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# Louse Hill Quarry, Dorset

[ST 610 161]

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## Introduction

Apart from Bradford Abbas Railway Cutting (see GCR report, this volume), Louse Hill Quarry is the only historically famous Inferior Oolite Formation section in the Bradford Abbas area of Dorset that remains reasonably well exposed (Callomon and Cope, 1995). Sections hereabouts are well known in the literature through the work of S.S. Buckman and his father James who resided at Bradford Abbas (see Bradford Abbas Railway Cutting GCR site report, this volume). The Bradford Abbas Fossil Bed, yielding a rich fauna including ammonites, other molluscs and brachiopods of the Aalenian Concavum and Lower Bajocian Discites zones, and the overlying Irony Bed, with a notable brachiopod fauna, are well exposed in the quarry.

## Description

The section has been recorded by Buckman (1893a), Richardson (1932) and Macfadyen (1970), but the following section (including bed numbers) is based mainly on that of Callomon and Cope (1995). The quarry is situated at the top of a steep bank and, as testified by the long face, has been quarried for many years (Richardson, 1932).

Thickness (m)

### Inferior Oolite Formation

#### ?Halfway House Fossil Bed

8: Calcarenite, well bedded, yellow-weathering, forming thin capping

#### Astarte Bed

7: Limestone, somewhat ferruginous, marly, lenticular; in lower part, locally developed pockets of 'snuff-box' oncoids, embedded at all angles, and other limonite-encrusted fossils; ammonites including *Garantiana* (*Pseudogarantiana*) 0.25  
*platyrryma* (S.S. Buckman), *G. (P.) dichotoma* (Bentz) and *Spiroceras*; bivalves, including common astartids; brachiopods; basal erosion surface

#### Irony Bed

6: Limestone, hard, crystalline, grey, pink or brown (ferruginous); flat, eroded upper surface; numerous pebbles, sometimes oncoidal, with dark-brown or black ferruginous crust, and including ammonites; many poorly preserved gastropods (*Bathrotomaria*); diverse brachiopod fauna; 0.03–0.07  
ammonites including *Poecilomorphus cycloides* (d'Orbigny), *Sphaeroceras* cf. *brongniarti* (J. Sowerby) and *Oppelia subradiata* (J. Sowerby); undulating parting with hollows at base

#### Bradford Abbas Fossil Bed

5: Limestone, variably ferruginous, brown, 'iron-shot', ooidal, very irregularly bedded, heavily burrowed, separating into irregular lenses; fossils including belemnites, brachiopods and ammonites; where very weathered, barely perceptible and highly undulating partings divide bed into four parts:

5d: Limestone, hard, 'iron-shot', few fossils; ammonites including <i>Hyperlioceras cf. subsectum</i> S.S. Buckman	c. 0.10
5c: Limestone, slightly softer and more fossiliferous than above; layer of ammonites near top including <i>Hyperlioceras ruidiscites</i> S.S. Buckman, fairly common <i>Euhoploceras</i> , including <i>E. cf. dominans</i> (S.S. Buckman) and <i>E. cf. modestum</i> (S.S. Buckman), and <i>Docidoceras</i> sp.; large bivalves including <i>Ctenostreon proboscideum</i> (J. Sowerby) and <i>Plagiostoma rigida</i> J. Sowerby; indistinct parting, locally film of clay, at base	c. 0.15
5b: As above but slightly less 'iron-shot'; many ammonites including <i>Graphoceras formosum</i> (S.S. Buckman), <i>G. limitatum</i> (S.S. Buckman) and <i>Euhoploceras cf. marginatum</i> (S.S. Buckman)	c. 0.10
5a: As above but very hard, weathering into cavernous rubble; fossils rarer than above and often fragmentary; ammonites including <i>Graphoceras limitatum</i> and <i>G. v-scriptum</i> S.S. Buckman; fairly sharp, slightly undulating base with clay parting	c. 0.20
4: Limestone, fine grained, weakly ooidal; weathering pale-grey; richly fossiliferous, mainly ammonites with shells preserved including <i>Graphoceras concavum</i> (J. Sowerby), <i>Eudmetoceras</i> and <i>Haplopleuroceras</i> ; also bivalves, brachiopods and gastropods; sharp, slightly undulating base	0.20
3: Limestone, slightly ferruginous, weathering darker than bed above; divisible roughly into three parts (3a-c); ammonites including <i>Brasilia</i> , with <i>B. decipiens</i> (S.S. Buckman) fairly common at top (in 3c); brachiopods including <i>Homoeorhynchia ringens</i> (von Buch); belemnites common; sharp erosion surface at base	0.55
2: Limestone, slightly 'iron-shot' or creamy ooidal; flat, eroded upper surface; divided into three courses; large bivalves ('myids' and pectinids); brachiopods; and ammonite <i>Ludwigia</i> ; sharp erosion surface at base	0.20–0.40
1: Limestone, sandy, thick, massive, shelly, strongly bioturbated with prominent vertical burrows; fossils, including ammonite <i>Ancolioceras</i> near top, bivalves and brachiopods, difficult to extract	0.90
<b>Bridport Sand Formation</b>	
Sand, yellow or indurated sandstone	seen

