

himself on the level of his students. Only on working through his lectures at home did they become fully conscious of the ease with which the great teacher and savant handled even the most difficult problems.

It has frequently been noticed, as a peculiarity of the scientific work of Clausius, that he never published the results of experimental studies. It is true he never experimented, but his clear vision and practical understanding could not on that account overlook the importance of this branch of physical investigation. His theoretical treatises always go hand-in-hand with their practical application. When the steam-engine and electro-dynamic machines gave an impulse to his investigations, he was occupied, while still a teacher at the engineering school in Berlin, with the flight of projectiles, as is proved by a Paper of his, not yet published, written between the years 1850 and 1855. His participation in the electrical congress at Paris in the year 1881 led him to inquire into the absolute and practical system of electrical and magnetic measurements.

A theorist Clausius was, but always in touch with practice, and therein lies to a great extent the extreme importance which his work has had in the development of the physical sciences.

FREDERIC FOSTER LA TROBE-BATEMAN was born at the Polygon, Ardwick, Manchester, on the 22nd of July, 1853. He was educated partly at Wellington College, but left in consequence of his health not being good enough for the ordinary routine of a public school. He completed his studies under private tutors, and in 1871 entered the office of his father, Mr. J. F. La Trobe-Bateman, Past President Inst. C.E. In serving his pupilage he acquired a good deal of experience in Buenos Ayres and on the Manchester waterworks, carrying out part of the survey for the noted Thirlmere scheme of the latter undertaking. In January, 1880, he became a partner with his father and Mr. G. H. Hill, and during the partnership superintended the construction of large additions to the Ashton-under-Lyne and Oldham waterworks. In the autumn of 1881 he went to Canada where he remained nearly four years, returning in 1885, mainly on account of the illness of his wife, who died a year later. After that event he became himself invalided and unable to attend to business. Towards the end of 1888 he left England with the intention of going to New

Zealand, hoping to benefit by the long sea voyage; but he was not destined to reach land again, dying off Hobart, Tasmania, on the 5th of February, 1889.

Mr. Foster Bateman was a man of considerable ability, and his early death cut short a career of much promise. He was elected a Member of the Institution on the 1st of March, 1881.

RICHARD GEORGE COKE,¹ the fifth son of Mr. D'Ewes Coke, was born on the 12th of January, 1813. He was educated at a private school at Gresley, and subsequently at Shrewsbury. He was trained in his profession by his uncle, John Coke, at Debdale Hall, who was then working the Pinxton Collieries. At the age of twenty-one he went out to Australia, then little else but a convict settlement, with trees growing where are now the finest streets of Sydney. He remained in the colonies some ten years, but came home on occasional visits. In Australia, Mr. Coke held positions under Government, but on returning to England on a visit about 1840, his father induced him to remain in England and take the management of the Pinxton collieries. Mr. R. G. Coke took up his residence at Langton Hall, Alfreton, and some time afterwards was entrusted by the Duke of Rutland with the management of his royalties and other colliery interests, and he was subsequently in charge of the Wingerworth collieries, removing his residence in consequence to Ankerbold. At a subsequent period Mr. Coke acted for the Duke of Devonshire in regard to his property in coal, and when Mr. Martyn Seymour was dangerously ill, Mr. Coke took temporary charge of the Staveley collieries. In 1862, Mr. Coke came to reside at Tapton Grove, and opened offices in Chesterfield, in partnership with Mr. M. H. Mills.

Mr. Coke rendered signal service at Clay Cross on the occasion of the disastrous inundation in 1860, when twenty-four lives were lost, and he showed great bravery in the rescue of the miners imprisoned in the Ingmanwell pit, Chesterfield, in 1863, leaping into the water up to his neck. At other periods of his career, Mr. Coke had control of Messrs. Seeley's pits, also of Shirland colliery, and he acted as consulting engineer on many occasions; he was likewise in great request as an arbitrator from his well-known character for scrupulous uprightness and fair dealing.

¹ This notice is abridged from one in the *Derbyshire Times* of March 2, 1889.