

WELLINGTON PURDON was born on the 24th of May, 1815, in Killucan, County Westmeath. His father, an Irish gentleman, who inherited landed property yielding a good income, had ten children, the subject of this memoir being the seventh. Up to the age of eight years Wellington was brought up in comparative luxury; but then all was changed, his father, to escape arrest for debt, had to retire to France, the household effects were sold by the sheriff, and but for the humane interposition of a creditor, who not only forgave his own debt but purchased at the sale the few things absolutely necessary for the family, the mother and children would have been unable to remain in the house. Wellington retained a clear recollection of this melancholy time. He was taken in charge by an uncle for about a year and then sent back to his mother, whose position was in some degree improved. Her brother, a bachelor with a small income, who was travelling in Italy, returned, took up his residence in the house and devoted all his resources to bringing up the family. The mother gave them some elementary instruction and sent Wellington and a younger brother to the parish school for three years, after which all the children, with the exception of a sick sister, were sent to Boulogne to join the father, with whom they remained about twelve months. On their return home the mother engaged tutors for them, and after three of these had been tried and failed, a fourth was found, of whom Mr. Purdon ever spoke with gratitude; from him he learned some mathematics and other science, and was inspired with a love for these studies. At this time he procured a lathe and set of tools, and spent much time over mechanical pursuits. When seventeen years old he proceeded to Dublin, and, supported by different relatives, he frequented the drawing school of the Royal Dublin Society, and looked out for employment. He said that "he found none, but found out that he was fit for none." He returned home meditating emigration, but spent his time for nearly a year in following the hounds, and in practising surveying which proved the first step towards his future success. From this period until he was twenty, he appears to have spent his time in a very unhappy manner, feeling discontented at not earning his living, and gladly making surveys of estates for his keep. He applied for and would have obtained employment on the Ordnance Survey at 15s. per week, when he was introduced to Mr. Vignoles' representative in Ireland, and from him obtained an appointment on Railway Surveys at 10s. per day and horse expenses; he worked hard, winning the confidence of all, and being favourably introduced to the chief. In 1837 he was em-

ployed round Cork. Here his leaders failed to grasp the true nature of the work to be accomplished, and Mr. Vignoles had to call Mr. Purdon to London to clear up their work. He was received with many compliments, was sent back to finish a little work at Dublin, and then dismissed. Early in 1838 Mr. Vignoles came to Dublin and offered him an engagement on the Manchester and Sheffield Railway, then about to be commenced. Mr. Purdon left with him for England the next day, and started on the permanent surveys of the line. He was associated with a host of companions, but many of these failed, and by the end of 1839 he was regarded as one of the first men under Mr. Vignoles, and was known and trusted by the Directors, who quarrelled with and dismissed his master. In the spring of 1840 Mr. Locke was appointed Engineer-in-chief, with a recommendation from the Directors that he should retain the services of Mr. Purdon. The summit division, including the Woodhead Tunnel, was committed to his charge, and there he remained for five years until the line was opened in the spring of 1845. Mr. Purdon had become much attached to Mr. Vignoles and they parted with tears, but he established himself in the confidence of Mr. Locke. Upon a loan being sought by the Company from the Government, Mr. James Walker, Past-President Inst. C.E., who was sent down to report, spent two days on the summit tunnel, and was so favourably impressed that he afterwards proved a valuable friend, and also introduced him with strong commendations to Mr. Brunel. The latter was struck with the clear and comprehensive grasp of the facts which Mr. Purdon never failed to obtain of any subject he investigated. At an early interview in London he said to him: "I can understand you, write down what you have told me, and I will give you £5." This was done.

During a period of leisure Mr. Purdon had spent some time in investigating a route for a railway through North Wales, and in 1843 when Mr. Brunel was advocating the Porthdinllaen route for Ireland, he engaged Mr. Purdon to prepare a general survey of the country. This had to be done by deputies whom he directed, being himself engaged with the Manchester and Sheffield Company. After the passing of the Oxford, Worcester and Wolverhampton Railway Bill, Mr. Purdon was engaged by Mr. Brunel to set out a line to Porthdinllaen, and to make complete parliamentary surveys. He was not free from his engagement with the Sheffield Company, and undertook only to direct, while the late Mr. George Hennet was placed at his disposal to carry out the actual plans and sections. Mr. Hennet worked with great energy, and sent Mr. Purdon excellent men, amongst others Mr. George Sibley,

