

success of the three-colour process, and of other methods of photographic reproduction, is due to his thought and experiments.

The paper before mentioned, "On Transmission of Sunlight through the Atmosphere," was the result of observations made in London, and at a height of 8000 feet on the Riffel in Switzerland, which must have been a pleasing occupation, for Abney was a keen mountaineer and frequent visitor to the Swiss mountains. A book of which he is the author, with C. D. Cunningham, *Pioneers of the Alps*, was published in 1888.

As to other personal facts, William de Wiveleslie Abney was the eldest son of Canon Abney, vicar of St. Alkmund's, Derby, and of Measham Hall, Leicestershire, and was born at Derby on 1843 July 24. He was educated at Rossall, and was gazetted Second Lieutenant R.E. in 1864. Besides the Presidency of our Society, already mentioned, he was President of the Physical Society from 1895 to 1897, and chairman of the Royal Society of Arts in 1904. He served on the Council of the Royal Society in the years 1883-85 and 1891-93, and received the Rumford Medal in 1882, a distinction which is awarded particularly to the author of a discovery on heat or light. Abney was a member of the Solar Physics Committee from its beginning in 1879, and was President of Section A at the British Association in 1889. In 1897 he was chosen to be a member of the Board of Visitors of the Royal Observatory, Greenwich, as representative of the Royal Astronomical Society, and evidently felt himself called on to exercise his special knowledge at the annual visitation. The writer of this note well remembers a short impromptu lecture on developers given on one occasion by Sir William Abney to a knot of the junior staff who chanced to be gathered near him. He was created K.C.B. in the year 1900. Sir William Abney died at Folkestone on 1920 December 2, leaving a widow, a daughter by this, his second marriage, and a son and two daughters by his first wife. An obituary note bearing testimony to his genial temperament and delightful companionship, by a sympathetic friend and comrade, Mr. A. E. H. Tutton, will be found in *Nature* for December 9.

As already stated, he was elected a Fellow of the Society on 1870 April 8.

H. P. H.

THOMAS WILLIAM BACKHOUSE was the eldest son of Thomas James Backhouse of Sunderland, where he was born on 1842 August 14. He was educated at the Grange School, Sunderland, the Friends' Boarding School, Bootham, York, and at University College, London.

For a short period he was at Backhouse's Bank, Sunderland, but except for attendance at colliery meetings in the capacity of a Director, he was not subsequently engaged in business.

For the greater part of his life he was resident at West Hendon House, Sunderland, where he had an observatory erected furnished with a  $4\frac{1}{4}$ -inch Cooke equatorial refractor.

His interest in astronomy, natural history, meteorology, etc., began in his school days at York, where he started a diary which he called "A Journal of Natural History." As his astronomical studies deepened, however, he entered his records of observations of celestial phenomena in a separate "Astronomical Journal" which, begun in 1858, finally extended to 36 volumes.

His astronomical work covered a wide range, and the results of his studies are published in numerous papers in the *Monthly Notices*, the *Publications of the West Hendon House Observatory*, and elsewhere. They include such varied subjects as auroræ, the zodiacal light, the green flash, observations of variable stars, new stars, eclipses, comets, meteors, and the structure of the universe. His earliest paper communicated to the Society was "On the Aspect of the Zodiacal Light opposite the Sun," which describes the phenomenon known as the Gegenschein, to which he was one of the first to draw attention (*M.N.*, 36, 46).

In 1911 he published a *Catalogue of 9842 Stars visible to the Naked Eye*, in which he collected the magnitude determinations from various authorities, assigned adopted values, and gave the positions for 1900. This was intended as a preliminary to a new series of 14 large maps of the naked-eye stars on the gnomonic projection for the use of meteoric observers. The catalogue was presented to the leading observatories and astronomers of the world. The maps were not quite completed when he died, but provision was made for them to be printed and circulated in a similar manner.

On four occasions he went abroad to observe a total eclipse of the sun, viz. once to India and three times to the Spanish Peninsula. He was favoured with fine weather every time. He also intended to go to Norway in 1914, but, the war breaking out the day before he was to start, he was unable to do so.

Backhouse was a very close observer of the weather, and his records for Sunderland were fairly complete from 1857 to the time of his death. In 1918 and 1919 he served as Vice-President of the Royal Meteorological Society.

He was extremely fond of children, and he was keenly interested in educational matters. For a considerable time he was a member of the Sunderland School Board, and he made a point of visiting every school at least once in the year.

He passed away at his home in Sunderland after a brief illness on 1920 March 13, and his remains were interred in the Friends' Burial Ground in the Bishop Wearmouth Cemetery.

He was elected a Fellow of the Society on 1873 April 9.

ERIC DOOLITTLE was born at Ontario, Indiana, on 1869 July 26. He was the son of Charles Leander Doolittle, Professor of Astronomy and Mathematics at Lehigh University from 1885 to 1895, and later Professor of Astronomy at the University of Pennsylvania and first Director of the Flower Observatory. He received his education in the Schools at Bethlehem, Pa., and at