Goathill, Dorset

[ST 672 175]

B.M. Cox

Introduction

The quarry at Goathill near Milborne Port, Sherborne, Dorset exposes the Fuller's Earth Rock Member of the Fuller's Earth Formation (Figure 2.36). It is the type locality of the Linguifera Bed, which is the middle subdivision of the Fuller's Earth Rock Member as recognized by Torrens (1966, 1980b) in the Sherborne area (see (Figure 2.4)). The underlying Thornford Beds are also seen, although they are better known and were exposed more fully at Troll Quarry (see GCR site report, this volume), *c.* 12 km farther south-west. The highest strata exposed at Goathill are the Ornithella Beds, which are recognized throughout the entire Dorset–Somerset outcrop of the Fuller's Earth Rock Member (Arkell, 1933). The Linguifera Bed was first noted by Torrens (1964) in excavations for a water pipeline trench in Sherborne where it was a 1 m-thick, hard, nodular limestone, crowded with brachiopods. It was later named by him after the brachiopod '*Terebratula*' *linguifera* Davidson (Torrens, 1966). The quarry at Goathill is located on the hanging-wall of the Poyntington Fault as mapped by Fowler (1944) and Bristow *et al.* (1995); exposures immediately to the east are of the Inferior Oolite Formation (Torrens, 1969a).

Description

The site was mentioned by Richardson *et al.* (1911), White (1923) and McKerrow (1953) but not described in detail until Torrens (1966) on which the following section and faunal records are largely based.

	Thickness (m)
Fuller's Earth Formation	
Fuller's Earth Rock Member	
Ornithella Beds	
11: Limestone with brachiopods (*Rhynchonelloidella* and *Wattonithyris*)*;* large *Ornithella bathonica* (Rollier) common at base)	0.15
10: Marl with brachiopods (as in Bed 11); belemnite fragments; bivalves including *Catinula, Liostrea, Modiolus* and *Pleuromya;* serpulids; ammonites (including *Procerites* and *Choffatia*)	0.15
9: Limestone with very common rhynchonellid brachiopods	0.3
Linguifera Bed	

8: Limestone, rubbly, very fossiliferous with macroconch and microconch *Morrisiceras* and indeterminate oppeliids; belemnite fragments; echinoids (*Collyrites* and *Holectypus*); brachiopods (*Kallirhynchia, Ornithella, Rhynchonelloidella, Rugitela* and '*Terebratula*' *linguifera*); bivalves including *Anisocardia fullonicus* Cox, *Catinula* sp., *Chlamys* (*Radulopecten*) sp., *Entolium corneolum* (Young and Bird), *Goniomya intersectans* (Wm Smith), *Gresslya peregrina Inoperna plicata* J. Sowerby, *Limatula cerealis* Arkell, *Modiolus anatinus Wm* Smith, *Pholadomya lirata* (J. Sowerby), *Pleuromya alduini* (Brongniart), *P. calceiformis* (Phillips), *P. marginata* (Agassiz), *P. subelongata* (d'Orbigny), *Pseudolimea duplicata* (J. de C. Sowerby), *Pseudotrapezium* cf. *cordiforme* (Deshayes), *Rollierella minima* (J. Sowerby), *Thracia depressa* (J. de C. Sowerby), *Trigonia* sp.; gastropods including *Amberlya*	0.69–0.76
Thornford Beds	
7: Limestone, massive	0.35
6: Limestone	0.23–0.25
5: Limestone with *Ornithella*	0.35
4: Limestone, softer and more marly than above; small *Ornithella,* belemnite fragment	0.30–0.35
3: Limestone	0.23
2: Limestone	0.30
1: Limestone	seen to 0.61

A similar thickness of strata (*c.* 4 m) was described here more recently by Bristow *et al.* (1995) who noted that the limestones were extensively veined by calcite and limonite, and dipped 15° west, as a result of their proximity to the Poyntington Fault.

Interpretation

When Torrens (1964) first drew attention to the brachiopod-rich bed subsequently named the 'Linguifera Bed', it was known to occur between the Thornford Beds and Ornithella Beds of the Fuller's Earth Rock Member between Thornford and Goathill in north Dorset. Later, Torrens (1966) confirmed that it could be traced between Goathill and Whistle Bridge, south of Yeovil, Somerset, a distance of *c.* 12 km. It dies out a short distance to the north of the quarry at Goathill. This tripartite division of the Fuller's Earth Rock Member in the Sherborne area was endorsed by Torrens (1980b). Farther north (see Laycock Railway Cutting GCR site report, this volume), only the Ornithella Beds are still recognizable and the remainder of the succession is referred instead to the Milborne Beds, a term first used by Buckman (1918, 1921) (see Troll Quarry GCR site report, this volume). Although the section recorded by Bristow *et al.* (1995) is comparable with that of Torrens (1966) given above, and despite the fact that the quarry at Goathill is the type locality of the Linguifera Bed (albeit designated as such in Torrens' (1966) unpublished PhD thesis), they assigned most of the strata (down to and including Bed 4 of Torrens) to the Ornithella Beds. They made no mention of the Linguifera Bed, although the latter is clearly recognizable in their description, which recorded 3.2 m of Ornithella Beds resting on 0.9 m of Milborne Beds. Their use of the term Ornithella Beds extends its scope, at the expense of the Milborne Beds, beyond that of any previous usage.