whom Mr. Purdon afterwards met in India. He completed and deposited in 1845 plans for this 130 miles of railway through as difficult a country as could well be found in the United Kingdom. The bill was withdrawn, but Mr. Brunel appointed Mr. Purdon to the post of Resident Engineer to the Dublin, Wicklow, and Wexford Railway, which was about to be commenced, and in August 1846 Mr. Purdon returned to Ireland. In addition to the work of his appointment, he made surveys for an extension of the Cork and Bandon Railway, acted on arbitration cases, reported on the extension of the Belfast and Armagh Railway to Clones, and did sundry other work. In November 1854, he was asked by Mr. Brunel whether he would go to India, and he assented, but it was nearly two years before arrangements could be completed for his start, and in the meantime he finished the Dublin and Wicklow Railway.

On the 10th of August, 1856, Mr. Purdon left for India, being sent by the promoters of the Eastern Bengal Railway to bring back such a report and materials as might enable them to apply to the Government of India for a guarantee with some prospect of success. He was entirely thrown upon his own resources, and displayed power to take the most comprehensive views of the requirements of the district, and the policy to be adopted by the company, and at the same time to investigate the special features of the country; while his perfect frankness and manifestly sound judgment converted the many Government officials with whom he came into contact from suspicious opponents into cordial friends.

At this time, with the exception of a short length of the East Indian Railway, from Howrah to Burdwan, there were no railways in Bengal, and there had been no experience of railway construction in Eastern Bengal. No precise information had been collected of the extent, direction, or duration of the periodical floods, which, started by the overflow of the Ganges and swelled by the local rainfall, sweep across the country through which the railway had to be carried. Mr. Purdon left Calcutta in October, and, after many vicissitudes, he traversed the district he wished to examine in thirty-three days and returned in November.

By May 1857 Mr. Purdon had completed surveys sufficient to lay before the Government, and upon which to prepare reliable estimates, and he returned home. He had laid his views before Lord Canning, the Governor-General, whom he greatly impressed, and who, when he called to take leave, desired him to say to his Directors, "that he had never seen a subject better put

upon paper than were his surveys and reports of the railway project."

Mr. Purdon returned to England thoroughly well informed, both concerning the engineering difficulties to be overcome in constructing the railway, and the troubles that had arisen in carrying out work under the inspection and control of the Government of India; and in consultation with Mr. Brunel, not only were full working drawings prepared, but also a form of contract devised which should leave the hands of the engineers free within certain well-defined limits, and prevent the interference of any Government Inspector until the line was ready for opening.

The contract was taken by Messrs. Brassey, Paxton and Wythes, and in 1858 Mr. Purdon left again for Calcutta. Here he remained until the completion and opening of the Eastern Bengal Railway. In selecting the northern terminus of the line, he, in common with the Government officials and indigo planters of the neighbourhood, was deceived; Kooshtea, on a firm bank of the Ganges, was chosen, and a planter who had resided for twenty years in the district showed his faith in the spot by erecting there a bazaar at a cost of a lac of rupees; nevertheless the river has changed its course and left Kooshtea between 3 and 4 miles distant. An extension has had to be made to the water. Mr. Purdon surveyed the country for a proposed extension of the railway along the north side of the Ganges, *viâ* Pubna, and by a ferry over the Brahmapootra to Dacca; and after completing the Eastern Bengal Railway was sent by the Government to report on the route of the then proposed Oude and Rohilkhand Railway.

On returning from India Mr. Purdon made arrangements with his friend Mr. W. B. Lewis, for the use of an office and staff, which resulted in the latter joining him as partner in the works he undertook. Jointly they carried out several important undertakings initiated by Mr. Purdon. In 1865 an Act was obtained by a company, of which the Duke of Devonshire was Chairman, for a railway from Clonmel to Lismore and Dungarvan, and by other parties for another from Waterford to Dungarvan; of both Mr. Purdon was Chief Engineer. The public failed to supply funds for carrying out these schemes, and they were abandoned, the Duke of Devonshire paying all the costs of the one with which he was connected, and in lieu of it constructing, with funds provided by himself, a railway from Fermoy to Lismore, Messrs. Purdon and Lewis acting as engineers. Still later a county guarantee was obtained for a railway from Waterford to Dungarvan and Lismore, and this line was constructed. The late Mr. Charles

Tarrant was at first also associated with this work, but died during its progress, and the line was finished by Messrs. Purdon and Lewis in 1878.

