

markably limpid and free from earthy impregnations. The interstratification in the rusty brown sands of the white stone (detailed sections of these beds will be given in Survey Memoir on Sheet 46), on which the fuller's earth rests, may be due to the bleaching properties of the fuller's earth with which it is in contact. The Flitwick water comes off peat lying in a valley cut down through the Greensands to the underlying Oxford. There is an enormous quantity of iron in the water (as the analysis shows), encrusting everything over which it flows, and a tufaceous-looking deposit of bog iron ore is being formed of some extent and thickness.

BEDFORD.

A. G. CAMERON,
H. M. Geological Survey.

 OBITUARY.

JOHN FRANCIS CAMPBELL, F.G.S., &c.,

(IAIN ILEACH), OF ISLAY.

John Francis Campbell, of Islay, the bearer of a name well known among geologists some years ago, was born in Edinburgh on the 29th December, 1821. He had high family connections on the side of both parents—his father being cousin to the present Duke of Argyll, and his mother, who died while he was still a youth, being the Lady Ellinor Charteris, daughter of Francis, seventh Earl of Wemyss. By birth he was heir to a large patrimonial estate. This inheritance was, however, lost to him through adverse circumstances shortly after he came of age; and the magnanimous spirit in which through life he bore this reverse of fortune gained him the abiding esteem of the large circle of friends whose regard his generosity of heart and many attractive qualities must in any case have secured.

When, on the death of his father, who several years before had contracted a second marriage, he found himself at a comparatively early age the head of the family, he did everything in his power to promote the welfare of his step-mother and her children. In the year 1855 he joined them in their newly-adopted home at Niddry Lodge, Campden Hill; and, laying aside the study of the law which he had for some years previously pursued, he found occupation successively as Private Secretary to his chief, the Duke of Argyll; Secretary to the Board of Health, to the Mines Commission, and to the Lighthouse Commission,—the two latter employments stimulating him in those studies of Geology and Solar Physics which engaged his attention and effort even in the last years of his life. During the years 1861–1880 inclusive he held in succession two posts in the Queen's Household. Having withdrawn from the Court at the latter date, he afterwards occupied himself till the close of his life with scientific study, travelling, and the social life of his home.

His many journeys in former vacations had taken him several times into Iceland and Scandinavia. On one occasion (1873–74) he passed from Archangel through Russia to the Caucasus, returning

by Constantinople and Southern Europe. In 1874-75 he made a voyage round the world, during which he visited Japan, China, Java, and Ceylon, etc.; in 1876-7 he spent some months at various stations of India, and witnessed at Delhi the ceremony of proclaiming the Queen Empress; during 1878 to 1880 and 1881 he visited Syria and Palestine, and twice resided in Egypt. In all these wanderings his instinctive powers as a practical linguist were very valuable to him; his ready skill as a draughtsman not less so.

His chief published works are: "Popular Tales of the West Highlands" (in four vols.), a work for which his fluent command of the Scotch Gaelic and his enthusiastic memories of his boyhood's island home eminently fitted him; "Leabhar na Feinne," genuine Texts of Gaelic Folk-lore, too recondite for any but Celtic scholars; "Frost and Fire," a book in which incidents of travel and matters of scientific observation, geological and otherwise, are mingled in an original fashion; "My Circular Notes," an entertaining account of his journey round the world; "Something from the Gold-Diggings of Sutherland," specially geological. Among his minor writings are articles on "Glaciation," read before the Geological Society, and published in their *Quarterly Journal*.¹

His mind was acute, ingenious, and indefatigably active; but he had never subjected it to received methods of scientific training, and he was more disposed towards detecting the weak point in the arguments and inferences of other thinkers than willing to adopt them. His mental stores, whether gleaned in the field of Folk-lore and Myth or in that of experimental Science, were original, not derived from other workers. This circumstance gave a special kind of interest to his observations and opinions, even where the listener might not accept his conclusions.

His invention of the "heliometer,"² an instrument in use at Greenwich, and which was mentioned with honour by Professor Balfour Stewart at the meeting of the British Association in 1883, is probably the only distinction that will survive him. But he was not only entirely uninfluenced by any desires after a lucrative result of such work as he did, but comparatively indifferent even to the fame which it might have brought him. He loved knowledge for its own sake; his desire was for "more light." His best praise will dwell in the hearts of his many friends; all who knew what his own heart was—those who have shared his refined and genial hospitality, or benefited by his ready generosity, counsel, and help—will never lose their warm remembrance of his truly noble spirit and kindly bearing, and will apply to him with added emphasis the well-known lines—

Who broke no promise, served no private end,
Who knew no enemy, and lost no friend.³

He died at Cannes, February 17th, 1885.

¹ Another work by Mr. Campbell, "A short American Tramp," contains many valuable observations on Climate (see *GEOL. MAG.* 1868, Vol. V. p. 299).

² See List of Instruments set forth by the Meteorological Society.

³ Pope. The original second line is,

"Who served no patron, etc."