



WILLIAM ELLIS.

WILLIAM ELLIS, F. R. S., F. R. A. S.

Mr. William Ellis was born at Greenwich on February 20, 1828. At the early age of thirteen he entered the Royal Observatory, Greenwich, as a computer. In 1852 he was appointed astronomical observer at Durham University Observatory. Returning in 1853, to join the astronomical staff at Greenwich, he was, in 1856, put in charge of the Chronometric and Galvanic Department, holding this position until the end of 1874. This included the care of the Royal Navy chronometers, the supervision of the recently established system of transmitting hourly time-signals to a central London telegraph office for distribution throughout the country, and the oversight of the Greenwich arrangements on occasions of telegraphic determinations of longitude.

In 1875 he was placed in charge of the Magnetical and Meteorological Department, which he retained until retired from public service at the end of 1893. His attention was early drawn to the debated question of the relation of magnetic variation to sun-spots, his daily examination of the photographic magnetic records, during the years immediately following 1874, revealing a condition of magnetic quiet in striking contrast to the more active state existing in the years immediately preceding—a change in correspondence with the then diminishing frequency of sun-spots. This induced him to collect and employ the Greenwich values of diurnal range (declination and horizontal force) from 1841 to 1877 in an independent investigation, when the general relation between magnetic and sun-spot change became evident, thus confirming, from a long series of magnetic records, the results that others had previously found. Some years afterwards, in another paper, the comparison was extended to 1896, including thus fifty-six years, and, in later papers, the investigations were extended in other directions.

Mr. Ellis is a Fellow of the Royal Astronomical and Meteorological Societies (was at one time President of the latter), and a member of the Institution of Electrical Engineers, and, more recently, was elected a Fellow of the Royal Society, to each of which he has contributed papers; one to the Meteorological Society in 1886, on the barometer, contains a brief description of nearly two hundred different varieties of the instrument. The papers dealing with magnetism are as follows:

1. Account of some experiments showing the change of rate produced in a clock by a particular case of magnetic action. *Phil. Mag.*, for May, 1863.
2. Note on Earth currents. *Journal Inst. Elect. Eng.*, for May, 1879.
3. On the relation between the diurnal range of magnetic declination and horizontal force as observed at the Royal Observatory, Greenwich, during the years 1841 to 1877, and the period of solar-spot frequency. *Phil. Trans.*, for 1880.
4. On the diurnal variations of magnetic elements as depending on the method of tabulation. *Phil. Mag.*, for January, 1891.
5. Earth currents, and the electric railway. *Nature*, for June, 1891.
6. On the simultaneity of magnetic variations at different places on occasions of magnetic disturbance, and on the relation between magnetic and earth current phenomena. *Proc. Roy. Soc.*, Vol. 52.
7. On the relation between the diurnal range of magnetic declination and horizontal force, and the period of solar-spot frequency (second paper). *Proc. Roy. Soc.*, Vol. 63.
8. Magnetic results at Greenwich and Kew discussed and compared, 1889 to 1896. *Brit. Ass. Report*, 1898.
9. On the relation between magnetic disturbance, and the period of solar-spot frequency. *Monthly Not. Roy. Ast. Soc.*, for December, 1899.