

EXCURSION TO THE MENDIPS AND QUANTOCK HILLS

Leader: P.J. Hill

10th - 12 May 1974

Friday evening The base for the excursion was at Weston-super-Mare, approximately 30 members arriving at the headquarters hotel at various times during the evening. After dinner, the leader gave an introductory talk on the geology of the area and outlined the itinerary for the weekend.

Saturday The sunny weather of the previous day had moved elsewhere and the party was greeted by heavy, overcast skies. The route lay southwards along the A38 over the Somerset Levels to Bridgewater, thence westwards along the A39 to Cannington. Here, an inlier of Carboniferous Limestone projects through the Trias cover (text-fig. 1). It is the most westerly of the inliers in the region and it has been suggested that the Carboniferous rocks were overthrust by Devonian strata and that the Cannington Inlier owes its presence to faulting which brought the underthrust mass to the surface. The party entered an actively worked quarry north of the village (ST251403) and spent some time examining the limestone and associated features. Extensive mineralisation occurs at this locality, barite being particularly well represented. Excellent specimens of barite, together with associated malachite and azurite, were obtained from unwanted tip material. Fortunate members of the party were able to collect large specimens of the azurite in the newly developed north-east part of the quarry.

The party then rejoined the A39 and proceeded west approaching the Devonian inlier which forms the Quantock Hills. This structure is a pitching anticline, the axis of which runs north-west-southeast and plunges in a southerly direction. The next locality was at Quantockshead Quarry where the Lower Devonian, Hangman Grits were examined. These consist of fine-grained compact grits, purple, brown and red in colour, and pebbly in places interbedded with mudstone. Fossils are rare although plant fossils may be obtained along some of the flaggy bedding planes. Lunch was taken at the hostelry conveniently adjacent to the quarry.

The afternoon was spent in St. Audries Bay (ST1043) examining the cliff section which exposes Keuper, Rhaetic and Lower Jurassic strata. The traverse started at the base of the steps leading down to the bay, where some 110 feet of westerly dipping Grey and Tea-Green Keuper Marls are exposed in the cliffs to the west of the steps. Numerous small faults displace the strata. The party proceeded in a westerly direction ascending the succession and examining the various horizons shown below.

