New Edlington Brick-Clay Pit

[SK 530 987]

This site was selected by Smith *et al.* (1986) as the type locality of the newly-defined Edlington Formation (formerly the Middle Permian Marls) and its acceptance as part of the GCR network followed. The site was subsequently covered but is included here because no other site has yet been identified as a suitable substitute.

Introduction

New Edlington Brick-clay Pit was cut into the 'Middle Permian Marls', which are here about 8–11 m thick and occupy a faulted north-east to south-west trough 800–900 m wide. The excavation was already large when the 1931 edition of the 1:10,560 Ordnance Survey map was surveyed, and brief notes on the section then visible were shown on the ensuing 1:10,560 geological map (Mitchell, 1932b). Details of the sequence in the eastern part of the workings were later given by Mitchell *et al.* (1947) and Downie (1967), and a sedimentologically updated sequence, combining sections in the west and east of the excavations, was given by Harwood *et al.* (1982) and Smith *et al.* (1986).

The sequence at New Edlington Brick-clay Pit

Before being covered, the Edlington Formation at its type locality at New Edlington Brick-clay Pit was seen to be about 8 m thick in the westernmost workings but thickened gradually to about 11 m in the eastern workings. In the west and north of the pit, it was worked beneath a thin cover of the Brotherton Formation and in the south the pit locally extended a few metres into the underlying Cadeby Formation. Strata exposed in 1982 in the west, at the type locality, were as shown below.

	Thickness (m)
Clay-loam, red-brown	0–0.30
Brotherton Formation	
Carbonate mudstone (mainly dolomite) and *Calcinema*-bivalve packstone, grey and buff, partly ripple-laminated, with semi-nodular very uneven bedding. Uneven smoothly rounded base, relief c. 0.1 m	c. 2.50
Sandstone, mainly brown-red and brown but pale khaki in lowest 0.08 m, very fine-grained to medium-grained, with scattered lenses of grey dolomite mudstone near top and two thin uneven beds of grey dolomite mudstone near base	c. 0.45
Edlington Formation	
Mudstone, purple-brown and red-brown, silty, blocky, with laminae of pale grey and pale grey-green silty sandstone	c. 0.30
Siltstone, sandy, grey-green, with thin beds of green medium-grained sandstone	c. 0.40
Mudstone, mottled dark red-brown and pale grey-green, blocky	c. 0.40+

Lower parts of the section, now wholly covered, comprised a few metres of poorly-exposed, dark red-brown, blocky mudstone with a number of thin beds of grey-green and red siltstone and fine-grained sandstone about 3–5 m below the top of the Edlington Formation. Some of these thin beds feature ripple lamination and others bear desiccation cracks (Figure 4.25) and hollow-faced casts of halite hoppers (Figure 4.26). Lower beds of the formation, especially the blocky mudstones, also contain a varied network of fibrous gypsum veins, the thickest of which are up to 0.10 m thick and are roughly concordant.

Faces in the east and south of the excavation revealed a similar sequence to that in the west with, additionally, about 3 m of the Cadeby Formation (Harwood *et al.,* 1982). This comprised pale-grey ooidal dolomite grainstone with a contemporaneously lithified bevelled and bored surface near the top, overlain by up to 1.2 m of monomict breccia derived from the underlying lithified grainstone (Harwood, 1986, fig. 3d).

