Historic Natural Events.

Feb. 16–19, 1898. Dust Haze.—A dense haze occurred over a large part of the eastern Atlantic off West Africa, extending for at least 1500 miles north and south and a great but unknown distance east and west. The haze was caused by very fine red dust, so fine that it was impossible to sweep it up, and so dense that the sun and stars were completely obscured for two days. When visible the sun was generally red, but one observer described it as "a perfect blue ball" and another as greenish. At Teneriffe the occurrence was preceded by a strong and very hot southerly wind, but during the haze there was no wind. Many insects were observed, of species not generally found on the island. The dust evidently originated in Africa, for it was much coarser near the coast, and was thrown overboard from ships in large quantities.

Feb. 18, 1770. Damage by Lightning.—During morning service St. Keverne's Parish Church, Cornwall, was struck by lightning. The vicarage seat was torn to pieces and a large piece of oak was thrown 20 feet. The vicar's sister was knocked down senseless, the wooden part of one of her pattens was broken and it and her shoe were burnt, as well as parts of her clothes and body. The spire was rent, and stones from it were thrown on the tops of many houses; one that fell through a roof was found to weigh 14 lb. Some smaller stones were found at a distance of a quarter of a mile.

Feb. 20, 1661. The 'Dantzig Phenomenon'.—A remarkable and extremely beautiful halo complex was seen at Dantzig between 10.30 and 11.51 A.M. In addition to the usual halos of 22° and 46°, the circumzenithal ring and various arcs of contact, there were no fewer than seven mock suns, some white, some of various colours, arranged with perfect symmetry. This is probably the most complete optical display on record.

Feb. 20, 1835. Great Earthquake.—Concepcion, Talcahuano, and other Chilean towns were ruined by an earthquake felt over an area of more than 400,000 square miles. Sea-waves, 28 feet and more in height, swept over the coast and even caused damage at Juan Fernandez, 420 miles from Chile. The coast of Chile was raised by 4 or 5 feet, though it afterwards subsided by half that amount. The volcanoes of the Chilean Andes, a range 150 miles in length, were unusually active before, during, and after the earthquake.

Feb. 21, 1861. Great Storm in Southern England.—This storm was noteworthy for the destruction of a wing of the Crystal Palace and of the cathedral tower at Chichester, which fell in spite of desperate efforts to shore it up.

Feb. 21, 1922. Glazed Frost.—During the night of Feb. 21, in the region of the Great Lakes, a light rain fell at a temperature below freezing point. A coating of ice formed on everything out of doors, and as the rain continued falling, the ice grew thicker. Trees were so heavily coated that they began to give way and the air was full of rifle-like reports as the huge limbs snapped off. Sidewalks in streets were piled high, and as the rain continued whole streets became blocked as the trees were split from top to base and fell. Trains ceased to run, and telegraph and telephone wires were snapped by the weight of ice. Newspaper presses stopped, and only the radio enabled people to keep in touch as they could not venture into the streets. Recovery was slow. The train service resumed after several days, but it was months before all the telegraph equipment was replaced.

Feb. 21–23, 1903. Red Rain.—Dust or 'red rain' fell over an area of 20,000 square miles in the southern half of England and Wales as well as in many countries on the Continent. It is estimated that in England and Wales alone the total quantity of dust was not less than 10 million tons. It was traced back to the Sahara, south of Morocco, where it was raised by a strong north-east wind; it travelled on the western side of an anticyclone over south-west Europe for a distance of at least 2000 miles in a wide sweep around Spain and Portugal, probably across the Azores. In Europe the fall was associated with oppressive heat, and visibility was limited to short distances.

Feb. 22, 1909. Meteor Trail.—A very fine meteor passed the length of the English Channel at 7.34 P.M. from a point 45 miles south-south-west of Beachy Head to 87 miles south-south-east of Start Point. This distance of 150 miles was traversed in less than six seconds, giving a velocity of at least 25 miles per second relative to the earth, at a height of about 50 miles. The meteor left an unusually well developed 'streak', which was visible for nearly two hours. It brightened appreciably in the first half-minute, and the main part drifted gradually north-westward while the ends remained almost stationary. The long-continued brightness of the streak was attributed to some unknown form of electrical action, possibly similar to the aurora, rather than to incandescent matter.

Societies and Academies.

LONDON.

Royal Society, Feb. 6.—A. H. Davis and E. J. Evans: Measurement of absorbing power of materials by the stationary wave method. The paper describes an apparatus set up for determining the acoustical absorption coefficient of small samples of material for sound, incident perpendicularly, and discusses the theory of the method and of its corrections. Stationary wave coefficients for certain practical materials are compared with coefficients obtained by a 'reverberation' method, in which random incidence of sound is employed.—J. W. Fisher and H. T. Flint: The equations of the quantum theory. These equations are obtained by analogy with Maxwell's equations applied to empty space. They are expressed by means of a five-dimensional system of co-ordinates with the adoption of a metric after the manner of Weyl and Eddington in four-dimensions. The quantum problem is shown to be a radiation problem in five-dimensions, and the equations proposed are invariant.—J. Hargreaves: The effect of nuclear spin on the optical spectra (2). The paper contains a general method for dealing with the effect of a nuclear spin of possibly more than half a quantum, by the use of multiple wave functions, and is applied in detail to the cases of a nuclear spin of 1, $1\frac{1}{2}$, and $4\frac{1}{2}$ quanta respectively. The interaction energy of the nucleus and electron spins is neglected, without effect on the kinematical problem of determining the multiplet intensities.—E. Rudberg: Characteristic energy losses of electrons scattered from incandescent solids: The velocity distribution of an initially homogeneous beam of electrons, after scattering from a solid target kept at incandescence, has been studied by means of a magnetic deflection apparatus. The curves show a sharp peak due to reflected electrons and several small maxima for slightly lower values of the energy. These maxima are characteristic of the substance forming the target, their positions with respect to the reflected peak remain constant for a wide range of bombarding voltages, and when target and electron gun are rotated, are also independent of angle of scattering. These maxima are associated with