OBITUARY.

JAMES ABERNETHY, Past-President, who died at his country residence, Whiteness, Broadstairs, on the 8th March, 1896, at the age of eighty-one, was one of the oldest and most distinguished members of the Institution, into which he was elected on the 5th March, 1844. His long professional career of over sixty years was one of constant activity and devotion to the calling in which he early attained a high position and won universal respect. Though at the date of his decease he was approaching the completion of his eighty-second year, his latter days were not marred by any of the infirmities which age brings in its train. Work was his absorbing pleasure to the last, his keenness of perception and energy of purpose showed no signs of becoming impaired, and his physique but slight symptoms of diminishing strength from the wear and tear which a long life of responsibility and anxiety might seem well calculated to entail.

Mr. Abernethy was one of the small remaining band of engineers who held a prominent position in the profession when the railway mania was in full force; but even at that date he had already come to be regarded as a specialist in dock and harbour works, and it is in connection with this branch of Engineering that his name and fame have since been, and will remain, associated. The various harbour and dock works which he designed and executed, or enlarged and deepened, in England, Scotland, Ireland and Wales, as well as abroad, bear testimony to his skill as a marine engineer.

Born at Aberdeen on the 14th June, 1814, James Abernethy was sent at the early age of five to a school in that city, his father, Mr. George Abernethy, being at that time manager of some small mechanical works there. In 1823 the latter left Scotland to superintend similar works at Dowlais, near Swansea, owned by Mr. John Guest, whence five years later he removed to London to take charge of an iron foundry in Southwark. Thence James was entrusted to the tender mercies of a schoolmaster named Smith, whose school was at Cotherstone, near Barnard Castle, and who on his visits to London made the *Belle Sauvage* on Ludgate Hill his headquarters. James and his brother, George, sailed with their mentor in a brig from the Thames to Stockton.

Thence a carriage drive brought them to Cotherstone, which has been fixed upon as the original study of Charles Dickens' description of Dotheboys Hall. Whether this was the identical school or not, the system was at any rate similar. The boys' clothes were taken from them on arrival, only to be returnable on Sundays for the purpose of attending church, and the apparel substituted would have ill become workhouse lads. The dormitory consisted of the upper floor of an old barn and the dining-hall was underneath. Holidays were unknown, or at any rate un hoped for, and most of the boys were remembered as having developed debased and cruel dispositions, a logical sequence of the treatment to which they were subjected. Fortunately, one day a clerical uncle, John Abernethy, visited his nephews, and, realizing their unhappy condition, took them to his Manse at Bolton, near Haddington, where they attended the Grammar School for the two succeeding years. At the end of that time James commenced work with his father, at that date Resident Engineer at the London Docks under Mr. Henry Robinson Palmer,¹ and in the latter gentleman's office, in Ratcliff Highway, he served his first apprenticeship as an engineer.

In 1833 Mr. Abernethy went to Sweden to investigate a manganese mine, and remained there for some four years. There is no engineering work of any importance to ascribe to him during that interval, but it may be observed that those few years, in which, as his diary records, he found ample time for fishing, riding, and sketching—the last-named recreation being always a favourite of his—constituted the holiday period of his life.

More regular and continuous work awaited him in 1839, in which year he went to Goole Docks as Assistant Engineer to Mr. George Leather of Leeds. When that undertaking was finished, he took a similar post on the Aire and Calder Canal,² while later his services were enlisted during the construction of the North Midland Railway between Wakefield and Leeds. It was however in 1840 that Mr. Abernethy's ability first came to be clearly recognised. Early in that year he was appointed Resident Engineer at Aberdeen Harbour, where by systematic dredging the tidal flow was improved, in less than twelve months, to the extent that the water over the bar increased in depth from 2 feet to 5 feet at low tide. The Board then invited competitive designs for the conversion of a portion of the tidal harbour into a floating dock. Mr. Abernethy's plans were selected, but it was stipulated that

¹ Minutes of Proceedings Inst. C.E., vol. iv. p. 6.

² *Ibid*, vol. xxvi. p. 32.

before they were put in execution they should be submitted to a London engineer. The designs thus submitted met with severe criticism, but the successful candidate was quite equal to the call made upon him to defend them, and brought all further discussion to a crisis by a reference to the slender practical experience of his critic. The interview closed with the direction from the chairman of the Board, who had accompanied him to London, that he might return to Scotland and be his own chief engineer. He thus became at the age of twenty-eight Engineer-in-Chief and never afterwards held a subordinate position.