Bed 5a is slightly recessive in the quarry face and Bed 4 forms a clear marker bed.

## Interpretation

The ammonites recorded at Louse Hill Quarry enable recognition of the Aalenian Murchisonae, Bradfordensis and Concavum zones, the Lower Bajocian Discites and Humphriesianum zones, and the Upper Bajocian Garantiana and Parkinsoni zones as shown in (Figure 2.30). The Murchisonae Zone rests non-sequentially on the Lower Jurassic (Upper Toarcian) Bridport Sand Formation. Non-sequences higher in the succession cut out the Ovalis, Laeviuscula, Sauzei and Subfurcatum zones.

The rhynchonellid brachiopod fauna of Bed 3 is sufficiently characteristic for Richardson (1932) to have suggested the name *Rhynchonella ringens* Beds' (Ringens Bed) for it (see also Holway Hill Quarry and Halfway House Cutting and Quarry GCR site reports, this volume). The fossils in the overlying Bradford Abbas Fossil Bed (beds 4–5), which totals c. 0.75 m in thickness, retain their stratification, and ammonite biohorizons Aa-14 (*Graphoceras concavum*), Aa-15 (*Graphoceras formosum*), Aa-16 (*Euhoploceras acanthodes*), Bj-2b (*Hyperlioceras rudidiscites*) and Bj-3 (*Hyperlioceras subsectum*) straddling the Aalenian–Bajocian stage boundary can be separately identified in their correct sequence ((Figure 2.30); Morton and Chandler, 1994; Callomon and Cope, 1995).

The Irony Bed (Bed 6), although thin, is widely developed. At Louse Hill Quarry, its ammonites indicate the Romani Subzone of the Humphriesianum Zone but the bed appears to be diachronous. At East Hill Quarry (see Bradford Abbas Railway Cutting GCR site report, this volume), it has yielded ammonites indicative of the older Sauzei Zone. Buckman (1910a) reported that at Louse Hill Quarry, the Irony Bed was 'one of the most remarkable repositories of brachiopod species in this country', having many distinctive and peculiar forms of both rhynchonellids and terebratulids. Richardson (1932) listed 13 species and Macfadyen (1970) listed others; type specimens of several came from here.

