of Good Hope as assistant to Mr. J. A. Kendrew, Assoc. Inst. C.E., the agent for Mr. W. F. Faviell, who had undertaken to construct the Cape Government Railways. He was at first employed on the Midland line from Port Elizabeth to Graaf Reinet, and on its completion in 1879, took charge of the North-Eastern line, terminating at Cradock. He had just completed the works in this district, and was preparing to return home, when inflammation of the spinal membrane, probably induced by the sudden changes of temperature prevalent in that place at certain times of the year, prostrated him, and he died on the 9th of August, 1881, after three days of great suffering.

Mr. Henderson had excellent ability and good general professional knowledge. He was an unusually energetic, hard-working man, and in every respect a thoroughly satisfactory agent. He was much esteemed at Cradock, and a large concourse of the inhabitants assembled at his grave in the English churchyard at that place. He was elected an Associate Member of the Institution on the 16th of January, 1877.

Colonel JOHN THOMAS SMITH, R.E., F.R.S., who died on the 14th of May, 1882, was one of the oldest Associates of the Institution, having been elected on the 23rd of February, 1836. He was the second son of Mr. George Smith, of Edwalton, Notts, and afterwards of Foëlallt, Cardiganshire, and was born in or about the year 1805. After receiving his early education at Repton, he proceeded to Addiscombe, where, passing out first in mathematics, he obtained a commission in the Engineers, and in 1825 left for India. Having been appointed Executive Engineer in the north of the Madras Presidency, he took up the question of limes and cements, and translated Vicat's standard treatise on the subject. Being a good practical chemist, he was able to enrich that valuable work by many original investigations of his own, added in the form of notes. Soon after this he was called upon to arrange a system of lights for the South Indian coast, and in 1838 the present lighthouse at Madras was erected from his designs, and furnished with a "reciprocating light," invented by him to suit the peculiar locality.

Upon Colonel Smith's return to England in 1837, his labours in the field of practical engineering science were recognised by his election as a Fellow of the Royal Society. He had previously been elected President of the Philosophical Society of Edinburgh.

He soon went back to India, and, at the request of the Government, set to work to reorganise the Madras Mint, introducing steam-machinery and establishing such a system that he abolished the usual allowance for "waste" of the precious metals—a result of considerable importance to the Government. At this time he devised many ingenious mechanical arrangements, among them an automatic weighing and assorting machine for blanks of coins, based upon the principle of the hydrostatic balance, which has been described, by Sir Arthur Cotton, as "one of the most beautiful specimens of mechanical ingenuity that ever was invented."[1] During his stay in Madras Colonel Smith originated, and for some years edited, the Professional Papers of the Madras Engineers, and himself contributed a large number of Papers upon various engineering subjects.

After being several years in charge of the Madras Mint, he was appointed to a similar duty at Calcutta; but he soon retired from the service, receiving the thanks of the Government of India for his "scientific skill and exertions."

Upon returning to England, Colonel Smith was for a time consulting engineer to some Indian irrigation companies; then he became a director, and eventually chairman, of the Madras Railway Company—a position which he held during the remainder of his life. He was also actively at work in other ways. The Government employed him to advise as to mint machinery and other subjects, and to investigate questions connected with the Madras Military Fund. In conjunction with Professor Graham, F.R.S., he reported upon mintage, and he attended as the British representative at the Monetary Conference held in Paris in 1865; besides which, he was an earnest and active member of the Committee of the Church Missionary Society.

For many years Colonel Smith had been occupied in considering the great questions connected with the depreciation of silver in India and the Indian exchanges—bi-metallism, &c. His long study of questions of Political Economy, and his clear and powerful mind, well qualified him to undertake the investigation of intricate problems of this nature. Foreseeing a great loss to the Indian exchequer by the depreciation in the value of silver, and feeling sure that he could devise a scheme to prevent that loss—which, up to the present time, has amounted to several millions sterling—he published his views in 1876, and strongly urged them—answering all objectors in subsequent publications. Political economists

[1] The Royal Engineers' Journal, July 1st, 1882.

of the highest order expressed to him their approval of the course of action he proposed. Though the question has been forced aside by more pressing matters, it may be that some day his views may be carried out, effecting a saving of many millions, and conferring an enormous benefit upon the country in whose interest alone he so earnestly laboured.

Colonel Smith was elected an Associate of Council of the Institution of Civil Engineers, and served in the year 1877. He was a member of the (Danish) Society of Northern Antiquaries, and of various other societies. He was besides the author of several scientific works and papers.

During a long and active life Colonel Smith's characteristic was a rigid adherence to a high standard of duty, and thoroughness in carrying out all that he undertook. In private life his clear and vigorous mind, and his deep sympathy with all who were in need or trouble, caused him to be widely sought as a friend and counsellor. He was a truly humble Christian man, respected by all who knew him, and beloved by a large family and circle of brother officers and friends.

MAJOR WILLIAM SWAINSON SUART, R.E., second son of the late Mr. Edward Suart, of Lancaster, was born near Liverpool on the 30th of July, 1814. In 1832 he entered the Military College of the East Indian Company at Addiscombe, and passed out at the end of the following year as Senior Cadet. In the final examination he took, with one exception, all the prizes, including the sword for good conduct. After leaving the Military College he passed a year at Chatham in the School of Military Engineering. On proceeding to India in 1836 he became Assistant to the Civil Engineer and Architect in charge of all the Government public buildings in the Fort Town and Island of Bombay, and was also engaged on reclamation works in North Concan. Two years later he selected and surveyed the western half of the road to Nagpore, and the postal route from Bombay to Calcutta. From 1839 to 1843 Lieut. Suart was Engineer to the municipality of Bombay, during which time he had charge of the roads, drains, buildings, and of the town and island, and designed and erected new sluices for the drainage of that part below high-water mark. He also laid out new streets and roads, with the necessary bridges. Besides his municipal duties, he acted as Engineer to a company of merchants in reclaiming land from the sea at Colaba, making