

Blisworth Rectory Farm, Northamptonshire

[SP 716 531]

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Introduction

The quarry at Blisworth Rectory Farm, situated about 1 km WSW of Blisworth, Northamptonshire, exposes an almost complete section of the Blisworth Limestone Formation (of which it is the type) although exposure in August 1997 was poor owing to vegetation and scree (Figure 4.13). The quarry has had a long history, having first been noted by Sharp (1870). Subsequently, details of the succession were recorded by Woodward (1894) and Torrens (1967); it should be noted that the National Grid Reference given for the site by the latter is incorrect. The section exhibits a variety of lithologies and some richly fossiliferous beds with a diverse fauna. Together, these form a facies association typical of the formation in Northamptonshire and indicative of varied depositional environments. Shelly beds here with diagnostic brachiopods are particularly valuable in regional correlation.

Description

The following description of the section is based on Torrens (1967).

	Thickness (m)
Blisworth Limestone Formation	
19: Shelly, platy limestone	0.15
18: Soft marl with <i>Praeexogyra hebridica</i> (Forbes) lumachelle near top	0.53
17: Shelly, platy limestone	0.15
16: Ooidal marl	0.08–0.15
15: Shelly, platy limestone	0.10
14: Limestone	0.08
13: Brown marl with <i>P. hebridica</i>	0.05
12: Prominent, white to cream, rubbly limestone packed with fossils including common, large epithyrid brachiopods, <i>Stiphrothyris</i> , <i>Isastrea limitata</i> (Lamouroux), common <i>Calamophyllia radiata</i> (Lamouroux), <i>Plagiostoma cardiiformis</i> J. Sowerby, <i>Modiolus imbricatus</i> J. Sowerby, pectinids, nautiloids (<i>Procymatoceras</i>)	0.76
11: Marl	0.10–0.13
10: Limestone with abundant nerineid gastropods (<i>Cossmannea</i>), <i>Pinna</i>	0.30
9: Marl	0.10–0.13
8: <i>Digonoides</i> Beds: Detrital, ooidal, graded platy limestones showing small-scale cross-bedding and marl pellets, grading down through softer and more marly limestone to cream marls at base; <i>Digonella digonoides</i> (S.S. Buckman) common but sporadic; <i>Trigonia</i> , and <i>Strophodus</i> tooth at base	1.52
7: Prominent limestone with uneven base; <i>P. hebridica</i>	0.18–0.23
6: Soft, sandy-weathering limestone with occasional <i>Praeexogyra</i> and abundant bivalve casts; <i>Anisocardia</i> , <i>Pholadomya</i> , <i>Pleuromya</i>	0.46

5: Thin, impersistent, ferruginous marl-seam	0–0.05
4: Massive limestone forming ledge in western part of face but wedging out into softer limestone to east; <i>Clypeus muelleri</i> Wright	up to 0.71
3: Soft, sandy-weathering, yellow limestone	0.30
2: Gap (strata obscured)	1.22
1: <i>Sharpi</i> Beds: Limestone, clayey, with much detritus; abundant <i>Kallirhynchia sharpi</i> Muir-Wood	0.15

Interpretation

The Blisworth Limestone Formation at Blisworth Rectory Farm (Figure 4.14) and areas to the north-east is less pure than the coeval White Limestone Formation of Oxfordshire and Gloucestershire, for it contains a greater proportion of fine terrigenous sediment. This reflects greater proximity to the London Landmass, the probable source of this sediment, in Bathonian times. The mainly micritic and finely shell-detrital limestones of the formation were deposited in a shallow, protected, low-energy, carbonate lagoon into which intermittent pulses of dominantly muddy sediment were introduced to form the sporadic beds of marl. The very fossiliferous beds in the succession, characterized by a variety of both epifaunal and infaunal organisms, indicate relatively quiet waters and a stable substrate. The same conditions probably applied when reefs of *Praeexogyra hebridica* became established; they are typically associated with marls and muddy limestones. The ooidal, cross-bedded limestone in the Digonoides Beds suggests a transient phase of more turbulent current-dominated waters.