Upper Triassic and Lower Jurassic

West Somerset Coast

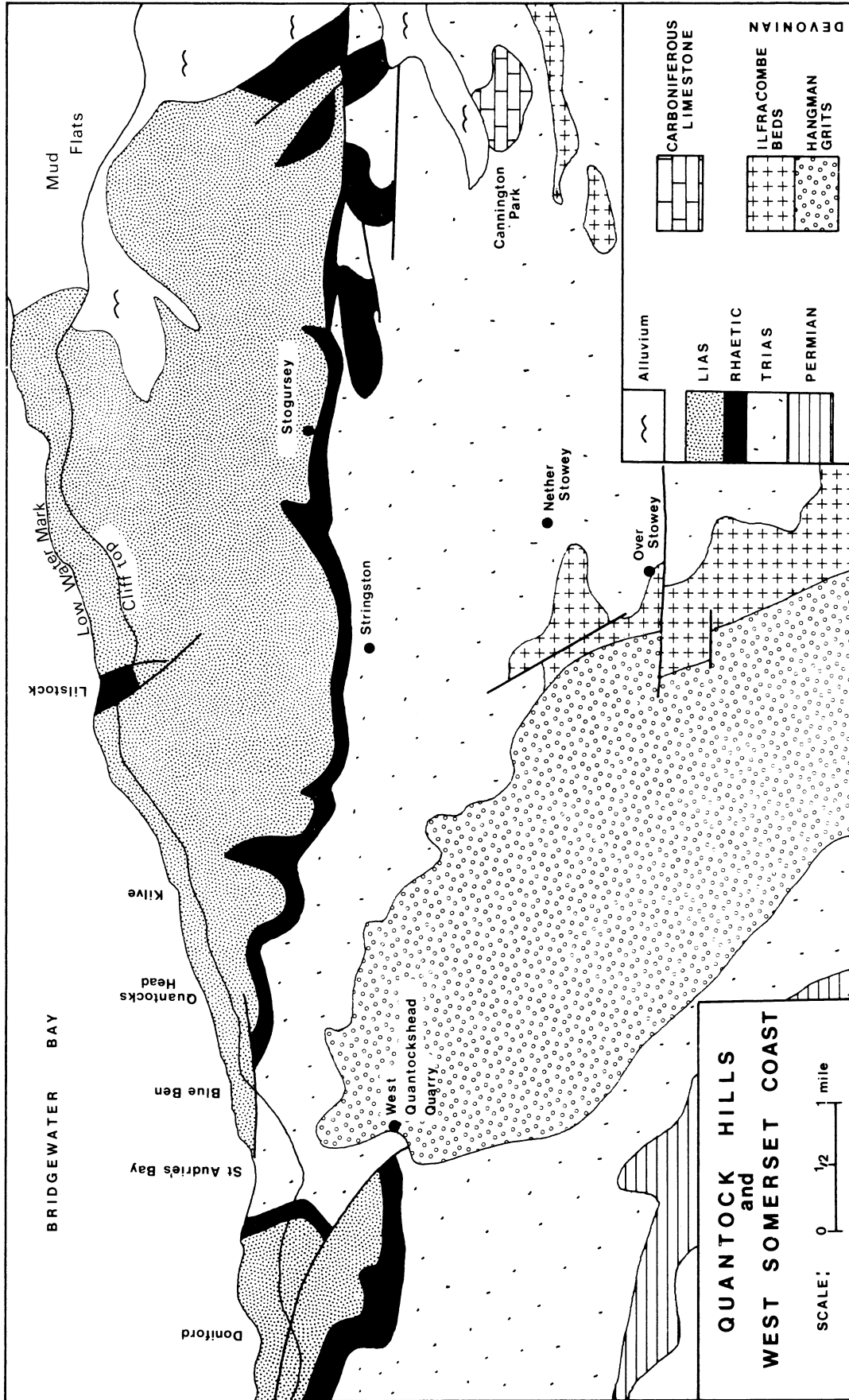
LOWER JURASSIC

Blue Lias

Arnioceras semicostatum zone

12. Dark grey shaly marls with thick bands of argillaceous limestone, and, near the base, a conspicuous band of paper-shales. Seen in the cliff above the cave east of Kilve Pill, by Kilve Farm and westwards to Quantockshead; also near Donniford Kiln. Large ammonites, *A. semicostatum* *Caenisites turneri*; *Cardinia*, *Pentacrinus*. (Not exposed in St. Audries Bay) 45 ft

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pp. 329-334, 2 text-figs.



Text-fig. 1. Geology of the Quantock Hills and W. Somerset Coast.

Arietites bucklandi zone

11. Alternations of grey limestones, sometimes in thin bands, with shales and shaly marls, but merging into a more prominent mass of blue limestones with shaly marls. Seen west of Lilstock, by cave east of Kilve Pill, at base of cliffs by gangway near Kilve Farm, and thence to Quantockshead. (Not exposed in St. Audries Bay). 25 ft.
10. Alternate bands of thin blue and yellow (iron-stained) limestones, 25 or more in number, with blue and sometimes brown shaly marls. The limestones being jointed and standing out irregularly, present a zig-zag appearance amongst the clays. Seen in cliffs west of Lilstock, at base of Quantockshead, and in upper part of St. Audries. *A. bucklandi*, *Nautilus*, *Pleurotomaria*, *Gryphaea*, *Lima gigantea*, *Calcirhynchia calcaria*, *Pentacrinus*. 40 ft.

Schlotheimia angulata zone

9. Dark grey shale and grey marl with only occasional bands of limestone. Base of cliffs between Lilstock and Kilve Pill, and St. Audries Bay. *S. angulata*. 35 ft.