Each of the three subdivisions of the Fuller's Earth Rock Member here have a distinctive brachiopod fauna (Figure 2.37) that is evident amongst the extensive collections reported by McKerrow (1953). The brachiopods of the Ornithella Beds are characterized particularly by large *Ornithella bathonica* comparable with populations from other localities at the same horizon. As might be expected, the brachiopod fauna of the Linguifera Bed is characterized by its eponymous taxon *Terebratula*' *linguifera,* although, according to Torrens (1966), this species is much scarcer here than at other localities

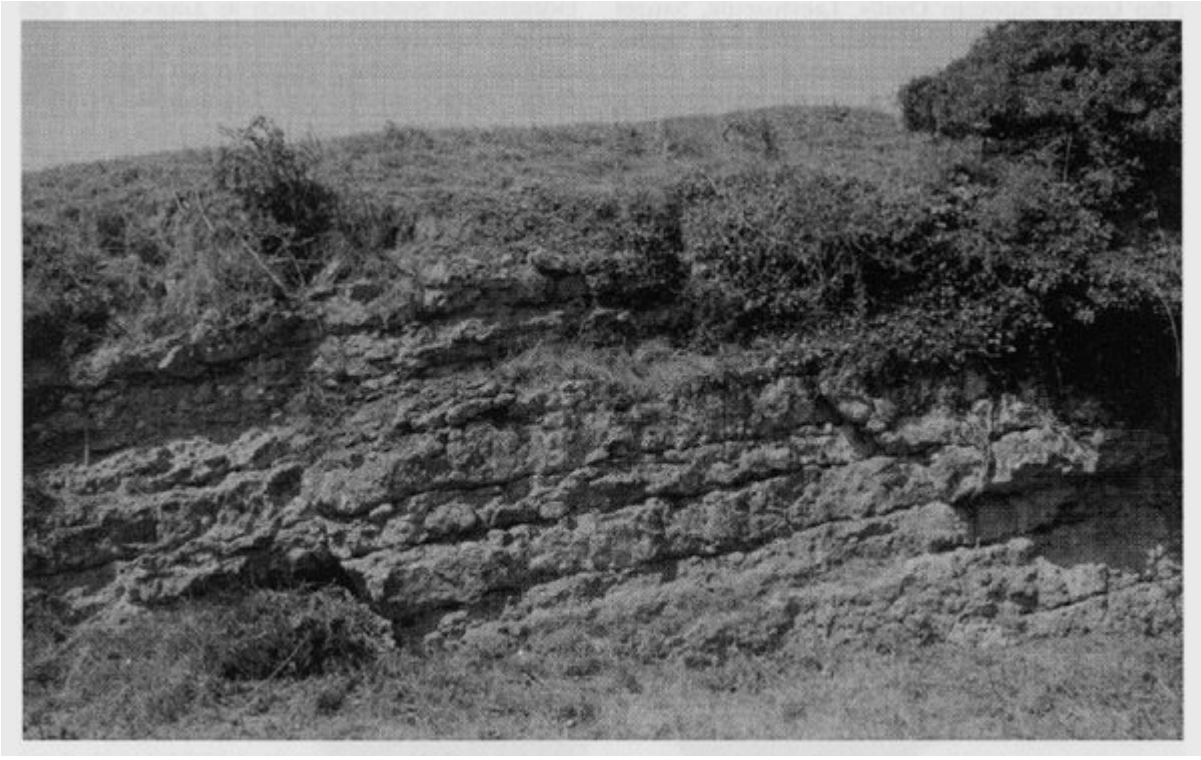
farther west, possibly because it is sited near the bed's northern limit. The brachiopod fauna of the underlying Thornford Beds (notably beds 4 and 5) is dominated by an abundance of the dwarf species *Ornithella haydonensis* Muir-Wood. McKerrow (1953) suggested that differing ecological conditions were responsible for the dwarf forms amongst his collection but, in fact, they represent a quite separate and older fauna. According to Torrens (1966), McKerrow's material was not collected from the quarry at Goathill itself; but from brash in the field immediately to the north where there was an intermixing of forms from the different beds. Sylvester-Bradley (in discussion of McKerrow, 1953) had already suggested that in the neighbourhood of Goathill, there were several horizons, each with a different brachiopod fauna.