The improvements¹ in the harbour of his native city took some years to complete, and meanwhile he was consulted upon various other projects, and constructed a fishing-harbour at Boddam, near Peterhead, for the Earl of Aberdeen. In 1844 he was appointed a Surveying Officer under the Preliminary Inquiries Act, and served in that capacity for the remaining period of eight years during which the Act was in force, reporting upon the condition of the Rivers Clyde, Tyne and Ribble, and the Ports of Liverpool, Birkenhead, Glasgow, Bristol, Newcastle and Belfast.

It was while Harbour Engineer at Aberdeen, which he did not finally leave until 1851, that Mr. Abernethy was appointed Chief Engineer to the port of Swansea, where, as at Aberdeen, his work was at first the conversion of a portion of the tidal harbour into a floating dock. Subsequently he constructed at Swansea the South Dock in 1858, the Prince of Wales Dock in 1881, and in 1893 he furnished designs for a new dock, his connection with that Port thus extending over a period of half a century. In 1862 he presented to the Institution a Paper describing the South Dock at Swansea and the works at Blyth and at Silloth carried out by him.²

In 1853 Mr. Abernethy was engaged upon new and important works at Birkenhead, where the Great Float was finished in the following year, and shortly afterwards he became involved in a memorable conflict of engineering opinion. This arose with regard to the projected scheme for a great low-water basin between the dock and the River Mersey; the proposal, which was wholly at variance with Mr. Abernethy's views, being to maintain this basin at a depth of 15 feet below low water by a system of subaqueous sluices, while his advice was to substitute a floating dock in its stead. This advice was so far accepted that application was made to Parliament to sanction his scheme. James Meadows

¹ Minutes of Proceedings Inst. C.E., vol. xxi. p. 323.

² *Ibid.*, vol. xxi. p. 309.

Rendel and Robert Stephenson, however, opposed it strenuously in Committee, and the matter was referred to two experts, of whom Stephenson was one, to report upon. This report was in due time presented to the Committee, whereupon Mr. Abernethy protested so strongly against the way in which the evidence had been represented that the Committee decided to ignore the report in its entirety, and for a time the rival schemes remained in abeyance. In 1856, upon the transfer of the Birkenhead Dock property to the Mersey Docks and Harbour Board and the appointment of Mr. John Hartley as Engineer, Parliament decided that the plan of subaqueous sluicing was to be followed. Upon the first opening of the sluices, however, the rush of the incoming water seriously threatened the stability of the works. They were closed with all expedition, but none too soon to avoid a catastrophe, and were not used again. Then Mr. Abernethy's turn arrived and the floating dock was authorised and constructed.¹ While residing at Birkenhead, he designed works to improve the harbours of Fraserburgh and Lossiemouth and advised upon various other fishing-harbours in Scotland.

In 1854 Mr. Abernethy took an office in Parliament Street, Westminster, and permanently established himself in London. More works, however, were required at Birkenhead, and during the next two years he was busy designing and constructing graving docks and river walls between Woodside Ferry and Messrs. Laird's Ship-building Yard. In 1856-60 he undertook his first work at Newport (Mon.), viz., the extension of the existing dock and the introduction of hydraulic machinery for the shipment of coal. At the same time he was engaged upon the piers and dock at Silloth in the Solway Firth, Watchet Harbour, Falmouth Piers and Graving Dock, and the Harbours of Stranraer and Port Patrick.

The enumeration of these works, which were simultaneously carried out under his direction at this period, is evidence that Mr. Abernethy was then perhaps in the height of his fame, and his removal to London at the age of forty was certainly opportunely timed. Up to this age he had won a high reputation as a practical engineer, and henceforth his presence in Westminster enabled him to enter upon an additional practice as a consulting engineer, and to continue for forty years as a supporter or opponent of the plans of others in the Committee Rooms of the Houses of Parliament. In this branch of the practice of a leading engineer he proved scarcely less successful than he had already been on the construc-

¹ Minutes of Proceedings Inst. C.E., vol. xxviii. p. 518, and vol. xxix. p. 5.

tive side. He could never be induced to support any scheme in which he did not believe, nor would he oppose a scheme which he knew to be sound merely for the sake of a fee.