Psiloceras planorbis zone

8. Shaly marls, dark shales and bands of limestone. *P. planorbis*, *Caloceras johnstoni*, *Ostrea liassica*, *Modiolus minimus*. East of Lilstock, and St. Audries Bay. 20 ft.

UPPER TRIAS (RHAETIC)

Watchet Beds

7. Yellow-brown and grey shales with a rubbly limestone about the middle. *Ostrea Liassica*, *Modiolus langportensis*. 5 ft.

White Lias

6. Bluish-grey and cream calcite mudstone, with thin shale partings. *Modiolus*, *Lima valoniensis*, *Protocardia*. 4 ft.

Cotham Beds

5. Pale marls with thin limestones; ostracods, fish-remains. 7 ft.

Westbury Beds (Contorta Shales)

4. Dark fossiliferous shale with "beef" and thin, earthy limestones. *Pteria contorta*, *Protocardia rhaetica*, *Chlamys valoniensis*, *Dimyodon intus-striatus*. *Cardium cloacinum*. Bed 6 ft. from top, *Pleurophorus* Bed (*P. elongatus*) 14 ft. below that, Upper Bone Bed (fish, rolled bones, coprolites, quartz pebbles) 10 ft. above base, and Basal Bone Bed. (Bone beds not well represented) 33 ft.

Sully Beds

3. Grey silts ("marls") with impressions of *Pteria contorta* and other bivalves. 8 ft.

KEUPER

Grey and Tea-Green Marls

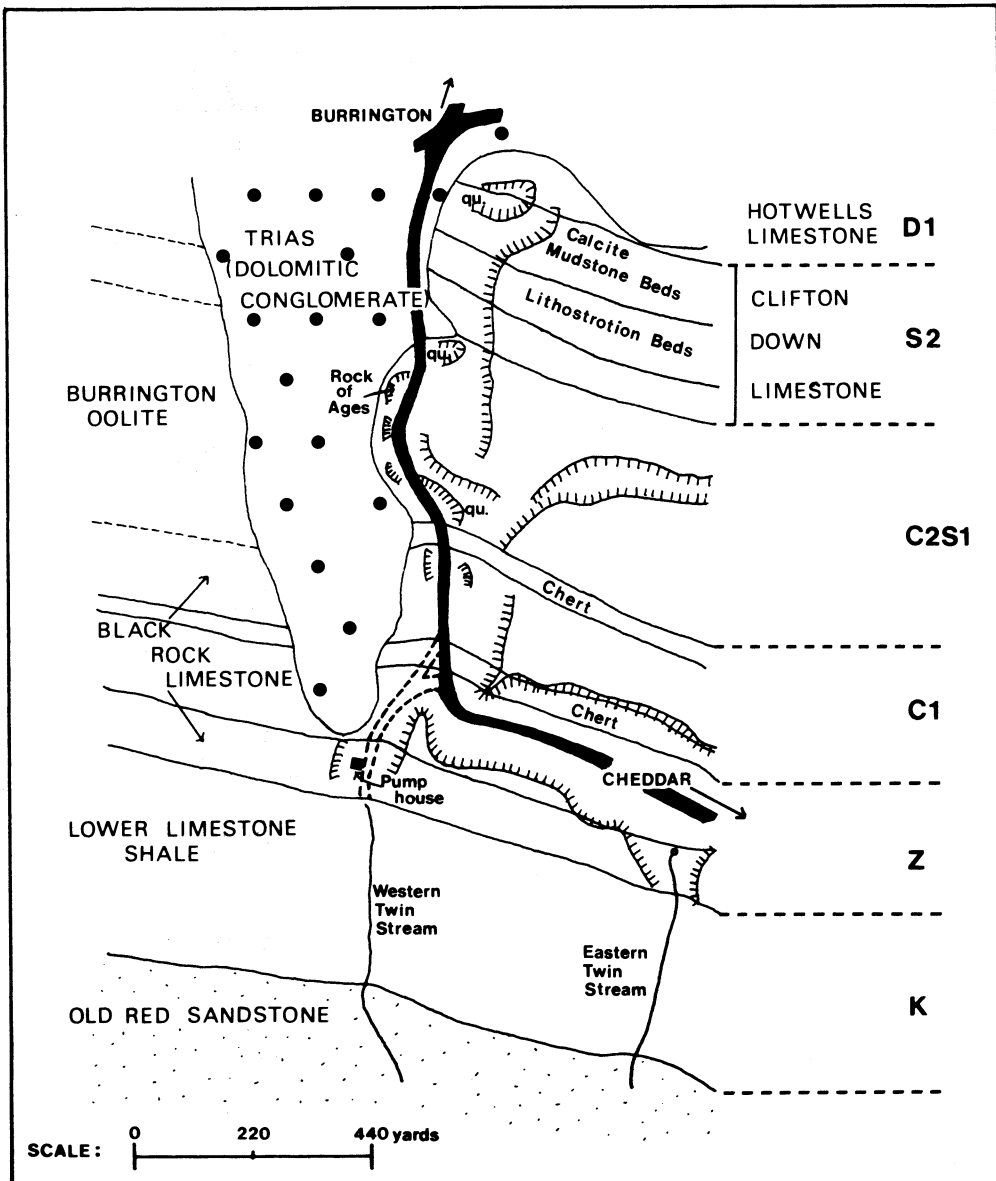
2. Grey silts with layers of gypsum, greenish towards base.