The ammonite fauna from the Linguifera Bed includes rather poorly preserved macroconchs of the tulitid genus *Morrisiceras,* which indicate the Middle Bathonian Morrisi Zone. This zone is better known at Laycock Railway Cutting, Shepton Montague and, particularly, Bruton Railway Cutting (see GCR site reports, this volume). The associated microconchs were named *Holzbergia* by Torrens (1970) who cited specimens from Goathill; these forms had been attributed earlier to *Berhericeras* (Arkell, 1958a). In contrast, the ammonites of the Ornithella Beds are large perisphinctids. As well as the *Procerites* reported by Torrens (1966), *Choffatia* has also been recorded (Arkell, 1958a; Torrens, 1966, 1980b). These forms characterize the basal part of the Middle Bathonian Bremeri Zone (the basal part of the Hodsoni Zone of Torrens, 1980b) (see Bruton Railway Cutting GCR site report, this volume, for a discussion of zonation).

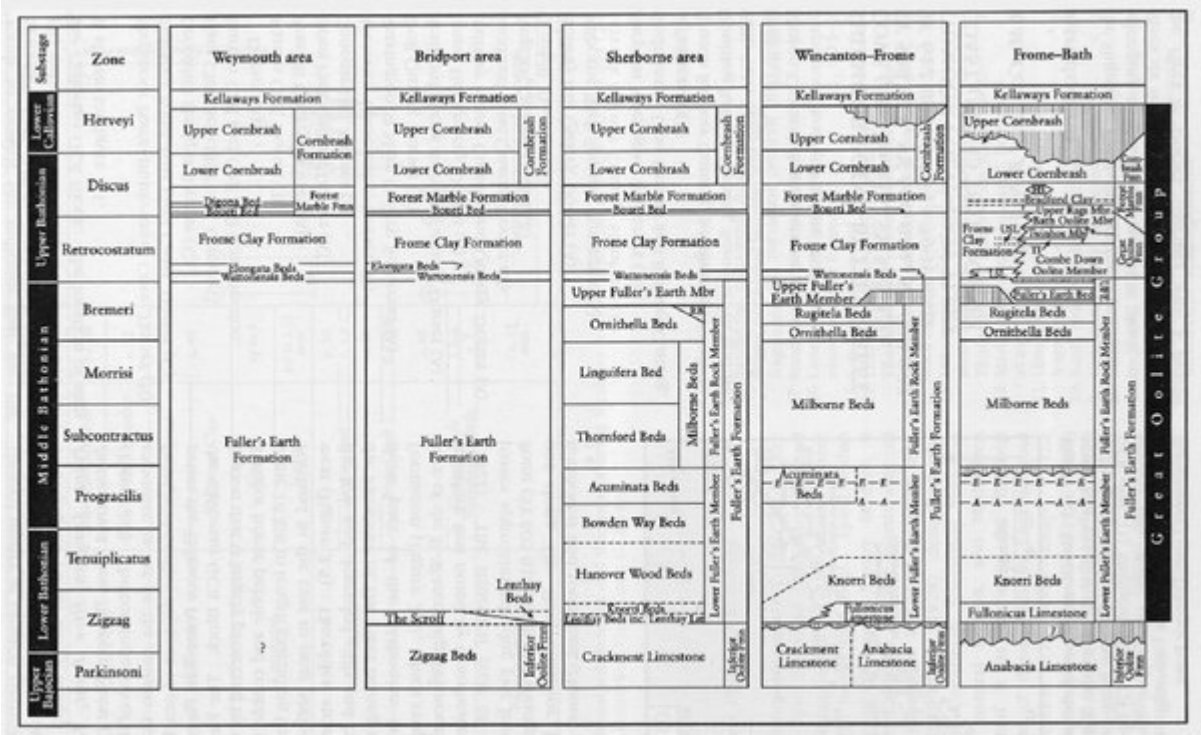
Conclusions

The quarry at Goathill is the type locality of the Linguifera Bed, a brachiopod-rich limestone forming the middle subdivision of the Fuller's Earth Rock Member in the Sherborne area. The underlying Thornford Beds and overlying Ornithella Beds are also exposed. The Linguifera Bed extends for *c.* 12 km from just north of Goathill to south of Yeovil. Ammonites indicate that it belongs to the Middle Bathonian Morrisi Zone and correlates with the upper part of the Milborne Beds of areas farther north. The site is thus an important one for regional correlation of the Fuller's Earth Rock Member, which is, itself, one of the best developments of Middle Bathonian strata in Europe.

