

WILLIAM SHACKLETON was born in 1871 at Keighley, and was educated at the Keighley Trade and Grammar School and the Royal College of Science, South Kensington, where he obtained his Associate-ship in 1891. He then became an assistant to Sir Norman Lockyer at the Solar Physics Observatory at South Kensington, his practical skill and enthusiasm as an observer during the next ten years contributing largely towards the successful pioneer work of the observatory.

During this period he took part in two eclipse expeditions organised by Lockyer, the first in Brazil with Mr. A. Taylor in 1893, and the second in Novaya Zembla in 1896 with Dr. E. J. Stone. Successful photographs of chromospheric spectra were obtained on both occasions, and at Novaya Zembla the series included some excellent photographs of the corona and, for the first time, a photograph of the complete "flash" spectrum, with perfect definition. This fine result was only made possible by Mr. Shackleton's skill and resource under great difficulties. The grounding of Sir George Baden Powell's yacht *Otaria*, which had conveyed the observers to the eclipse station, and bad weather conditions during the period before the eclipse, were not encouraging; but by taking advantage of every interval of clear sky, Mr. Shackleton completed his preparations in time to achieve a well-earned success.

During his stay in Brazil in 1893 he contracted malaria, recurrence of which affected his general health considerably for some years. In 1900 he was selected as physicist to go with Scott on his first Antarctic expedition, but after organising the instrumental equipment necessary for the observations contemplated, he was finally left behind on medical disqualification.

For some years he assisted Dr. A. A. Common in his observatory work, and in work connected with the design and manufacture of gunsights and range-finders.

After Dr. Common's death in 1903, Mr. Shackleton was again in the Royal College of Science, acting for a short time as assistant in the Physics Department. Illness prevented his going to Spain in 1905 to observe the solar eclipse, for which he had designed a combined coronagraph and prismatic camera of 40 feet focal length, which was constructed and taken with the expedition. On this occasion, however, no observations were possible owing to bad weather conditions.

Later in this year he was appointed Inspector of Scientific Supplies at the India Stores Depôt, which post he retained during the remainder of his life. He gave himself whole-heartedly to the work of this Department, for which he was so well equipped by his extensive and expert practical knowledge of the design, construction, and performance of scientific instruments generally.

Various modifications and improvements in design and manufacture were due to suggestions made by him, and he introduced several improved methods of testing optical instruments. His careful work in supervision of details of design of the instruments required in India, and in testing them to ensure that all instruments sent out were satisfactory in performance for the particular purpose required, was much appreciated by scientific workers in that country.

In 1913 Mr. Shackleton became an active member of the Optical

Society, of which he was secretary from 1916 to 1920, when he was elected a vice-president. During these years the growth of the Society, both as regards membership and scope, was due in no small measure to his persistent efforts to bring men of science and makers of optical instruments into close association with each other. In his earlier years he was a keen athlete, but though his health in late years had not been satisfactory, his spirit of enthusiasm for his work remained undaunted, and the end, which came on 1921 June 26, was unexpected. He leaves a widow and one daughter.

He was elected a Fellow of the Society on 1893 December 8.

D. B.

The Rev. JOHN SPENCE was born in Shetland, Scotland, some sixty years ago. He began life as a fisher lad, later on going to sea, and sailing further north—to Greenland—in the whale-fishing industry.

Mr. Spence subsequently left the sea and by dint of hard work became seamen's missionary at Fowey, Cornwall, afterwards entering the ministry and holding charges in Arbroath, Lerwick, Edinburgh, and London, at the time of his death being minister of St. Modan's Church, Falkirk, Scotland.

Navigation introduced Mr. Spence to the study of astronomy, which held its fascination over him throughout his life. He made a feature of simple astronomical lectures illustrated with lantern slides, and these lectures he was always delighted to give in aid of any charity brought to his notice. Mr. Spence also wrote on the subject, the best known of his works being probably *Christ in Astronomy*.

He had the gift of oratory in no small degree. His personality was magnetic and very kindly, and his sudden death on 1921 February 13 from angina pectoris—a few months after the death of his beloved wife—came as a shock to his many friends and admirers, who not only felt that they themselves had indeed lost a friend, but that the world was the poorer for the loss of one whose influence was always for good, and all that was best and uplifting.

He was elected a Fellow of the Society on 1897 April 9.

In EDMUND JOHNSON SPITTA, M.R.C.S., L.R.C.P.Lond., the Society loses a Fellow devoted to its service, who was on the Council almost continuously from 1889 to 1908, was a Vice-President 1903–5, and was a constant attendant at the meetings until the war made the journey from Hove impracticable. For not only was Hove put into complete darkness at night, but Dr. Spitta undertook the charge of a first-aid station in case of air raids. There can be little doubt that the severity of the consequent exposure (for whenever there was an alarm he promptly took his place, at any hour of the night, in the chilly and sometimes icy room) shortened his life. He had first one severe illness and then another, and though he seemed to recover something of his old cheeriness at times, he collapsed rather suddenly and died on 1921 January 21. Within the year one of his two daughters and then his grief-stricken wife followed him, death thus dealing a triple blow at a united and happy family. His only son and one daughter survive.