

Light, heat, motion, fragrance, and colour are all now obtainable from coal. What more could the sun himself do for us? It is as if the sunshine that cherished the luxuriant jungles of the past had been preserved in the coaly mass of the buried trees. Indeed, the light and heat of former days, expended in thus converting carbonic acid and water into coal, are here stored up for man. By converting coal into carbonic acid and water he can again evolve that heat and light, and use them in a thousand ways beneficial to his race—nay, essential to his very existence as a civilised being (J. W. Salter and others).

Nevertheless, a great deal has yet to be learnt about the natural history of the Coal-measures, the order and extent of the special kinds of their animals and plants, the time occupied in formation, and the geographical and hydrographical conditions. At all events, we know that all their strata have been arranged *in order*, have been buried under circumstances favourable to production of the various coaly fuels, and then turned up in *orderly disorder*, ready to the hand of man, and well adapted for his use in this passage-stage of his civilization and development, helping him, when intelligent, active, careful, and persevering, to higher ends. For we cannot doubt that all things here are arranged for his better being, his progress towards more and more useful arts, wider ranges of science, and fitter aptitudes of life, of which as yet we have but little conception. We are still the early settlers in a beautiful world, whose capabilities, imperfectly known as yet, wait until higher developments of man can understand them fully, and apply the results to the general good.

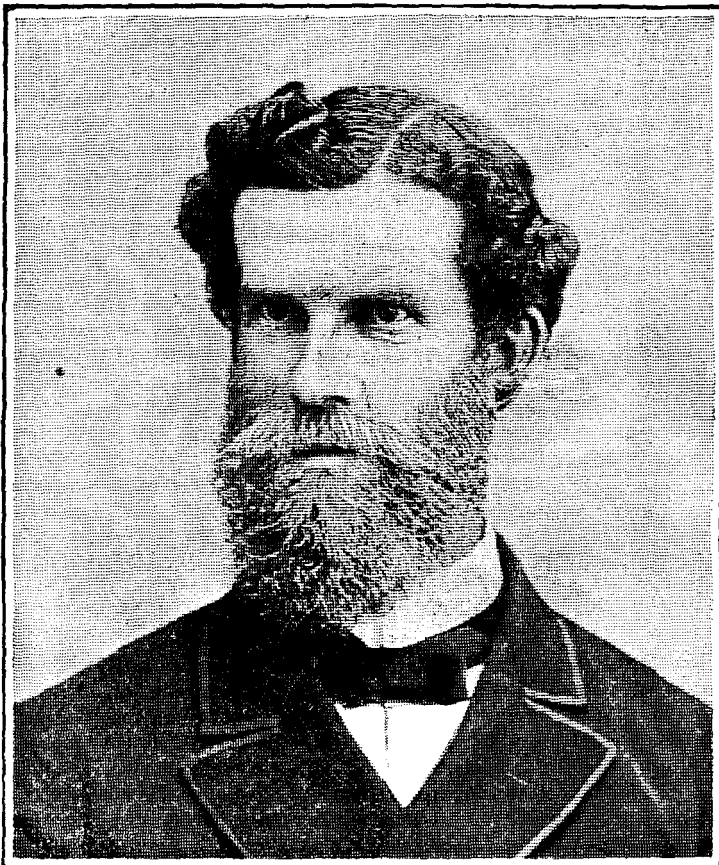
OBITUARY.

CHARLES SMITH WILKINSON, F.G.S., F.L.S., V.P.L.S.
NEW SOUTH WALES.

BORN 1843, DIED 23RD AUGUST, 1891.

Mr. WILKINSON was born in Northamptonshire. His father, Mr. David Wilkinson, was associated with George Stephenson in designing the first locomotive engines. His family settled in Melbourne in 1852, where he received his education. In 1859 he was appointed to the Geological Survey of Victoria under A. R. C. Selwyn, F.R.S., and in 1861 was employed in the Survey of the country from Bass's Straits northward to near Ballarat. Cape Otway mountains were surveyed by Mr. Wilkinson in 1863; and three years later, when engaged upon the Geological Survey of the Leigh's River District, some important investigations were made as to the mode of deposition of gold and the formation of gold-nuggets. Subsequently, Mr. Wilkinson's health gave way, and he spent three years in the Wagga district. In 1872 he passed the examination for licensed Surveyors in New South Wales, and was afterwards sent by the Surveyor-General to the then newly-discovered tin-mining district of New England, upon which he reported. He was appointed Geological Surveyor in the Department of Lands in 1874, and when, the following year, the Geological Survey was transferred to the Department of Mines, he was appointed Government Geologist for New South Wales, which office he filled until his death, with great ability and much advantage to the Colony.

