

Huntsmans Quarry, Gloucestershire

[SP 123 255]

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Introduction

Huntsmans Quarry, near Naunton, Gloucestershire, is representative of the quarries around Eyford Hill that worked the so-called Cotswold Slate (Figure 3.54). This unit has long been famous for its suite of fossils, particularly those of reptiles, insects and plants, which have traditionally been ascribed to the 'Stonesfield Slate' (see Stonesfield GCR site report, this volume). However, the unit from which they came is somewhat older and is now assigned to the Eyford Member (Fuller's Earth Formation), of which the quarry is the type locality.

Description

A section of a quarry 'at Summerhill, Eyford', at or very close to the present Huntsmans Quarry, was recorded by Hull (1857) and reproduced by Woodward (1894). A section in Huntsmans Quarry [SP 125 254] and nearby pits at Eyford Hill [SP 135 254] were described by Richardson (1929b). A somewhat extended section, in the southern part of the present quarry [SP 126 254], was noted by Kennedy, Sellwood and McKerrow (in Ager *et al.*, 1973), and is reproduced below (with minor modifications and revised stratigraphical classification by the present author).

	Thickness (m)
Taynton Limestone Formation	
Quarry spoil	0.4
Limestone, coarse grained, ooidal, slightly sandy, trough cross-bedded; oysters and pectinid bivalves; nerineid gastropods	2.0
Limestone, coarse grained, shelly, ooidal, intraclastic calcarenite, planar cross-bedded; abundant <i>Trigonia</i> ; <i>Thalassinoides</i> burrows at base descending into bed below	1.5
Fuller's Earth Formation	
<i>Eyford Member</i>	
3: Sandstone, grey, very fine-grained, trough cross-bedded; symmetrically-rippled surfaces penetrated by numerous <i>Skolithos</i> burrows; sharp eroded top surface; abundant <i>Placunopsis</i> and bone fragments	2.0
2: Sandstone, fine grained with planar lamination and ripples; burrows descending from top of bed; abundant <i>Kallirhynchia</i> , <i>Placunopsis</i> , <i>Vaugonia impressa</i> (Broderip) and <i>Plagiostoma</i> concentrated towards base where bored limestone clasts are also present	0.30–0.60
1: Sandstone, fine grained, calcareous with small-scale, trough cross-bedding and planar lamination, and well-developed symmetrical ripples exposed on fallen blocks; sharp eroded top surface; abundant <i>Placunopsis</i> on some surfaces	2.30

A somewhat similar section, exposing virtually all of the Eyford Member, was observed by the author in 1993 in the working area of the quarry, just to the north [SP 127 257]. There, 2 m of Taynton Limestone Formation rested upon c. 5.6 m of Eyford Member (Sumbler, 2000).

Bradshaw (1978) recorded 6.8 m of Eyford Member at Huntsmans Quarry, which must be virtually the total thickness, as signs of grey mudstone in the bottom of the quarry represent the top of the underlying mudstone unit of the Fuller's Earth Formation. Boreholes drilled in the quarry floor indicate the mudstones are c. 3–5 m thick, and rest on the Chipping Norton Limestone Formation, which crops out to the north.

The indigenous invertebrate marine fauna of the Eyford Member is unremarkable, being dominated by bivalves, although specimens of the ammonite *Procerites* have also been recovered. The vertebrate fauna (mainly teeth and bone fragments) includes the marine crocodilians *Steneosaurus* and *Teleosaurus*, the dinosaur *Megalosaurus*, and the pterosaur *Rhamphocephalus*. As well as reptiles, numerous fish have been recorded, and the beds have also yielded plants, such as the conifer *Podozamites stonessfieldensis* Seward and the ginkgo *Ginkgoites digitata* (Brongniart), as well as fossil insects (Savage, 1963).

Interpretation

Huntsmans Quarry is almost the only remaining site where Cotswold Slate is worked. The stratum, lying between the mudstones of the Fuller's Earth and Taynton Limestone formations (Arkell, 1933), was formerly quarried as a source of tilestone for roofing at several sites in the immediate neighbourhood, the area of their thickest development. It can be traced for some distance to the south, to the neighbourhood of Cold Aston [SP 128 198], near Bourton-on-the-Water (Sumbler *et al.*, 2000). Details of the methods of working are given by Arkell (1947c). Despite a significant demand for natural tile-stones, most of the material is currently merely crushed for use as aggregate, although some stone is used for rustic walling.

Cotswold Slate has traditionally been equated with, and assigned to, the Stonesfield Slate Series' (Hull, 1857; Woodward, 1894; Richardson, 1929b), but the type Stonesfield Slate, though of approximately the same age, is now known to occur within the overlying Taynton Limestone Formation (Boneham and Wyatt, 1993; see also Stonesfield GCR site report, this volume). The term 'Eyford (Sandstone) Member' was introduced by Kennedy, Sellwood and McKerrow (in Ager *et al.*, 1973) for the 'sands and siltstones with oolites around Eyford, west of Stow on the Wold' (Sellwood and McKerrow, 1974), i.e. for the Cotswold Slate. Huntsmans Quarry, lying 1 km west of Eyford Hill, is the best exposure of these strata, and may be regarded as the type section of the Eyford Member. As originally defined, this member was included in the Sharp's Hill Formation but the latter term is best restricted to regions of Oxfordshire where the strata have non-marine characteristics transitional to the Rutland Formation of the East Midlands (Arkell, 1947c; Bradshaw, 1978; see Sharps Hill GCR site report, this volume). The Eyford Member is better regarded as a part of the Fuller's Earth Formation, which comprises the marine strata between the Chipping Norton Limestone Formation (or Inferior Oolite Group, where the Chipping Norton Limestone Formation is absent) and the Taynton Limestone Formation in the Cotswolds, to the west of the Vale of Moreton Axis (Arkell, 1933; Sumbler *et al.*, 2000). The member typically comprises grey sandy limestone or calcareous sandstone, with sporadic ooid strings, in beds usually 0.3 m thick, interbedded with soft, brown, fissile, poorly cemented bituminous sand. The limestones include massive types, in which the primary sedimentary structures have been destroyed by bioturbation, and well-laminated fissile types, without burrows. The latter yielded the tilestones, which, depending on the cementation characteristics of the bed, could either be split into 'slates' straightaway ('presents') or after frosting ('pendle'). The topmost bed is a soft, brownish-grey, highly fissile, somewhat bituminous sandstone, c. 0.6 m thick; it probably corresponds with 'The Crop' bed recorded by Richardson (1929b), and the main source of 'presents'. From the sedimentary and biogenic structures, including footprints (Sarjeant, 1975), the Eyford Member evidently accumulated in very shallow water. The laminations preserved in some beds suggest rapid deposition; they have been interpreted as high-energy, upper flow regime characters (Sellwood and McKerrow, 1974), or they could have been formed by rapid deposition of sediment from shoaling storm waves (Bradshaw, 1978).

