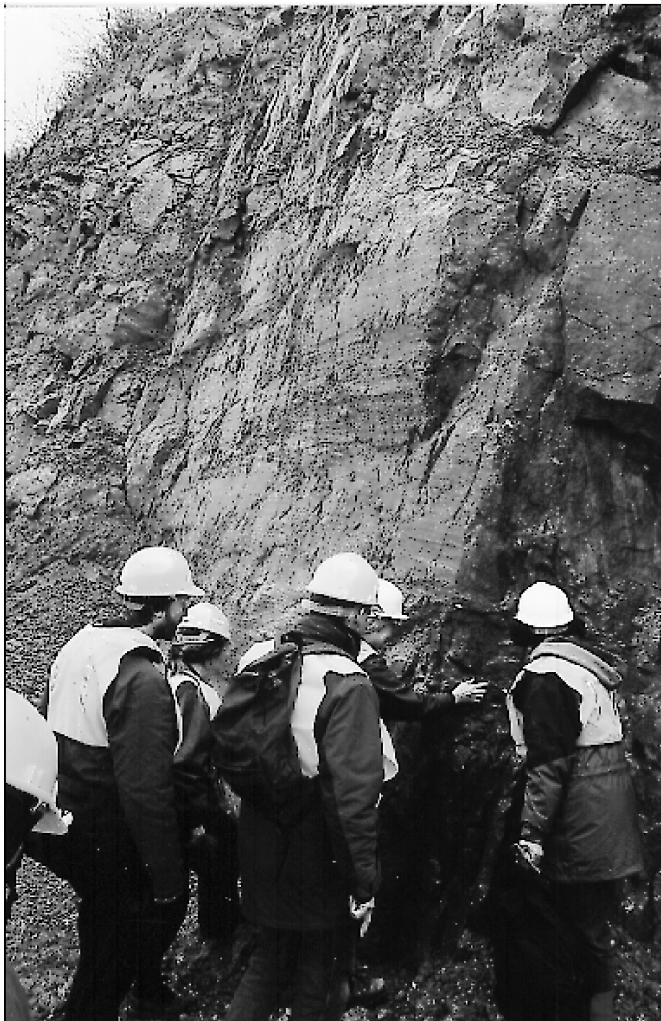

CROMHALL QUARTZITE AND WICKWAR QUARRIES

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FIELD EXCURSION BY MEMBERS OF THE BATH GEOLOGICAL SOCIETY, 18TH APRIL 1998.

Cromhall Quartzite Quarry lies about 1km south-west of Cromhall village in South Gloucestershire where quarrying started in 1840 in the brightly coloured red to yellow quartzitic sandstone known as the Upper Cromhall Sandstone. The now extensive quarry exposes much of the depth of the Sandstone (150 metres) but in the older, flooded part of the quarry. The faces on the day of the visit showed about 30 metres (100 ft) of the sandstones interspersed with blue-grey mudstones, and display cyclic sequences (cyclothems) from calcareous beds, through mudstones, siltstones and sandstones to seat-earths (palaeosols). These sediments represent a range of environments, from the open shelf seas of the Hotwells Limestone to shallower marginal and deltaic conditions which progress from shallow marine to brackish and estuarine, and back to marine. The presence of fossil rootlets in the seat-earths confirm that the mudflats were colonised by vegetation.



*Photograph 1: Cromhall Quartzite Quarry,
East face - slickensides*

In *figure 1* is shown the sequence of rocks recorded in the quarry, which is the type locality for the Upper Cromhall Sandstone. The entire sequence lies within the Viséan (Carboniferous Limestone Series) and is termed the Hotwells Limestone Group, of which the Upper Cromhall Sandstone is a single member. Right at the top of the succession and not particularly well exposed in the quarry, is the beginning of the Namurian (Millstone Grit Series) in the form of the Quartzitic Sandstone Group.

During the visit, the main face was accessible and displayed the hard, splintery sandstone and the variety of colourations very well. Debris at the foot of the face contained blocks of the conglomerates and grits which characterise the sandstone. At the southern end of the face, a few small pieces of the Tanhouse Limestone equivalent, the topmost member of the sequence, containing the brachiopod *Buxtonia*, were found. In the face, alongside a well displayed slickenside, (*photograph 1*) a root or stem of plant material was extracted for later curation as were 'nests' of spiny brachiopods which were retained for later identification.

Figure 1

The rootlets and plant material in the grey mudstone were extremely common but the friable nature of the rock made collecting worthwhile material very frustrating. However, one well preserved specimen of *Lepidostrobis* - the terminal bud of a clubmoss was recovered in good condition.

A few poorly preserved trace fossils were noted, the coarse nature of the rock contributing to their lack of good preservation. On a return visit a thin bed of fine sandstone provided some excellent meandering feeding trails clearly showing that the animal had burrowed through the depth of the sediment as well as on or near the surface. Although close in form to *Helminthoides*, the trace was insufficiently ordered to be assigned to this genus.

The quarry shows a big range of particle size, from fine sandstone, through coarser 'millstone grit'-type facies to very coarse, clastic quartz conglomerate. Most is heavily iron-stained to the extent that rainwater running off was coloured an almost fluorescent deep orange. Some specimens were showing well developed dendritic iron staining.

The inaccessibility of much of the quarry, due to flooding and unstable faces prevented detailed examination of the rocks 'in situ'. It was possible, however to obtain a very good appreciation of the Upper Cromhall Sandstone at its thickest, in the type locality.

Following a break for lunch, members then moved on to the Wickwar Quarries, (*figure 2*), which are situated about 1.5 km NNW of Wickwar Church where quarrying commenced in the early 1900s, in what is now the old, disused and flooded, Churchwood Quarry. On the east side of the B4509 road is the latest excavation forming a long pit with a vertical west face and a sloping face on the east side, following the dip of the bedding, at 40° SW. Access to this quarry is from the old Churchwood Quarry via a tunnel under the road, from the processing and storage area. For safety reasons, we were restricted to the upper ledge but nevertheless, access was possible to the South face and dip slope of the east face, (*photograph 2*).

The latest quarry is entirely situated in the Black Rock Limestone (BRL) and Black Rock Dolomite (BRD). The eastern dip slope is the top of the Lower Limestone Shale, and it is the sequence of shales and limestones that prevent the quarry working further east because the shales make the faces very unstable and liable to slippage. The south face exposes the BRL and BRD very well and recent blasting had left much loose material on the surface, exposing highly fossiliferous limestone from the base of the BRL. Some blocks were crowded with brachiopods - *productids*, *chonetid* and *spiriferid* species, much in 'rottenstone' form. One block which was collected showed all these forms plus the bryozoan *Fenestella* and the coral *Syringopora*. It was also possible to identify *zaphrentid* corals and much crinoid material. Along the crest of the eastern dip slope, the BRL makes an angular unconformity with the Westbury Formation of the Triassic, with poor pieces of Rhaetic Bone Bed.

Returning to the old quarry area through the tunnel, the exposures of Gully Oolite (GO) and Clifton Down Mudstone (CDM) could be examined near the processing and storage area. The other members of the sequence, the Lower Cromhall Sandstone (CS) and Clifton Down Limestone (CDL) are exposed in the old Churchwood Quarry but, apart from viewing the flooded pit, we were not allowed access.

We thank the managers and staff of RMC Limited for allowing us to visit both quarries on this and subsequent occasions and for their support of other Society activities during the Summer of 1998.

Figure 2



Photograph 2: Wickwar Quarry - south end workings