

# **ARDASEER CURSETJEE (1808-1877), THE FIRST INDIAN FELLOW OF THE ROYAL SOCIETY OF LONDON**

by

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## **1. PERSPECTIVE**

Modern science came to India in tow with the British, who needed it in the first place to cross the high seas. Once in India, the British put science to increasing use to further their commercial and political interests. The tasks before the British included: (i) learning about the land and the people; (ii) acquiring and protecting territory; (iii) reducing the distance between England and India by steam navigation; (iv) shrinking India, by telegraphs and railways; and (v) increasing revenue collection and maintaining law and order’.

The British use of science brought Indians into contact with science. Just as the British needed science in India, they needed Indians also. India was a vast, thickly populated, culturally advanced country. Permanent white settlements were out of the question and, after the disastrous Portuguese experience, so was breeding a nation of half-castes. There was thus no option but to involve Indians themselves in running their country under British auspices. As the British grip on India tightened, as the British gained in self-assurance, and as the scientific content of the administration increased, the role assigned to the natives progressively increased, even if it remained peripheral throughout. In the beginning Indians were hired as informers to educate the foreigners about the lie of the land; they then became writers and calculators; and Finally graduated to being doctors and engineers.

Ironically, inherent in the British rule was the preparation of Indians to eventually overthrow that rule. The physical conquest of an ancient fabled country was seen by the British as a proof of the superiority of their way of life and thinking. They therefore set out to impress their own values on the baboo class that they created from among the upper-class Hindus. In addition, in the process of empire building, the British discovered (not only for themselves but for Indians also) India’s glorious past. This restored the Indians’ long-lost sense of self-esteem which, coupled with their introduction to western thought and modern science, gave them the courage to look the empire in the eye and embark on self-assertion. Indians then set out to do science on their own initiative. This activity was seen as a part of India’s emerging nationalism, even though it made use of the infrastructure created by the Empire for its own use and depended on the Empire’s sense of noblesse oblige.

To sum up,<sup>1</sup> we can distinguish between three nested stages in the growth of modern science in India. First is the colonial-tool stage, in which the British used science to further their interests. Since the harnessing of science enriched India in the process of empire building, the country was added as a laboratory to world science. Second is the peripheral-tool stage, in which the natives were assigned the task of providing cheap labour to the state science machinery. And finally there is the Indian-response stage, in which Indians practised science for their own satisfaction.

The Indian-response stage, which came into being by the beginning of this century, found reflection in the composition of the Royal Society of London. Thus the freak mathematical genius Srinivasa Ramanujan was elected F.R.S. in 1918 and was followed by others. It has often been assumed that Ramanujan is the first Indian F.R.S. He certainly fits in with the present image of the Royal Society as a

club of distinguished scientists. But the Royal Society was not always like that. Up to the middle of the 19th century, it was also a club of gentlemen 'curious in natural history', 'well acquainted with mathematics and engineering' or 'conversant in various branches of experimental philosophy'. The honour of being the first Indian Fellow of the Royal Society goes to Ardaseer Cursetjee (1808-77), marine engineer at Bombay, who was elected on 27 May 1841 (figure 1). Cursetjee clearly belongs to the colonial-tool stage of the development of science in India, even though there is an element of unexpectedness<sup>2</sup> in his personal achievements.

## 2. SHIPBUILDING AT BOMBAY

It is no coincidence that Cursetjee was a Parsi. The Parsis (literally Persians) are followers of Zarathustra and related by ties of blood and culture to the Vedic Aryans. Facing persecution in Islamized Iran in the 8th century AD, they fled their homeland and came to the west coast of India as refugees<sup>3</sup>. To increase their chances of acceptance, they highlighted the aspects of their rituals which were akin to those of Hindus by virtue of their common heritage. The Parsis were offered asylum on condition that (i) they carried no weapons; (ii) they accepted the local language; (iii) their womenfolk adopted local dress; and (iv) they followed the Hindu custom of performing their weddings at night. The conditions were not very severe, and in any case the refugees had no choice. The Parsis accepted the conditions, and India accepted the Parsis. Ever since then the Parsis have remained out of controversy and on the right side of the rulers, developing in the process an uncanny sense of recognizing opportunities even before they decide to knock.



Parsis were good friends of the Portuguese. When in 1665 the Portuguese fortified Bombay against the British, it was a Parsi who contracted to supply men and materials. And when soon thereafter Bombay changed hands, the Parsis, attracted by the religious neutrality of the British and the business they offered, shifted their residence and loyalty to the British.

