Bowldish Quarry, Bath and North-East Somerset

[ST 668 558]

Introduction

The Bowldish Quarry GCR site is a small, long-disused quarry (Figure 3.15) sometimes also known as 'Bold Ditch Quarry', which lies less than 1 km north of the town of Midsomer Norton (Figure 3.13). It is a classic site showing a remarkable attenuated and broken succession extending from the top of the Penarth Group (Upper Triassic) to the lowest Pliensbachian Stage. The Lias section here is a textbook example of the application of stratigraphical principles. The refined Lias ammonite zonation proves the presence of several major non-sequences, but even so the succession here is more complete than other localities on the Radstock Shelf. The section here, less than 3 m in thickness, is the equivalent of the more than 200 m of strata on the north Somerset coast.

The Bowldish Quarry succession was described by Tawney (1875), Woodward (1893) and, from the Spiriferina Bed upwards, by Tate (1875). It was 'site 6' of Tutcher and Trueman (1925) but they gave only a summary description of the succession. Discrepancies exist between some of the bed thicknesses cited by Tawney (1875), Woodward (1893), and Tutcher and Trueman (1925). Other brief accounts were given by Reynolds (1921), Tutcher (1929) and Macfadyen (1970), though these accounts were based largely on the earlier publications. It was mentioned only briefly by Donovan and Kellaway (1984), as their 'site R27', although they figured a summary log of the section. In addition to elements of the macrofauna mentioned in the various publications cited above, foraminifera were also recorded from various units by Moore (1867a) and Macfadyen (1941).

Description

Bowldish Quarry provides a more complete succession than any other now seen on the Radstock Shelf (Figure 3.14), preserving evidence of the Hettangian, Sinemurian and Pliensbachian stages. The section was overgrown at the time of writing (Figure 3.15) and the following description is based upon the full section as it was seen by Tawney (1875), Woodward (1893) and Tutcher and Trueman (1925).

The lowest part of the section exposed more than 1 m of creamy argillaceous limestones and thin shales assigned to the White Lias (Langport Member) at the top of the (Upper Triassic) Penarth Group. The highest of the limestones, 0.3 m thick, is the distinctive 'Sun Bed'. This is succeeded by a sequence of grey limestones and thin mudstones containing a typical basal Hettangian fauna and termed by Tawney (1875) the 'Ostrea and Planorbis Beds'. Tawney (1875) recorded less than 0.6 m of strata within this part of the succession but Tutcher and Trueman (1925) gave a figure close to 1 m (3 ft 2 in.). Tutcher and Trueman (1925) recorded *Psiloceras planorbis* from an unspecified horizon in this part of the sequence, although their statement that the uppermost Hettangian limestone is continuous with the Bucklandi Bed above would seem to imply that *Psiloceras* was found at this level. The Bucklandi Bed at the base of the Sinemurian succession is 0.20 m thick and yields a variety of ammonite taxa (*Agassiceras, Arnioceras, Euagassiceras* and *Paracoroniceras*) spanning the Semicostatum Zone. The Spiriferina Bed is well developed and distinctive, with abundant *Spiriferina walcotti* (Figure 3.16), and passes up into the Turneri Clay. These two units together were recorded as almost 0.8 m (2 ft 6 in.) thick by Tawney (1875) but less than 0.5 m (1 ft 6 in.) thick by Tutcher and Trueman (1925). Above the Turneri Clay the Obtusum Nodules form a fairly continuous, greenish-grey, laminated limestone about 0.1 m thick. This unit is succeeded abruptly by the Raricostatum Clay, with a tripartite division of two day units separated by a 0.08 m-thick nodular grey limestone totalling some 0.45 m (1 ft 5 in.) in thickness. The limestone has yielded *Bifericeras subplanicosta* gr. and both the limestone and upper day contain *Echioceras,* indicating the Raricostatum Subzone. Tutcher and Trueman (1925) recorded *Leptechtoceras meigeni* from an unspecified horizon at Bowldish Quarry. The highest unit exposed at Bowldish Quarry is the Armatum Bed, of which 0.3 m is preserved. It is highly fossiliferous and has yielded a diverse assemblage of fossils, both primary and reworked, indicating a basal Jamesoni Zone age. The most conspicuous fossils are, however, the derived echioceratids and it is probably from the Armatum Bed that the record of *Leptechioceras*

