

Sir JAMES NICHOLAS DOUGLASS, F.R.S., born at Bow on the 16th October, 1826, was the eldest son of Nicholas Douglass, Superintendent Engineer to the Honourable Corporation of the Trinity House. He received his earlier education at Newcastle-on-Tyne, and completed his studies under the Rev. E. Jones of Bridgend, an accomplished mathematician. After serving an apprenticeship at the works of Messrs. Hunter and English, of Bow, he was engaged for a time at the works of Messrs. Seaward and Co., Isle of Dogs, in the construction of marine engines; subsequently he had the advantage of serving under Mr. James Walker, Past-President.

His first important appointment was in 1847 as Assistant Engineer to his father, who was engaged in erecting the iron pile lighthouse on the Bishop, the most westerly rock of the Scilly Isles. On the completion of this work Douglass was appointed manager to the firm of Messrs. R. N. and B. Laycock on the Tyne. In 1854 he was selected by Mr. James Walker as Resident Engineer in charge of the construction of the Gunfleet Pile Lighthouse and subsequently as Resident Engineer at the Smalls Rock Lighthouse off Milford Haven. The zeal and energy displayed by him in the execution of this difficult and dangerous work were altogether extraordinary. So far from delegating his duties to the foreman or others, one who was employed under him during the greater part of the five years that the Smalls was in course of erection states that he does not remember a single occasion when Mr. Douglass failed to accompany the working party to the rock. Here he was always the first to land and the last to leave, seeing all hands safe in the boats before he himself followed, often having with others to be dragged through the surf by a line fastened to the waist, in consequence of the sea having suddenly risen and of his anxiety to make the work safe before leaving for the shore.

As an example of the risks and perils of rock lighthouse building, it may be mentioned that at the erection of this very structure, the Resident Engineer and the rock party (consisting of 42 men) were once, and not without what seemed sufficient reason, given up as drowned by most of their relatives and friends. It was on the occasion of the terrible gale of October, 1859, when the "Royal Charter" foundered off the coast of Anglesea with four hundred and fifty-nine lives. This fearful storm, which began early on the morning of Tuesday the 25th, while the steam-tug, the sailing tender and the working party were at the rock, in-

creased to a terrific hurricane during the day and night and continued throughout the whole of Wednesday. Up to Thursday midday there was no word or sign at Solva, where the shore depôt was situated, of the missing craft, which the oldest sailors in that little port were obliged to admit had probably foundered in the terrific gale. But on Thursday about noon, the tug, which had with much difficulty ridden out the storm under St. Ann's Head, reached the harbour; and, later on, the Resident Engineer and a portion of his men arrived from Swansea, which port, some 80 miles away, the sailing tender had made the previous afternoon, having—though often in extreme danger and not without many mishaps—thus survived this historical gale.

Douglass was appointed Resident Engineer on the construction of the Wolf Rock Lighthouse in 1861. This work is fully described in his Paper on the Wolf Rock,<sup>1</sup> for which he received a Telford medal and premium. The exceptional difficulties and dangers experienced in carrying out this work were feelingly referred to both by Sir Frederick Arrow, the then Deputy-Master of the Trinity House, and Mr. George Robert Stephenson, Past-President; the former complaining of the omission in the Paper of any reference to the difficulties and dangers, inasmuch as "those engaged in the work might be considered to have carried their lives in their hands;" the latter also testifying "that he knew of no site for a lighthouse that required more skill or involved more difficulties and dangers than was the case with the Wolf Rock."

On the death of Mr. James Walker in 1862, Douglass was appointed Engineer, and subsequently Engineer-in-Chief, to the Corporation of Trinity House. During his tenure of office he carried out many important works, both in this country and abroad, notably the Longships Lighthouse, off the Land's End; the Bishop Rock Lighthouse, Scilly Isles;<sup>2</sup> the Great Basses and Little Basses Rocks Lighthouses, Ceylon;<sup>3</sup> and Minicoy Lighthouses, situated on a dangerous coral reef island, one of the Laccadives.

His principal engineering achievement, however, and the one with which, in the future, his name will be perpetuated in association with that of Smeaton, was the design and erection of the New Eddystone Lighthouse to replace the famous and now historic structure of that great engineer. This latter work, mainly owing to the disintegration of the rock upon which it was

<sup>1</sup> Minutes of Proceedings Inst. C.E., vol. xxx. p. 1.

<sup>2</sup> *Ibid.*, vol. cviii. p. 207.

<sup>3</sup> *Ibid.*, vol. xxxviii. p. 50.

founded, after having withstood the storms of a century, was removed in 1881 and re-erected on Plymouth Hoe.<sup>1</sup> On the completion of the Eddystone, Mr. Douglass received the honour of knighthood.

The subject of this memoir, from the earliest period of his connection with the Trinity House, devoted special attention to lighthouse illumination, and it is mainly to his exhaustive experiments, carried out in connection with Faraday and Tyndall, that the many improvements in the character and power of the present optical apparatus and fog-signals established on the coasts are due. In 1879 he presented to the Institution a valuable Paper on "The Electric Light applied to Lighthouse Illumination,"<sup>2</sup> for which he was awarded a Watt medal and a Telford premium.

Sir James Douglass was elected a Member of the Institution on the 5th February, 1861. In 1881 he was elected a Member of Council, and a Vice-President in 1892, which office ill health compelled him to resign in 1894. He was a Fellow of the Royal Society dating from 1887.

He died at his residence, Stella, Bonchurch, Isle of Wight, on the 19th June, 1898.

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THOMAS MUDD, born in the Yorkshire village of Kirby Fleet-  
ham on the 15th April, 1852, was taken by his parents, at the age  
of four years, to West Hartlepool, which was at that time beginning  
to show promise of its present importance. His engineering career  
commenced in 1868, when he obtained employment in the works  
of the Darlington Forge Company. Two years later he became a  
draughtsman in the North-Eastern Railway Company's office at  
Darlington, and in 1872 he returned to Hartlepool and entered the  
marine engine works of Messrs. Thomas Richardson and Sons as a  
draughtsman. He remained for seven years in the drawing office of  
that firm, gaining an extensive experience of the design of engines  
and boilers for the merchant service. In 1878 he became Assistant  
Manager to the firm, which position he held for four years.

Mr. Mudd's connection with the Central Marine Engineering  
Company, which grew out of the old shipbuilding firm of William  
Gray and Company, commenced in 1882, in which year he was  
appointed Manager of that Company's marine engine works at  
West Hartlepool. During 1883 and 1884 he designed and super-

<sup>1</sup> Minutes of Proceedings Inst. C.E., vol. liii. p. 247, and vol. lxxv. p. 20.

<sup>2</sup> *Ibid.*, vol. lvii. p. 77.