Neither the Portuguese House of Braganza nor the bridegroom Charles D could have known the strategic importance of the tiny island of Bombay transferred according to the 11th article of the treaty of marriage between Charles and Catherine. Unwittingly, the Portuguese had introduced the navy as a parameter in India's geo-political equations. The 8-mile x 3-mile island of Bombay received as a reluctant gift became the naval fortress from which the British set out to build their Empire<sup>4</sup>.

Cursetjee came from a family which had a long history of service to the British in the vital department of ship-building. The founder of the dynasty was Lowji Nusservanji<sup>5</sup> (1700 or 1710-1774), who was a carpenter at the Surat dockyard when in 1736 he was brought to Bombay to build a dockyard. The post of Master Builder would remain in the family for 150 years<sup>6</sup>.

The extreme profitability of the East India trade raised demand for big sturdy commercial ships. This increase in the number of ships and in tonnage led to a scarcity of timber, and in 1772 the East India Company was forbidden to build any new ships in England until its tonnage was reduced to 45000 tons. The Company could however build its vessels in India or the colonies. In 1795, the Company abolished custom on timber, imported or local, to facilitate ship-building.

Indian teak was a better building material than oak. It was equally strong if not stronger, and was in addition decay-resistant. Bombay workmanship was excellent<sup>7</sup> and ships came out cheaper in Bombay

than in Europe. The Bombay dockyards built ships for the Company, for the Royal Navy and ‘for such friendly powers as the Imam of Muscat’, as well as for private buyers.

Captain Robert Cogan, who was appointed Comptroller of the Dockyard in 1833, wrote, ‘An 84 gun ship similar to the Calcutta [a 2nd rate line-of-battleship of 2298 tons built for British Navy in 1831] could be built at a cost of £21 026 less than in England ... It is universally admitted that a Bombay teak built ship is 50% superior to vessels built in Europe’. Cogan also stated that merchant ships could be built at Bombay Dockyard at a cost of £12 a ton.<sup>8</sup>

Shipbuilding brought great prestige to the family, which was chosen as ‘head of their caste’. The government not only presented the family with silver rules, shawls and titles, but jagirs also. (The three imams issued in Bombay all went to the Lowjee family.) The prestige and the contacts came in handy for oilier members of the clan to establish themselves in business; they bought ships and traded with Europe and China. A grandson of Lowjee was rich and farsighted enough to loan money to the Bombay government in 1802. Another branch became marine agents for the French government and in 1839 received a medal from King Louis Philippe for ‘the interest you have taken in favour of our traders in Bombay and the zeal and generous disinterestedness with which you have received His Majesty’s men-of-war which visited Bombay’<sup>3</sup>.

Figure 2 shows the family tree of the master-building branches of Lowjee’s family and the dates when they were master-builders (MB): the information is taken from the book by Wadia<sup>6</sup>.