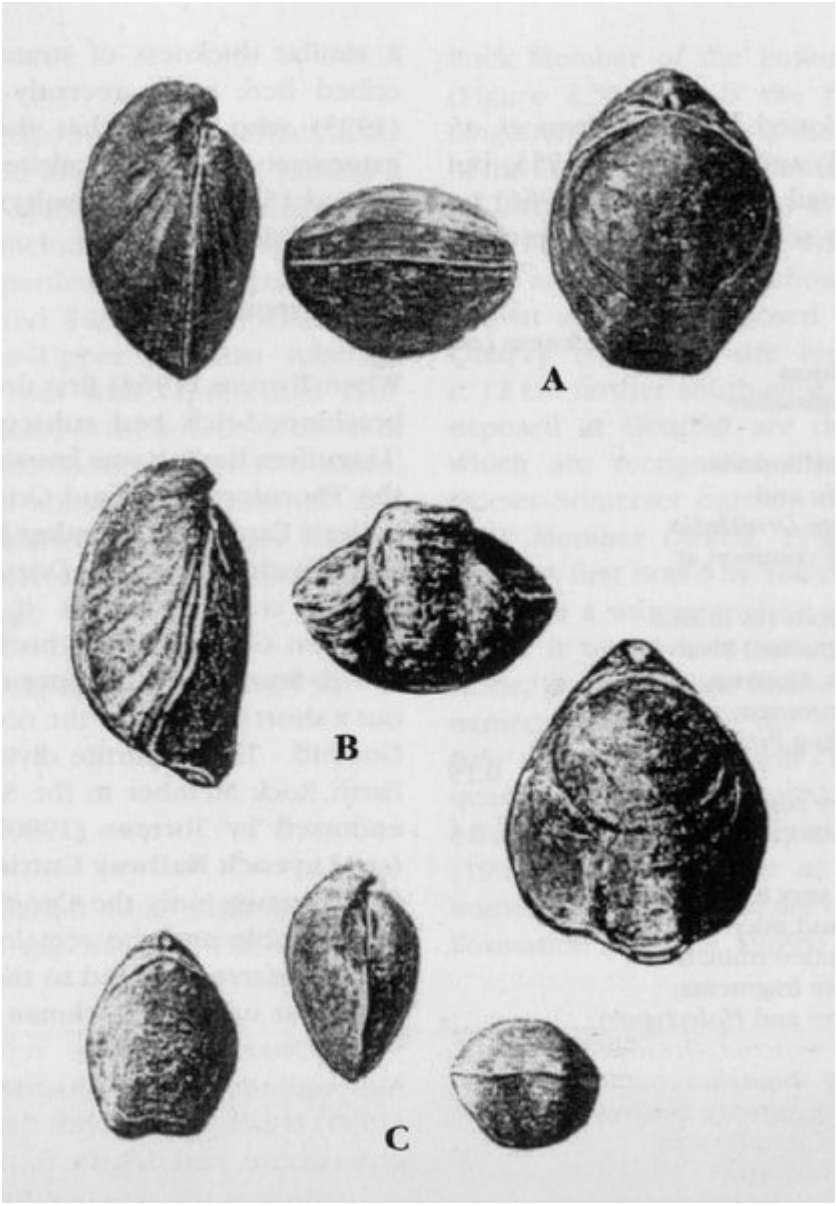
References



(Figure 2.36) The quarry at Goathill (the hammer, to the far left, is resting on the Linguifera Bed). (Photo: British Geological Survey, No. A15157; reproduced with the permission of the Director, British Geological Survey, © NERC, 1990.))



(Figure 2.4) Lithostratigraphical classification of the Great Oolite Group in the Wessex region. Vertical ruled lines indicate non-sequence. (Based on data in Penn and Wyatt, 1979; Torrens, 1980b; Page, 1989, 1996a; Bristow et al., 1995, 1999; and Wyatt, 1998.) (-E-E-E-E- = Echinata Bed; -A-A-A-A- = Acuminata Bed of Penn and Wyatt (1979); HS = Hinton Sand Member; LSL = Lower Smithi Limestone; RB = Rugitela Beds; TI = Twinhoe Ironshot; UFE = Upper Fuller's Earth Member; USL = Upper Smithi Limestone.))



(Figure 2.37) (A) Ornithella bathonica (Rollier), lectotype from the Fuller's Earth Rock Member, near Bath; (B) 'Terebratula' linguifera Davidson, Fuller's Earth Rock Member, Haydon, Dorset; (C) Ornithella haydonensis Muir-Wood; holotype from the Fuller's Earth Rock Member, Haydon, Dorset. (Reproduced respectively from Muir-Wood, 1936, pl. 5, figs 7a–c; pl. 3, figs 12a–c; and pl. 5, figs la–c; courtesy of the Palaeontographical Society) All specimens are shown at natural size.)