
Woodchester Park Farm, Gloucestershire

[SO 810 009]

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Introduction

The GCR site known as 'Woodchester Park Farm' is a quarry located about 6.5 km south-west of Stroud, just north-east of Nympsfield in Gloucestershire. It is sited adjacent to the buildings of the former Woodchester Park Farm, until recently known as 'Easter Park Farm' and now called Thistledown Farm. After progressive deterioration and gradual infilling over many years, recent excavation has revealed a 4.5 m-thick section (Figure 3.23), which may be extended in the future. The section, originally up to c. 6 m thick, exposes part of the local Middle Bathonian succession, in which the Dodington Ash Rock Member of the Fuller's Earth Formation overlies the upper part of the 'Minchinhampton Beds' (Figure 3.24). The original section was first described by Witchell (1882a), and more recently by Channon (1950), Arkell and Donovan (1952) and Cave (1977).

Description

The basal 3.2 m of the original section comprised 2.5 m of buff, thinly bedded, finely shell-detrital oolite and ooidal limestone, with sporadic oysters; these beds pass gradually up into 0.7 m of hard, buff, white-weathering, porcellanous, micritic limestone with ferruginous grains. Small marl-filled pocks are present on the top surface. These rocks, of which the uppermost c. 1.5 m are currently (1997) exposed, are now assigned to the 'Minchinhampton Beds' (Wyatt, 1996a). They are overlain by the Dodington Ash Rock Member of the Fuller's Earth Formation. This has a persistent marl parting at the base, succeeded by massive- to well-bedded and, in part, cross-laminated, ooidal packstones and grainstones. These are c. 1 m thick in the present section but previous authors have recorded up to 1.4 m. Their top surface is smooth and pitted, and is succeeded sharply by 0.9 m of buff and brown, very hard, semi-porcellanous, incipiently nodular, shelly, fine-grained limestone with a varied fauna including bivalves (*Isognomon*, *Neocrassina*, *Plagiostoma*, *Ceratomya*), brachiopods, echinoids (*Clypeus*), gastropods (*Bactroptyxis*) and the ammonite *Morrisiceras*. This unit passes gradually up into buff to cream, hard, rubbly, sparsely ooidal, semi-porcellanous, thinly bedded limestone that makes up the topmost c. 1 m of the section.

Interpretation

The sediments preserved at Woodchester Park Farm were deposited in the zone of transition between a barrier-bar, shoal-facies belt at the margin of a shallow carbonate shelf-sea to the east, and deeper water, foreslope facies to the west. The former facies is represented by the high-energy, shell-fragmental oolites of the 'Minchinhampton Beds' (for example, the common at Minchinhampton (see GCR site report, this volume); the latter facies by the relatively quiet-water, fine-grained, detrital and micritic limestones of the Dodington Ash Rock Member south-west of Nympsfield. Both facies are represented at Woodchester Park Farm. The facies transition is completed as the oolites pass laterally into the lower part of the Dodington Ash Rock Member to the south-west of the quarry. Formerly, the whole section was assigned to the Cross Hands Rock (e.g. Cave, 1977), but recent work (Wyatt, 1996a) has shown that this term was used erroneously for, at its type locality near Chipping Sodbury, that unit is now known to lie near the top of the Lower Fuller's Earth Member. Cave (1977) believed that the highest bed exposed in the section was the topmost bed of the Dodington Ash Rock Member (his 'Cross Hands Rock') hereabouts.

At two levels in the succession, there are beds capped by porcellanous limestone and/or by a planar, pitted surface, which suggest slight pauses in sedimentation following their deposition. Such stratigraphical discontinuities are regionally developed throughout the Bathonian succession and have been used as a basis for wide-ranging correlation; they define the boundaries between rhythmic, depositional units (Wyatt, 1996a). The Dodington Ash Rock Member, as developed in

the south Cotswolds, has been shown to comprise up to four discrete units separated by bored hardgrounds, pebbly beds and burrowed horizons, in a condensed sequence that is locally as little as 1.5 m thick. The three units exposed in the expanded succession at Woodchester Farm Park, which embraces the 'Minchinhampton Beds' facies, may well correlate with the topmost three of these.

