

# CURRENT SCIENCE

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EDITORIAL

## Tenacity of Purpose

The 28 August issue of *Nature* carried an advertising 'highlight' on India. Five pages of paid advertisements, by some of our more prominent institutions announcing faculty openings and directorial positions, constituted this 'highlight'. The section contrasted sharply with a 'Spotlight on Singapore' which appeared in the 16 October issue, which carried a two-page preface highlighting the 'Biopolis of Asia', featuring a write-up on Singapore's biomedical research initiative. The page in the India spotlight that drew my attention was an attractively coloured advertisement which boldly proclaimed, *Push Back the Horizon*. The intriguing publicity blurb put out by the Survey of India had this to say: 'On 10 April 1802, in one of the most daring scientific quests known to humankind, Col. William Lambton began the longest measurement of the earth's surface. For the next fifty years, this inch-perfect survey of over 2400 km involved the most perilous of journeys, extremely complex mathematical equations, and the loss of more lives than in most contemporary wars'. In the true tradition of all government advertisements which attempt to highlight achievement, however distant, the photographs of ministers and administrators stared benignly at readers. Two centuries after he began his odyssey, William Lambton's portrait was curiously missing. His famous compatriot George Everest, who completed the 'Great Indian Arc of the Meridian' did not merit a mention, in an advertisement, which ironically seemed to celebrate an important phase in a scientific enterprise that 'significantly advanced our knowledge of the shape of the planet and laid the foundation of the science of geodesy'.

Last year when the Department of Science and Technology (DST) launched a year-long celebration of the bicentenary of Lambton's quest, considerable media attention was focused on The Great Arc (Ramachandran, R., *Frontline*, 10 May 2002; Nirupa Sen, *Curr. Sci.*, 2002, **82**, 780). Lambton began his historic survey at St. Thomas Mount in Madras (now Chennai) in April 1802, pressing for years through often inhospitable terrain, burdened by heavy equipment, including his famed 'Great Theodolite'. He died in harness on 20 January 1823 at Hinganghat (Maharashtra). He had 'in 21 years on the survey completed

165,342 square miles of triangulation at a cost of £83,537' (Smith, J. R., *Everest*, Whittles Publishing, Scotland, UK, 1999, p. 39). Lambton's successor George Everest pushed the task of practically completing the Great Arc, in a remarkable feat of uncompromising commitment over the next two decades; retiring from the Survey of India in 1843. His successor Andrew Waugh was to extend the task of 'triangulation' into the Himalayas. In the period between 1852 and 1856 it became apparent that Peak XV was a particularly high mountain. Computations were the key to estimating precise heights from field measurements. Historians credit the 'chief computer' for the survey, Radhanath Sikdhar, for the discovery of the highest peak. Waugh was to name the highest mountain on earth, Mount Everest in 1856, a year before the Sepoy Mutiny of 1857 transformed British rule in India from indirect administration through the East India Company to direct rule by an imperial power. In the period that led up to direct rule, the survey of the subcontinent was the first step in 'the development of its infrastructure'; a phrase that appears in the recent advertisement in *Nature*.

Lambton and Everest were explorers and scientists, who displayed amazing commitment to the task of the survey of India. Their fanatical adherence to the principle of precise and uncompromising measurement makes the saga of the Great Arc one of the epic achievements of science. The survey did have its moments of discord; most notably the 'Jervis Affair' in which Everest, sidelined briefly by illness, cast doubts on the quality of the survey conducted by Thomas Best Jervis, appointed by the Directors of the East India Company as his successor designate. In the controversy that followed, Everest was ranged against a large section of the Royal Society. His biographer J. R. Smith notes that a letter signed by the Duke of Sussex, the then President of the Royal Society, and 38 Fellows (including Michael Faraday) dated 14 July 1838, appeared to be supportive of Jervis. Everest, himself a Fellow, was 'justifiably incensed'. Everest's interest in mathematics and his passion for geometry appears to have been kindled in India. The letters of his niece Mary Boole, reproduced in his biography must specifically interest Indian readers. In an article entitled 'Indian Thought and Western Science'