In 1861 Mr. Abernethy was in Spain for the purpose of inspecting and reporting upon a projected line of railway from Aranjuez to Cuenca, but the plans submitted to him were so inaccurate that he had no alternative but to disapprove the scheme. In the following year, however, he accepted the position of chief engineer to the Turin and Savona Railway, a line 120 miles in length, through difficult country. About this time he became consulting engineer to the Grand Canal Cavour, designed to irrigate some 300,000 acres adjoining the banks of the River Po. This, like the previous scheme, was financed in England, but business arrangements of a most unsatisfactory nature had been entered into in Italy. Mr. Abernethy reported strongly against the methods adopted for carrying out the works, and by so doing secured some improvement; but the shareholders in the undertaking nevertheless suffered heavily.

In 1867, in company with the late Mr. J. R. McClean, Past-President Inst. C.E., he went to Egypt, relative to the improvement of Alexandria Harbour, and during a stay of some weeks was courteously entertained by the Khedive. During the following year he had an interview with the late Emperor Napoleon III. on the subject of his and Sir John Fowler's scheme of international communication between England and France, under which large steamers were to be built designed to convey the trains across the channel. The Bill, however, was rejected in Parliament in 1870. In that year Mr. Abernethy was appointed a member of an International Commission for the regulation of the River Danube at Vienna. Among other works of importance upon which he was engaged are the Alexandra Docks, Newport, opened in 1868; the Alexandra Dock at Hull, 1881;¹ the reclamation of Lake Aboukir, Egypt, 1888-89;² Torquay Pier, 1890-94; Bute Docks, Cardiff, 1877-91. He also prepared designs for Port Victoria, 1888-89; the Midland Railway Company's Dock at Morecambe, now before Parliament; a reservoir at Merthyr Tydfil; and a dock at Tranmere, 1893. He served on the Royal Commissions on Metropolitan Sewage Discharge (1882) and Irish Public Works (1889) and on a Belgian Royal Commission which issued a report upon the construction of harbours on sandy coasts.

Mr. Abernethy was Consulting Engineer to the Manchester

¹ Minutes of Proceedings Inst. C.E., vol. xcii. p. 144.

² *Ibid.*, vol. ci. p. 189.

Ship Canal Company from 1887 to 1892, having been previously connected with the project from its inception in 1880, at which time he advocated strongly, and his advice ultimately decided, that the scheme to be submitted to Parliament should be that of a ship canal as opposed to a system of training the River Mersey. He lived to see this, the greatest work with which he was associated, opened for traffic and the City of Manchester a seaport.

At the time of his decease Mr. Abernethy, with the assistance of his sons, James and George, whom he took into partnership in 1893, and who had been for many years closely associated with him in his business, was engaged in deepening and extending the Harbour of Fraserburgh in Scotland, with which he first became connected professionally in 1856.

At the age of twenty-four Mr. Abernethy married the eldest daughter of the late Mr. John Neill of Wakefield and Leeds, whom he leaves a widow with three sons and three daughters. His third son, Harold, predeceased him.¹ In 1859 he purchased some land at Kingsgate in the Isle of Thanet, where in the home he had made he breathed his last on the 8th March, 1896, having by his long residence and genial disposition won the respect of the entire neighbourhood. His leisure hours spent there during the past few years were largely occupied in painting, for which he had considerable talent.

Mr. Abernethy was elected President of the Institution on the 21st December, 1880, and in the following January delivered an inaugural address,² in which he reviewed the progress of the mercantile marine and the consequent development of intercommunication between this country and all parts of the globe. He frequently took part in discussions, as may be seen by a reference to the indexes to the Minutes of Proceedings.

EDMUND SCOTT BARBER, born at Newport, Mon., on the 16th August, 1845, was the son of the late Mr. Edmund Scott Barber,³ a well-known Mining Engineer in South Wales. On the death of the latter in 1854, the family removed to Brussels; but after about three years returned to this country and settled first in Cornwall and subsequently at Plymouth, where Edmund was educated at private schools. He was not yet seventeen when, in

¹ Minutes of Proceedings Inst. C.E., vol. cxxii. p. 363.

² *Ibid*, vol. lxiv. p. 2.

³ *Ibid*, vol. xiv. p. 126.