
Valley Farm, Sudbourne, Suffolk

[TM 4358 5306]

Highlights

The pit at Valley Farm is an important section showing an exposure of the Sudbourne Member of the Coralline Crag. It is also important stratigraphically in showing the contact with overlying shelly sediments of probable Pleistocene age.

Introduction

A pit at this locality was marked on a tithe map of 1841 and on subsequent Ordnance Survey maps, so it is perhaps surprising that this large Coralline Crag exposure was not recorded during Harmer's comprehensive study of 1898 and does not appear to have been mentioned in any subsequent study until 1981 (Balson, 1981a). Nevertheless, the quarry at Valley Farm affords an excellent exposure in the Sudbourne Member of the Coralline Crag.

Description

The faces of the pit show a vertical section of about 5.5 m of the Sudbourne Member of the Coralline Crag. On the west face in particular, large-scale cross-bedding with a set thickness of about 1 m is present, and is characteristic of this Member. On the opposite face, a few metres to the east, trough cross-bedding is present (Figure 10.20). A typical trough is 0.50 m deep and 3.50 m long. Some 'veins' of powdery calcite are present which was probably deposited after the diagenetic phase that selectively leached aragonitic material from the sediment here.

On the west face are a pair of weathered joint planes which, in contrast to those at other localities such as Crag Farm where the joints are vertical, are obliquely sloping at dips of 30–40°.

The fauna at Valley Farm is rather sparse but transported fragments of eschariform and celleporiform bryozoan colonies are fairly common. Some moulds of aragonitic bivalves are also present.

Resting on the Coralline Crag with marked unconformity in the southern part of the pit is a section, of reddish brown shelly sands, about 30 m thick and extending laterally for approximately 5 m, which may be stratigraphically equivalent to the Pleistocene Scrobicularia Crag (Dixon, 1979; see Chapter 11). The presence of aragonitic shells in this overlying deposit indicates that the aragonite dissolution which affected the Coralline Crag occurred before deposition of the Scrobicularia Crag.

Interpretation and evaluation

The pit at Valley Farm exposes a large section in the Sudbourne Member about 1 km NE of the sections at Crag Farm and at a similar elevation relative to OD. Despite this there are significant contrasts between the two sites, particularly with respect to the cross-bed set thickness and therefore to the implied size and geometry of the bed-forms which produced them. Trough cross-bedding is rather uncommon in the Coralline Crag and is the result of deposition by more active sinuous bedforms. The bedforms represented by the cross-bedding at Valley Farm would therefore appear to have been smaller and more sinuous than at Crag Farm.

Shelly Pleistocene sediments which unconformably overlie the Coralline Crag in this area are preserved only within joint fissures at Crag Farm but can be seen at Valley Farm resting Sudbourne Member of the Coralline Crag, the unconformably on leached Coralline Crag sediments.

Conclusions

Taken together with other exposures of the Sudbourne member of the Coralline Crag, the site at Valley Farm is important to the study of the geometry and lateral sedimentary facies variations within this cross-bedded unit. Valley Farm is one of the very few localities where the contact of the Coralline Crag with overlying marine sediments is exposed. The site yields important information on the timing of aragonite dissolution in the Coralline Crag. The oblique fissures/faults are extremely unusual in the Coralline Crag and may be important to the study of post-depositional deformation of the region.

References



(Figure 10.20) Eastern face of the quarry at Valley Farm, showing trough cross-bedding. Scale is 1 m long. (Photograph: P Balson.)