

Obituary.

W. R. WILLIAMS was born 7th January, 1828. He was in practice as a civil and mining engineer for about 30 years in the Dolgelly district, that is including Festiniog, Corris, &c., slate quarrying districts; and frequently called away to more distant places, both in North and South Wales to report and advise in slate quarrying and mining. He was largely connected with gold mining in North Wales, and one of the first engaged in it. His practice also included civil engineering, surveying and valuing, to a very considerable extent, as well as architecture and estate agency in a general country practice. He was for some years prior to his death chairman of the School Board in the parish of Dolgelly, and generally took an active part in all the public affairs appertaining to this part of the country. He was elected a Fellow of the Geological Society of London in 1865. During the whole 30 years of his practice he associated himself with most of the improvements in the Dolgelly district. He died at Vron-Arran, on the 11th January, 1879.

WILLIAM VIVIAN was born in the parish of Kea, Cornwall, 2nd June, 1817. He entered the service of Messrs. J. Taylor and Sons, in 1853. Was manager of Parys Mines, Anglesea, 1860. Was appointed manager of Mwyndy Iron Ore Mines, Glamorganshire, on the 1st August, 1863, and died at the mines on the 18th April, 1879.

His kindly disposition endeared him to all who knew him, and he generally managed to impart a portion of his enthusiasm for the beauties of microscopic crystals to every visitor, whether a mineralogist or not, by exhibiting to him under the two inch power of the microscope, the numerous crystal-lined caves and tunnels so abundantly to be seen in vein-stones, glass, and furnace products. Although in failing health for several years, he was taken away rather suddenly at last. He suffered from congestion of the lungs for about a week, but became much worse on the night of the 17th April, 1879, and died at 6.30 on the morning of the 18th.

The following is a list of his scientific papers:—

Observations on the mining district of Sonora, Tuolumne Co., California. (1852) *Trans. R.G.S.C.* VII, 216-19.

Observations on the gold fields of the Pacific coast, and their probable extent. (1858) *ib.* VII, 327-31.

Constitution and structure of slate. (1858) *ib.* 339-42.

Essay on the more perfect opening and ventilation of mines. *Rep. R.C.P. Soc.* (1855) p. XVII.

Observations on the crystalline forms of native metals. *Ib.* (1859) pp. 46-48.

On the arborescent native copper in the Llandudno Mine, near Great Orme's head, North Wales. *Journ. Geol. Soc.* XV, 109-10 (1858).

Practical mining, &c. Letters in H. C. Salmon's *Mining and Smelting Mag.* Vol. I, (1862).

Microscopic observations on the structure of metals. *Rep. Brit. Assoc.* (1862), Pt. II, p. 34.

On the cellular structure of metallic iron. *Proc. of S. Wales Inst. of Engineers*, V. 129, 179-81, (1866).

On the application of the microscope to the study of mineralogy and metallurgy. *Trans. Cardiff Naturalist Soc.*, 1868-69, p. 13.

Water—Its conditions of solid, fluid, and vapour. *Ib.* 1871.

On the use of the microscope in mineralogy, geology, and metallurgy. *Western Chronicle of Science*, I, 199-204, (1872).

Miners' Diseases. *Ib.* I, 205-206.

Notes on the oxides of iron enclosed in Quartz, at Mwyndy, Glamorganshire. *Min. Mag.*, Nos. 1 and 4, (1877).