### 3. STEAM NAVIGATION

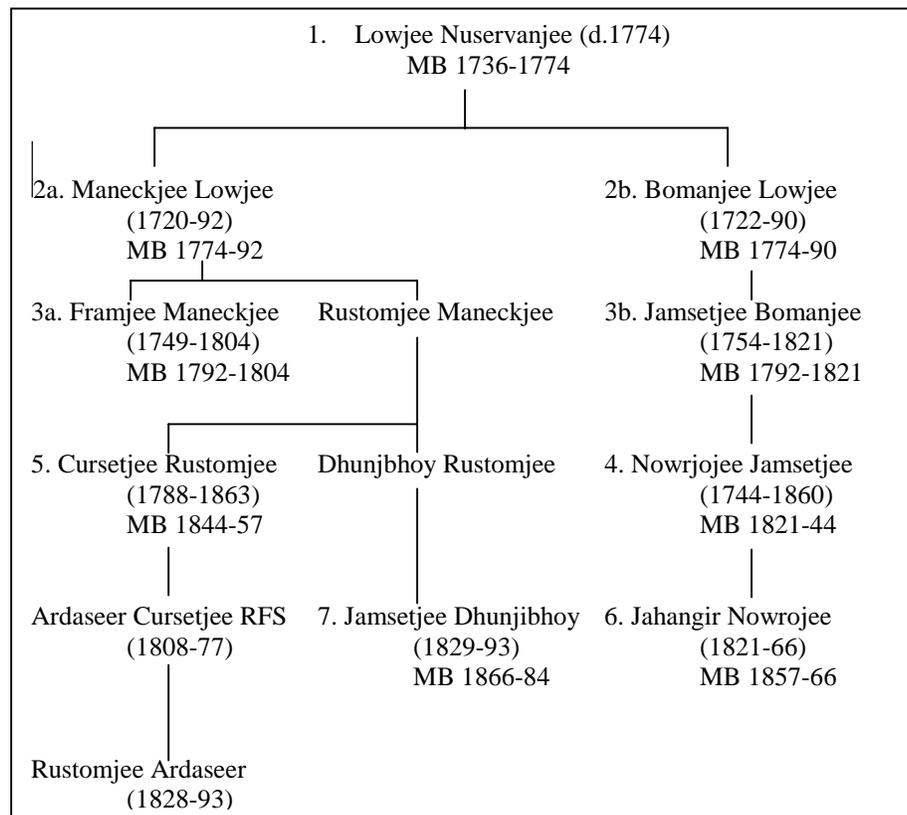


Figure 2. Family tree of the master-building branches of Lowjee’s family and the dates when they were master-builders (MB)

American engineer, Robert Fulton, completed an inland steam-boat, Clermont, which was a practical as well as a Financial success. About the same time another American, John Cox Stevens, became the First to take a steam-boat to sea. By 1821, there were no less than 300 steamers at work in America.

In England it was not until 1812 that steam navigation was successfully brought into practical use when Henry Ball started a 3.5 horse-power steam-boat, Comet, on the Clyde. The first sea-going steamer in Britain was the Rob Roy, a 90 ton, 30 horse-power vessel, that began commercial running between Glasgow and Belfast in 1815. Finally, in 1819 the British Navy acquired its first steamer.<sup>9</sup>

In the meantime, the trading monopoly of the East India Company was ended in 1813, so that British traders and manufacturers were now free to trade with India. And in 1818, with the crushing of the Marathas, the last opposition to the British hegemony was vanquished<sup>10</sup>.

At the same time steam engines started arriving in India. Curiously, the first use of a steam-vessel in India was for decorative purposes. In 1818 the Nawab of the rich north Indian state of Oudh (correctly, Avadh) at the instigation of the British declared his independence from the tottering emperor of Delhi and pronounced himself King. As if to mark the occasion and displaying a magpie-like fascination for novelties, Ghazi Haider-ud-Din got himself a steam-boat. Powered by an 8 horse-power engine that gave the 50 ft vessel a speed of 7-8 miles an hour, it was built at Calcutta, with design and engine brought from England. The Indian India was not yet ready for science. The steam-boat was no more than an expensive toy, meant to be shown off. When the Governor General, Lord Auckland, visited Lucknow the boat was decked up for his inspection! <sup>11</sup>

While the commercial interests looked forward to profits from steam navigation on the placid North Indian waters, the impetus came from the Government for reasons of warfare. The Burmese annexed Assam in 1821-22 and threatened Bengal. This led to the first Anglo-Burmese war (1824-26), and to the acquisition of steamers by the Bengal Government.

In 1817 or 1818 an 8 HP engine with an iron boiler and suitable for a river boat was brought to Calcutta by a Company engineer. Left unused, it was purchased by the Government for fitting into a dredging boat (later named Pluto). When the Burmese war broke out, the boat was remodelled as a floating battery. "Though her speed was only 4 knots much benefit was derived from her in the passage of troops over creeks and estuaries of that coast".<sup>6</sup>

In June 1822 there arrived in Calcutta a pair of 16 HP engines with a copper boiler and other requisites for a fast vessel of about 110 tons, sent out in frame. The package was offered for Rs 65000 to the Government, who declined. The offer was taken up by a group of merchants who found the English oak frame to be unsuitable and substituted it with teak at an additional cost of Rs 10000. The ship, named Diana, was launched on 12 July 1824. In April 1824, it was purchased by the Government for Rs 80000 for the Burmese war.

