xxv. of the *Memoirs*. As he had not a clockwork movement and his instrument was not a powerful one, he confined himself wholly to the observation of position-angles. From 1853–61 he made observations of the nebula round $\eta$ *Argûs*, and of the variation in the brightness of $\eta$ *Argûs* itself. Observations of double stars made by him at Madras in the years 1859–62 are given in vol. xxxii. of the *Memoirs*, and his observations of later date are to be found in *Monthly Notices* for November 1883. He also contributed several computations of the orbit of $\alpha$ *Centauri*, the first being in 1854 and the last in 1892.

Mr. Powell died at his residence at Streatham on the 10th of November 1904 at the age of 85 years.

Dr. Walter John Bruce Richards was a distinguished priest of the Roman Catholic Church and an intimate friend of Cardinal Manning and Cardinal Vaughan. Born in 1835, he was ordained priest in 1859, and was in 1870 appointed by Cardinal Manning Diocesan Inspector of Schools. The main work of his life was educational, and his duties brought him into frequent contact with educationalists outside his own communion. He was chosen to serve on a Royal Commission on Poor Laws and Industrial Schools.

Dr. Richards's interest in astronomy was especially in the field of selenography. He was one of the original members of the Selenographical Society and a contributor to its *Journal*, which was issued from 1878 to 1882. The *Journal* was discontinued, and the Society practically came to an end when Mr. Neison (Nevill) left England for Natal. Dr. Richards also contributed monthly articles on lunar work to the *Astronomical Register* from 1881 to 1883, containing notes on lunar formations and suggestions for observation.

He was elected a Fellow of the Royal Astronomical Society on the 11th of February 1876. He died in September 1904.

Isaac Roberts was born at Groes, near Denbigh, North Wales, on the 27th of January 1829; before his childhood was over, however, the family removed to Liverpool, and in that city the greater part of his long life was spent. His parents were not well to do, his father being a farmer, and later a bookkeeper; and after receiving an elementary education he was set to work in the building trade: in this he prospered greatly, becoming ultimately a partner in a large firm of contractors, with ample means for the prosecution of his scientific researches.

His taste for these was shown in early days when as a builder's apprentice he attended evening courses on scientific subjects; but he had entered his fiftieth year before his first astronomical telescope was mounted. This was a 7-inch refractor, and was followed by a reflector of 20 inches aperture and 98 inches focal length for photographic purposes: the two telescopes were mounted on the same declination axis and were moved

together in R.A. by the same clock, but had independent movements in declination. With this arrangement the whole of Dr. Roberts's work in celestial photography was done, first at Maghull, near Liverpool, and since 1890 at Crowborough, in Sussex. He spent much labour in devising an instrument for copying the images of stars from the photographic film and engraving them on a copper plate : an account of this instrument, which was called a pantograver, will be found in *Monthly Notices*, vol. xlix.

Dr. Roberts's first programme of astronomical research was the formation of a photographic chart of the northern heavens. This work was actually commenced, but was abandoned when the scheme for an international astrographic chart was approved. After this he applied himself to the photography of star clusters and nebulæ, achieving a most remarkable success and adding greatly to our knowledge of these objects. In 1893 he issued a volume of reproductions of photographs of stars and nebulæ, and this was followed by a second collection six years later.

He became a Fellow of the Royal Astronomical Society in 1882 and of the Royal Society in 1890. In 1892 the degree of D.Sc. was conferred on him by Dublin University, and in 1895 he received the gold medal of the Royal Astronomical Society for his photographs of star-clusters and nebulæ.

The President, in presenting the medal, said :

" Turning to the absolute work that the Medallist has carried out, it should be stated that he commenced photographing the stars with various photographic lenses in 1883. The paper in which he recounted what he had done is found in *Monthly Notices* of January 1886. Each year since then he has contributed to the *Monthly Notices* papers on the subject of the research which he undertook, interspersed with others bearing upon stellar photography. In December 1886 he produced a photograph of the nebula in *Orion* with his 20-inch reflector, with an exposure of 15 minutes ; and almost exactly two years after he produced a photograph of the same object with an exposure of 81 minutes, and introduced us to nebulosities in the surrounding parts which were unsuspected before. Other photographs of the same object, with more prolonged exposure, can be also remembered. A little afterwards he produced his recently published photograph of the great nebula in *Andromeda*, giving an exposure of four hours to the plate. In this prolonged exposure we have an example of a triumph of patience and of instrumental perfection."

The end came with tragic suddenness. On Sunday, 17th of July 1904, after a walk in his garden, he complained of a compression in the chest, and passed away in less than an hour.

Dr. Roberts was twice married : his second wife, *née* Miss Dorothea Klumpke, who survives him, is herself an able worker in the field of astronomical research.

Although he did not take a prominent public part in politics, he was a zealous Liberal and greatly interested in education,

being a vigorous opponent of the recent Education Acts. Under the terms of his will large bequests are made to Liverpool University and the University Colleges of North and South Wales.

MAURICE ALLEN SMELT was born in 1821. He went to Gonville and Caius College, Cambridge, and took his degree in 1842. He was ordained deacon in 1843, and after holding curacies in Kent and Hampshire was appointed Rector of Medstead, Hants, from 1863–67. He retired to Cheltenham, and gave ready assistance to religious and philanthropic societies. In particular he was for twenty years honorary secretary to the Cheltenham and Gloucester Society for the Care of the Blind. He took an interest in several branches of science, especially astronomy and meteorology. He became a Fellow of the Royal Astronomical Society on the 8th of March 1861.

Mr. Smelt died on the 6th of December 1904 at the age of 84 years.

CAPTAIN JOHN STEELE was born in 1819. He went to sea in 1834, and served a somewhat rough apprenticeship in the merchant service. He remained at sea for thirty-eight years, during thirty-three of which he was in command, most of the time in sailing ships. He was employed in transport service at Balaclava during the Crimean war, and after that time made frequent journeys to China and Japan. In 1872 he was appointed Nautical Assessor to the Board of Trade, and in 1878 Examiner in Seamanship and Secretary to the Local Marine Board, a post he held till 1897. He was one of the founders of H.M.S. *Worcester* Nautical School, and was a member of its committee till his death. Captain Steele throughout his whole life used his influence consistently towards improving the condition and tone of the merchant service. Captain Steele was a Fellow of the Royal Meteorological Society and for twenty-eight years kept records at sea for that Society. He became a Fellow of the Royal Astronomical Society on the 13th of February 1880. He frequently attended and occasionally spoke at the meetings, but did not contribute to the publications of the Society.

Captain Steele married twice. He died on the 19th of April 1904, and leaves a widow and a daughter.

SIR HENRY THOMPSON was born at Framlingham, in Suffolk, on the 6th of August 1820. In accordance with his father's wishes, though contrary to his own, he was engaged till he was twenty-seven years old in commercial pursuits. In the year 1848 he entered University College Hospital, where his surgical skill and deep interest in his profession were immediately conspicuous. In 1853 he was appointed Assistant-Surgeon to the hospital, and in 1866 Professor of Clinical Surgery. His reputation as a skilful surgeon was so great that in 1863 he was consulted by