Metheringham, Lincolnshire

[TF 054 615]

M.G. Sumbler

Introduction

The GCR site at Metheringham, Lincolnshire, shows a section through the middle part of the Lincolnshire Limestone Formation and is the type locality of the Metheringham and Blankney members of Ashton (1977, 1980).

Description

The quarry at Metheringham is probably close to, or incorporates, the sections briefly described by Richardson (1940) when only the upper part of the succession was exposed. A greatly extended section totalling some 20 m of Lincolnshire Limestone Formation is depicted by Ashton (1977, 1980) (see (Figure 4.41)) as summarized below.

	Thickness (m)
Lincolnshire Limestone Formation	
Upper Lincolnshire Limestone	
Sleaford Member	
29: Limestone, grey-brown, thinly bedded, flaggy, poorly sorted, cross-bedded, pisoidal, ooidal grainstone	2.50
Lower Lincolnshire Limestone	
Blankney Member	
28: Limestone, yellowish-brown-weathering, well-bedded, very fine-grained, ooidal grainstones, markedly sandy, with very sandy partings particularly in the lower part where some beds decalcify to loose sand; nerineid gastropods	2.13
Metheringham Member	
25–27: Limestone, grey to pinkish-buff, massive, well-bedded and flat-bedded, hard, sandy, ooidal grainstones and packstones with scattered, coarser pebbles particularly in topmost bed; basal erosion surface with derived pebbles	2.36
Kirton Shale Member	
24: Shale, dark blue, indurated where fresh	0.95
Lincoln Member	
21–23: Limestone, blue-hearted, ooidal and peloidal wackestone, more densely ooidal towards base; *Entolium, Acanthothiris crossi* (Walker), *Parvirhynchia*	2.0
Leadenbam Member	
15–20: Limestone, white to pale-brown, thinly bedded, carbonate mudstone and sparsely peloidal wackestone with marly clay interbeds	1.9
Greetwell Member	
2–14: Limestone, pale-brown, massive, well-bedded, shelly, ooidal and peloidal wackestone with pale-grey, micrite burrow-fills; more grain-rich (packstones) at both top and bottom; recrystallized corals and nerineid gastropods common towards top	7.3

Sproxton Member

1: Limestone, pale-grey, weathering brown, massive, silty and slightly sandy with clayey lenses; plant debris; micrite-filled burrows towards top	up to 0.2

Currently (1997), the lower part of the succession is largely obscured owing to tipping and the cumulative effects of motorcycle scrambling. However, excellent sections of the Lincoln Member and succeeding beds are still available.

Bed 24, the Kirton Shale Member, is a conspicuous marker bed in the face (Figure 4.42). It averages about 1 m in thickness, but reaches nearly 2 m at the eastern end of the site.

Interpretation

Bed 1, up to *c.* 1.2 m of which was formerly exposed in the deepest part of the pit, probably represents almost the whole of Ashton's (1980) Sproxton Member. This unit, transitional in facies between the Lincolnshire Limestone Formation and the underlying Grantham Formation, is well developed throughout south Lincolnshire (see Sproxton Quarry GCR site report, this volume). At Metheringham, the top of the member is developed as a hardground suggesting a break in deposition; this hiatus is more marked at Greetwell Quarry (see GCR site report, this volume) where both the Sproxton Member and Grantham Formation are absent, and the succeeding unit of the Lincolnshire Limestone Formation rests unconformably on the Northampton Sand Formation.

The succeeding Greetwell Member, some 7.5 m thick, is substantially thicker than at the type locality (see Greetwell Quarry GCR site report, this volume), although it thickens still more to the south (Ashton, 1980, fig. 6; see Sproxton Quarry GCR site report, this volume). Near the base, a conspicuous bed of brownish silty and sandy limestone (Bed 6), known as the 'Wragby Bed', is traceable throughout much of central Lincolnshire. The argillaceous micrites of the overlying Leadenham Member form a distinctive unit for correlation in central Lincolnshire. The upper half (beds 17–20) is particularly thinly bedded and markedly pisoidal; this unit constitutes Ashton's (1980) Cathedral Beds, a useful marker known only in the Lincoln area (see Greetwell Quarry GCR site report, this volume).