In 1822 a company was formed in England with the bold idea of establishing steam communication with India by what was known as the overland route. The 166 km-long Suez Canal connecting Alexandria and Suez would be dug in 1859-69. The Red Sea, because of its rocky coast, was dangerous for sailing ships, but steam ships could safely move in the middle. Accordingly, a steam vessel, Enterprise, left England on 16 August 1825 and reached the Diamond Harbour, Bengal, on 7 December 1825. This three-masted 500 ton tugger powered by two 60 HP engines with copper boiler covered the 13700 mile distance in 113 days. The venture was not a commercial success, but the Burmese War again came to the rescue. The Bengal Government bought the ship for £40000 so that the promoters did not lose any money in the venture.<sup>9</sup>

The initial support that the Bengal Government extended, for its own reasons, was a great help in promoting the general cause of steam communication between England and India. It was, however, not Calcutta but Bombay that strongly canvassed for an overland steam route. Calcutta was the political and commercial capital of India while all Bombay had was the Company's navy. An overland route would cut the distance to England by 1000 miles and be good for Bombay business, whose interests the local government always protected. Finally in 1829 two 80 HP engines were brought from London and fitted to a ship built at Bombay by the Wadias. (The ship was very wisely named High Lindsay after the Company's chairman.)<sup>6</sup>

#### **4. ARDASEER CURSETJEE (1808-77)**

Ardaseer Cursetjee<sup>12</sup> was born on 6 October 1808.<sup>6,13</sup> His father was at the time assistant builder; he rose to become the master builder in 1844. Cursetjee was, as he says,<sup>14</sup> 'brought up and educated in the Hon. Company's service'. Following the family tradition, he joined the dockyard at the age of 14, and after six years of training was in 1828 placed in charge of the supplementary shipyard at Mazagaon, where 'he designed and superintended the construction of several fine vessels'.

Cursetjee was, however, more interested in steam machinery than ship-building. Fortunately, Cursetjee's interest coincided with the Company's need. He had come of age at the right time. No wonder then that the Company welcomed Cursetjee's interest in steam machinery and readily agreed to his request 'about the year 1831' to transfer him to the charge of Capt. F. McGillvray, the Mint engineer, 'for the purpose of devoting myself to the study of steam machinery, and the foundry business'. In spite of the transfer, Cursetjee continued to draw his salary from the dockyard. He soon showed his worth by building a one-HP engine and installing it at his premises for pumping water from a well 'sufficient to supply a small fountain'. This was the first engine built in India and was still working 10 years later.

In August 1833, Cursetjee obtained from England a 10 HP marine engine and installed it in a vessel named Indus, both the engine and the vessel being paid for by his father. Indus was the second steamer built at Bombay, after High Lindsay, and was subsequently purchased by the Bombay Government.

Cursetjee's achievements did not go unnoticed. In October 1833 he was made Assistant Builder at Mazagaon, 'the office being expressly established for him on the recommendation of the Superintendent of Marine Capt [John] Crawford'.

The next engineering feat of Cursetjee was the installation of gas lighting. On 10 March 1834 he lighted his bungalow and gardens at Mazagaon, using gas. The Governor of Bombay, the Earl of Clare, visited Cursetjee's residence and presented him with a dress of honour. Additionally, the Governor brought this to the notice of the Court of Directors. For his engineering activities, Cursetjee maintained a small private foundry at his residence, which no doubt was profitable also. He made 'great many wrought-iron tanks for different ships, among which were several holding upwards of five thousand gallons'. He 'had a good deal to do with steam boats', having assisted in building two of them at Bombay.

Very soon, the newly established Elphinstone Institution requisitioned Cursetjee's part-time services. The Institution had a British 'Professor of mathematics, astronomy, and all branches of natural philosophy' (Robert F. Orlebar), but there was none to teach practical sciences. Accordingly, Orlebar, 'cognizant of his [Cursetjee's] anxiety to improve the countrymen, as well as of his acquaintance with practical mechanics' got the government's permission so that Cursetjee could 'assist him in instructing the natives, especially in mechanical and chemical science'. In 1837, Cursetjee was elected a non-resident member of the Royal Asiatic Society of England.

The colonial government's patronizing attitude towards Cursetjee was matched by his own self-consciousness. Cursetjee was the Empire's show boy, a good example of how western education could uplift a native. For his part, Cursetjee used the same idiom for his countrymen as the British used for him. In his letters to the Company, he talks about 'native workmen, under my instruction and superintendence' and 'this faithful native [who] has worked the boat upwards of Five years without a single accident or injury to the engine'.

Cursetjee now decided, with the government's permission, to spend a year in England 'to perfect myself as much as possible in the construction and repair of marine steam engines' ... 'it being my greatest ambition to instruct my countrymen in that useful art, and thereby raise my name in the estimation of the Indian Government, in respect to that science as my ancestors have for the last century in the art of ship-building'.

