

A Deep Boring at Rooksbridge, East Brent, Somerset

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IN 1924-25 a deep boring was made by Messrs. F. G. Clements & Co., Easton, Wells, at the Rooksbridge factory of the Cheddar Valley Dairy Co., Ltd., two and a half miles E. by N. of Brent Knoll Station.

Particulars of the rocks penetrated by the boring, as supplied by Mr. F. G. Clements, are :

ROOKSBRIDGE BORING

[Surface-level—20 feet above Ordnance Datum.]

		Thickness	Depth
		FT.	FT.
[Alluvial and ? Burtle Beds]	1. Dark clay	14	14
	2. Peat	4	18
	3. Blue clay	24	42
	4. Grey sand	15	57
	5. Hardish grey rock	10	67
	6. Dark blue and brownish clay	49	116
	7. Fine, grey, ' loose ', sand (brine)	4	120
[Lower Lias]	8. Dark blue clays and shales [with limestone-beds in the lowest portion]	243	363

The borehole was abandoned at 363 feet owing to the sand getting through one of the joints of the lining-tubes. Mr. Clements informs me that ' many tons of sand were blown out of this borehole with an air lift, sufficient to cause the ground to sink, and the factory on this account to develop cracks '.

Subsequently, the Cheddar Valley Dairy Co. sunk a well (6 ft. in diameter) down to bed 4, lined it with reinforced concrete tubes, and Mr. C. Emery, the manager, informs me (*in litt.*, October 17, 1925) 'we have a good supply of water coming from the sand'.

Beds 1 to 7 inclusive would appear to be alluvial and marine Burtle Beds.

A sample of the sand that had been blown out of the hole, and of which there was a large heap at the time of my visit in May 1925, was submitted to Mr. W. F. Fleet, M.Sc., A.I.C., who reported: 'It reminds me much of a beach sand'.

There are two important facts about this boring: (1) Mr. Clements obtained from the core an ammonite that was identified for him as *Ammonites striatus*; and (2) that the Lower Lias had not been penetrated at about 353 feet, for Mr. Emery showed me a piece of core from about that depth which was unmistakable Lower Lias limestone—limestone such as is found composing the bands in the lower portion of the Lower Lias.

Rooksbridge is roughly half-way between Brent Knoll and Badgworth. At Brent Knoll the lowest Liassic beds seen belong, approximately, to the *Margaritatus*-zone of the Middle Lias. H. B. Woodward has remarked that no Lower Lias beds show in the Brent Knoll inlier, and recorded that:

'A well dug to a depth of 15 or 20 feet at the foot of the hill, near Brent Knoll railway-station, proved blue micaceous shale, which yielded *Ammonites margaritatus*, *A. Loscombei* . . .'¹

At Badgworth, a mile and a half to the eastward of Rooksbridge, Rhætic emerges from beneath the Lower Lias.

So high a zone in the Lower Lias as that of *Ammonites striatus* immediately below the alluvial and (?) Burtle Beds, and so great a thickness of Lower Lias at Rooksbridge, are facts that at first consideration would be unexpected and are certainly interesting. They redirect attention to the fact that Brent Knoll is a remnant of Middle-Lias beds (succeeded by

¹ 'The Jurassic Rocks, etc.', *Mem. Geol. Surv.* iii (1893), 208.

Upper-Lias limestones,¹ clay, and sands) at or near the centre of a basin-like arrangement of Liassic beds. This basin-like arrangement of the beds is obviously distorted; but it is a shallow basin-like expansion of the strata on a synclinal axis that may be traced from Brent Knoll, *via* Mark Moor, Meare, Glastonbury Tor (a second remnant of Middle Lias and Upper-Lias limestones, clay, and sands), the long west-and-east aligned Pennard Hill (a third remnant of Middle Lias and Upper-Lias limestones,² and clay), and Bruton.

Running approximately equidistant from this synclinal axis is, to the north, the well-known anticlinal axis of the Mendip Hills; to the south, that of the Polden Hills (of which these hills are part of the northern limb), Somerton, and Sparkford.

Flexings along these axes have taken place certainly in several geologic ages: it is noteworthy that Inferior Oolite deposits of the hemeræ *blagdeni-discitæ* (inclusive) and *murchisonæ* are preserved on the line of the Brent Knoll-Bruton synclinal axis near Bruton,³ whereas they are absent from the districts immediately to the north and south which were affected by uplifts along the Mendip Hills and Polden Hills-Sparkford anticlinal axes.

Applying this knowledge to pre-Liassic beds it would appear legitimate to assume that the Triassic beds are thickest along the line of the synclinal axis, likewise 'Permian', and possibly Coal Measures, although whether these last would be 'productive' measures is a subject for debate.

¹ These beds are well exposed in Hill Lane, 220 yards w. of East Brent Church. From them I collected: *Dactyloceras* cf. *anquinum* (Rein.), *D.* cf. *vermis* (Simpson), *Harpoceratoides* sp., *Pseudolioceras* sp. Dr. A. E. Trueman, who identified these ammonites, informs me that they indicate the *anquinum* and *Harpoceratoides* horizons.

² These limestones are well exposed, resting on the Marlstone, in two quarries on Pennard Hill—one mile e. of West Pennard Church. From them I collected: *Dactyloceras* cf. *commune* (Sow.), *D.* sp. (small), *Hildaites* cf. *levisoni* (Simpson), *Harpoceras falciferum*, *H.* sp. (young), cf. *Hildoceratoides* sp., and *Pseudolioceras* sp. Dr. Trueman informs me that they indicate the *Hildoceratoides*, *falciferum* and *Hildaites* horizons.

³ L. R., 'The Inferior Oolite and Contiguous Deposits of the Doulting—Milborne Port District (Somerset)'. *Quart. Journ. Geol. Soc.* lxxi, pt. 3 (1915), 495-497.