110 ft.

Red Marls

1. Red and variegated silts

Sunday The party set out on a reasonably bright morning and travelled east towards Burrington. Turning south near the village the deep, dry valley of Burrington Coombe



Text-fig. 2. Geological Map of Burrington Coombe

(ST 4758, text-fig. 2) was reached which cuts across the limestone ridge. The coombe is situated on the most northerly of the periclinal (Black Down Pericline) which form the Western Mendips. The core of the anticline is formed of Old Red Sandstone, the limbs of Carboniferous Limestone. Members cars were parked near the base of the coombe in an unused quarry adjacent to the road, just below the 'Rock of Ages'. From this point, the party walked up the road, turning right, off the road, after about 500 yards, to reach the pump house and thence up the Western Twin Stream to the junction of the Old Red Sandstone and Lower Limestone Shale. The Devonian-Carboniferous junction here is transitional. Red sandstones give way to alternating sandstone-shale horizons before the Limestone Shales are reached. The Carboniferous succession was examined in ascending order as shown below.

Section of Strata at Burrington Coombe

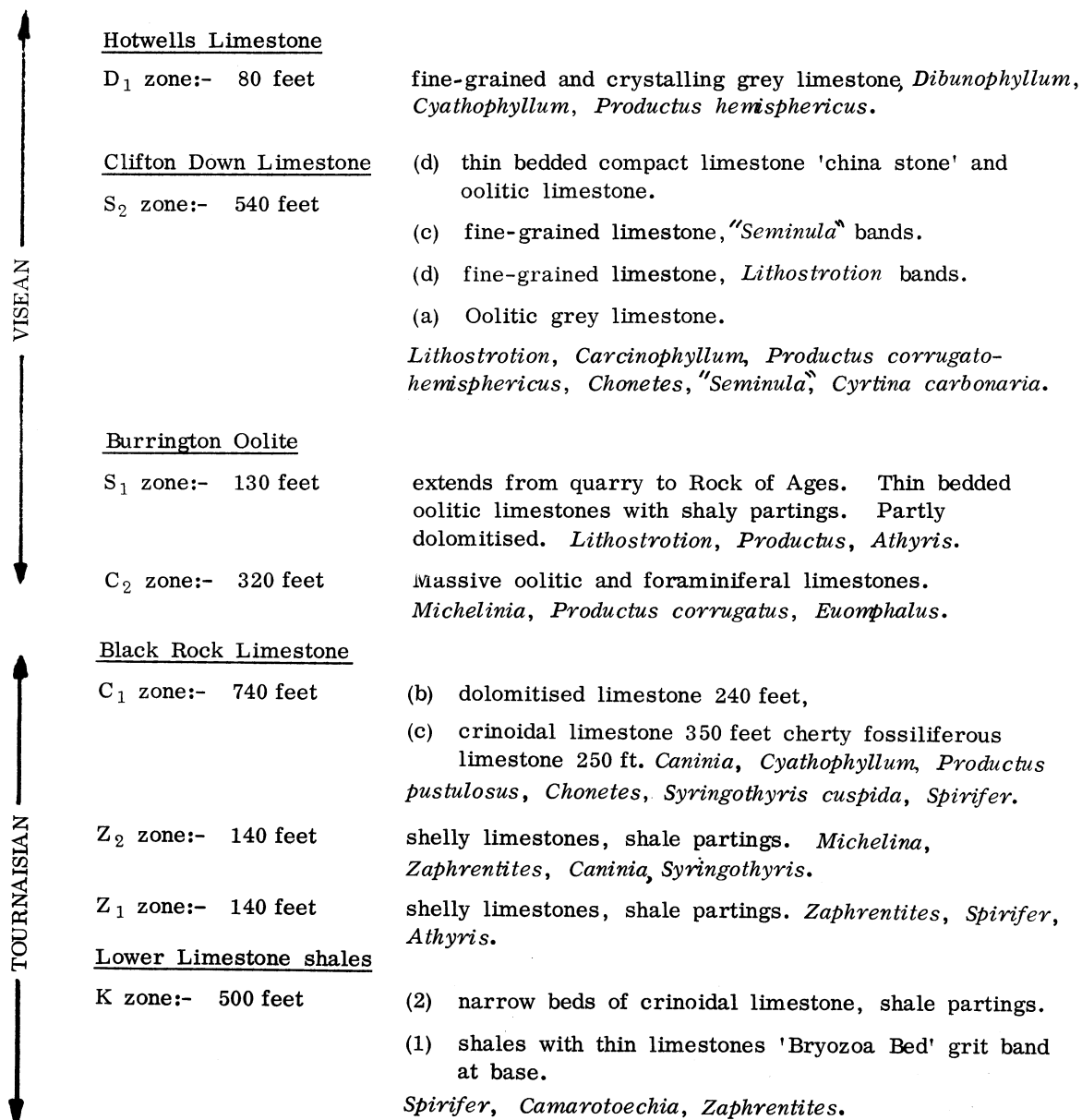
TRIAS

Dolomitic Conglomerate

Great Unconformity

LOWER

CARBONIFEROUS (DINANTIAN)



With lunch-time rapidly approaching, the party then drove in an east-south-easterly direction to Radstock, stopping on the way for suitable refreshment. The first stop of the afternoon was at Kilmersdon, (ST681537) just outside Radstock, where, on a coal tip from the nearby colliery, abundant plant fossils in Coal Measures rocks are to be found.

With time becoming limited, members next drove from Radstock along the A362 in the direction of Frome. About one mile past Buckland Dinham, a small road to the right brought the party to the entrance of the cement works at Vallis Vale. Walking through the works, the southern end of the vale was reached (ST756492) where some 20 feet of Douling Stone (Upper Inferior Oolite, Middle Jurassic) rests with strong angular unconformity on the underlying Carboniferous Limestone. The smooth, eroded junction between the two Formations is covered with flat oysters and bored by molluscs and annelid worms. The locality is designated as an SSSI and should be treated accordingly by all visitors. It was noted by the party however, that some infilling of the quarry with waste material had occurred though not at that time, to an extent which would mar its geological value. It is to be hoped that this situation subsequently has not been allowed to deteriorate.

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