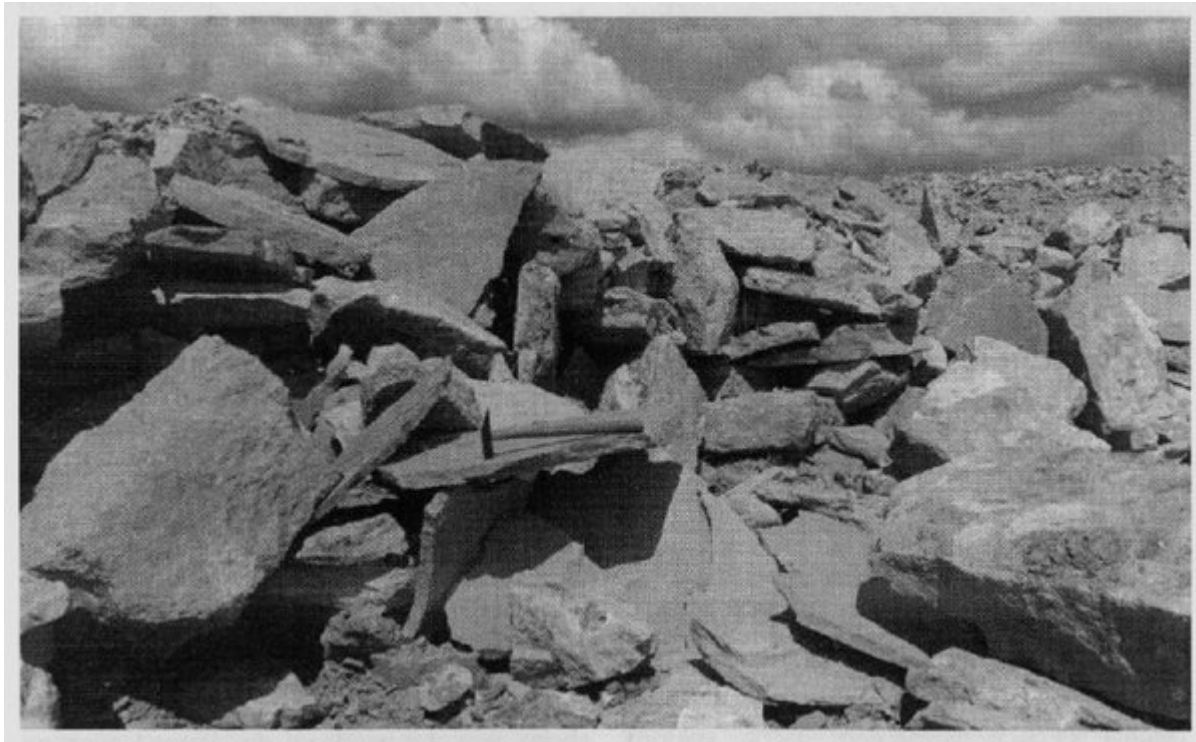
Although the Eyford Member has yielded the ammonites *Procerites progracilis* Cox and Arkell and *P. mirabilis* Arkell, indicating the Middle Bathonian Progracilis Zone (Arkell, 1958a,b; Torrens, 1969e), the chief interest of its fossil content is the vertebrate fauna, cited above and more fully described in the companion GCR volume on *Fossil Reptiles of Great Britain* (Benton and Spencer, 1995). The terrestrial component, and perhaps the sandy sediment of the member, was presumably derived from the land area (London Landmass) in the interior of the London Platform, which lay to the east.

The overlying Taynton Limestone Formation, a cross-bedded, coarse-grained, well-sorted grainstone, is evidently a high-energy sediment, probably deposited as subaqueous dunes in the shallow sea bordering the London Landmass. The cross-bedding indicates that the predominant current flow was towards the south or SSE (not west, as recorded by Sellwood and McKerrow, 1974). This current direction, also seen at other Taynton Limestone Formation localities in the region, would suggest tidal currents flowing roughly parallel to the coast to the east.

Conclusions

Huntsmans Quarry provides the best remaining exposure of the Cotswold Slate facies, which constitutes the Eyford Member of the Fuller's Earth Formation, and is the type locality of that member. Since the 19th century, the strata have yielded a rich and diverse fauna of reptiles, and a flora of considerable interest, as well as zonally diagnostic Middle Bathonian ammonites.

[References](#)



(Figure 3.54) The Cotswold Slate at Huntsmans Quarry. (Photo: M.G. Sumbler.)