

in. He was buried at Hadzor, Worcestershire. Douglas Galton was amongst the oldest Fellows of the Geological Society, having been elected in 1848, and served on the Council from 1870 to 1874.

### FRANZ RITTER VON HAUER.

BORN, VIENNA, JAN. 30, 1822.

DIED MARCH 20, 1899.

RITTER VON HAUER has been called the Nestor of Austrian geologists, having been for many years Director of the Geological Survey and Intendant of the Imperial Natural History Museum. He was born in Vienna in 1822, and educated there until he went to the Berg-Akademie at Schemnitz from 1839 to 1843. He afterwards became a mining official in Styria, and in 1846 was made Assistant to Haidinger at the Imperial Mineralogical Museum in his native city, when he began original palæontological work. He succeeded Haidinger as chief of the Museum, and held that post from 1867 to 1885. On the death of F. von Hochstetter he was made Curator of the Imperial Natural History Museum, in which post he did important work, retiring at last on account of old age and ill-health. He was the first to classify the Alpine sedimentary rocks on a strictly stratigraphical basis, and published a work on the Cephalopoda of the Triassic and Jurassic beds of the eastern Alpine regions. His general map of the Austrian Empire (in twelve sheets, published 1867-71, reaching a fourth and extended edition in 1884), and his account of the geology of that empire, published in 1875, crown his life's work. Franz Ritter von Hauer was elected a Foreign Correspondent of the Geological Society of London in 1863, a Foreign Member in 1871; and he was awarded the Wollaston Medal in 1882. He died on March 20, 1899. Von Hauer received many orders and honours, held various offices, and was revered as a teacher and leader in science.

### CHARLES JULES EDMÉ BRONGNIART.

BORN 1859.

DIED APRIL 18, 1899.

M. CHARLES BRONGNIART was the grandson of the illustrious French Botanist, Adolphe T. Brongniart, who in 1841 received the Wollaston Medal from the Geological Society of London. He was an Assistant at the Museum of Natural History, Paris, and was one of the chief European authorities on Fossil Insects, on which he wrote a number of papers from 1876 onward. His principal work was published in 1893, in the form of two large quarto volumes with atlases of plates. One of these is the third volume of "Studies on the Coal-measures of Commentry," which is devoted to the Entomological Fauna of the Carboniferous epoch. The other is "Fossil Insects of Primary Times." Several of his papers appeared as translations in the GEOLOGICAL MAGAZINE. (See GEOL. MAG., 1879, Dec. II, Vol. VI, pp. 97-102, Pl. IV; 1885, Dec. III, Vol. II, pp. 481-491, Pl. XII; 1888, pp. 422-425, one page illustration; 1895, pp. 233-236.) It is sad that so distinguished a career, from which we had reason to expect so much more valuable work, should

have been ended so early. CHARLES BRONGNIART was elected a Foreign Correspondent of the Geological Society of London in 1888, and died April 18, 1899, aged 40.

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TOWNSHEND MONCKTON HALL, F.G.S.

BORN MARCH 22, 1845.

DIED JULY 1, 1899.

TOWNSHEND HALL was born at Torquay in 1845, and studied for a short time at Wadham College, Oxford. On leaving there he gave himself up to science, and especially to geology. A paper by him on the distribution of fossils in the North Devon Series was printed in the Quarterly Journal of the Geological Society (1867, vol. xxiii, pp. 371-381); but his chief contributions to the geology and mineralogy of his native county are in the Trans. Devon Association (of which he was a member from the first), and include papers on mineral localities, raised beaches, submerged forests, concentric lamination, mineral oil, classification of North Devon rocks, and various matters of local geology. He also contributed to the GEOLOGICAL MAGAZINE and to the Mineralogical Magazine, and wrote several sketches of the Geology of Devonshire or parts thereof, and the "Mineralogists' Directory." He became, indeed, well known as our chief local authority on North Devon.

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PROFESSOR ROBERT W. BUNSEN, PH.D.

BORN MARCH 13, 1811.

DIED AUGUST 16, 1899.

ALTHOUGH Bunsen achieved his great reputation as a chemist, and held the Chair of Chemistry in the University of Heidelberg for many years, he wrote (especially in his earlier life) several papers on minerals and on mineral waters, as well as on various geological subjects, notably on the chemico-geology of Iceland. To the scientific world he is largely known for his work on spectrum analysis, resulting in the discovery of the elements caesium and rubidium; whilst to the world at large he is known by the invaluable gas-burner that bears his name and the principle of which he discovered. Professor R. W. Bunsen was elected a Foreign Member of the Geological Society of London in 1856, holding the honorary distinction for 43 years. He died at the age of 88 years.

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JOHN BALDRY REDMAN, F.G.S., MEMB. INST. C.E.

BORN 1816.

DIED DECEMBER 21, 1899.

JOHN BALDRY REDMAN was elected an Associate of the Institution of Civil Engineers in February, 1839, and a Member in March, 1846, his name being the earliest on the roll of over 6,300 Members and Associates at the time of his death. He was elected an F.G.S. in 1882. He did much service to geology by his important papers, read to the institution above-named, "On the Alluvial Formations, and the Local Changes, of the South Coast of England," and "The East Coast between the Thames and the Wash Estuaries," published in 1854 and 1865, which were the first systematic account of the changes along a great length of our coast, in this case from Norfolk southward to Dorsetshire. Much other work of the kind was also