

mencement of the attack which resulted in his death, on a Geological Map of N. S. Wales, and on a second edition of his "Southern Gold Fields." The name of W. B. Clarke requires no encomiums from us; but when we say, as we think we may safely do, that more than half his papers and reports have been written with the view to the development of the mineral resources of his adopted country and the well-being of his fellow-colonists, some idea may be gathered of the debt N. S. Wales owes to the memory of the Rev. W. B. Clarke. Few are aware of the immense amount of work performed during his various explorations, but it is stated that he has officially reported on no less an area than 108,000 square miles of territory.—R. E., jun.

[For some of the facts connected with the earlier career of the Rev. W. B. Clarke we are indebted to extracts from an Australian contemporary.]

THOMAS OLDHAM, A.M., LL.D., F.R.S., F.G.S.,

LATE DIRECTOR OF THE GEOLOGICAL SURVEY OF INDIA.

BORN MAY, 1816, DIED 17 JULY, 1878.

DEATH has just deprived us of another well-known and eminent geologist, who was the founder of and for twenty-five years occupied the arduous and important post of Superintendent of the Geological Survey of our Indian Empire, probably the greatest geological undertaking carried on by the British Government.

Dr. Oldham was the eldest son of the late Thomas Oldham, Esq., of Dublin, in which city he was born in May, 1816, and where he was educated at a private school, and entered Trinity College, Dublin, before he was sixteen years of age.

After obtaining his B.A., he devoted 1837–38 to special studies of engineering in Edinburgh, where he also applied himself to acquiring a sound knowledge of geology and mineralogy under Prof. Jamieson, with whom he formed a life-long friendship. Subsequently he was engaged in some extensive engineering works in Edinburgh.

Returning to Ireland in 1839, he became principal Geological Assistant to General (then Captain) Portlock, R.E., at that time in charge of the Geological Department of the Ordnance Survey of Ireland, and with whom he surveyed the counties of Derry and Tyrone, and was largely engaged in the preparation of the report on those counties, published in 1843. Subsequently he became Curator and Assistant Secretary to the Geological Society of Dublin, and Assistant Secretary to the Institute of Civil Engineers of Ireland.

In 1844 he was appointed Assistant-Professor of Engineering in Trinity College, Dublin, under Prof. J. MacNeill. In 1845 he succeeded Prof. Phillips to the chair of Geology in Dublin University. In 1846 he became Lecturer to, and in 1848 President of, the Geological Society of Dublin.

Between 1844 and 1849 he communicated no fewer than twelve papers to the "British Association" and the "Dublin Geological Society's Journal," all bearing on Irish Geology and Palæontology. On 1st July, 1846, he was appointed Local-Director for Ireland of the

Geological Survey of the United Kingdom, which he held until 14 Nov., 1850, when he was nominated to the charge of the Geological Survey of India by the Hon. the Directors of the East India Company, arriving in Calcutta early in 1851.

Those of our readers who are acquainted with the climate, the physical features, and the vast territorial extent of our Indian Empire, will more readily appreciate the onerous responsibility undertaken by Dr. Oldham to inaugurate and set in motion the machinery for so large and important a department of the Indian Civil Service.

With only a small staff of about twelve assistants he set resolutely to work, and at the end of ten years from the commencement of the Survey he was able to show an area, carefully mapped and coloured geologically, more than twice the extent of the whole of Great Britain, principally in Bengal and Central India.

One of the chief objects of the Director was to ascertain, by careful examination and mapping, the extent of the Indian Coal-measures and the quality of the Coal. The best appears to be the Assam Coal, which lies near the river Brahmapootra; but extensive fields of coal exist, though by no means distributed generally over the Indian Empire, but almost entirely concentrated in a double band of coal-yielding deposits, which, with large interruptions, extend more than half-way across India, from near Calcutta towards Bombay.