Mr. Wilkinson was a member of the Board appointed to disburse the Parliamentary Vote for Government aid to mineral prospectors in his Colony. He has also served as President of the Royal Society of New South Wales and President of the Linnæan



Society of the Colony. His lengthened experience in practical geology and mining, and his scholarly attainments, united to a modest demeanour, gained for him a wide circle of friends both at home and in the Colonies. For seventeen years Mr. Wilkinson was a member of all Commissions for the Colony, in connexion with International and Inter-colonial Exhibitions, and he took a prominent part in preparing the collections showing the mineral resources of the Colony. He was also mainly responsible for the excellent collection of minerals in the Mining Museum at Sydney.

Mr. Wilkinson represented his Government as Geological Director of the New South Wales Royal Commission at the Mining Exhibition held at the Crystal Palace in the autumn of last year.

He was elected a Fellow of the Geological Society of London in 1876, and a Fellow of the Linnæan Society in 1881.

NOTE.—This Notice and the accompanying portrait of Mr. C. S. Wilkinson are reproduced, by the kind permission of the Editor, from the "Mining Journal" October 17, 1891.—EDIT. GEOL. MAG.

There may be many geologists in New South Wales ready to succeed Mr. Wilkinson in his post, but it will be difficult to find one possessing the same extensive geological and mineralogical knowledge, combined with so amiable a disposition and a readiness to impart information to those seeking it, which will cause his memory to be long held in esteem by all who had the pleasure to come in contact with him, whether officially or socially; and especially will his loss be deeply felt by a very wide circle of personal friends.

PHILIP HERBERT CARPENTER,

M.A., D.SC. (CAMB.), F.R.S., F.L.S.

BORN FEBRUARY 6TH, 1852. DIED OCTOBER 22ND, 1891.

PHILIP HERBERT CARPENTER, whose sad death we recorded in our last Number, was the fourth son of Dr. W. B. Carpenter, C.B., F.R.S. Born in Westminster, he was taught at University College School, and in 1871 went to Cambridge as a scholar of Trinity. In 1874 he graduated as B.A. in the first class of the Natural Science Tripos, and proceeded to the further degrees of M.A. in 1878 and D.Sc. in 1884. Between 1875 and 1877 he studied at Würzburg under Prof. Semper, and in the latter year was appointed assistant master at Eton College, being especially charged with the teaching of biology. This post he held until his death. In 1884, when his father received the Lyell Medal from the Geological Society of London, to Herbert Carpenter was awarded a moiety of the Fund. In 1885 he was elected a Fellow of the Royal Society, and he served on the Library Committee and Council of the Linnæan Society from 1887 onward.

By the death of Dr. Carpenter, at the early age of thirty-nine, we lose one of the chief authorities on Echinoderm morphology and the acknowledged leader in the study of the Crinoidea. For this position he was by his early training eminently fitted. As a boy his interest was excited by the researches which his father was prosecuting into the embryology and morphology of *Antedon*. When only sixteen he joined his father and Wyville Thomson on the deep-sea exploring expedition of H.M.S. *Lightning*, "manfully bearing no little hardship and helping to lighten the evil times to his seniors." It is interesting to remember that the chief incentive to that exploration was the discovery by Sars of new Crinoids in the North Sea two years before. In 1869 he was on the second and third cruises of the *Porcupine*, making analyses of sea-water, but no doubt keeping an eye on the many rare animals, especially Echinoderms, dredged by that vessel. The summer of 1870 was again spent on the *Porcupine*, this time in the Mediterranean. In 1875 he accompanied Sir G. Nares' Arctic Expedition as far as Disco Island, for the purpose of assisting in the dredging operations that were carried out there and in the North Atlantic by H.M.S. *Valorous*.

It was not, however, till September, 1875, that he turned his attention seriously to the Crinoidea, and then as it were by chance. His first studies at Würzburg were on "the minute anatomy of the genital glands in the Crayfish." It happened, however, that Semper and Ludwig had criticized certain statements of W. B. Carpenter