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# Clipsham Quarry, Rutland

[SK 977 150]

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## Introduction

The Clipsham Quarry GCR site in the county of Rutland, lies some 9 km north-west of Stamford, and little more than 3 km from Castle Bytham (see GCR site report, this volume) in adjoining Lincolnshire. It is representative of the extensive complex of quarries that, for many centuries, have produced the famous Clipsham building stone from the Upper Lincolnshire Limestone. The Clipsham Stone is a valued freestone with an excellent resistance to weathering. There are many old quarries in the vicinity of the GCR site, where the stone has been extracted since Roman times. As well as in local buildings, it has been used farther afield, for example in various Cambridge colleges and Windsor Castle (Purcell, 1967). In more recent years, it has been much used in restoration work, for example being used in preference to the more local Cotswold and Bath stones in some of the Oxford colleges (Arkell, 1947c). However, the principal target of quarrying is now the micritic limestone of the Lower Lincolnshire Limestone that is marketed mainly as aggregate.

## Description

The section within Clipsham Quarry itself exposes some 6.5 m of Lincolnshire Limestone Formation, all of which belongs to Ashton's (1980) Clipsham Member of the Upper Lincolnshire Limestone, overlain by Rutland Formation (Figure 4.34). The Lincolnshire Limestone Formation here is made up almost entirely of yellowish-brown, well-sorted, medium- to coarse-grained, more-or-less shell-fragmental, ooidal grainstones, which often show spectacular cross-bedding structures. Deeper exposures immediately to the north in the conjoined Clipsham Old Quarry [SK 977 153] indicate that the full thickness of the Clipsham Member is probably about 7 m. Underlying strata of the Lower Lincolnshire Limestone are well exposed in the working quarry where a section was recorded by Kent (in Torrens, 1968b) and figured by Ashton (1980, figs 6, 9). A description of the overlying 'Upper Estuarine Series' (Rutland Formation (Bathonian)) was given by Richardson (1939a).

## Interpretation

The Clipsham Member is apparently the sole representative of the Upper Lincolnshire Limestone here and its lithologies contrast markedly with the paler, creamy-grey, flat-bedded micritic rocks (wackestones and pack-stones) that characterize the Lower Lincolnshire Limestone. The only ammonite recorded from the member appears to be a '*Hyperlioceras*' found 'a short distance beneath the Upper Estuarine Beds [Rutland Formation]' (Kent, 1970). Frustratingly, this specimen now appears to be lost (Ashton, 1977) but it is likely that the identification is incorrect, as *Hyperlioceras* is characteristic of the lowest part of the Lincolnshire Limestone Formation (Lower Bajocian, Discites Zone; e.g. see Greetwell Quarry GCR site report, this volume), whereas the Clipsham Member probably belongs to the Lower Bajocian Laeviuscula Zone (cf. Ashton's (1980) Sleaford Member; see Castle Bytham GCR site report, this volume) or possibly even younger horizons.

At Clipsham Quarry, the Upper Lincolnshire Limestone (Clipsham Member) is c. 7 m thick but, in the adjoining Clipsham Old Quarry Kent (in Torrens, 1968b) recorded as little as 3.65 m, a fraction of its thickness elsewhere. This dramatic and rapid thickness variation of the Upper Lincolnshire Limestone from place to place is a result of three principal non-sequences (Ashton, 1980). First, deep channelling at the base of the Upper Lincolnshire Limestone, accounts for the thickest successions (e.g. see Copper Hill GCR site report, this volume). Secondly, non-sequences within the Upper Lincolnshire Limestone, such as that at the base of Ashton's (1980) Clipsham Member, account for the absence of his Sleaford Member at Clipsham Quarry. The undulating, channelled base of the Clipsham Member is strikingly displayed in the adjoining working quarry, where it rests on Lower Lincolnshire Limestone, and at other sites such as Copper Hill (see

GCR site report, this volume) where it cuts into the Sleaford Member. Thirdly, erosion of the top of the Lincolnshire Limestone Formation prior to deposition of the succeeding Rutland Formation may account for some of the thinnest Lincolnshire Limestone Formation successions. This last-named non-sequence represents a 'gap' of several million years of Bajocian and earliest Bathonian time (Parsons, 1980a), during which the Lincolnshire Limestone Formation was probably subjected to subaerial erosion, as suggested by its uneven, ferruginized, apparently karstified top surface. The development of selenite (clear, mega-crystalline gypsum) in the topmost bed is a more recent weathering phenomenon resulting from the action of acidic leachates that form by oxidation of pyrite in the mudstones of the succeeding Rutland Formation.

Underlying the Clipsham Member in the quarry complex, Kent (in Torrens, 1968b) recorded 2.44 m of pink-buff, fine-grained, marly, ooidal limestone with abundant brachiopods including *Zeilleria wilsfordensis* Muir-Wood. He equated these beds with Richardson's (1939a) 'Roadstone' of Castle Bytham Quarry (i.e. the Sleaford Member of Ashton, 1980; see Castle Bytham Quarry GCR site report, this volume). However, according to Ashton's (1980) synthesis, this member is absent at Clipsham Quarry, and the strata (Ashton, 1980, fig. 9, beds 5–7) actually belong to the Castle Bytham Beds, the topmost rhythm of his Lincoln Member of the Lower Lincolnshire Limestone. Ashton (1980, fig. 6) recorded a further 4.2 m (beds 1–4) of Lincoln Member below the Castle Bytham Beds. These comprised mainly ooidal and peloidal wackestones, the greater part of which are thought to belong to the Scottiethorpe Beds, the second sedimentary rhythm of his Lincoln Member (see Castle Bytham GCR site report, this volume).

## Conclusions

Clipsham Quarry shows a fine section of the Upper Lincolnshire Limestone together with the succeeding Rutland Formation (Bathonian in age; see Ketton Quarry GCR site report, this volume). The karstified top surface of the Lincolnshire Limestone Formation is well displayed. The contrasting facies of the Lower and Upper Lincolnshire Limestone, and the channelled base of the latter are particularly apparent in the adjoining working quarry. The site is thus an important one for sedimentological, palaeo-environmental and palaeogeographical investigations.

## References



(Figure 4.34) Rutland Formation overlying the Upper Lincolnshire Limestone (Clipsham Member) at Clipsham Quarry. (Photo: M.G. Sumbler.)