

### History

Quarrying in the Headington area goes back to mediaeval times, if not earlier, and was a major industry from the 13<sup>th</sup> to the 17<sup>th</sup> centuries. The rubbly Coral Rag was used to build the 11<sup>th</sup> C tower of St Michaels-in-the-Northgate in Oxford, as well as the city walls. The Headington stone was used for building many of the older Oxford colleges and for Windsor Castle, but has typically been replaced over the centuries with more durable Cotswold limestones. Magdalen or Workhouse Quarry closed in 1949, the last working Headington Quarry.

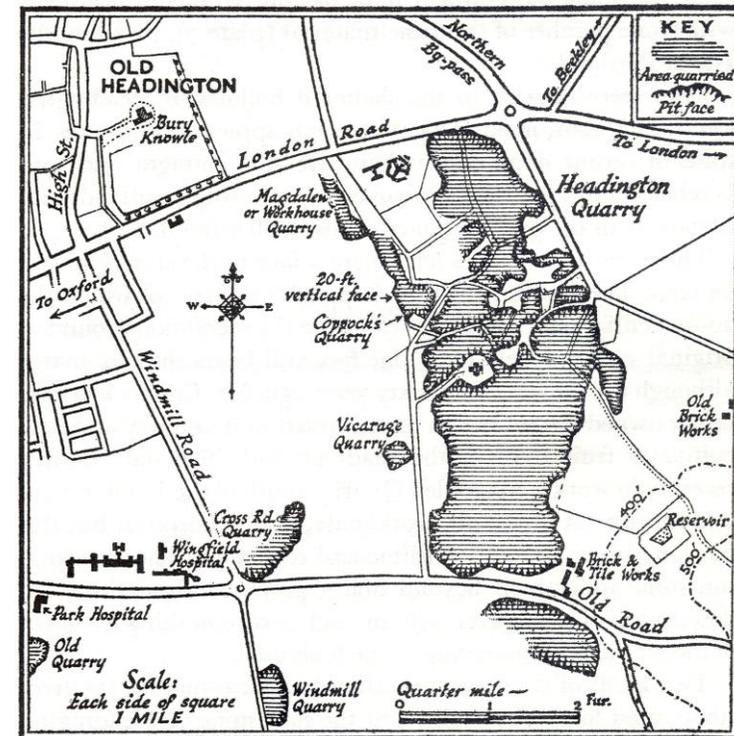
In recent years the Magdalen Quarry Nature Reserve has been managed by the Oxford City Park Ranger service, working in association with the Oxfordshire Geology Trust. Teams of volunteers regularly clear away scrub and debris from the site to maintain access to the rock face and ensure it remains an important scientific and community asset.



The Coral Rag and Wheatley Limestone facies, interbedded with the 'Headington Hard' and 'Hedgehog Course'.

## Magdalen (Workhouse) Quarry, Headington

This disused quarry was formerly owned and worked by Magdalen College, University of Oxford, for the supply of building stone. The site is now designated as a Nature Reserve and *Site of Special Scientific Interest* (SSSI). The rocks exposed in the cliff face are of Upper Jurassic (Malm) age, deposited approximately 140-150 million years ago during the Oxfordian Stage. Rocks of a similar age are seen at Rock Edge Quarry, 1km to the south-east. A 60m long, 2.5m (maximum) high rock face is exposed along the south side of the site.



### Rock type

The rocks exposed belong to the Wheatley Limestone Member, part of the Corallian Formation. They are underlain by the Berkshire Oolites (tiny rounded algal grains) and Beckley Sand member and overlain by the Ampthill Clay and Kimmeridge Clay Formations. Resistant layers (up to 50cm thick) are inter-bedded with thicker limestone rubble-rich beds of the Coral Rag, but these are not as coarse as those seen at Rock Edge.

A large false bedded structure, consisting of a top-set, fore-set and bottom set beds has been illustrated by the famous Jurassic geologist William Arkell (below).

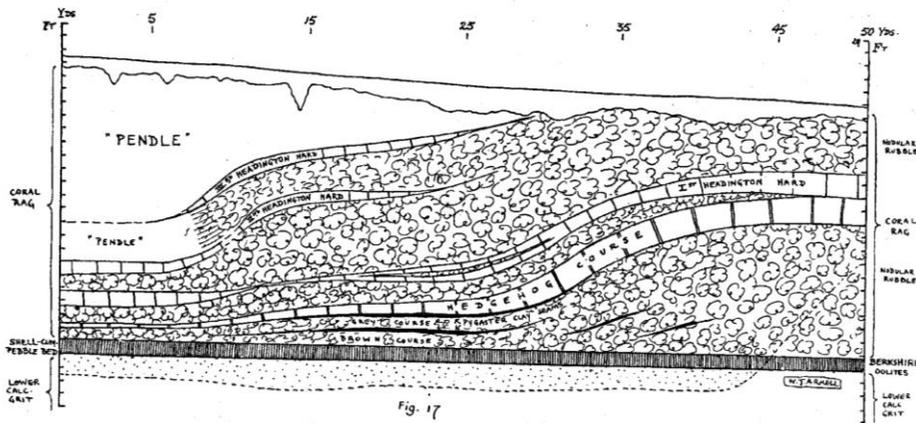


Fig. 17  
MAGDALEN or WORKHOUSE QUARRY,  
HEADINGTON.  
DRAWN FROM MEASUREMENTS TAKEN AT 10 YDS INTERVALS.  
SHOWING QUARRYMEN'S TERMS FOR THE DIFFERENT PARTS OF CORAL RAG DEBRIS FALSE-DIPPING FROM THE REEF.

The more resistant layers, the preferred building stone layers, have stone masons names such as the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> 'Headington Hard', and 'Hedgehog Course'

### Fossils

At Rock Edge it is possible to recognize a variety of marine fossil types. These include corals (*Isastraea* and *Thecosmilia*), bivalves (mussels, oysters such as *Exogyra* or *Nanogyra*), brachiopods and echinoderms (sea-

urchins *Cidaris* or *Nucleolites* and their spines). However, at Magdalen Quarry it is more common to encounter fragments of shells, whole fossils are quite rare.

**Please DO NOT collect fossils from the rock face, but feel free to collect from the rock fragments in the fallen blocks at the base of the outcrop.**

The harder beds represent quiet (low energy) times of deposition of fine grained carbonate mud, while coarser rubble beds represent a higher energy sandy seafloor environment.

We can learn from this outcrop that beds of the same age which are only a short distance apart can have quite different appearance and composition. Indeed, not far away, at Littlemore, equivalent beds are more clay rich (perhaps indicating the presence of a river flowing into the sea at this point); while at Dry Sandford Quarry the beds are sandier.

Furthermore we can conclude that the Upper Jurassic climate here was warmer than at present, with the area covered by a shallow sea at temperatures above 20°C. During Jurassic times Oxford was very close to the Equator.



The main SE rock face of Magdalen Quarry