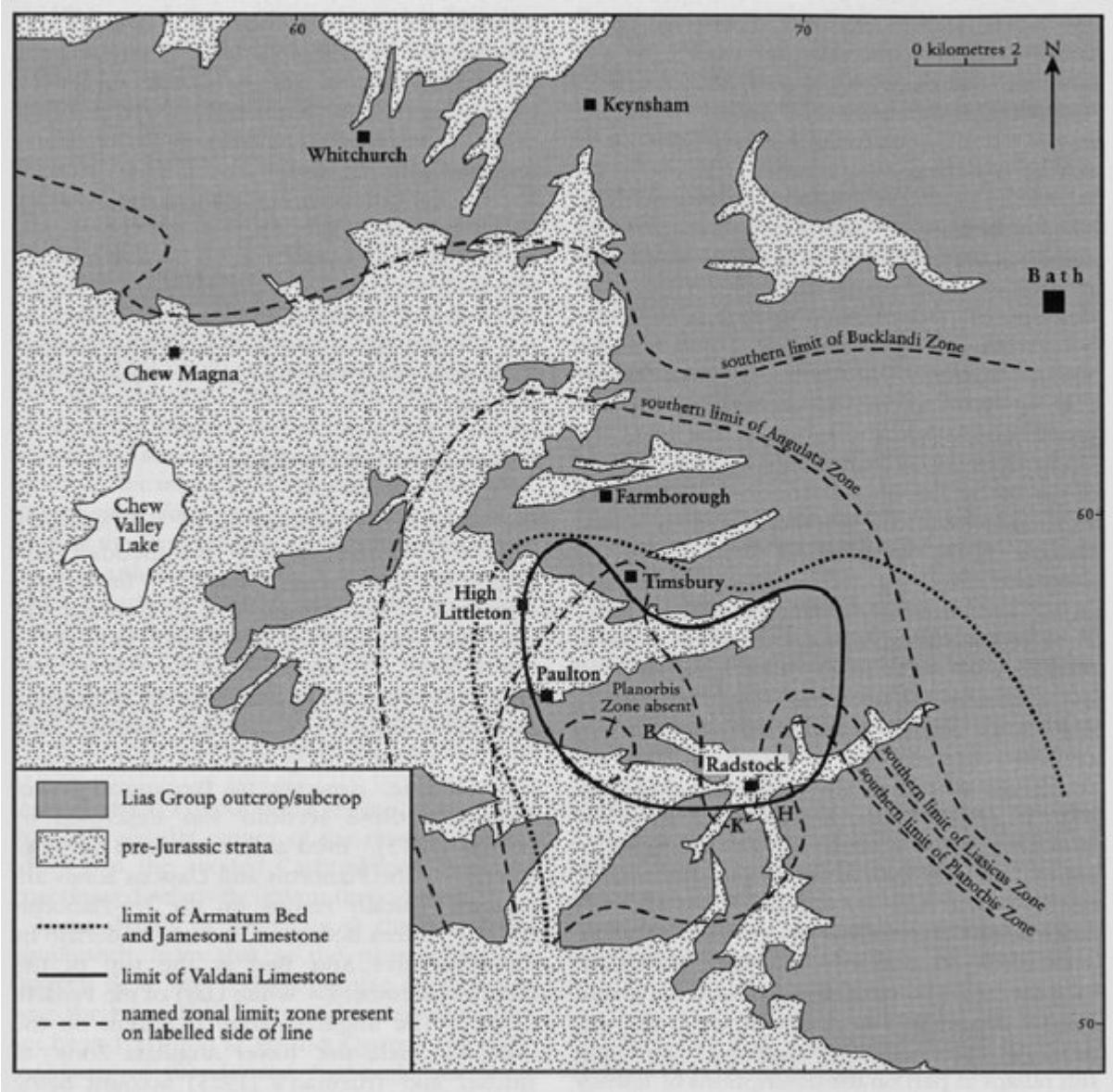
came.

Tutcher and Trueman (1925) published an extensive table listing non-ammonite macrofossil species and the horizons in which they occurred, though they made no reference to specific localities and the site descriptions cited only the most common or most distinctive taxa. Tawney (1875) also listed some of the more common taxa in his site descriptions. Moore (1867a) obtained a rich fauna of foraminifera from the Turneri Clay, while Macfadyen (1941) also recovered some from the lower unit of the Raricostatum Clay. The Spiriferina Bed here was the source of specimens used, and figured, by MacKinnon (1974) in an investigation of spiriferid shell structure.