Discussion and interpretation of the sequence

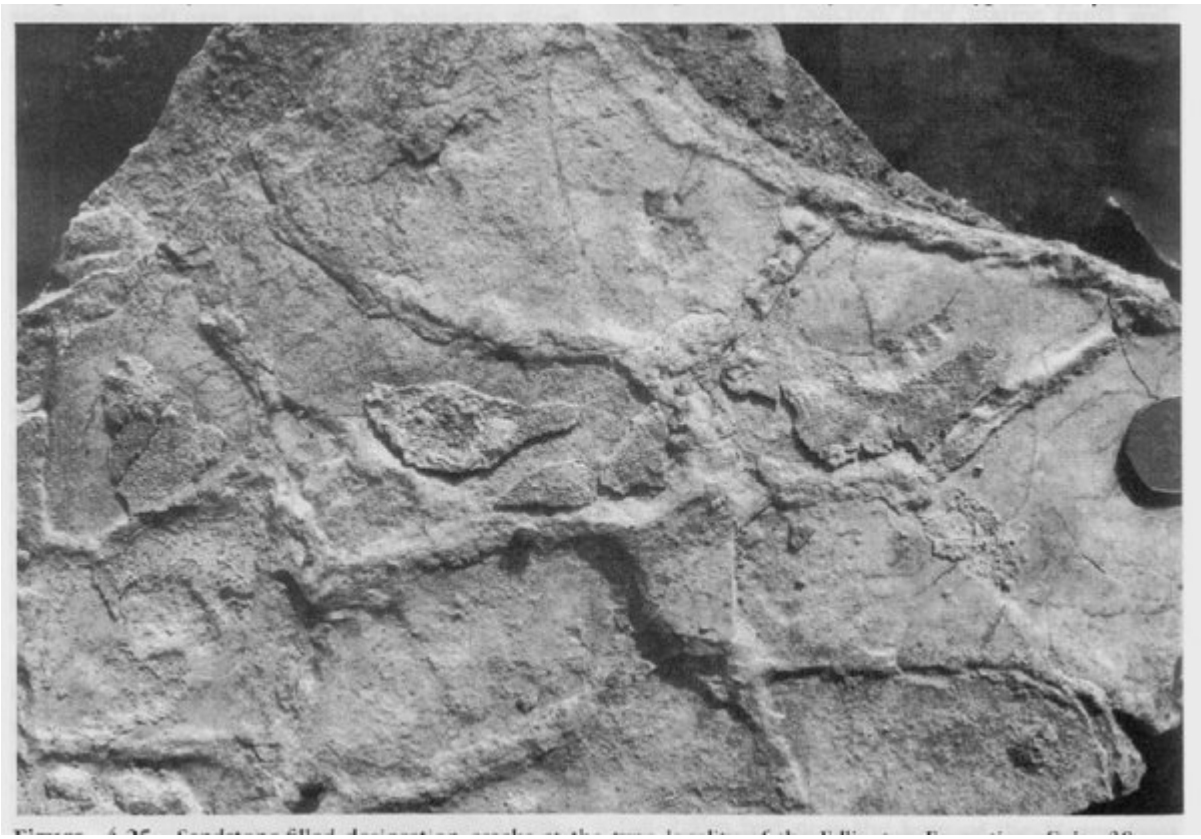
The short section now exposed at New Edlington is of interest in that the usual sharp simple contact between the Edlington and Brotherton formations is missing, its place being taken by a transition of interdigitating strata over about 0.45 m. Although it is rare to find evidence of substantial reworking of the top of the Edlington Formation during the succeeding marine transgression, such reworking may be implied here; if this is so, the contact between the two formations (i.e. the transgression surface) probably lies at the base of the 0.45 m sandstone bed which lies about 0.08–0.10 m below the lowest dolomite bed.