His departure from Bombay took longer than planned. He applied to the Governor, the Earl of Clare, to allow him to accompany His Excellency to England. Apparently, Cursetjee's assessment of the mutual relationship was not shared by His Excellency, who politely declined, and Cursetjee instead went to China to get over the snub.

Next, in 1838, he was offered passage money of Rs 600 to travel by the Government steamer, but sudden illness prevented his departure. It was not until a year later, on 13 September 1839, that he left Bombay by the same vessel, S.S. Berenice, now paying 1000 rupees for the passage.

Travelling by the overland route, he visited the Alexandria dockyards. 'He was offered a Government tout to visit the Egyptian Fleet and on reaching the First ship of the line, he was received on board with a military guard and band'. He landed at Blackwall on 3 December 1839.

Since the Parsis were ordained to take food cooked by Parsis only and not to dine with non-Parsis at the same table, Cursetjee took along servants from his community. On reaching England he appealed 'to the liberality of their Hon. Court to enable me to meet those various expenses of my residence in England, ... which are indispensable to my respectability, and to obtain that information which, should God spare me, will, I trust, be amply repaid through my services to the Hon. Court, on my return to India.'<sup>14</sup>

He was accordingly given a subsistence allowance of £1 per day for a year in addition to his Bombay salary of Rs 79 a month, or £95 per annum.

Cursetjee recorded his memoirs of his stay in England in a book<sup>14</sup> published in 1840, which provides valuable information on his life and times. During his one-year stay, Cursetjee had a number of social engagements. The first person he visited was 'that great friend of India, Sir Charles Forbes, Bart'. He was introduced to the Chairman and to the Secretary of the East India Company and to a number of other eminent persons including the President of the Royal Society, the Marquis of Northampton, who invited him to a Soiree. He 'was fortunate enough to be present on the occasion of the marriage of Queen Victoria on 10 February 1840', and was presented to the Queen at a Levee on 1 July 1840.

Cursetjee was summoned to attend a committee of the House of Commons to give evidence on the opium question. He spoke against the opium policy of the East India Company. Cursetjee recorded with satisfaction that his evidence had the approval of Sir Charles Forbes.

'During his stay in England he never took his meals cooked by non-Parsis and on this account on more than one occasion he refused invitations to dinner from his European friends'. Thus he declined invitations for dinner from the Deputy Chairman of the East India Company and from the President of the

Board of Control. When Mr Walter, the proprietor of The Times, invited him to spend some days as his guest, Cursetjee took his servants along to cook his own food.<sup>6</sup>

In matters of religion, Cursetjee was a traditionalist. He did not approve when he met in London a young Parsi boy who was 'talking without a cap [on]'. Ironically, the boy defied tradition even in his death. He died in 1851 and became the First Parsi whose body was subjected to a post-mortem.<sup>6</sup>

Cursetjee's comments on life in London make interesting reading. He found the Royal Mint to be much inferior to the Mint at Bombay. He considered the cab drivers to be 'an imposing and insolent set of men'. 'Another nuisance of London is the dirty state of roads compared with those of Bombay'. His impression of shopkeepers and tradesmen was also negative: 'I cannot help remarking that they have generally an unfair practice of speaking against one another in the same line of business which is the cause of great embarrassment to foreigners as they cannot have confidence in dealing with them.'

He made full professional use of his stay in England. He made arrangements to work at the engineering shops of Messrs John & Samuel Seaward & Capel at Limehouse and visited the various Royal Dockyards of Great Britain and private foundries.

An important aspect of Cursetjee's stay was his interest in the activities of the Institution of Civil Engineers, whose meetings he regularly and punctually attended, having been elected an Associate on 24 March 1840. He even addressed communication to the Institution on the engines of the steam tug Alice, along with a drawing of the engines on board the steam-boat Stadt Frankfort. He was elected a member of the Society of Arts on 6 May 1840. and in September was appointed a member of the mechanical section of the British Association.

On 10 July 1840, The Times carried an advertisement for the post of 'Chief Engineer and Inspector of Machinery in the Company's steam factory and foundry' at Bombay. The applicants were asked to 'either give reference for testimonials of character, conduct, and qualifications or enclose certificates of competence in mathematics, accounts, drawing, theory and practical construction of the steam engines, manufacture and repairs of boilers and steam machinery in general, casting of metals, welding of iron, and modelling as applicable to marine steam engines and iron boat building'.