In 1872 Mr. Purdon revived a portion of an idea of Mr. Brunel's to make harbours on the Welsh Coast at Fishguard, and the Irish coast at Rosslare, near Wexford, with railways, to establish a short communication between the southern portion of each country. He surrendered the work in Wales to an old colleague, but Messrs. Purdon and Lewis designed harbour works for Rosslare, and laid out a railway from Wexford to the spot; a provisional order for both, and also a Government loan for the harbour, were obtained, and both were commenced; but disagreements with the directors arose, and Messrs. Purdon and Lewis retired while the works were in progress. The railway has been made, but the harbour remains so incomplete as to be of little use.

In 1871 Mr. Purdon reported to the Dublin Corporation as to the desirableness of introducing tramways into that city. The report was approved and a company formed to carry out the plan. Some large capitalists intervened, willing to extend the scheme, the original promoters coalesced with them, and Messrs. Purdon and Lewis, jointly with Mr. George Hopkins, acted as engineers until the Bill was through Parliament, when they retired.

Shortly before Mr. Purdon started for India, an old relative, possessed of large landed estates in Ireland, offered to bequeath them to him upon his consenting to retire from the profession and, with his wife and family, reside with him; but he gratefully declined the offer, feeling that he would have to sacrifice much of his independence, and run the risk of a change of mind on the part of his relative. Subsequently the same relative made a will in favour of Mr. Purdon and his children, but shortly before his death executed another in favour of the son of Lord Longford. By much persuasion Mr. Purdon was induced to contest this latter will, and after a long trial in Dublin, obtained a verdict in his favour. Eventually, the parties agreed to an equal division of the property.

Mr. Purdon was of a large and sympathetic nature, and wherever he went drew to himself and retained strong friendships. His mind was singularly strong, clear and capacious; he investigated every subject he took up with dogged pertinacity until he had traced it through every intricacy, and had a clear conception of it which he could place before another mind without fear of causing misconception. He took infinite pains before arriving at a conclusion, but when this was reached he clung to it tenaciously; his judgment was sound and seemed at once to correctly assess the

proportionate value of facts. His habit was to jot down in the form of memorandums his reasonings concerning any important matter, and hand the papers to some one in whom he placed confidence for perusal and remark.

In 1880 Mr. Purdon gave up professional work. A singular but great change came over his character, no doubt the result of over-anxiety respecting the health of his only daughter. The mind which had been so powerful and energetic suddenly appeared to be over-fatigued; and while capable of enjoying society, travelling, and his ordinary home occupations as heretofore, he refused all mental exertion, referring the simplest questions requiring thought to his sons or to other people. Fortunately, his surroundings were very happy, and he spent the remainder of his life in much comfort until he passed away after a brief illness on the 14th of February, 1889.

ROBERT PAULSON SPICE¹ was born in Norwich on the 1st of January, 1814, and was educated in that city. His father, having a large family, was unable to afford him the engineering training he desired, and young Spice was apprenticed to an ironmonger at Fakenham, in Norfolk, to whose business he eventually succeeded. During the period between his marriage in 1837 and the year 1848, he worked hard to fit himself for the profession of a gas engineer, and it is surmised that he acted in that capacity on occasions while still nominally an ironmonger, as it is known that he commenced designing and erecting gas-works in 1845-6, and there is an inscription in existence, taken from the old Hoddesdon Gas-works, bearing the words, R. P. Spice, Engineer, 1847. He probably merged his Fakenham business into that of a contractor for supplying gas-works requisites; at any rate, in 1848 he relinquished his trade as an ironmonger, and thenceforward entirely devoted himself to the gas interest. After erecting works for lighting Fakenham, he settled at Richmond, Surrey, where he established himself in the management of gas-works under leases, according to a very general practice of the time. He opened offices in Cornhill in 1860, about which date, and for several years following, he was lessee of the gas-works at Wandsworth, Hampton Court, Richmond, and Watford. He also built gas-works at Great

¹ The substance of this notice is from the *Journal of Gas Lighting*, May 14, 1889.