnessy was not heeded to and went out of the way to exert his personal influence to see O'Shaughnessy knighted[51], with the result that he received this honor in 1856[52].

BALANCED APPROACH

O'Shaughnessy's approach and attitude during the second phase of his administration (1858-1860) were somewhat different. He returned to India when the Mutiny was in the middle of its course. A large section of the line had been destroyed by the mutineers. Some of them were rebuilt temporarily without paying much attention to durability, and the rest was denied normal maintenance and care. Discipline was completely lacking in the department due to lack of supervision and uncertain political atmosphere in the country. O'Shaughnessy had to start everything *'de novo'*. Nevertheless, he expanded the telegraph lines from 4,000 to 11,000 miles, rebuilt the

flying lines, reorganized the offices, set right the arrear of accounts that had accumulated during his absence. He also organised training schools for operators and set up a new telegraph workshop in Bangalore in addition to the existing one at Calcutta. One of the most far-reaching innovations was the introduction of telegraph stamps with which the benefit of the telegraph was extended to the interior villages[53].

In the post-Mutiny period, O'Shaughnessy continued to be critical of his inept subordinates; but this time his judgements were much more balanced. Punishments and rewards followed a critical assessment of work and conduct of the staff members and O'Shaughnessy seldom made a hasty decision. He dismissed several persons on charges of inefficiency and misconduct and remanded others to their regiments[54]. On the other hand, he recommended liberal pension and financial rewards to others[55]. Sometimes the same employee was rewarded and punished in a short interval, depending on the merit of the case. In each case, O'Shaughnessy took a cautious approach and made his decisions only after appropriate enquiries. On several occasions, the Secretary to the Government of India appears to have been pressing for rigorous punishments on the staff without adequate charges, but O'Shaughnessy showed better judgement[56].

O'Shaughnessy's sense of justice sometimes appeared too strict to his subordinates, but he was hardly inconsiderate. This is particularly noticeable in his dealings with the loyal and hardworking employees like Inspector Seeb Chunder Nandy. In the past, while condemning the European Inspector Atkinson, O'Shaughnessy had praised Nandy for his commendable service in the Calcutta-Diamond Harbour line in 1851 and for speedy construction of the Calcutta-Agra line in 1854[57]. Still, Nandy was suspended in 1855 for his 'extreme tardiness in submitting his accounts'. He was reinstated with full pay after he submitted the accounts with an explanation for the delay, and O'Shaughnessy wrote in his report: 'He is a good man in his line, and one whose statements deserve full confidence'[58]. Nandy enjoyed the same degree of confidence of Patrick Stewart during O'Shaughnessy's absence in 1856-57. During the period of Mutiny, when Nandy held charge of the head office at Calcutta, Stewart permitted him, as a special case, to draw a fixed travelling allowance even while stationed at Calcutta. On his return, O'Shaughnessy found this highly irregular, as this might serve as a precedent for others who might claim travelling allowances without actually travelling. When Nandy remonstrated against his decision, O'Shaughnessy was deeply hurt. His feelings are evident in his letter to the government – 'the Baboo wishes to make it appear that I desire to punish him. I totally disclaim this feeling. There is no officer in the department of whom I have a higher opinion, or to whom I have done such service, having myself trained him from his boyhood, taught him his duties and business, and raised him from the condition of a writer in the Mint on 20 Rupees to that of Inspector in the Telegraph on 250 Rupees'[59]. O'Shaughnessy knew that Nandy was personally not responsible for the irregularity; this was sanctioned by Stewart. He, therefore, recommended that the amount so far drawn by Nandy shall be recovered from Nandy, but would be given to him as a reward for his untiring work in the Calcutta-Dacca line[60]. The incident does not seem to have affected Nandy's position, since he continued to be depended upon for difficult jobs. He was one of the officers praised in O'Shaughnessy's departing note to the government on 27 April, 1860[61].