Seven specimens of the ammonite *Morrisiceras* have been recorded here, more than at any other locality in corresponding beds north of Bath; they include *M. comma* S.S. Buckman and *M. morrissi* (Opell), which are diagnostic of the Morrissi Zone. Species of *Morrisiceras* have also been recorded from the upper part of the Dodington Ash Rock Member in the M4 motorway cutting at Tormarton (Torrens, 1968b) and at nearby Dyrham Park (Curtis, 1978), some 12 km north of Bath. Species of *Tulites*, indicating the underlying Subcontractus Zone, have been collected at both these localities from the lower part of the Dodington Ash Rock Member (although not *in situ*). *Tulites* has not been found at Woodchester Park Farm, but the lower beds of the section could conceivably fall within the Subcontractus Zone. Ammonites of both the Subcontractus and Morrissi zones occur in the corresponding succession at Minchinhampton (see GCR site report, this volume), about 5 km to the east.

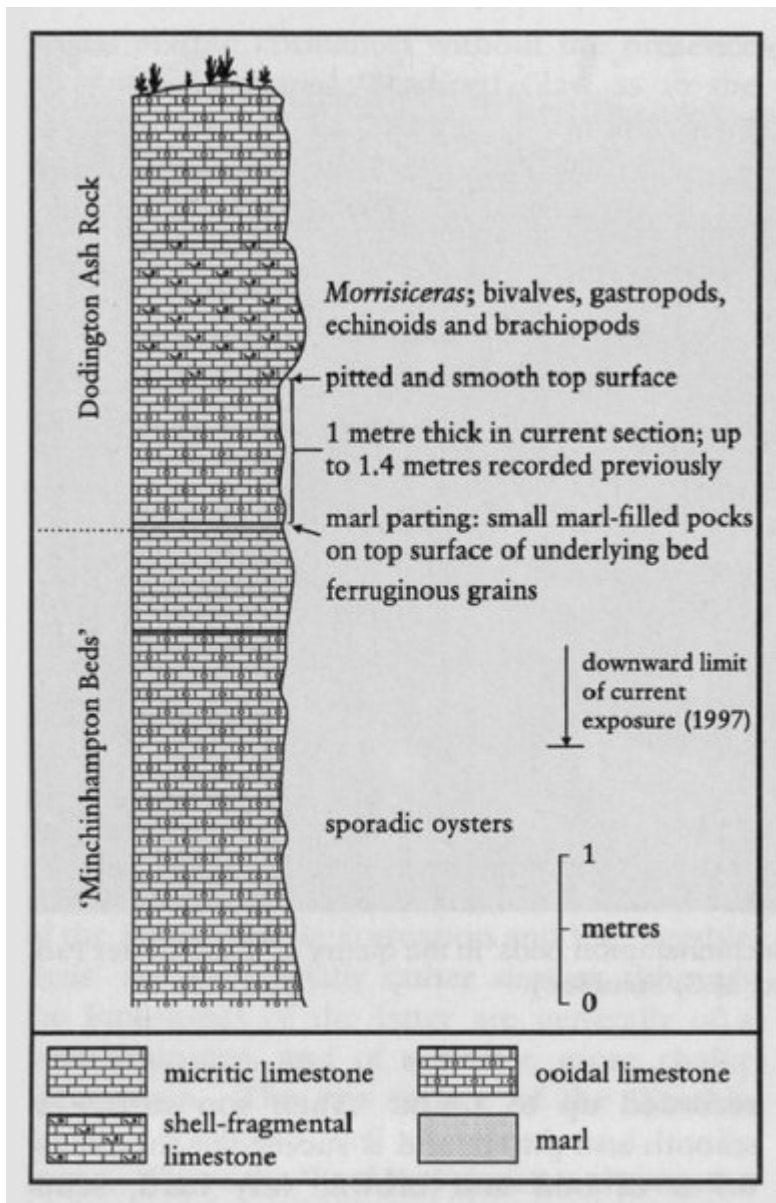
Conclusions

The quarry at Woodchester Park Farm is particularly important because of its Middle Bathonian Morrissi Zone ammonite fauna, which is otherwise rare in the Cotswolds. It is therefore of special biostratigraphical value for regional correlation of the Bathonian succession. The section, which is one of the few satisfactory exposures of the Dodington Ash Rock Member, is also of special interest for demonstrating the eastward transition from the fine-grained foreslope limestones of the south Cotswolds to the coarser, barrier-bar, ooidal limestones at Minchinhampton (see GCR site report, this volume). The presence of discrete, rhythmic, depositional units, separated by depositional breaks, can be inferred in the section.

References



(Figure 3.23) Dodington Ash Rock Member overlying 'Minchinhampton Beds' in the quarry at Woodchester Park Farm. The boundary is marked by a black arrow. (Photo: M.G. Sumbler.)



(Figure 3.24) Graphic section of the Bathonian succession at Woodchester Park Farm.)