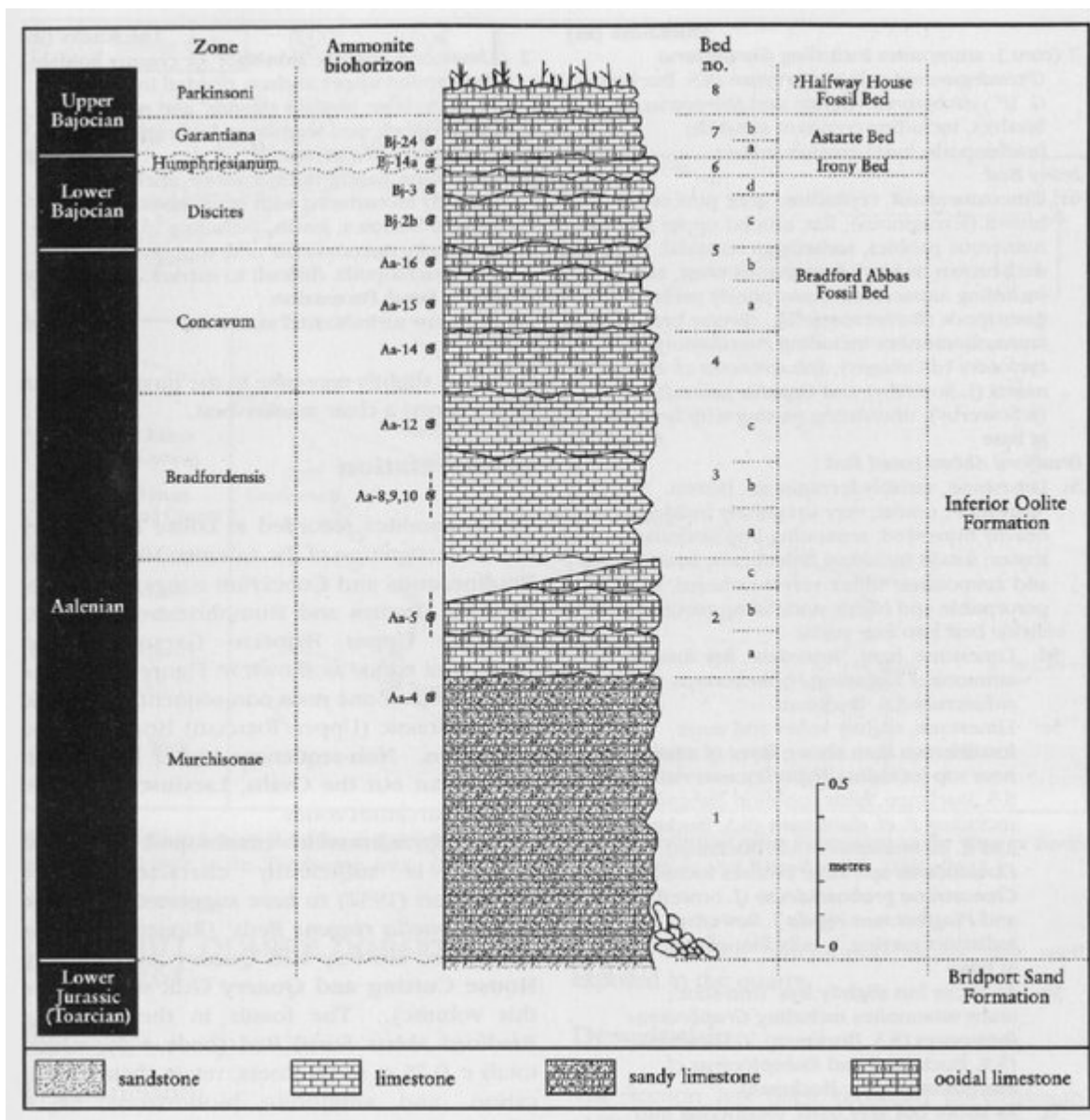
The Astarte Bed (Bed 7) at Louse Hill Quarry is the only place so far known in England where the Dichotoma Subzone of the Upper Bajocian Garantiana Zone has been unambiguously recorded (Callomon and Cope, 1995). Also known as the 'Rotten Bed' (e.g. Macfadyen, 1970), the Astarte Bed is overlain non-sequentially by the Parkinsoni Zone. The missing younger subzones of the Garantiana Zone reach a thickness of at least 5 m in the town of Sherborne, only 4 km to the east. The bed is widespread in Dorset and occurs at a number of GCR sites (e.g. Burton Cliff and Cliff Hill Road Section).

The residual thin capping of calcarenite at the top of the section is tentatively identified as the Halfway House Fossil Bed, which takes its name from the quarries at Halfway House, to the north-west of Louse Hill Quarry (see Halfway House Cutting and Quarry GCR site report, this volume). Richardson (1932) recorded a greater thickness (0.6 m) than that given in the above section, and a fauna of belemnites and terebratulid brachiopods.

## Conclusions

The section at Louse Hill Quarry complements that in Bradford Abbas Railway Cutting (see GCR site report, this volume), access to which is restricted because of high-speed trains. The Bradford Abbas Fossil Bed yields ammonite faunas from the Aalenian–Bajocian stage boundary interval (Concavum–Discites zones), and the overlying Irony Bed (Humphriesianum Zone) yields a notably rich and diverse brachiopod fauna. As is typical of the Inferior Oolite Formation in the Wessex region, the total Aalenian–Bajocian succession at Louse Hill Quarry is only a few metres thick and is interrupted by some significant non-sequences. Together with others in the Sherborne area, it contributes to an understanding of the complex pattern of Aalenian–Bajocian sedimentation and depositional history in the Wessex region which has international palaeontological and stratigraphical interest.

## [References](#)



(Figure 2.30) Graphic section of the Inferior Oolite Formation at Louse Hill Quarry (After Callomon and Cope, 1995, fig. 11.) For lithologies, see text.)