The succeeding Lincoln Member, the lowest unit now clearly exposed, is developed much as at its type locality (see Greetwell Quarry GCR site report, this volume). The basal oolite rests sharply and probably on a slight erosion surface on the underlying beds, and this erosional relationship may account for the limited distribution of the Cathedral Beds; it passes upwards into sparsely peloidal wackestones. Because of the contrast in facies with adjoining strata, the Lincoln Member is one of the few units defined by Ashton (1977, 1980) that have proved to be mappable (Sumbler *et al.,* 1991; Sumbler, 1993). It yields sporadic *Acanthothiris crossi* (Walker) and appears to correspond with the *A. crossi* Beds of Evans (1952), which, because of the presence of this brachiopod, he included in the Upper Lincolnshire Limestone. However, *A. crossi* is no longer regarded as biostratigraphically significant (see Castle Bytham GCR site report, this volume).

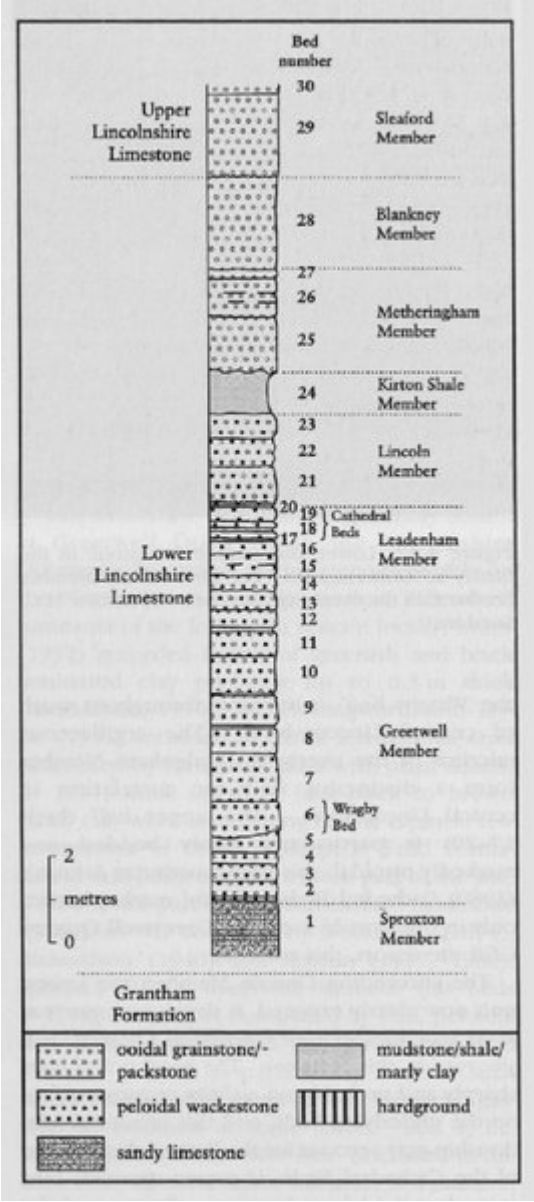
The Kirton Shale Member dies out rapidly to the south (Ashton, 1980), probably being cut out beneath the basal erosion surface of the succeeding Metheringham Member, as seen at Greetwell Quarry (see GCR report, this volume).

Prior to the work of Ashton (1977, 1980), the Metheringham and Blankney members were not recognized as separate units, but were included in the Upper Lincolnshire Limestone (Hibald-stow Beds) (Evans, 1952; Kent, 1966). The distinctive characteristics of these beds were described by Richardson (1940), at which time they were the lowest strata exposed. Ashton (1977, 1980) grouped them, together with his Kirton Shale and Lincoln members, as 'Middle Lincolnshire Limestone', which, in the bipartite classification adopted herein, forms the uppermost part of the Lower Lincolnshire Limestone. Ashton's (1980) Sleaford Member contrasts quite markedly with the lower-energy, flat-bedded, mainly micritic rocks lower in the succession, and is now taken as the basal unit of the Upper Lincolnshire Limestone. Regionally, the base of the Upper Lincolnshire Limestone is markedly erosive (see Copper Hill GCR site report, this volume).

