

**THE FOSSILS OF THE YORKSHIRE
LIAS DESCRIBED FROM NATURE,
WITH A CAREFULLY MEASURED
SECTION OF THE STRATA, AND
THE FOSSILS PECULIAR TO EACH**

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AND THE FOSSILS PECULIAR TO EACH.

BY

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TO THE GEOLOGY OF YORKSHIRE.

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PREFACE.

THE Fossils of the Yorkshire Lias, and especially the Ammonites, had been objects of superstition, and poetick fiction, from mediæval times, but respecting their true nature, no one ventured to express an opinion.

Whilst it was generally believed that the hills and valleys, and the whole face of nature, were the same as they had ever been, from the creation of the world, except some modification which it had suffered by a transient deluge, the forms of organized beings found deeply buried in the earth remained inexplicable. It was only about the middle of last century that correct views respecting the changes which had taken place on the earth's surface were promulgated, and the origin of the noble, sublime, and popular science of Geology, now established upon indubitable evidence, can scarcely be placed earlier than the beginning of the present; whilst the systematick study of Fossil Remains, or *Palæontology*, as it has been named, is still more recent.

The honour of first introducing the study of the rocks and organick remains of eastern Yorkshire into Whitby and the region round about, is due to the Rev. George Young, M.A., of Edinburgh. In

1818, he published his *History of Whitby*, a work of high literary character and antiquarian research, in which he gave a very luminous and correct exposition of the rocks and organick remains of the district.

The publication of this work immediately produced a general revolution in publick opinion respecting the fossil remains of the district, and excited great zeal for further discovery. There was, indeed, at this time, in Whitby, a strong desire after intellectual pursuits, not only amongst the learned, but amongst many whose circumstances in life were unfavourable to such pursuits. The cessation of a long and exhausting war, the energies aroused by that war, and the want of employment before the return of commercial prosperity, all had a tendency to intellectual pursuits, and, no doubt, contributed greatly to the establishment of Philosophical Institutions and Museums, which the great wealth and the national prosperity of the present era scarcely sustain.

Immediately after the publication of the *History of Whitby*, Young, with his companion, Mr. John Bird, an artist, and a man of a philosophical turn of mind, undertook a thorough investigation of all the strata of the Yorkshire coast, from the Humber to the Tees, and of their western outcrop towards the Vale of York and the Cleveland hills. This survey, in every way worthy of a pupil of the celebrated

Playfair, was performed with great accuracy, minute investigation, and care, during four years of assiduous labour, and the result was published in 1822, under the title of a Geological Survey of the Yorkshire Coast. In this work a fair and accurate description of the series of strata along the coast was given, which formed an important guide in further researches. The publication of this work, and the visits of the authors to various localities, and their intercourse with men of scientific tastes, gave a great impulse to geological pursuits throughout the district. At Scarborough, Mr. Bean and Mr. Williamson, by their enthusiastick and independent labours, rendered a great and lasting benefit to Palæontology. In January of 1828, the Whitby Museum was established, and became the receptacle of the fine fossil, *Teleosaurus Chapmani*, and other remains, which have rendered Whitby famous amongst all men of science. The Scarborough Museum was formed in 1831, where was soon displayed a fine and instructive collection of fossils from all the coast strata, arranged in systematick order.

Thus, by the enthusiastick and persevering labours of not a few persons, such collections were made as enabled Mr. John Phillips, when, in 1829, he published his *Illustrations of the Geology of Yorkshire*, to give an extensive systematick catalogue of the fossils from all the strata, especially those of the

Oolite, which has proved of great utility in the promotion of the science.

In 1837, I was appointed Lecturer on Natural Science to the Whithy Literary and Philosophical Society, and Curator of their Museum. Here I found a large accumulation of fossils from the Yorkshire strata, chiefly from the Lias, which, through want of means for displaying them, had remained untouched for many years. As many of them had not been named, and others, though named, had been only imperfectly described, or described in books inaccessible, I resolved to make my own book, and wrote descriptions of every fossil which came under my notice. In the beginning of 1843, I published descriptions of more than one hundred Ammonites of the Yorkshire Lias, in a short Monograph. These being favourably received, in 1855, I published descriptions of all the then known fossils of the Yorkshire Lias, together with an outline of the Geology of the Yorkshire Coast, intended as a guide to strangers. In this I followed the divisions of the strata laid down by my predecessors; and considered the Lias under three main divisions, the *Upper*, *Middle*, and *Lower Lias*. But being convinced by observation that few species of the Lias fossils had existed during the deposition of any great thickness of strata, but, on the contrary, were often confined to thin seams, I measured carefully, with a two feet rule, all the beds and seams of Lias,

both to the south and north of Whitby, and at the same time collected the fossils from each stratum. This section I published in 1868, in the fourth edition of my Guide to the Geology of the Yorkshire Coast. This section I now reprint, with slight alterations, and to which the fossils in the catalogue are referred.

Notwithstanding all this labour and research into the Lias formation in Yorkshire during more than half-a-century, two gentlemen of high scientific attainments, and of indefatigable labour and zeal, Mr. Ralph Tate, now Professor of Natural Science in the University of Adelaide; and the Rev. J. F. Blake, M.A., now Professor of Natural Science in Nottingham College, had the courage to enter upon a thorough and exhaustive survey of the Yorkshire Lias, both as regards its Stratigraphical Phenomena, and its Palæontology. As they expressed their intention to recognize and do justice to my previous researches and publications, I willingly laid open to them what I had been accumulating towards the further illustration of our Lias. Their work was published in 1876, and is the most exhaustive of any work which has appeared on that subject; and the scrupulous fidelity and honour with which they have treated my labours gives me the highest gratification. After the publication of a work on our Lias so exhaustive, anything further from me on the subject might appear uncalled for; but their work