

OBITUARY NOTICES OF FELLOWS DECEASED.

JEAN VICTOR PONCELET, Foreign Member of the Royal Society, was born at Metz on the 1st of July, 1788. After having studied Mathematics for two years at the Lycée Imperial of Metz, he was admitted to the École Polytechnique, where he remained till 1810, his studies in the meanwhile having been interrupted by a serious illness. He then entered the École d'Application of Metz as Sublieutenant of Engineers, and left it in March 1812, in order to assist in constructing the defensive works of Ramekens in the island of Walcheren. His first engineering work here was the erection of a casemated fort in a very limited time, on peat soil, without having at his command proper materials for a foundation. In the month of June 1812 he was called away to take part in the Russian campaign, and joined the invading army at Vitepsk. On the 18th of August he reconnoitred Smolensk, exposed to the fire of the garrison, and afterwards took an active share in the battle fought the same day. On the 9th he was employed in throwing bridges over the Dnieper below Smolensko, under the fire of the Russian batteries on the opposite bank of the river. Deceiving the enemy by an ostentatious display of preparations for crossing at a particular spot, he succeeded in constructing bridges at other points better protected from the Russian fire. During the retreat from Moscow, at Krasnoi, not far from Smolensko, seven thousand French soldiers under the command of Ney, without artillery, encountered twenty-five thousand Russians with forty-five pieces of artillery, under Prince Liloradowich, on the 18th of November, 1812. In this battle Poncelet charged the Russian batteries at the head of a column of sappers and miners; his horse was killed under him, and he was taken prisoner. After a painful four months' march through snow, half naked and ill fed, in a season when mercury was repeatedly frozen, he arrived at Saratoff on the Volga. In April 1813, on recovering from an illness brought on by the hardships he had endured, he resolved to occupy his unwelcome leisure with the study of descriptive geometry. But his recollections of the teaching of Monge, Carnot, and Brianchon had been totally effaced by the privations and sufferings he had undergone. Without books to aid him he was obliged, with much labour, to construct bit by bit the elementary propositions required for the line of research he was desirous of following. The results of his labours at this time were afterwards published in Gergonne's *Annales*, from 1817 to 1821; and the original manuscripts, written at Saratoff, were published in 1862. On the conclusion of peace in June 1814, he quitted Saratoff for France, where he arrived in September of the same year. From 1815 to 1825, as Captain of Engineers, he superintended the construction of machinery in the arsenal of Metz. From 1825 to 1835 he was Professor of Mechanics; and while he imparted to the young officers clear ideas of mechanical science, capable of immediate practical application, he delivered, at the suggestion of Baron Dupin, gratuitous evening

lectures on geometry to the artisans of the place, and thereby contributed largely to the establishment of those courses of public lectures that have brought the most fertile results of scientific research within the grasp of the whole nation. In addition to these labours he wrote his 'Traité des Propriétés Projectives des Figures' (1822), 'Cours de Mécanique appliqué aux Machines' (1826), and many memoirs on Geometry and Applied Mechanics in Gergonne's and Crellé's journals. He also invented a draw-bridge with a variable counterpoise, and an undershot water-wheel with curved buckets, now known throughout Europe by the name of Poncelet's wheel, which nearly doubles the useful effect of a given water-power. He was promoted to the rank of Chef de Bataillon in 1831, and became a Member of the Institute in 1834. From 1835 to 1848 he was on the Committee for constructing the Fortifications of Paris, and was successively appointed Professor of Mechanics at the Sorbonne and at the Collège de France; became Lieutenant-Colonel in 1841, Colonel in 1844, and General of Brigade on the 19th of April, 1848. A few days later he was appointed Governor of the École Polytechnique, a post which he held till 1850. During the troubles of June 1848, placing himself at the head of the pupils of the École Polytechnique, he led them through the barricades to the Luxembourg, where they formed a guard of honour for the protection of the Provisional Government. For this important service General Cavaignac appointed him to the command of the National Guards of the Department of the Seine. He was also elected a Member of the Constituent Assembly. As President of the Scientific Commission sent to the English Exhibition of 1851, he drew up a Report on the progress of the Arts involving the application of Science during the last half century. Besides the works already mentioned, he wrote a large number of Memoirs and Scientific Reports in the *Mémorial du Génie*, *les Avis du Comité des Fortifications*, and the *Comptes Rendus*. He was Grand Officer of the Legion of Honour, Chevalier of the Prussian Order "Pour le Mérite," Corresponding Member of the Academies of Berlin, St. Petersburg, Turin, and of many other learned Societies; his election as Foreign Member of the Royal Society took place in 1842. After a long and painful illness, he died in Paris on the 23rd of December, 1867.

NATHANIEL BAGSHAW WARD, F.R.S., F.L.S., who died on June 4th 1868 in his 77th year, was a sound practical botanist, and was especially known as the inventor of the closely glazed cases for the growth of plants, which bear his name. When quite young he evinced a taste for natural history and made his little collections of plants and animals. A voyage to Jamaica when he was thirteen years old, and the contemplation of the luxuriant vegetable life of that island, inspired him with an ardent love for the science of botany. He was educated to the medical profession, and for many years of his life was engaged in its practice in the east end of London. His leisure time, however, was devoted to the study and culti-