Cursetjee applied for the post, getting favourable testimonials' from all with whom, he had been professionally associated. Mr Seaward wrote after seven months of interaction with him, 'He has been most assiduous in his attention to every branch of our business ... We lately entrusted him to superintend the erecting of a ten-horse engine, and a quantity of machinery in our new boiler establishment, in which he exhibited great intelligence and information, and acquitted himself highly to our satisfaction', adding that this would not have been possible 'had he not devoted much time, study, labour, and attention to the business for many years before he came to this country'.

Other testimonials were obtained from Peter Ewart, Inspector of Machinery at Her Majesty's Dockyard, Woolwich; R. Taplin, Chief Engineer and R.J.S. Blake, Master Shipwright of the Dockyard at Portsmouth; and from R. Napier of Glasgow. Proceeding thoughtfully, Cursetjee also asked for a testimonial from Messrs Maudslay, Sons and Field, 'as they are preparing the machinery intended for the Bombay Dockyard', who while supporting his application added, 'we also think, that with these qualifications, his being a native, would be of further advantage, as his abilities to instruct the native workmen, joined to his influence over them, would, we have no doubt, be greater than any European [sic]'.

Cursetjee also got a testimonial from James Walker, the President of the Institution of Civil Engineers who suitably impressed the Company on Cursetjee's behalf by saying, '[we] are now assisting in his

certificate to become a fellow of the Royal Society, which I have reason to think would be signed by almost every gentlemen who knows him, including Capt Beaufort and Sir Edward Parry’.

All the testimonials were with the Court of Directors within 20 days of the advertisement. On 19 August 1840 the Court of Directors 15 ‘Resolved by the Ballot unanimously that having considered the applications of the several candidates... and referring to the anxiety which the Court have repeatedly expressed to encourage the employment of Natives of India, and to the desirableness [sic] in every point of view of substituting as far as possible natives for European mechanics, an object more likely to be promoted under native than under European Instructions and Superintendence, Ardaseer Cursetjee whose testimonials are not inferior to those of any other candidate, be appointed ...’. The post carried a salary of 600 rupees a month, more than seven times Cursetjee’s then salary as an assistant builder.

The last act of Cursetjee in England was to ask for and get £40 from the Company so that he could take with him ‘a few diagrams of steam engines and a few small tools’. He left England in November 1840, going as advised via the Cape. He reached Bombay in the beginning of 1841 and took his new charge on 1 April 1841.

As had been promised by James Walker, the Royal Society elected Cursetjee a Fellow on 27 May 1841. His certificate of nomination<sup>16</sup> conveys the English perception about a native gentleman of science, and deserves to be reproduced in full:

Ardaseer Cursetjee Esquire Ship Builder of Bombay lately in England having undertaken the journey to this country at his own expense in order to prepare himself in the knowledge of the Steam Engine as applicable to Navigation and to acquaint himself with the arts and manufactures of Europe with the view of improving his own country and his countrymen, a Gentleman well versed in the theory and practice of Naval Architecture and devoted to scientific pursuits, having introduced Lighting by Gas into Bombay where he perfected a small Gas establishment aided exclusively by Native workmen; having also at his own charge built a Vessel of sixty Tons to which he adapted a Steam Engine sent out from this country, and manufactured and fitted every other part of the Machinery and navigated the vessel entirely with native workmen and Engine men, chiefly instructed and trained by himself; and having otherwise promoted Science and the useful arts in his own country to which he has just returned, having while in England obtained the appointment of principal Inspector of Steam Machinery to the East India Company,

being desirous of becoming a fellow of the Royal Society ....And we beg to recommend him from his peculiar situation, and (lie proofs he has given of his desire to extend natural knowledge in India. Dated this twenty seventh day of March 1841.

It was signed from personal knowledge by James Walker, William Cubitt, John Macneil, James Home, Joshua Field, and Lt-Col William Henry Sykes. Those who signed from general knowledge include John Barrow, Capt. Francis Beaufort, and Edward Sabine. The list is indeed impressive. Walker was then the President of the Institution of Civil Engineers; Cubitt and Field held the post later. Sykes had been at Bombay and later became the Chairman of the East India Company. Of the general signatories Barrow was the secretary to the Admiralty, Beaufort the Hydrographer, and Sabine rose to become President of the Royal Society in 1861.

Apparently, it was thought that the fact of Cursetjee’s having paid his own passage would make a good impression on the Fellows. The fact of the matter is that he called this expense unfortunate and used it as an argument for getting financial assistance from the Company during his stay in England.

