of compiling an atlas embracing the whole of India. On the initiative of John Tringle, who surveyed routes with great enthusiasm, a military 'Corps of Guides' was established. This Corps also contributed largely to the surveys of the Madras Presidency for the next 30 years. It was in 1787 that Michael Topping, a marine officer, broke away from the eternal method of Perambulator Traverse and ran a 300-mile line of triangles along the coast from Madras to Palk Strait. It was he who built a permanent astronomical observatory in Madras in 1793 and founded the first surveying school in 1794. In 1796 and 1810, the Presidencies of Bombay and Madras got their own Surveyors General with the appointment of Lt Gen. Charles Reynolds and Col. Colin Mackenzie as the respective Surveyors General. It was on the first of May 1815 that the Directors, finding it wasteful to maintain three separate and independent Surveyors General, appointed Mackenzie as the Surveyor General of India. The credit of the first surveys of the Brahmaputra in Assam in 1794, and that of the Irrawady river in Burma go to Thomas Wood. The mission also collected interesting information about people, tribes and general geography of Assam and Burma, about which nothing whatever had been known before. India was one of the earliest countries to establish a regular government survey organization and to commence systematic surveys — a few years before even the Ordnance Survey of UK.

"It was very fortunate that a man of the genius and resolution of Lambton was in the subcontinent to lay the foundation of the 'Great Trignometrical Survey of India' a few years before similar projects were undertaken by France and England. In November 1799, he put forward his proposal for a Mathematical and Geographical Survey that should extend right across the Peninsula from sea to sea, controlled by astronomical observations carried out on scientific principles, capable of extension in any direction and to any distance. He started his work from Madras where, in early 1802, he measured the famous base line at Saint Thomas' Mount as a start for his triangulation, north and south through Carnatic India and across the Peninsula, with his famous 36-inch great theodolite. He completed a meridional arc from Cuddalore to Madras observing latitude at both ends and obtaining a value for the length of a degree that was essential for his scientific work. By 1815, he had nearly covered the whole Peninsula south of the river *Kistna* (Krishna) with a network of triangulations braced by main cross belts. To him goes the distinction of measuring the longest geodetic arc closest to the equator, from Cape Comorin to the 18° parallel.

"In 1806, a subaltern came to India at the tender age of sixteen. He was none other than Lieutenant George Everest. He joined Lambton in 1818. Lambton died at work on 20 January 1823 at Hinganghat at the age of 70. General Walker recognizing his work wrote in 1870, 'of all Col. Lambton's contributions to geodesy, the most important are his measurements of meridional arcs, the results of which have been employed up to the present time in combination with those of other parts of the globe, in all investigations of the figure of the earth.' Lambton's mantle fell on the worthy shoulders of George Everest. Everest felt the need for basing the surveys on a rigid reference framework. This raised the problem of finding a suitable reference spheroid to fit the shape of the earth's gravity equi-potential surface for India and the adjacent countries. Everest realized that the Indian subcontinent was too large for basing surveys on an osculating sphere, let alone a tangent or secant plane. Everest therefore, started his control work from Kalianpur in Madhya Pradesh, more or less in the centre of India. Here he made astronomical observations and treated the astronomical latitude, longitude and the plumbline at that place as error-free. With Kalianpur as the center, he conceived covering the length and breadth of India by a gridiron of triangular chains, as opposed to the network of triangles conceived by Lambton. He brought to surveying greater accuracy and rigorous observational procedures besides devising and refining the instruments. He introduced the observation of astronomical azimuths from pairs of circumpolar stars, ray traces for long lines, *etc*. His redesigned 36-inch great theodolite is famous today. He replaced the chain with Colby's base-line apparatus and 10-foot compensation bars, with which he measured various bases. He completed the great meridional arc from Cape Comorin to Banog in the first Himalaya near Mussoorie, a length of 2400 km. Everest made the government agree to the revision of Lambton's work, based on more accurate instruments and the procedures as laid down by him. Later, in 1830, he was appointed as the Surveyor General of India but, much against the wishes of the then government, he continued to devote much time to the Great Meridional Arc. This was completed by him in 1841 and he utilized the last 2 years of his service in its computations and adjustments. The work and norms laid down by Everest have stood the test of time. The Everest spheroid, evolved by him in the year 1830, is not only still being used by India but also by Pakistan, Nepal, Burma, Sri Lanka, Bangladesh, Bhutan and other south-east Asian countries.

"We can only grasp the significance of his monumental work if we can visualize India of the early nineteenth century

THE USE OF LAPLACE STATIONS HAD NOT YET BEEN ADOPTED BY THE SURVEY OF INDIA; CONSEQUENTLY ERRORS IN AZIMUTH AND POSITION WERE INTRODUCED. THESE ERRORS ARE PARTICULARLY EVIDENT IN THE TRIANGULATION SERIES OF SOUTHERN INDIA. THE 1880 ADJUSTMENT HAS HOWEVER, REMAINED THE BASIS OF ALL INDIAN TRIANGULATION AND MAPPING. THEREFORE THERE IS NO SUCH THING AS AN "INDIAN DATUM;" IT IS ONLY AN ADJUSTMENT! (JMN, 21 JUNE 1997)