

the rolling stock as electric couplings. (3) Block instruments and electric starting semaphore signals.

Mr. Winter contributed several Papers, containing the results of many of his experiments and investigations, to the *Philosophical Magazine*, the Institution of Electrical Engineers, the British Association, and various scientific journals.

Mr. Winter was for many years an examiner and Fellow of the University of Madras, and took much interest in technical education. With his brother officers and friends he was a great favourite, his good nature, kindness and hospitality being proverbial; he was also much liked by his staff and workmen, by whom he was presented with an address and a gold watch, as a token of their esteem and regard. He was a Fellow of the Royal Astronomical Society and a Member of the Institution of Electrical Engineers.

Mr. Winter was selected by the Government Astronomer of Madras to take part with Mr. W. N. Pogson in the eclipse expedition to Masulipatam in August, 1868, and in that to Avanashi in December, 1871. On the first occasion he observed the general phenomena of the eclipse, made an outline drawing of the corona, and a series of very valuable polariscope observations. At the 1871 eclipse he again made polariscopic observations, which fully confirmed his former results. Among other works carried out by him may be mentioned the apparatus for firing the Madras time-gun at Fort St. George, and for liberating a time- semaphore in lieu of a time-ball.

Mr. Winter was elected a Member on the 7th December, 1886.

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ARTHUR WILLIAM BISHOP, eldest son of Mr. M. Holman Bishop, of Undercliffe, Lewes, was born in Westminster on the 16th March, 1868. He was educated first at Eastbourne and subsequently at King's College, London, where, in his first year, he obtained mathematical and workshop prizes in the Applied Sciences Department. In 1886 he became a pupil of Mr. (now Sir) John Wolfe Barry, Past-President, and Mr. H. M. Brunel, and was for four years engaged on their staff in the construction of the Barry Dock and Railways. In February, 1890, he was appointed by Sir Charles Hutton Gregory, Past-President, an Assistant Engineer on the Cape Government Railways. His first employment in that capacity was on the completion of the line between Cape Town and Simon's Bay, after which he had charge of the construction of

a bridge of five spans of 100 feet each on the Bloemfontein-Vaal River Extension. After a short visit to England in 1893 he was engaged on the Government Survey of currents in Table Bay for twelve months, and subsequently had charge, under Mr. Thomas Stewart, of the construction of the Table Mountain Reservoir, the finest work of its kind in South Africa.

On the completion of that undertaking Mr. Bishop was appointed, in July, 1897, Resident Engineer of the Bloemfontein Waterworks, the duties of which post he discharged with great ability and zeal. His career was, however, prematurely cut short by an attack of typhoid fever, which ended fatally on the 6th June, 1898. Mr. Bishop's professional standard was high, and the thorough and painstaking manner in which he carried out all work entrusted to him gained for him general respect and esteem. He was elected an Associate Member on the 6th March, 1894.

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HERBERT CHARLES GOSTLING, born on the 11th January, 1868, commenced his engineering career in 1884 as a pupil of Mr. T. R. Salmond, the Engineer to the Belfast Harbour Commissioners. In December, 1887, he went out to Argentina, where he was engaged on the staff of Messrs. J. G. Meiggs & Son, the contractors, on the Bahia Blanca and North-Western Railway, and the drainage of Rosario de Santa Fé. From January, 1891, to June, 1892, he was in charge of the construction of a section of the Central Argentine Railway extension to Capilla, and in January, 1893, he entered the service of the Cordoba and Rosario Railway Company. At the time of his death, which took place on the 5th January, 1898, he was in charge of port works at Villa Constitucion of the Great Southern of Santa Fé and Cordoba Railway.

Mr. Gostling was elected an Associate Member on the 5th December, 1893.

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SIDNEY THOMAS BRIDGFORD, Major Royal Marine Artillery, retired, died at St. Helier, Jersey, on the 30th December, 1897, in the sixty-second year of his age. He was the son of Mr. Thomas Trussel Bridgford, and was born in Dublin on the 17th February, 1836. He entered the Royal Marine Artillery in 1855 as Second Lieutenant, was gazetted Lieutenant in 1859, and promoted to the rank of Captain in 1867 and to that of Major in 1879. He designed and superintended the erection of the theatre attached