Strong Adversaries

An important failure of O'Shaughnessy's second administration (1858-60) was the creation of two strong and influencial adversaries, who were to some extent responsible for O'Shaughnessy's premature retirement from the service. One of them was Bartle Frere, the then Commissioner of Sind, who was annoyed with the circular issued by O'Shaughnessy cautioning telegraph operators that any negligence on their part would meet with their transfer to Sind. Frere took this as an adverse reflection on his province and lodged an official complaint with the Government of India[62]. Although the government vindicated O'Shaughnessy on that occasion, Frere went on with his charges and raised questions about O'Shaughnessy's entrepreneural ability, suggesting that the latter could serve as a scientific adviser with the same salary, leaving the management of the department to some other person[63]. Canning, the Governor General, did not agree with Frere's suggestion 'to divide the headship into two' as this would lead to clashes in the department; but he noted that 'a combination of scientific talent and business ability is rare and is lacking in present Superintendent'[64]. Thus, early in 1860, O'Shaughnessy suddenly felt that he was no longer enjoying the same degree of confidence of the Governor General as he had enjoyed during the tenure of Dalhousie.

The second adversary was W. Grey, Secretary to the Government of India (Home), with whom the Superintendent of Telegraphs had to correspond on all administrative matters. Records indicate that O'Shaughnessy had a good relation with Cecil Beadon, Grey's predecessor until March 1859. Beadon often consulted O'Shaughnessy on important policy matters relating to the telegraph and vindicated him against complaints from others[65]. When O'Shaughnessy fell ill in 1858 and approached the government for shifting his headquarters to Bangalore or Ootacamund so that he could spend the summer on the Neelgiri hills, Beadon agreed to this proposal 'as a personal indulgence' which the government was 'glad to allow to a deserving officer in consideration of the state of his health'[66]. The situation changed altogether with Beadon's transfer to the foreign department and Grey's appointment as the Secretary (Home). It is not difficult to discover sarcastic remarks in Grey's letters to O'Shaughnessy from June 1859 onwards. A conflict between Chapman (Under Secretary to the Government of India) and O'Donnel (Deputy Superintendent of Telegraphs, Bengal) made the situation worse. Grey and Chapman took a hard stand on O'Shaughnessy on various matters. O'Shaughnessy was not supported by the government in disputes with private railway companies; his recommendation for financial rewards for telegraph employees for accomplishing difficult jobs were turned down; and he was admonished for supporting a telegraph operator who refused to transmit a lengthy government message that exceeded the prescribed limit[67]. O'Shaughnessy faced a very unfavourable situation in the early 1860, when Grey and Chapman repeatedly conveyed 'the dissatisfaction of the government' on several issues[68].

On 27, April 1860, O'Shaughnessy submitted an application for 18 months leave to Europe with a clear understanding that he would not return to India afterwards[69].

This request was made on grounds of ill health, referring to complications arising from the attack of cerebral congestion in 1854. The tension developing between him and some highly placed government officials, and the loss of confidence of the Governor General in his ability contributed to O'Shaughnessy's growing 'nervousness'. He must have been generally disturbed over several incidents during past months, but one in particular seems to have triggered his decision. In February 1860, O'Shaughnessy learnt that a Morse assistant, after having been dismissed for insolence, was trying for re-employment in the department by directly approaching the government. O'Shaughnessy had so far been remarkably modest in his replies to Grey's provoking letters, but the suspicion that the dismissed employee was likely to be re-employed led O'Shaughnessy to remonstrate, for the first time, in strong language, stating that 'no inducement would be sufficient to justify my remaining as the head of this department if Mr Nelson is employed in it in any capacity whatever'[70]. Grey did not miss the opportunity to bring this letter to the notice of the Governor General, who censured O'Shaughnessy for the use of words which were not 'consistent with the official language'[71]. On March 20, O'Shaughnessy wrote back to Grey, explaining his position and stating that 'the provocation given may be considered as some excuse for the deviation from official language'[72]. O'Shaughnessy was ultimately acquitted of the charge of showing 'intentional disrespect' to the government[73], but that was not before he submitted his application for leave prior to retirement.