Special note

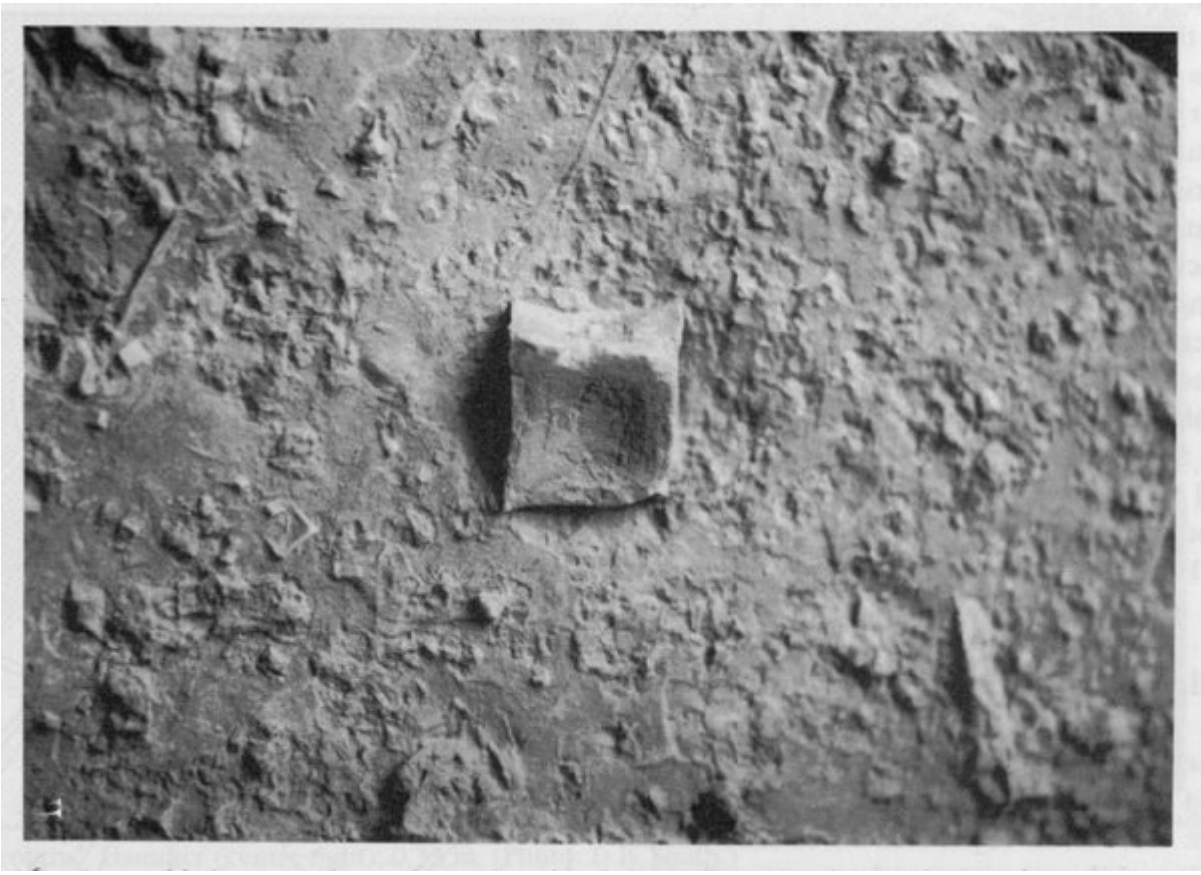
The choice by Smith *et al.* (1986) of New Edlington Brick-clay Pit as the type locality of the newly-defined Edlington Formation rested mainly on the rarity of exposures of these predominantly vale-forming recessive strata. Over the years these soft rocks have been widely worked for use in brick and tile manufacture but one by one the excavations have been flooded or otherwise filled, and the exposures lost. As a type locality, the pits at New Edlington had the advantage that both the base and the top of the formation were exposed and thus readily defined, but had the disadvantage that the sequence was both atypically thin and also lacked several of the main rock types commonly present (especially beds of ooid grainstone and anhydrite).

The loss of its type locality prompts nomination of an alternative, the main candidate amongst surface exposures probably being the River Ure Cliff site, near Ripon. This section, however, does not expose the full thickness of the formation nor its base, and is therefore not wholly satisfactory. A preferred option would probably be a well-documented borehole core such as that from, for example, the Barlow No 2, Camblesforth No 1, Synthetic Chemicals No 1 (Askern), Whitemoor or Wistow Wood boreholes; substantial numbers of core specimens from most of these have been retained by either British Coal or the British Geological Survey.

References



(Figure 4.25) Sandstone-filled desiccation cracks at the type locality of the Edlington Formation. Coin: 30 mm across. (Photo: D.B. Smith.) Figure 4.26 Casts of halite crystals on the underside of an argillaceous siltstone bed at the type locality of the Edlington Formation. The large cast is about 10 mm across. (Photo: D.B. Smith.)



(Figure 4.26) Casts of halite crystals on the underside of an argillaceous siltstone bed at the type locality of the Edlington Formation. The large cast is about 10 mm across. (Photo: D.B. Smith.)