

Calendar of Scientific Pioneers.

August 11, 1857. Marshall Hall died.—A distinguished physiologist, Hall while practising in London as a doctor studied the circulation of the blood, and in 1832 made his important discovery of reflex action.

August 12, 1865. Sir William Jackson Hooker died.—Few men have done more to advance the study of botany than Hooker, who from 1820 to 1841 held the chair of botany at Glasgow, and from 1841 to 1865 was director of the Royal Gardens at Kew. His herbarium—an exceptionally rich one—was bought by the nation.

August 12, 1896. Hubert Anson Newton died.—Made famous by his study of meteors and his prediction of the memorable display of November 13, 1866, Newton from 1855 until his death held the chair of mathematics at Yale, and for a time he directed Yale Observatory.

August 13, 1907. Hermann Karl Vogel died.—One of the pioneers in the application of Doppler's principle to stellar spectroscopy, Vogel worked with Zöllner and Spörer, and from 1882 was director of the Astrophysical Observatory at Potsdam. In 1883 he published his first spectroscopic star catalogue.

August 15, 1758. Pierre Bouguer died.—A Royal professor of hydrography, Bouguer studied naval architecture, and to him we owe the term "metacentre." He accompanied Godin and La Condamine on the great meridian expedition to South America (1735-45), and is also known as the inventor of a heliometer.

August 15, 1852. Johann Gadolin died.—An early exponent of Lavoisier's views, Gadolin was one of the most distinguished scientific men of Finland. He was the first to introduce the term "specific heat."

August 15, 1856. William Buckland died.—The first reader in geology at Oxford, Buckland made many pioneering geological excursions, wrote one of the Bridgewater treatises, and in 1822 received the Copley medal for his discoveries in a cave at Kirkdale. He was for some years Dean of Westminster.

August 16, 1705. James Bernoulli died.—From 1687 until his death James or Jacob Bernoulli held the chair of mathematics at Bas'le. His lectures of 1691 contain the first published attempt to construct an integral calculus.

August 16, 1899. Robert Wilhelm Bunsen died.—Holding the chair of chemistry at Heidelberg for thirty-seven years, Bunsen, like Liebig and Hofmann, was a great investigator and an inspiring master. His important work included the study of gasometric analysis and the chemical action of light, the invention of the Bunsen battery, the Bunsen burner, a photometer, and an ice calorimeter, and with Kirchhoff in 1859 he began his epoch-making researches in spectrum analysis.

August 16, 1920. Sir Joseph Norman Lockyer died.—Originally a clerk in the War Office, Norman Lockyer became famous for his pioneering work in astrophysics. Simultaneously with Janssen in 1868 he devised and used a method of viewing the solar prominences in ordinary sunlight, and shortly afterwards discovered helium. Transferred in 1875 to the Science and Art Department, he was from 1885 to 1913 director of the Solar Physics Observatory at South Kensington. He was the founder of this journal, and has been described as "one of the greatest astronomers of all time."

August 17, 1856. Constant Prévost died.—Known for his geological studies of the Vienna basin and of volcanoes, Prévost in 1830 with Boué, Deshayes, and Desnoyers founded the Geological Society of France.

E. C. S.

Societies and Academies.

PARIS.

Academy of Sciences, July 25.—M. Georges Lemoine in the chair.—E. Borel: The fundamental hypotheses of physics and geometry.—G. Lemoine: The mutual reaction of oxalic acid and iodic acid, iii. The influence of sunlight. The experimental difficulties are considerable, owing to the rise of temperature which necessarily takes place during the exposure. In round figures, it may be concluded that in sunlight the time of half-decomposition for a given temperature is 0.4 that found in the dark.—E. Haug: The dysharmonic folds in the mountains to the north of Toulon.—L. Joubin: Oceanographic cruises now being carried out. An account of the work allotted to France by the International Commission at Copenhagen and the researches already in hand.—F. Vidal, P. Abrami, and E. Brissaud: Experimental researches on auto-colloidoclasia by cold. Experiments on dogs have shown that immersion in cold water (2° to 3° C.) for periods of from fifteen to forty-five minutes produced changes in the blood identical in character with those due to anaphylactic and other forms of shock. The leucocytes were reduced in number, the leucocytic formula was changed, coagulation of the blood occurred in a shorter time, and the refractive index of the blood serum was lower. The effect was transitory, and the more serious symptoms of anaphylactic or proteid shock were not produced.—P. Sabatier and B. Kubota: The catalytic decomposition of allyl alcohol; action of various oxides. The catalysts studied were blue tungstic oxide, alumina, thoria, zirconia, uranous oxide, and manganous oxide. The gases evolved included carbon monoxide, hydrogen, carbon dioxide, ethylene, and propylene, the last-named being in the highest proportion. Propanal and acrolein were present in the liquid distillate.—P. Humbert: Formula of multiplication for the Kummer function $\Phi(\alpha, \gamma, x)$.—S. Carrus: Triple orthogonal systems.—L. Amaduzzi: A new property of feeble electrical conductors. A discussion of the interpretation of an experiment recently described by M. G. Reboul.—E. Dubois: The minimum potential of electrical discharge in hydrogen at low pressures.—L. and E. Bloch: Critical potentials and band spectra of nitrogen. The negative band spectrum of nitrogen appears at a higher potential than the positive spectrum, and a little higher than the ionisation potential generally attributed to this gas. It appears natural to attribute the positive band spectrum of nitrogen to the neutral molecule N_2 and the negative band spectrum to the positively charged molecule N_2^+ .—F. B. de Lenaizan and L. Maury: The conductivity of the solution of cuprammonium citrate compared with that of copper sulphate. The two salts obey the law of Arrhenius, and the copper ion is free to the same extent in both.—A. Boutaric and M. Vuillaume: The flocculation of colloidal arsenic sulphide. The influence of the dilution and the quantity of the electrolyte.—J. Barlot and J. Pernot: Combinations of the halogen derivatives of mercury and thallium.—A. de G. Rocasolano: The variations produced by stabilisers in the catalytic power of electroplatinosols. Sodium protalbinate, sodium lysalbinate, gum arabic, and gelatine were the stabilisers used in these experiments; in all cases the catalytic power, as measured by the decomposition of hydrogen peroxide, was reduced.—G. Andoyer: An apparatus for the technical analysis of gases.—V. Auger and Mlle. M. Vary: Sulphonations in the presence of iodine. The results obtained by the sulphonation of benzoic acid and pyrocatechol in presence of iodine are not in agreement with the experiments of J. N. Ray and M. Lac Dey