In terms of directions issued in 1839, Cursetjee would have been classified as ‘a distinguished engineer’ and as ‘one who is attached to science, and anxious to promote its progress’. Cursetjee’s

fellowship of the Royal Society remained a strictly private honour. It did not advance his professional career in any way, nor did it impress his countrymen. The Bombay Times was critical of his appointment: 'We doubt the competency of a native, however able or educated to take charge of such an establishment as the Bombay Steam Factory with a body of Englishmen to be directed, superintended and controlled'. In contrast, the Bombay Gazette welcomed the appointment: It is no small honour to the native community that the merits and abilities of this gentleman should have enabled him to carry off the prize from the multitude of competitors'.

Cursetjee was the first native to be placed over Europeans. His staff consisted of 'one chief assistant, four European foremen, one hundred European engineers and boiler makers, and about two hundred native artificers'. 'No doubt his path was not one of roses for a long time, but his natural kindness soon made him a favourite with all those placed under him, as he meted out justice to all irrespective of colour and creed!' It is mildly amusing to see the expression 'colour and creed' applied to a native officer in relation to his European staff.

In 1843 a repair shop was added to the steam factory, and the workforce under Cursetjee was further augmented. The same year, when the Freemason's Lodge was established in Bombay, Cursetjee joined it. In 1850, he was elected vice-President of the Bombay Mechanics Institute. On 16 February 1851 he launched an 80-ton steamer, the Lowjee Family, built by his son Rustomjee Ardaseer at Mazagaon Dock. It is significant that all the parts for it were fabricated at the foundry Cursetjee had at his residence.

The same year he was struck by paralysis; but he recovered and in September 1851 he made another trip to England. He was allowed by the Court of Directors to visit various cities to see 'improvements in machinery', his great hobby being to introduce novelties into Bombay.

He also visited America and selected various wood-cutting machines, which he sent to Bombay. He was the first to introduce the sewing machine, which had been patented by Elias Howe a few years previously, in 1846, and was foremost in introducing photography and electroplating into Bombay. Cursetjee returned to Bombay in 1852. He was elected a Justice of the Peace in 1855.

Cursetjee retired on 1 August 1857. As a special case, the Court of Directors sanctioned him a pension of Rs 400 a month (that is, two thirds of his salary). He visited England for the third time in 1859.

In 1861, he took up the appointment of superintending engineer of the Indus Flotilla Company, and took charge of the Company's steam branch and workshops at Kotree in Sind. The Flotilla was at that time under the Indian Navy, which was disbanded in 1863. Consequently, the Flotilla was broken up. Cursetjee resigned his post in 1863 and went to England, settling down at Richmond, where he died on 16 November 1877.

Interestingly, at one time there were three generations of his family working at the dockyards.<sup>6</sup> His father was the Master Builder; he himself was the Inspector of Machinery, while his two sons were employed in the Builders' Department as juniors, one of whom, Rustomjee Ardaseer, rose to become the Assistant Builder and retired in 1883.

## CRITIQUE

The British were very happy to patronize Cursetjee for 'trying to improve his country and countrymen', 'for promoting Science and useful arts in his own country' and 'for the proofs he has given to extend natural knowledge in India'. Ironically, his own country was not impressed and ignored him completely.

This is rather hard to explain. No doubt, it was too early for the Indians to appreciate his technical skills or he impressed by his Royal Society connection. But the fact remains that he came from a well-known and respected family, and held an unusually high position in the colonial government's hierarchy. He even published his memoir<sup>14</sup> in 1840.

For all this, Cursetjee may not have existed at all. It is not surprising that his obituary in a London-based technical journal 'went unnoticed. But even a two-volume history<sup>3</sup> of this own community, published in 1884, let him down. It devotes 17 pages to his family and takes note of his two cousins who visited England at about the same time, but it makes no mention of Cursetjee.

It was in his own lifetime that Indian efforts to respond to modern science started taking shape. But he did not become a role model for his countrymen. Cursetjee was at the time leading a retired life in far-off England. Moreover, the centre of the new scientific activity was the capital city of Calcutta, which took no deep interest in the colonial science at Bombay.

It was not until 1955 that his life-sketch appeared in a book devoted exclusively to the Wadia master-builders and written by a clansman. Although now in its second edition, this privately published book has failed to bring posthumous recognition to him.<sup>17</sup> History has been unkind to Cursetjee. This first modern engineer of India was denied any role in the growth of science in his country. As if this were not bad enough, even his name has been obliterated. His life throws interesting light on the use of science in the early days of colonial consolidation. And it sets the record straight on India's association with the Royal Society.