she says: 'I end as I began. Tell Hindus to read De Morgan's preface to Ram Chundra. Tell them it is the voice of Mount Everest calling to India to awake and arise, and recover the treasures of its past'. The reference here is to a book entitled *A Treatise on Problems of Maxima and Minima* by Ram Chundra published in 1859 by W. H. Allan & Co. London from an edition published earlier in Calcutta in 1850 (J. R. Smith, pp. 162–163). The survey was a major step forward in cartography; it was also a decisive step in the colonization of India.

In considering the life and times of William Lambton and George Everest, I was reminded of the opening lines of Philip Mason's *The Men Who Ruled India* (Rupa Publishing, New Delhi, 1992, 2001), a compellingly written overview of Britain's involvement with India; 'There comes a time in a man's life when he may well stand back and consider what he has built, planted, written or begotten and whether it was worth doing. If in such a mood the English – and by that I mean all those who speak English: Chaucer and Drake, Milton and Marlborough, Clive and Hastings, belong to us all – if the English look back on their varied history, the long connection with India will be an achievement that cannot be ignored'. Mason, as so many before and after him, wonders how so many could be ruled so decisively by so few. In his words, his countrymen 'mastered and ruled so many millions by the sword, by diplomacy, above all by a stubborn tenacity of purpose' (p. xi). Mason notes that the 'rulers of India were not cast in a mould; they were men, quick with fleshy desire, lust for power, and all the miraculous diversity of man; humorous, solemn and unpredictable; adventurous, soaked in routine, timid and bold. Yet they have something in common. Nearly all of them – after the transformation – believe that the performance of duty is something good in itself; hardly one questions the value of his work' (p. xiii). The unquestioning commitment and stubborn persistence displayed by many Englishmen in the first half of the 19th century, Lambton and Everest amongst them, paved the way for the total dominance that was to follow.

In celebrating Lambton and the Great Arc, the DST and its subsidiary organization the Survey of India have curiously chosen an event from our colonial past, to showcase

India's science and technology. Apart from adding to *Nature's* already considerable advertising revenues, such attempts at publicity reflect a lack of professionalism amongst those who seek to project India's image as a country, with a substantial base in science and technology. The Survey of India's sense of history seems oddly misplaced on the pages of *Nature*; the photographs of politicians and bureaucrats providing a tasteless backdrop. In view of the increasingly frequent attempts to blame many of our present day ills on colonizers of the last few hundred years, the celebration of Lambton's survey on the pages of *Nature* appears ill conceived.

The attempts to promote science and technology that emanate from our Ministries seem to be strangely out of place. The year 2003 has witnessed many public and expensive celebrations of the 50th anniversary of the DNA double helix, including a major event in Delhi. Such historical anniversaries are best marked by scientists in the seminar rooms of their institutions or the pages of their journals. They are hardly cause for public national celebration, particularly when the connection to India, its science and its scientists is limited or non-existent. Ministries and administrative departments which manage science would do well to focus on the present and take a hard, pragmatic and clear-headed look at the conditions that prevail in the institutions under their charge. A true tribute to Lambton and Everest, the first of the 'surveyors' of India would be to assess the present state of many of our 'survey' departments; the Survey of India, the Geological, Botanical and Zoological Survey departments. We might project their successes of the past half a century and introspect on their failures. We need to focus on reviewing the functioning of many of our institutions and to chart a strategy for showcasing them as attractive places for a new generation of enthusiastic individuals to work. If there is one lesson to be learnt from Lambton, Everest and the Directors of the East India Company that supported them, it is this: tasks once identified, however difficult, must be pursued with unswerving commitment and, to borrow Philip Mason's phrase, a tenacity of purpose.

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