

SIR JOHN WOLFE BARRY, K.C.B., F.R.S.

SIR JOHN WOLFE BARRY, the eminent civil engineer, died on January 22, in his eighty-second year. The youngest son of Sir Charles Barry, R.A., the architect of the Houses of Parliament, he was educated at Trinity College, Glenalmond, and at King's College, London. He was a pupil of Sir John Hawkshaw, and afterwards for him assistant resident engineer on the Charing Cross and Cannon Street Railway. In 1867 he started in private practice.

Sir John Wolfe Barry devoted himself largely to the construction of bridges, railways, and docks, and by his ability, wide experience, and energy acquired a position of leadership in the engineering profession. He gave ungrudging assistance to all public undertakings and inquiries involving engineering considerations, and had great influence in many ways in promoting the industrial and commercial prosperity of the country. He took great interest in efforts to raise the scientific qualifications of engineers and in the investigation of engineering problems. A member of the Institution of Civil Engineers for fifty years, on its council for thirty-four years, and its president in 1896-97, his authority and the value of his services to it can scarcely be overrated. He became F.R.S. in 1895, K.C.B. in 1897, and was chairman of council of the Royal Society of Arts in 1898-99.

There is not space here to enumerate the numerous undertakings on which Sir John Wolfe Barry was engaged in an executive or consultative capacity. Amongst them were the Lewes and East Grinstead Railway, the Inner Circle extension from the Mansion House to Whitechapel—a work of great difficulty—the Blackfriars arched railway bridge, the Tower Bridge (in association with the late Sir Horace Jones), the King Edward VII. Bridge at Kew, the Barry docks and railways, the Grangemouth dock, and the entrance lock and graving dock at Immingham; also dock and railway works in Buenos Ayres, Natal, and India. Sir John took an interest in the introduction of electricity on railways. With the late Sir Charles Hartley, he represented this country on the Suez Canal International Commission; with Sir E. Fry and Sir Hugh Owen, he was a member of the Court of Arbitration for the purchase of the London Water Companies, and was a member of the Royal Commission on London Traffic in 1903-5.

Perhaps the greatest service rendered by Sir John Wolfe Barry to engineering industries was the part he took in founding and directing the activities of the Engineering Standards Committee. It was due mainly to his insight and influence that representatives of Government departments, engineers, manufacturers, shipbuilders, and others were brought together, and have freely given their time and experience in dealing with the complex details of standardisation, a work of the greatest national importance. Sir John, in 1917, gave an account of the work of the Standards Committee,

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during sixteen years, in a lecture to the Institution of Civil Engineers on "The Standardisation of Engineering Materials and its Influence on the Prosperity of the Country." Started in a tentative way, with the object of reducing the wholly unnecessary number of rolled sections of steel bars and rails, produced by manufacturers who had to meet the wishes of different engineers and architects, it was soon found necessary to draw up complete specifications of quality and of the tests to which material should be subjected. The work of the committee then extended to other departments of industry, especially to the various branches of the electrical industry. The main committee now consists of twenty-two members, and there are sixty-four sectional and sub-committees, having in the aggregate more than 500 members. Practically all persons interested are represented and have a consultative voice in all proposals for standardisation. The specifications adopted are published, and when necessary revised annually.

Sir John Wolfe Barry pointed out in his lecture that it was difficult to estimate exactly the beneficial results of standardisation, but that he was justified in saying that they have been immense in facilitating production and in cheapening output, while ensuring excellence in the scientific composition of materials and in accuracy of workmanship. Thus, in the case of Portland cement, whereas formerly different specifications were imposed by different users, involving modifications in manufacture, practically now the whole output is made to one standard specification.

In the case of rolled sections for construction, for shipbuilding, and for railway and tramway rails, the annual output before the war was 3,700,000 tons, valued at 25,000,000*l.* Of this at least 85 per cent., and in some cases 95 per cent., were rolled to standard specifications.

The war has raised serious problems as to the security in the future of our foreign trade. Under Sir John Wolfe Barry's guidance, the Standards Committee has undertaken the laborious work of translating the standard specifications into French, Spanish, and Russian, converting British into metric measures, and issuing them in a much cheaper form. It also contemplates the establishment, in twelve important foreign trading centres, of local committees in touch with the London organisation, and concerned with the promotion of trade.

Sir John took an active interest in the foundation of the National Physical Laboratory, having been a member of its Executive Committee, and greatly assisted it in obtaining such funds as it has secured for carrying on its work and in making it the expert authority in scientific questions arising in connection with standardisation. He exerted great influence in the improvement of technical education. He was chairman of the Executive Committee of the City and Guilds of London Institute, and took much interest in the development of the Central Technical College. Since the reorganisation of the London University, he was

for a time a member of the Senate, and up to the date of his death was chairman of the delegacy which governs the City and Guilds Engineering College. It was at his instance that the Institution of Civil Engineers adopted an examination scheme so that candidates for admission to membership must now pass an educational test as well as an investigation of their experience in constructional work.