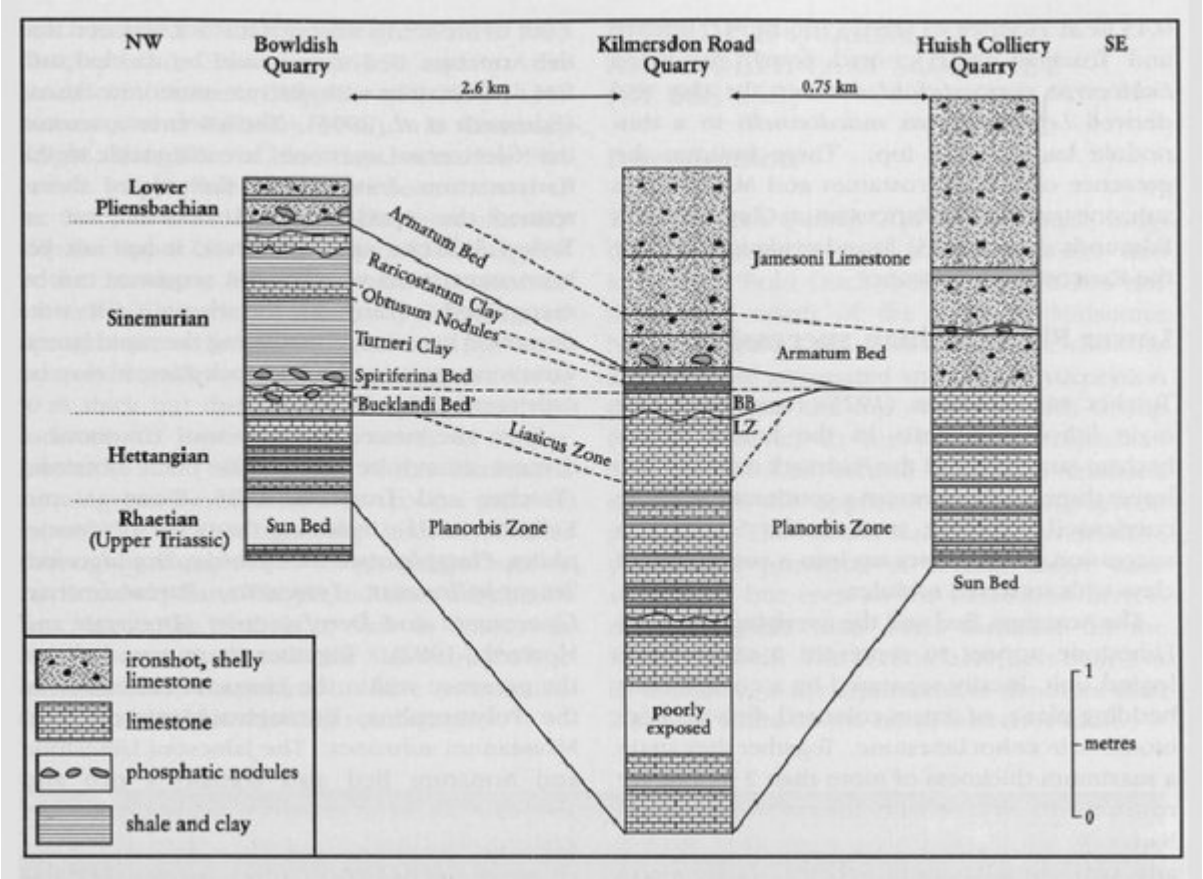
For Interpretation and Conclusion seeCondensed facies of the Radstock Shelf — General interpretation and General conclusion.

References

(Figure 3.15) The section at Bowldish Quarry, Radstock. The thick limestone towards the top is the Bucklandi Bed, overlain by the Spiriferina Bed and Turneri Clay. The lower part of the face is of more thinly bedded limestones and mudstones of the Planorbis Zone. (Photo: M.J. Simms.)



(Figure 3.13) Sketch map showing the southern limits of the Planorbis to Bucklandi zones in the Radstock district and the distribution of the Armatum Bed, Jamesoni Limestone and Valdani Limestone. The letters B, K and H correspond to the approximate locations of the three GCR sites of Bowidish Quarry; Kilmersdon Road Quarry and Huish Colliery Quarry. After Donovan and Kellaway (1984).



(Figure 3.14) Lithostratigraphy and correlation of the Radstock GCR sites After Donovan and Kellaway (1984).

(Figure 3.16) The brachiopod Spiriferina walcotti, from the Spiriferina Bed at Bowldish Quarry, Radstock. The largest specimen is 43 mm across. Specimens from the T.R. Fry Collection, Bristol City Museum. (Photo: M.J. Simms.)