There are few well-authenticated and localized ammonites from the Blisworth Limestone Formation of the East Midlands and refined dating is difficult. None are known from the Sharpi Beds at the base of the formation, but these beds are believed to correspond to the Excavata Bed of the Oxford-Bicester area, which belongs to the Morrissi Zone (see Ardley Cuttings and Quarries GCR site report, this volume). From sections a little to the east of Blisworth Rectory Farm and at Kingsthorpe in Northampton, specimens of *Procerites quercinus* (Terquem and Jourdy) have been collected from a level close above the top of the Sharpi Beds (Torrens, 1967). They are indicative of the lowest part of the Retrocostatum Zone; the Bremeri Zone is probably unrepresented. Thus, the bulk of the Blisworth Limestone Formation at Blisworth Rectory Farm is equivalent to the upper part of the Ardley Member of the White Limestone Formation in Oxfordshire and Gloucestershire, a conclusion that is supported by the occurrence of *D. digonoides* in Bed 8 (Figure 4.15), a brachiopod that is locally present in the member in those counties (Torrens, 1967). Additional corroboration is provided by nerineid gastropods recorded by Barker (1976) from Bed 10, which include *Eunerinea arduennensis* (Buvignier), *Nerinella* cf. *acicula* (d'Archaic) and *Bactroptyxis implicata* (d'Orbigny). The last two are restricted to the Upper Bathonian, and are also indicative of this zonal level (Torrens, 1980b).

