

LIEUT.-COL. H. T. MORSHEAD, D.S.O., R.E.

ON May 17, Col. Morshead, of the Survey of India, was shot dead while riding in the jungle near Maymyo, the hill-station of Burma. He was forty-eight years of age, and his death deprives the Government of India and its Survey Department of an officer whose special attainments and rare experience had proved of frequent advantage.

To the north of India lies the mountain mass of Tibet: its people belong to the Mongolian family, but they have been shut off by their mountains from the outer world for many centuries, and they have developed a language that differs from both Chinese and Burmese.

Col. Morshead was a skilled mountain surveyor and a Tibetan linguist; and his boyish, modest charm of manner won for him the friendly confidence of Himalayan hill-tribes. The value of such a man has been great, and the discoveries which he made have led to scientific advances in Himalayan geography.

In 1901, when he was nineteen years of age, Morshead passed out of Woolwich Academy and received a commission in the Royal Engineers. In 1904 he was ordered to India, and was posted to Dehra Dun: he was there employed on the designs and construction of new lines for the Gurkha Regiment. Dehra Dun is a cantonment situated in the outer Himalayas, and when Morshead found himself surrounded by mountain peaks, the instincts born in him were stirred. An office of the Survey of India is at Dehra Dun, and Morshead, though modestly doubtful of his own qualifications, began to envy his brother officers who were employed on the Survey. His inclinations were towards exploring, and the idea of taking theodolite observations from hill summits seemed to him a glorious prospect. He was posted to the Survey of India in 1906, and except for the three years 1915 to 1918, when he served in the trenches in France, his whole career from 1906 to 1931 was passed in the Survey.

In 1912 the Himalayan peak of Namcha Barwa was discovered by Captains Morshead and Oakes. This discovery was the most important advance that had been made in Himalayan geography since the height of the Kashmir peak Nanga Parbah was determined in 1855. No high snow peak had been found by the Survey in the Assam Himalaya east of Bhutan. In 1880 the Surveyor-General of India had come to the conclusion that the Assam Himalaya carried no peaks above 20,000 feet. The height of Namcha Barwa is 25,455 feet; like Mount Everest, it is not visible from the plains of India, being concealed by intervening hills. Its discovery has led to the prolongation of the Great Himalayan crest-line for 300 miles.

In 1913, Capt. Morshead and Capt. F. M. Bailey discovered the gorge where the Tsangpo river, of Tibet, escapes from the highland through the Himalayan range.

In 1921, the Mount Everest expedition was organised by the Royal Geographical Society and by the Alpine Club. Col. Howard Bury was in

command of the expedition, and Morshead was attached to it as a surveyor. His knowledge of the Tibetan language proved of great service on this expedition. An authority on the Tibetan language had been led to believe that the six names for Mount Everest and its surrounding peaks were recorded in a book of Tibetan ritual, and he was confirmed in this view by Tibetans from the district. But Morshead when in the field with the Mount Everest expedition had learnt from local Tibetans the six Tibetan names of the peaks of Gaurisankar, which are thirty-six miles from Mount Everest. When the names from the book of ritual came to be compared with Morshead's names obtained by him from the people on the spot, it was found that the book of ritual had been incorrect in applying these names to Mount Everest.

When we are looking back upon an officer's career, we recall his scientific achievements. But now that Col. Morshead has been suddenly cut down in all the vigour and activity of middle age, the thoughts of his brother officers turn not to his successes, great as they were. The sorrow which they feel for his widow and children, to whom he was so devotedly attached, fills their minds, and leads them even to forget for the moment the services he rendered to geography. S. B.

MR. HERBERT TOMLINSON, F.R.S.

THE death on June 12 of Mr. Herbert Tomlinson will bring to the minds of many of our older physicists the kind of work that engaged the attention of the research workers of the late Victorian days. Mr. Tomlinson was born in 1845 and went to St. Peter's School, York, from which he gained a scholarship at Christ Church, Oxford, where he studied mathematics and physics, receiving the B.A. degree in 1868. This appears to have completed his connexion with Oxford, for he never took his M.A. degree.

Shortly after graduating, Mr. Tomlinson went as a demonstrator and lecturer under the late Prof. Grylls Adams at King's College, London. His work enabled him to devote much time to research, which he followed most assiduously until about 1890. The subjects that specially attracted him were the various properties of matter, and a reference to the *Proceedings of the Royal Society* shows that in 1886, for example, he investigated the viscosity of air, the internal friction of metals and the effects of temperature and magnetism on this friction, and the velocities of sound in wires. Such subjects formed the matter of many extensive papers in the Royal Society's *Transactions*, and for this work he was elected a fellow on June 6, 1889. Among the others elected at the same meeting were: John Aitken, Horace T. Brown, Latimer Clark, Prof. McKenny Hughes, and Prof. Sollas.

In 1894, Mr. Tomlinson gave up the work at King's College for the post of principal of the newly built South-Western Polytechnic at Chelsea, and this work in technical education absorbed his activity until 1904. Among the many classes that he instituted was a Saturday morning class for