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## NOTES

1. R.K. Kochhar (1991) *Economic & Political Weekly* [Bombay]. Vol 26, No. 33 (17 Aug), 1927.
2. R.W. Home (1991) in *International Science and National Scientific Identity* (eds: R.W. Home & S.G. Kohlstedt) Kluwer, p. 151.
3. D.F. Karaka, C.S.I. (1884) *History of Parsis*, 2 Vols., London.
4. James Douglas (1893), *Bombay and Western India*, 2 vols. London, laments 'In the Diary of John Evelyn one of the most accomplished men of his day, and who was in the thick of politics, 1660-1705, that is during the reigns of Charles II, James II and William III, and which embraces every notable event of his time, there is no mention of Bombay, and yet this was the time during which were laid the foundations of our domination in Western India (Vol ii, p. 372), Evelyn was however fully aware of the profitability of the East India Company. He notes in his Diary that (in 1657) he invested £250 in the stock of East India Company, which doubled by the issue of a bonus (in 1682). He sold the entire stock for £750 to the newly founded Royal Society, of which he was an original member. The Society continued to hold the stock till at least 1750. See *Cambridge History of India*, Vol 5, p. 96; and the *Record of the Royal Society of London*, 4<sup>th</sup> ed. London, 1940.

5. Lowarjee is a distortion of the common Parsi name Nowrojee. Usservanji is his father's personal name, the omitted family name being Wadia. Incidentally, later master-builders continued to sign as Lowjee, even if the Government address them by their own name.
6. R.A.Wadia (1955) *The Bombay Dockyard and the Wadia Master-Builders*, Bombay, 2<sup>nd</sup> ed. 1957. All references here are to the 1983 reprint.
7. A private protest against racism was subtly made by the Master-Builder, Jamsetjee Bomanji, who was the first one to be entrusted by the Lords of Admiralty with the building of men-of-war in India. In the year 1800, Jamsetjee built a 1363-ton, 56-gun frigate Marquis Cornwallis, which was in 1804 purchased by the Royal Navy and Renamed Ackbar. Proud of his work and stung by the expression 'Black fellow' not infrequently used by the Europeans to refer to the Indians, Jamsetjee carved on the keelson of the ship: 'This ship was built by a d-d Black Fellow A.D. 1800. This protest was carved in such a manner as not to be noticeable. The words were pointed out many years later by Jamsetjee himself to his friends when the ship returned to the docks. On his retirement Jamsetjee was given a jagir with an annual income of Rs. 6000 (£600) (see note 6).
8. C.R. Low, *History of Indian Navy (1613-1863)*, 2 vols, London (1877).
9. Martin Samuelson (1864)*Q.J. Sci.* 1, 235.
10. The British Indian territory extended up to River Satlaj in the west. Sind was annexed in 1843, and Punjab in 1849.
11. William Carey, *The Good Old Days of the Hon. John Company*, 2 vols., Calcutta (1906).
12. We shall use Cursetjee as his last name, even though it is his father's name. Incidentally, the spellings are anglicized: the phonetically correct way would be to write Ardshir Khurshid-ji.
13. *Proc. Instn. Civil Engrs.* (1878) **51**,271. Curiously, this does not mention his being an F.R.S.
14. Aradseer Cursetjee, *Diary of an Overland Journey from Bombay to England and of a Year's Residence in Great Britain*, London (1840).
15. I O L R L/MAR/C/58, p. 267.
16. Royal Society Certificates IX.57.
17. According to R.A. Wadia (note 6, p 340)'It was only in 1944 that Prof. A.V. Hill, the Secretary of the Royal Society, stated that the first Indian to achieve this great distinction [i.e. election to the Royal Society] was Ardaseer Cursetjee'. Hill held a special meeting of the Royal Society on 3 January 1944 at the 31<sup>st</sup> session of the Indian Science Congress at Delhi, where he 'obtained the signatures of some of the Fellows of the Society, who could not sign in the Charter Book of the Society in London'. At the Science Congress, Hill presided over the section on physiology and participated in a symposium on 'Science and its place in Indian education'. This information is given in *Proc. Of the 31<sup>st</sup> Indian Science Congress*, which however does not say anything about Cursetjee.

*Source: The Royal Society : Notes Rec. R. Soc. Lond. 47(1), 33-47(1993)*