At the memorial service held at St. Margaret's Church, Westminster, on Saturday, January 26, there were present, in a large and distinguished congregation, representatives of many scientific societies and other bodies with which Sir J. Wolfe Barry was connected, including the following:—British Science Guild (Sir Robert Hadfield and Sir Alex. Pedler); City and Guilds Engineering College (Profs. W. E. Dalby, A. R. Forsyth, and T. Mather); Imperial College of Science and Technology (Sir Alfred Keogh and Mr. Alexander Gow); Institute of Municipal and County Engineers (Mr. Thomas Cole); Institution of Civil Engineers (Mr. Harry Jones and Dr. J. H. T. Tudsbury); Institution of Electrical Engineers (Mr. R. Elliott-Cooper and Mr. Alexander Ross); Institution of Naval Architects (Sir Henry J. Oram and Mr. Robert W. Dana); King's College, London (Mr. W. Smith); National Physical Laboratory (Sir Richard Glazebrook); Royal Institution (Sir W. Phipson Beale and Hon. R. C. Parsons); Royal Society (Sir J. J. Thomson and Sir Richard Glazebrook); Royal Society of Arts (Mr. A. A. Campbell Swinton and Mr. G. K. Menzies); and Surveyors' Institution (Mr. Alexander Goddard).

DR. WILLIAM GREENWELL, F.R.S.

THE distinguished archæologist, Dr. William Greenwell, of Durham, died on January 27 in his ninety-eighth year. He was affectionately referred to by everybody as Canon Greenwell, on the strength of a minor canonry of Durham, which was the highest promotion the Church found for him, and which he adorned for more than sixty years. For all that time he was the guide, philosopher, and friend of two generations of archæologists. What he was to the Church in Durham may be indicated by his preservation of the windows of Lanchester Church and by other work in ecclesiastical antiquity.

Dr. Greenwell became the local secretary for Durham of the Society of Antiquaries in 1866, and was elected a fellow in 1868. He did not attend to be admitted until 1875, but in the meantime made several communications to the society. His contributions to *Archæologia* were six, made between 1889 and 1909. The majority of the papers read and exhibits made by him to the society during his fifty-two years' association with it related to prehistoric archæology, on which he wrote with high authority; but he was equally at home in describing a ring of Alfred the Great's sister, which he had added to his collections, or a portrait of Mary Tudor, belonging to the Dean and Chapter. He was an indefatigable explorer and a discriminating collector. Before 1880 he had accumulated objects from 234 barrows, and these he presented to the British Museum. No

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sooner had he given away or sold one collection than he began to make another. This happened more than once. The latest instance is that of the fine collection of remains of the Bronze age which was acquired for the British Museum a few years ago by the munificence of a lamented American millionaire. We are much mistaken if, since then, another collection has not been well begun. He lectured at the Royal Institution in 1867 on the Yorkshire barrows.

Dr. Greenwell joined the Ethnological Society in 1868, was forthwith elected on its council, and contributed to it in 1870 an account of the opening of Grimes Graves near Brandon, in Norfolk. He was elected a fellow of the Royal Society in 1878. He addressed the Royal Archaeological Institute at Durham in 1908 with "extraordinary knowledge and lucidity" on the development of the spear and dagger during the Bronze age.

Of his published works, besides his papers in the Transactions of these and many other societies, and several ancient records edited by him for the Surtees Society, the principal is that on British barrows, in which the late Prof. Rolleston collaborated.

Dr. Greenwell was honorary D.C.L. of Durham, a man of versatile accomplishments and much learning. He was an adept in the sport of fly-fishing, which he practised almost to the last. Genial and witty, warm-hearted and enthusiastic, he lived every day of his long life.

MISS ETHEL SARGANT.

BY the death of Miss Ethel Sargant, which occurred on January 16, after a brief illness, at the age of fifty-four, botanical science has sustained a severe loss. Miss Sargant was educated at the North London Collegiate School and at Girton College, Cambridge; she took the two parts of the Natural Sciences Tripos in 1884 and 1885. In 1913 she was elected to an honorary fellowship of Girton College. She was a fellow of the Linnean Society, and was the first woman to serve on its council. At the time of her death she was president of the Federation of University Women.

Miss Sargant spent a year at Kew (1892-93), working at the Jodrell Laboratory under Dr. D. H. Scott; she always spoke with gratitude and enthusiasm of the training in the methods and spirit of research which she received at his hands. A paper written in collaboration with Dr. Scott appeared in the *Annals of Botany* in 1893. All Miss Sargant's later research was carried out privately, for some years in a laboratory built in the grounds of her mother's house at Reigate, and eventually at her own home in Girton village, Cambridge. Her earlier work, after leaving Kew, was cytological, and dealt with the formation of the sexual nuclei in *Lilium martagon*. Her attention to the structure of the embryo-sac bore further fruit at a later date in an interesting theory regarding the meaning of "double fertilisation" in Angiosperms, which she developed in the *Annals of Botany* for 1900.