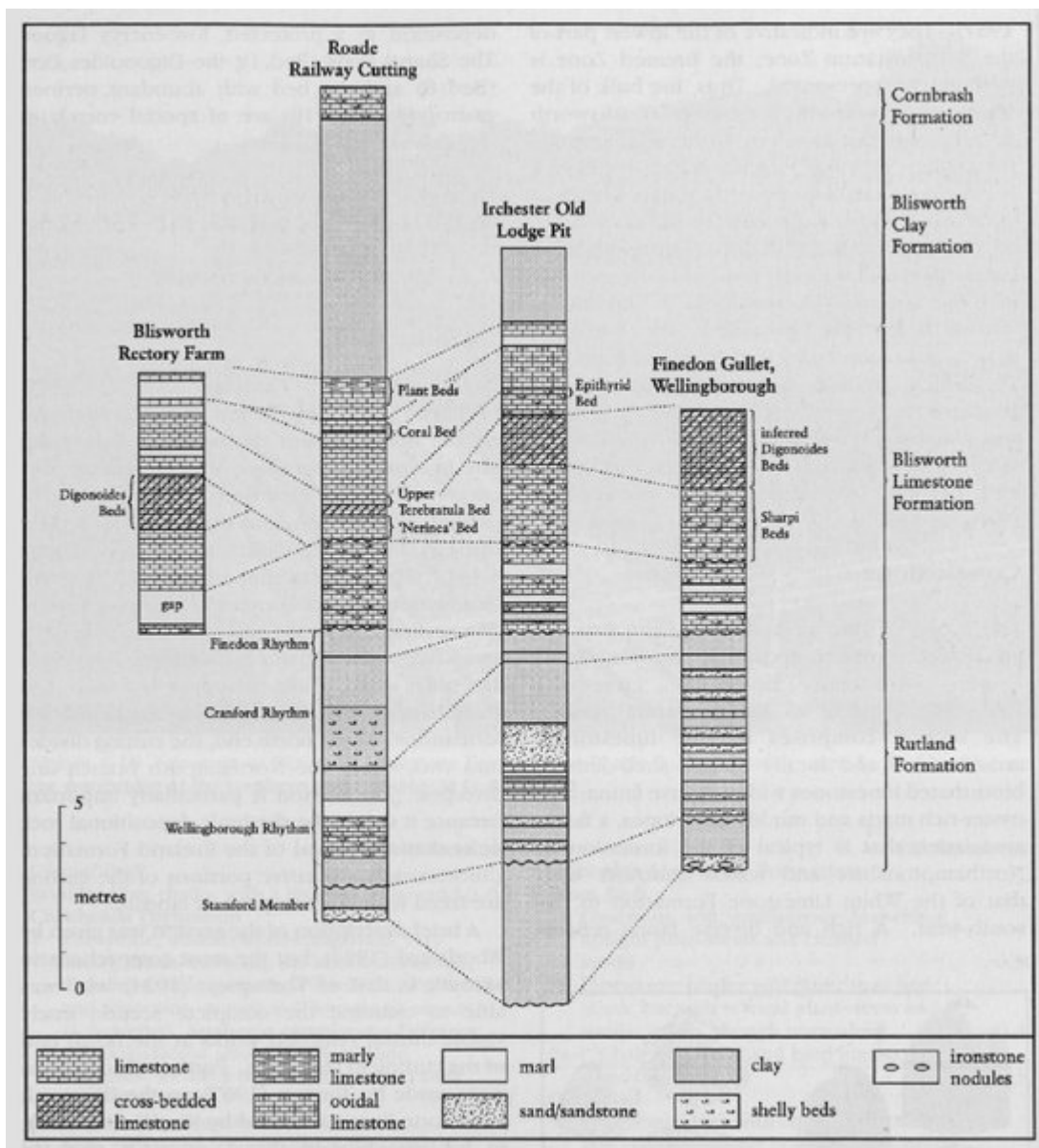
Conclusions

The quarry at Blisworth Rectory Farm exposes an almost complete section in the Middle to Upper Bathonian Blisworth Limestone Formation (Morrissi to Retrocostatum zones). The section comprises micritic limestones; cross-bedded and locally ooidal, shell-detrital, bioturbated limestones with a diverse fauna; and oyster-rich marls and muddy limestones, a facies association that is typical of the formation in Northamptonshire and which contrasts with that of the White Limestone Formation to the south-west. A rich and diverse fauna reflects deposition in a protected, low-energy lagoon. The Sharpi Beds (Bed 1), the Digonoides Beds (Bed 8) and the bed with abundant nerineid gastropods (Bed 10) are of special correlative significance.

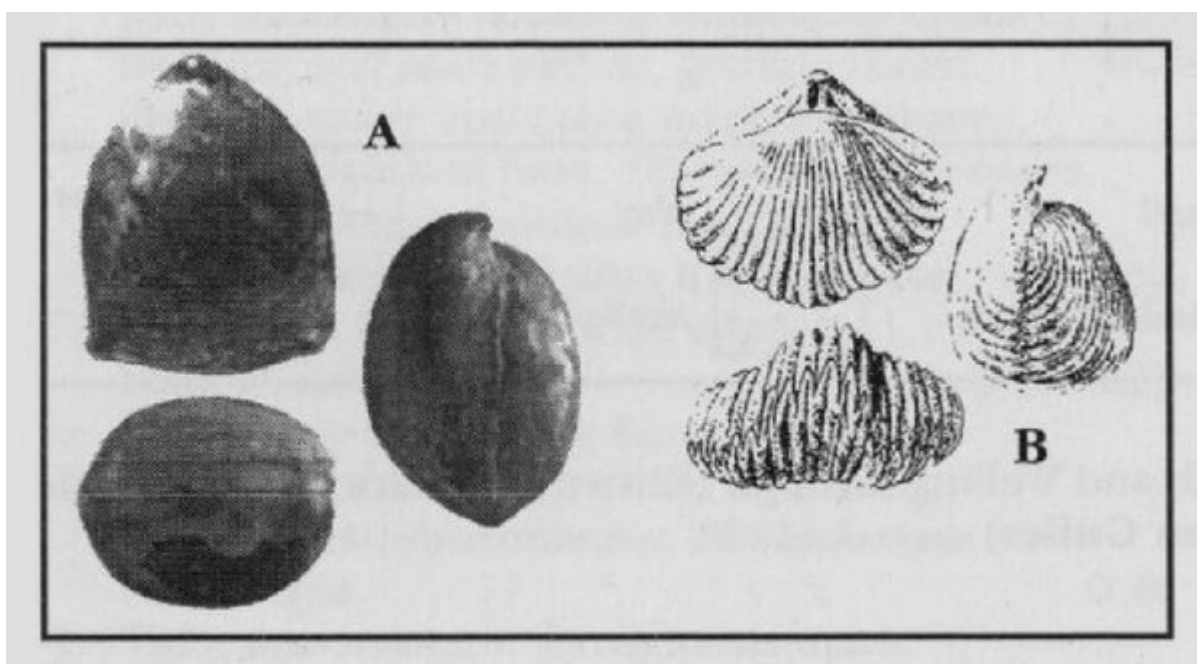
References



(Figure 4.13) Poorly exposed Blisworth Limestone Formation at the Blisworth Rectory Farm GCR site. (Photo: M.G. Sumbler.)



(Figure 4.14) Correlation of GCR sites between Blisworth and Wellingborough (Blisworth Rectory Farm, Roade Railway Cutting, Irchester Old Lodge Pit and Finedon Gullet.)



(Figure 4.15) The brachiopods (A) *Digonella digonoides* (S.S. Buckman), and (B) *Kallirhynchia sharpi* Muir-Wood which give their names to marker horizons in the Blisworth Limestone Formation. ((B) is reproduced from Muir-Wood (1938, fig. 15, 2A-C) courtesy of The Geologists' Association.) All natural size.)