Erosion of Influence

The gradual erosion of O'Shaughnessy's influence on the authorities reveals an interesting shift in the policy of the government towards science and technology. Two reasons can be cited for this erosion of influence. The first reason, the simpler one, was that the change in administration both in India and England tended to make O'Shaughnessy a stranger to the authorities. Beadon, Dalhousie and the Court had seen O'Shaughnessy introduce a new technological system against heavy odds. They, therefore, had respect for his technical ability and organizational zeal in spite of occasional shortcomings. Grey, Canning and the new Secretary of State saw the Indian telegraph already established and had less feeling about O'Shaughnessy's initial toils and contribution. The second reason is more complex. O'Shaughnessy's experimental activities were encouraged as long as the telegraph was in a formative stage even in England. Subsequently, with the invention of improved insulators, instruments and submarine cables in the 1850s, the Government became inclined to depend on available technology rather than to 'waste' time and energy in uncertain experiments. This feeling is clearly seen in Canning's minute, stating: 'we need not in India aspire to strike out new paths in the science of electricity. If we carefully adapt to this country the discoveries and improvements made in Europe and America, we shall do quite enough, and in the construction of submarine cables .... we shall act most safely in trusting to England'[74]. O'Shaughnessy was viewed as an experimental scientist, whose role suddenly appeared superfluous in a government department. Assuming that O'Shaughnessy would retire shortly, the government started considering the appointment of technicians who would depend on European technology. O'Shaughnessy, therefore,

became a non-entity in the very enterprise that he himself had built. His request for posting in England on health ground was turned down. His request for associating him with the Indo-European telegraph line was not acceded to. The India Office in London ignored all his requests for consultation and accepted his premature resignation on 10 October 1861 at the age of 52. Sir William Brooke O'Shaughnessy, the telegraph pioneer of India, gradually passed into oblivion in governmental records. He died at Southsea on 8 January 1889 at the age of 80[75].

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32. 'Telegraph Department Report (India)', 1862-66, 13. *House of Commons Sessional Papers*, 1867-68, vol. 50, no. 437.
33. *Telegraph Department Report (India)*, 1881-82, para 45, 52; also of 1882-83, para 34, 37.
34. op. cit. note 32.
35. Ibid, 13; a sarcastic tone against O'Shaughnessy is observed in these lines special in printing the word 'Savans' in italics in the original report.
36. Details of O'Shaughnessy's activities during 1853-56 are recorded in op. cit. note 27, P/187/54 to 59 and P/188/1 to 30.
37. 'O'Shaughnessy's Report to the Govt. of India.. March 10, 1851', *Home Public Consultation* no. 21 of 21st March 1851, National Archives of India; also op. cit. note 27, P/187/34.
38. Telegraph Act no. XXXIV. *House of Common Sessional Papers*, 1854-55, 50-53.
39. *Telegraph Department Report 1855-56*, 3, 11, 61.
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42. op. cit. note 27, P/188/1, no. 54, of April 15, 1854.
43. Green to O'Shaughnessy, Sept 15, 1854, op. cit. note 27, P/188/9, no. 82 of Dec 1, 1854.
44. op. cit. note 27, P/188/1, no. 57 of March 31, 1854. also P/188/12, no. 180-182 of January 1855.
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57. op. cit. note 2–, P/189/9, no. 9-11 of Sept 3, 1858.
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62. op. cit. note 26, P/189/9, no. 9-11 of Sept 3, 1858.
63. Frere's Minute, January 10, 1860, op. cit. note 26, P/189/11, no. 5 of Feb 24
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65. op. cit. note 26. P/189/9, no. 12, 13 of Nov 12, 1858, P/189/10, no. 21, 22 of March 18, 1859.
66. Ibid, no. 43-49 of January 21, 1859.
67. op.cit.note 26, P/189/11, no. 23-28 of Feb 3, 1860.
68. Ibid, no. 5 of March 9, no. 6 of March 16, no. 9-20 of March 30, no. 9-15 of April 7, 1860.
69. Ibid, no.1 of May 19, 1860.
70. Ibid, no.4 of March 9, 1860.
71. Ibid, no.5 of March 9, 1860
72. Ibid, no.2 of May 11.
73. Ibid, no.3 of May 11.
74. Minute of Governor General, January 22, Ibid, no.8 of Feb 24, 1860.

75. In all biographical notes this date is shown, though wrongly, as January 10, presumably because Times obituary appeared on Jan 11, 1889 without any mention of date.