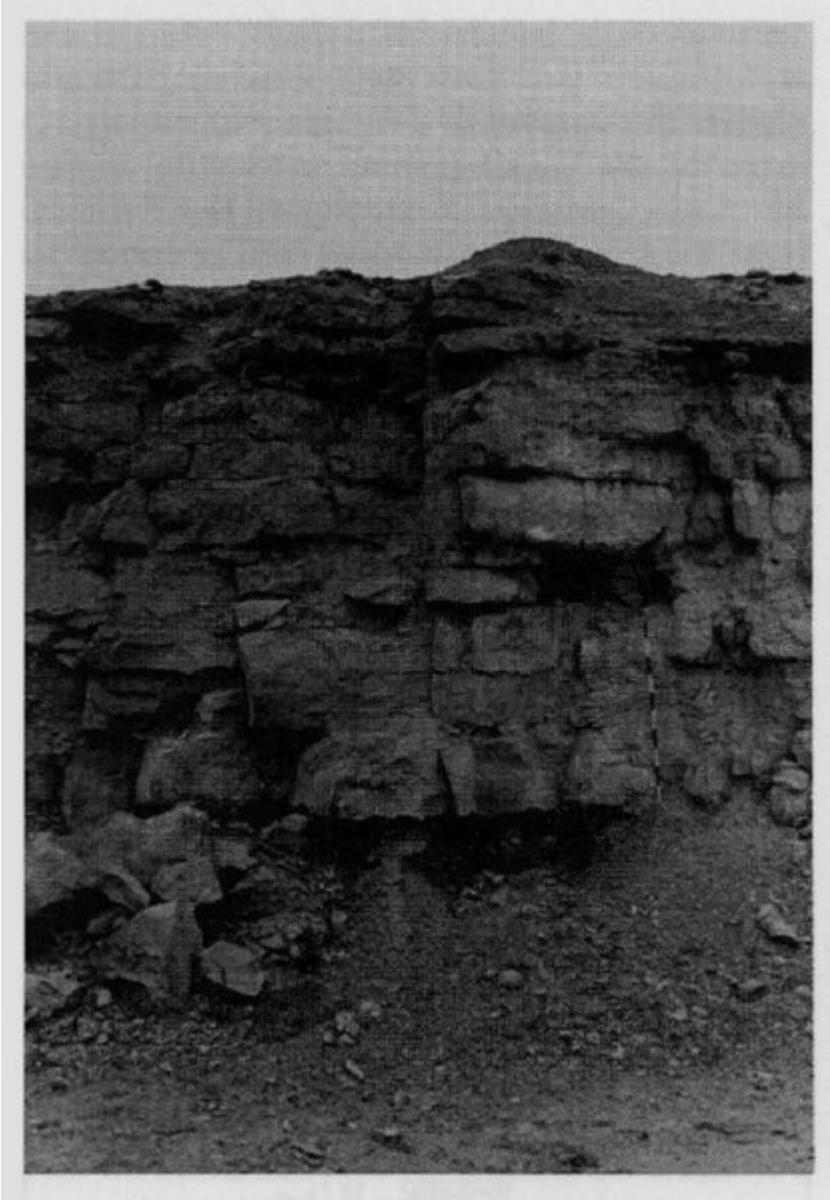
Conclusions

The quarry at Metheringham formerly exposed the greater part of the Lincolnshire Limestone Formation, including virtually the entire Lower Lincolnshire Limestone, as well as the basal part of the Upper Lincolnshire Limestone. The succession is more complete and somewhat expanded compared with that at Greetwell Quarry (see GCR site report, this volume). The site is the type locality of Ashton's (1980) Metheringham and Blankney members of the Lower Lincolnshire Limestone, and exposes the 'Cathedral Beds' (in the upper half of the Leadenham Member), which form a useful marker known only in the Lincoln area.

References



(Figure 4.41) Graphic section of the Lincolnshire Limestone Formation in the quarry at Metheringham. (After Ashton, 1980, figs 6, 9.))



(Figure 4.42) Lower Lincolnshire Limestone in the quarry at Metheringham. The Kirton Shale Member lies beneath the overhang near the base. (Photo: M.G. Sumbler.))