In 1867 Dr. Oldham presented an elaborate Report to the Secretary of State for India, "On the Coal Resources of India," but no fewer than sixteen separate memoirs on the various Coal-fields have been published in the "Memoirs," with Maps, viz. :—

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| <ol style="list-style-type: none"> 1. On the Coal and Iron of Cuttack. 2. On the Structure and Relations of the Talcheer Coal-field. 3. On the Ránigunj Coal-field. 4. On the Coal of Assam. 5. The Jherria Coal-field. 6. On the Bokaro Coal-field. 7. On the Ramgurh Coal-field. 8. Kurhurbári Coal-field. 9. Deoghur Coal-field. | <ol style="list-style-type: none"> 10. Karanpúrá Coal-fields. 11. The Itkhúri Coal-field. 12. The Daltonganj Coal-field. 13. The Chopé Coal-field. 14. The Sátpurá Coal-basin. 15. The Coal-fields of the Nágá Hills, bordering Lakhimpur and Síbsagar Districts, Assam. 16. The Wardha Valley Coal-field. |
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In 1862–64 he published, in conjunction with Prof. John Morris, M.A., a memoir, "On the Fossil Flora of the Rajmahal Series" (Memoirs Geol. Surv. India), illustrated by numerous plates of the Zamia-like plants occurring in these Plant-bearing beds.

In 1863 he communicated a paper to the Geological Society of London, "On the Occurrence of Rocks of Upper Cretaceous Age in Eastern Bengal."

A grand feature of the Geological Survey of India is its publications, which, under Dr. Oldham's administration, had attained to an extent and importance unsurpassed even by the magnificent volumes issued by the United States Surveys, and distributed with the same liberality.

These publications are of four kinds, viz. :—

1. *Annual Reports*, commenced in 1858.
2. *Records*, issued quarterly, containing brief reports and papers forming abstracts of more detailed work, and notices of recent discoveries, etc. Royal 8vo. About 11 volumes published, commenced in 1868.
3. *Memoirs*, in royal 8vo., illustrated by Plates and coloured Maps of the several districts, of which 14 volumes have appeared, commenced in 1859.
4. The *Palæontologia Indica*, being figures and descriptions of the Organic Remains obtained during the progress of the Geological Survey of India. Eleven separate series published.

Being in England in 1867, Dr. Oldham attended the Meeting of the British Association at Dundee, and presented an elaborate Report on the Geology of India.

Dr. Oldham's last work, in connexion with the Geological Survey of India, was to complete the transfer of the very extensive collections and library from the former Indian Geological Survey Office to its new quarters in the large Imperial Museum of Calcutta, where they are now favourably located under the present able Superintendent, Mr. Henry B. Medlicott, M.A., F.R.S., F.G.S.

Dr. Oldham was chosen an M.R.I.A. in 1842.

He was elected a Fellow of the Geological Society of London in 1843; and of the Royal Society in 1848.

He was elected a Member of the Royal Asiatic Society of Bengal in 1857, serving fourteen years on the Council and four times elected its President. A bust of Dr. Oldham was obtained by its members and placed in the Society's rooms.

He received the Gold Medal of the Royal Society in 1875; the Emperor of Austria also presented him with a gold medal for his eminent geological labours in India.

He was an honorary or corresponding Member of the Imperial Academy and of the "Isis" Society of Dresden; of the Imperial Society of Naturalists, Moscow; of the Royal Geological Society of Cornwall; of the Geological Society of Edinburgh; and of the Zoological Society of London.

He was the discoverer in 1849 of *Oldhamia* in the Cambrian rocks of the Wicklow Hills, Ireland (named after him by Prof. Edward Forbes), the then oldest known fossil organic remain.

In 1850 he married Miss L. M. Dixon, daughter of William Dixon, Esq., of Liverpool, by whom he had five sons and one daughter.

Since Dr. Oldham's retirement from the post of Superintendent of the Geological Survey of India, he has resided at Eldon Place, Rugby. He was lately appointed Examiner in Geology to the University of London, and had fulfilled a similar office to the Indian Civil Service College at Cooper's Hill. His final illness was of brief duration, his last hours of active work being spent in reviewing Barrande's Cephalopoda of Bohemia, and F. V. Hayden's grand Geological and Geographical Atlas of Colorado, both of which will be found in the present Number. But the friendly hand that penned them did not live to correct the proofs. Adopting the words of one of his colleagues, we may truly say, that, "in Dr. Oldham's death we have to regret the loss of one who was a good man, a faithful friend, and a profound observer of Nature."