

2. "Jurassic Plants from the Marske Quarry." By the Rev. George John Lane, F.G.S.

The Marske Quarry is situated on the northern side of the Upleatham outlier in the Cleveland district of Yorkshire. It is about 500 feet above sea-level. In the quarry several varieties of rock are exposed, namely shales, small coal-seams, sandstones, and a ferruginous bed. The beds are of Lower Oolite age, and belong to the Lower Estuarine Series. As the Millepore Bed is absent in the district, the Lower Estuarines and the Middle Estuarines may be one continuous deposit. From this quarry *Dictyozamites* was recorded for the first time in England, its occurrence being made the subject of a paper presented by Professor Seward to the Geological Society in 1903. The writer has obtained nearly forty species from the quarry, among which are many characteristic Wealden plants. This discovery is most interesting, especially when one considers the vast interval of time that elapsed between the horizons of the Inferior Oolite and the Wealden.

#### CORRESPONDENCE.

##### THE ORIGIN OF THE BRITISH TRIAS.

SIR,—In reply to your correspondent Mr. W. B. Wright,<sup>1</sup> of the Scottish Geological Survey, who has doubtless heard much of the Desert theory from his former colleague, Mr. T. O. Bosworth (who has so ably described the evidences of desert conditions in Leicestershire), Mr. Wright must know that it is unusual to criticize an abstract<sup>2</sup> before the full text of the paper is printed. I shall therefore be as brief in my reply as I was in the abstract, only quoting the numbered passages from Mr. Wright's letter. I may reply—

(3) I do not speak of a general absence of delta-bedding, for see (9). It *does* occur. Professor Bonney is cited by me as proving the delta origin of the Bunter, and I do not propose here to add one iota to his evidence. It is quite clear enough, and the Survey Library contains the papers in which Professor Bonney published his proofs. The dactyloid form is just a further point of analogy, and the extension of the Trias delta-head is suggested by evidence from deep borings (as to which let Mr. Wright ask Mr. Whitaker, who will also give him all the bibliographical assistance he needs, as he kindly did for me) in the East and South-East of England, chiefly made in connexion with explorations for coal.

(9) It would be equally as fruitless as trying to find the river-bed of the Triassic delta (or its tributaries) to expect to show beds in the act of tilting through an angle of 45°; but it is an axiom of modern physical geography (which I merely extend to the past) that beds when subsiding do tend, when so elevated, to become horizontal finally. The discontinuity of delta-bedding, laterally and vertically, seen so clearly in Staffordshire and Notts., is an ocular demonstration of what has happened in the past; but no more is to be expected. The characteristic overlapping, of which Mr. Wright must have

<sup>1</sup> See *GEOL. MAG.* for November, 1910, p. 526.

<sup>2</sup> See "Origin of the British Trias", by A. R. Horwood (Abstract of paper read at the British Association, Sheffield, September, 1910): *GEOL. MAG.*, October, 1910, p. 460.

seen something in Notts., gave rise in early Survey days to the interpretation of certain sections of strata so juxtaposed as faulted beds. Viewed as delta-bedded deposits the faults disappear, and such instances can perfectly well be illustrated on a map just as the discontinuous bedding.

(16) Rocks polished by wind-action occur at various points at Mount Sorrel, Croft, and elsewhere. These older pre-Triassic rocks are at practically the same level as O.D., and the Trias was laid down just as we now find it, with a slight dip, allowing for subsidence. It is merely a *petitioprincipii* to say cases for observing wind-polishing are very exceptional. But it is very damaging evidence for the desert theory to show that this action occurs only where red marl abuts against older rocks *and along a single horizontal line*. This illustrates the local (littoral or marginal) character of desert action in Triassic times.

(20) A reference to Professor Hull's Survey memoirs and Professor Bonney's papers will give Mr. Wright the information he desires.

(21) The nature of the heavy minerals of the Bunter, Keuper, and the Nile indicates that they have a common character and in their several areas a common origin to a great extent. It is known that the Nile delta deposits are mechanically altered, owing to their having been, in part, derived from a contiguous desert. In the Nile the water is free from those chemical agents which ordinary river- or rain-water contain, so that chemical action is absent. In the Trias river and rain have acted in such a way during the past that the marls of the Upper Keuper exhibit their effect. This point is another corroborative of the aqueous origin and, together with other indications, of the delta origin of the Trias.

A. R. HORWOOD.

LEICESTER MUSEUM.

November 14, 1910.

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## OBITUARY.

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### JOHN ROCHE DAKYNS, M.A.

BORN JANUARY 31, 1836.

DIED SEPTEMBER 27, 1910.

J. R. DAKYNS, the eldest son of Dr. Thomas Henry Dakyns, was born in the island of St. Vincent, West Indies. In 1845 the family removed to England, and settled at Rugby, where J. R. Dakyns received his early education. In 1855 he proceeded to Trinity College, Cambridge; four years later he gained the position of twenty-seventh Wrangler in the Mathematical Tripos; and during the next two years he was engaged in teaching. Mathematics was a subject at all times of great interest to him, but Physical Geography likewise had its attractions. Hills and mountains exerted a magnetic influence on him, and the contemplation of these great features probably led him to the study of Geology. Eventually he found a congenial outdoor profession on the staff of the Geological Survey. He joined as an Assistant Geologist on January 16, 1862, and was promoted to the rank of Geologist on January 1, 1868.

In the course of his field-work he was principally occupied in the West Riding of Yorkshire and bordering tracts of Derbyshire, Lancashire, and Westmorland, and for a few years in the East