

JULIUS PLÜCKER, Foreign Member of the Royal Society, was born on the 16th of July 1801, at Elberfeld. After studying in the Gymnasium of Düsseldorf, and in the Universities of Bonn, Berlin, and Heidelberg, he passed some years in Paris. In 1825 he became a Privatdocent of Mathematics in Bonn, and in October 1828 was appointed Professor extraordinarius in that University. In 1833 he went to Berlin in the same capacity, and lectured also in the Friedrich-Wilhelm's Gymnasium. In 1834 he obtained the Professorship of Mathematics in the University of Halle, and in 1836 he was appointed Professor of Mathematics in the University of Bonn. The treatises and memoirs on Analytical Geometry written by him during the twenty years that followed his return from Paris secured for him a place among the first mathematicians of his time. He now entered upon a new career; for the superintendence of the Physical Museum having been entrusted to his care, he turned his attention to experimental research, and was appointed to the Professorship of Physics in 1847. A series of brilliant discoveries soon placed him among the foremost labourers in this department of science. These researches occupied him till 1856.

In repeating some of Faraday's experiments, he was led to the discovery of magnecrystalline action,—that is, that a crystallized body behaves differently in the magnetic field according to the orientation of certain directions in the crystal. These researches occupied him till 1856, when he turned his attention to the action of powerful magnets on the luminous electric discharge in glass tubes containing highly rarefied gas. In a wide tube the light of such a gas is too faint to permit a satisfactory observation of its spectrum; he found, however, that by employing tubes which were capillary in one part, brilliant light and definite spectra were obtained in the narrow part. These spectra were found to be characteristic of the several gases and to indicate their chemical nature, though the gases might be present in such minute quantity as utterly to elude chemical research.

In continuing these researches he next made the remarkable discovery of the two totally different spectra of each of the elementary substances, nitrogen, sulphur, selenium, hydrogen, iodine, lead, manganese, and copper, according as it is submitted to the instantaneous discharge of a Leyden jar charged by an induction coil, or rendered incandescent by the simple discharge of the coil, or else, in some cases, by ordinary flames. The two spectra were found to exhibit a difference in character, and are not merely different in the number and position of the lines which they show. This difference he attributed, with the greatest probability, to a difference in the temperature of the gas when the two are respectively produced. These results were made known in a memoir by himself conjointly with Dr. S. W. Hittorf, printed in the Philosophical Transactions for 1865. About this

time he resumed his geometrical investigations, but only lived to see the publication of the first part of the treatise upon which he was engaged.

He took an active part in the management of the University, having been twice Rector, frequently Dean of the Faculty of Philosophy, for many years Member of the Academic Senate and the Examination Commission. He was a Member of the Academies of Munich, Haarlem, Rotterdam, Lund, and Upsala, of the Société royale de Liège, of the Société des Sciences Naturelles de Cherbourg, of the Société Philomathique of Paris, Honorary Member of the Cambridge Philosophical Society, Corresponding Member of the Institute, of the Academies of Vienna, Göttingen, and the Physikalische Verein of Frankfort; his election as Foreign Member of the Royal Society was in 1855. The Copley Medal for the year 1866 was awarded to him for his researches in Analytical Geometry, Magnetism, and Spectral Analysis.

His separate works are :—

Analyseos applicatio ad geometriam altiore et mechanicam (Bonnæ, 1824).

Analytisch-geometrische Entwicklungen (Essen, 1831).

System der analytischen Geometrie (Berlin, 1835).

Theorie der algebraischen Curven (Bonn, 1839).

System der Geometrie des Raumes in neuer analytischer Behandlungsweise (Düsseldorf, 1846, second edition, 1852).

Enumeratio novorum phenomenorum in doctrina de magnetismo inventorum (Bonnæ, 1849).

De crystallorum et gazorum conditione magnetica (Bonnæ, 1850).

Neue Geometrie des Raumes, gegründet auf die Betrachtung der geraden Linie als Raumelement (Leipzig, 1868, Erste Abtheilung).

He also edited a work by his former pupil, Professor August Beer, entitled "Einleitung in die Electrostatic, die Lehre vom Magnetismus und die Electrodynamik," left in manuscript by the latter at his death.

His papers in the 'Transactions' of the Royal Society are :—

On the Magnetic Induction of Crystals, March 26, 1857.

On the Spectra of Ignited Gases and Vapours, with especial regard to the different Spectra of the same elementary gaseous substance, conjointly with Dr. S. W. Hittorf, February 23, 1864.

On a New Geometry of Space, December 22, 1864.

Fundamental Views regarding Mechanics, May 29, 1866.

He is also the author of numerous papers on analysis, geometry, electricity, magnetism, physical optics, and spectral analysis, in Crelle's 'Journal,' Gergonne's 'Annalen,' Liouville's 'Journal,' Poggendorff's 'Annalen,' the Abbé Moigno's 'Les Mondes,' the 'Philosophical Magazine,' the 'Annali di Matematica.'

He died at Bonn on the 22nd of May, 1868.