

fortunately, however, anxiety and pressure of work caused his health to break down. In 1890 he obtained twelve months' leave and came to England, hoping to derive benefit from rest and change in a more bracing climate. He consulted several eminent physicians, who all told him that a long rest in a colder climate than that of Queensland was absolutely essential for the restoration of his health. Unfortunately this change had not the desired effect and, after a residence in this country of a little more than three years, he died at Southport on the 30th of August, 1893.

Mr. Depree was unostentatiously kind and sympathetic in all relationships of life and by his conscientious and honourable conduct gained universal respect, while his frank and good-natured disposition endeared him to a large circle of friends in all parts of the colony. He was elected an Associate Member of the Institution on the 31st of May, 1881, and was transferred to the class of Member on the 15th of November, 1889.

BRYAN DONKIN was the fifth son of Bryan Donkin, F.R.S., the inventor of the first practical machine for making paper in a continuous web, and one of the earliest members of the Institution. He was born in the neighbourhood of his father's engineering works at Bermondsey on the 29th of April, 1809, and was educated at Bromley, Kent, at various schools near London, and at Paris and Nantes. At an early age he entered his father's works and gradually rose till he became the senior partner in the firm. From the first he was interested in all matters connected with the profession and he soon became an active and valuable assistant to his father. He helped in the design and construction of paper-making, printing-, pumping-, and other machinery, and was much occupied in valuation and arbitration cases. He well remembered the first triangular-bar lathes; three were made, one for the Bermondsey works, one for Maudslay's, and the third for another firm. Before planing-machines were known it was necessary to make three lathes at a time, in order to get the bars perfectly true.

It was at this early period that he was brought into contact with several eminent engineers, among whom may be mentioned Isambard Kingdom Brunel,¹ Sir Henry Bessemer, John Penn the elder,² John Hall, Joseph Maudslay, Joseph Bramah, and John

¹ Minutes of Proceedings Inst. C.E., vol. xix. p. 169.

² *Ibid.*, vol. iii. p. 13.

Farey,¹ author of the well-known work on the steam-engine, whose nephew, the late B. W. Farey,² was afterwards a partner in the Bermondsey firm.

In 1829 Bryan Donkin was sent to France by his father, to superintend the erection of paper-milling and other machinery at Nantes, and while there acquired great proficiency in the language of the country. The French Revolution of 1830, which occurred during his stay abroad, left an indelible impression on his memory. A few years later he surveyed the River Ebro in Spain and also made surveys for several railways in England. He had a distinct recollection of the first railway constructed. On the death of his father he became a partner in the Bermondsey works, at first in conjunction with his brothers, John³ and Thomas, and afterwards with his nephews, Bryan Donkin, Jun., and E. B. Donkin, and B. W. Farey. He was an active and zealous worker and at all times keenly interested in every matter connected with engineering. He took out several patents for paper-making machinery and steam-engines, either alone or in conjunction with Mr. Farey, and assisted in the manufacture at Bermondsey of both Babbage's and Schultz's calculating-machines. In 1841 he married Miss E. Day of Isleworth, by whom he had three children.

In 1858 the firm accepted an important contract from the Russian Government, to construct and set up in St. Petersburg a mill to supersede the existing hand-mill for the manufacture of State papers and Government bank-notes. The undertaking was on a very large scale. It was necessary not only to superintend the construction of all the buildings, but to erect works for pumping water from the Neva, a mile distant, with settling-ponds and sand-filters. The latter were the first established in St. Petersburg and proved very efficient. The carrying out of these works took Bryan Donkin several times to Russia, and on their successful termination in 1862 he received the personal thanks of the Czar through the Minister of Finance. He had the satisfaction of witnessing their completion in company with General Winberg, at that time head of the Russian State Paper Department.

Mr. Donkin retired from active work in 1881, but continued to take a great interest in all business affairs up to the time of his death, which occurred at Blackheath on the 4th of December, 1893. His tact, business capabilities and many amiable qualities endeared him to those with whom throughout his long life he was

¹ Minutes of Proceedings Inst. C.E., vol. xi. p. 100.

² *Ibid.*, vol. xciv. p. 298.

³ *Ibid.*, vol. xiv. p. 130.

brought in contact, and he ably sustained the reputation of the firm founded by his father.

He was elected an Associate on the 10th of March, 1835, was transferred to the class of Member on the 18th of February, 1840, and at the time of his death was the father of the Institution.

PERCY RICKARD, son of Mr. W. Rickard of Derby, was born in that town on the 12th of March, 1859, and was educated at the Grammar School there. He gave early indication of a practical turn of mind and at his own desire was placed, when not quite fifteen years of age, as a pupil in the Locomotive Works of the Midland Railway in his native town, under Mr. S. W. Johnson. Not only did he go through the shops and drawing office with great credit, but he carefully prepared himself for the future by attending in his spare time the local classes held under the auspices of the Science and Art Department. On the expiration of his pupilage he was articled in November, 1877, to Mr. Edward Parry of Nottingham, who was then acting as one of the Resident Engineers on the construction of the Nottingham and Melton branch of the Midland Railway.

After spending two years and a half with Mr. Parry, Percy Rickard entered, in April, 1880, the service of the Lancashire and Yorkshire Railway Company, under Mr. William Hunt. He was first placed in the drawing office at Manchester and was entrusted with making surveys and contract drawings, the most important being those for an iron bridge carrying one of the main thoroughfares in that city over the widening of the Victoria Station. He subsequently made for Mr. Hunt a survey of Fleetwood Channel, marking the contour lines of the bottom of the channel for every fathom in depth and indicating the direction of the currents. This was extremely well done. In January, 1883, Mr. Rickard was appointed Divisional Engineer in charge of about 150 miles in the Yorkshire district. He was responsible for the maintenance of the permanent way, station buildings and signals on that section, and also had charge of small contracts and extensions. In July, 1885, however, on the abolition of districts and the appointment of a Permanent-Way Engineer in charge of the whole line, he left the service of the Lancashire and Yorkshire Railway Company.

Mr. Rickard was not likely, however, to remain long idle. In the following year he was appointed—by his old master, Mr. Edward Parry—Resident Engineer on the construction of the