

author of several treatises on mining, which have taken the highest position among scientific manuals.

In 1890, Le Neve Foster succeeded Sir Warrington Smyth as Professor of Mining in the Royal College of Science and Royal School of Mines, where the work that he did in improving methods of teaching and in influencing the careers of the students was of the highest importance.

In 1897, while in his official capacity investigating the cause of a great disaster at the Snaefell Mine in the Isle of Man, he nearly lost his life from carbon-monoxide poisoning. Although his life was saved, his health was so seriously impaired that he resigned his position in the Home Office in 1901, but he still continued his work in the School of Mines with some interruptions. On April 19, after a short illness from which he rallied several times, he at last succumbed to the effects of the sad Snaefell accident, passing away at the age of 63.

Le Neve Foster was a D.Sc. of London, and was elected a Fellow of the Royal Society in 1892. Last year he received, in recognition of his great public services, the honour of knighthood.

J. W. J.

FRANK RUTLEY (1842-1904).

Frank Rutley was born at Dover on May 14, 1842. He received his early education at the Faversham Grammar School, and then went for some years to a private English school at Bonn. At an early age he displayed the artistic tastes and skill in draughtsmanship which often proved of such great service to him in his subsequent scientific career.

That at an early date he had acquired a taste for geological study is shown by the first scientific communication from his pen. A curious subsidence took place at Lexden in Essex in the year 1861, which was described in the 'Geological Magazine' for 1865 by the Rev. Osmond Fisher. In a letter to the editor of the Magazine, Rutley reproduces a section made by him after a visit to the locality in 1862, and proceeds to criticize Mr. Fisher's theory for explaining the phenomenon. With characteristic modesty, Rutley writes that he questions Mr. Fisher's explanation 'with all humility, as I am but a very young hand at geology.'

It was in 1862 that Rutley entered the School of Mines, then at Jermyn Street, and he attended the lectures of Hofmann, Tyndall, Huxley, Ramsay, and Warrington Smyth in the various branches of science taught there, though he did not complete the associateship course by devoting himself to technical work in mining or metallurgy.

On leaving the School of Mines in 1864, Rutley joined the army and became an Ensign in the First Royal Scots regiment. But in 1867 he resigned his commission to take up an appointment as temporary Assistant Geologist upon the Geological Survey of England and Wales. The country he was sent to survey was a portion of the Lake District, where his old college companion Clifton Ward was already at work. In 1870 and 1871 Rutley wrote letters to the 'Geological Magazine' upon the subject of the glaciation of the Lake District, in which he displayed a minute knowledge of the geology of the area, in his criticism of the views of the late Mr. Mackintosh.

It was at this time that Rutley first showed his skill as a worker with the microscope, in the study of minerals and rocks—a branch of geological inquiry which had only recently been inaugurated by the labours of Sorby, David Forbes, Allport, and a few other workers in this country. This led to his being transferred to the central office of the Geological Survey at Jermyn Street, where he not only arranged a very instructive series of specimens for the Museum of Practical Geology, but also aided the surveyors in the field by his examination and description of rock-specimens sent up to town by them. To this period belong the important memoirs which he wrote for the Geological Survey upon 'The felsitic lavas of England and Wales' and 'The volcano of Brent Tor.'

As early as the year 1879, Rutley wrote a book, 'The Study of Rocks,' which was the first work of the kind in the English language, wherein an attempt was made to systematize the rapidly growing knowledge obtained by the microscopic study of rock-sections. In 1888, a more detailed text-book for students on 'Rock-forming Minerals' was the outcome of his experience as a teacher; while in 1895 he issued his 'Granites and Greenstones: a series of tables and notes for students of petrology.' Rutley also wrote a very compact and compendious manual of 'Mineralogy,' which passed through a number of editions.

In 1882, Rutley was appointed lecturer on mineralogy in the Geological Division of the Royal College of Science, with which the School of Mines had then been incorporated. He devoted himself with the most painstaking care to the instruction of the students, his patience and skill in illustration being always conspicuous. At the same time he was still carrying on work for the Geological Survey, and enriching geological literature by many valuable researches. In the 'Quarterly Journal of the Geological Society' twenty-six papers from his pen attest his constant activity. They include his valuable memoirs on the rocks of the Malvern Hills, upon the structures displayed by various glassy rocks, both fresh

and devitrified, upon novaculites and quartzites, on the 'porfido rosso antico,' and on the dwindling of limestones. To the Royal Society he contributed two papers, one, in conjunction with Mr. Herman, 'On the microscopic characters of some specimens of devitrified glass, with notes on certain analogous structures in rocks'; the other, 'Notes on alteration induced by heat in certain vitreous rocks.' He also wrote papers for the 'Geological Magazine,' the Royal Microscopical Society, and the Geological Societies of Ireland and Cornwall.

Rutley joined the Geological Society in 1870, and in 1881 the balance of the proceeds of the Murchison Fund was awarded to him by the Council of the Society in recognition of his work and to assist him in his researches. He joined the Mineralogical Society in 1888, and served upon the Council from 1890-3, and in 1897-8. He wrote a paper on the classification and nomenclature of crystallites in the 'Mineralogical Magazine,' vol. ix, and several papers on quartz, zircon, manganite, and on fulgurites, &c., in vol. x of the Magazine. He was also a member of the French Mineralogical Society.

In 1898, Rutley's scientific activities and his work as a teacher were alike interrupted by a stroke of paralysis, and though he still continued to do a little work, his friends from that time missed his familiar presence at scientific gatherings. He passed away peacefully on May 16, 1904, after a long and patiently borne illness, and was buried in the Fulham Cemetery. Many friends mourn the loss of a true-hearted colleague and fellow-worker, and will long cherish a memory of the man and of the excellent work that he accomplished.

J. W. J.

HENRY PALIN GURNEY (1847-1904).

Henry Palin Gurney, eldest son of Henry Gurney and Eleanor Palin, was born in London on September 7, 1847. He received his early education at the City of London School, proceeding afterwards to Clare College, Cambridge. There he distinguished himself both in Athletics and the Schools: he rowed in the college boat and ran for his University in the Oxford and Cambridge Sports of 1868 and 1869; he took both the Mathematical and Natural Sciences Triposes in the year 1870, being placed fourteenth wrangler in the former and in the first class in the latter; immediately afterwards he was elected to a college fellowship, which he held till 1883. In 1871 Mr. Gurney took orders in the Church of England, and for the next four years worked as curate to Canon Beck in one of the largest and poorest of London parishes, that of Rother-