EXCURSION

Upper Dove Valley

Leader: Neil Aitkenhead

Unlike Dove valley between Ilam and Alstonefield, with its limestone gorge scenery that is the best-known part of Dovedale, the upper Dove valley is largely floored by shaley mudstones of Namurian age. As a consequence, the valley is much more open, with gentle slopes flanking the river. However, the western margin of the Lower Carboniferous Derbyshire Carbonate Platform impinges on the northeast side of the valley, and is characterized by an apron reef limestone facies (Wolfenden, 1958). This comprises crudely-bedded, fossiliferous, micritic limestones generally dipping southwards at about 25-45°, the dip being largely depositional off the platform rather than tectonic.

The excursion's meeting place and first stop, on Sunday 4th September 2011, was a disused roadside quarry [SK089675], near Jericho Farm, just north of Earl Sterndale. The quarry exposes a weathered and etched face of finely crinoidal limestone with little evidence of current sorting; it exposes an overturned colony of the coral *Siphonodendron* (formerly *Lithostrotion*), indicating turbulent conditions in this platform edge location. The quarry also provides extensive parking, and offers an excellent view of the upper Dove valley with its remarkable apron reef limestone scenery including Parkhouse Hill, and Chrome Hill.

Next, cars were left in a substantial parking place [SK075675] at Dowall Hall. This lies at the southern end of Dowel Dale flanked by fore-reef limestones that have yielded the ammonoid *Goniatites moorei,* indicating an upper B_2 age (Aitkenhead *et al*., 1985). A mainly uphill walk of about a kilometre took us to the northwestern end of the Chrome Hill ridge. On the way we crossed hummocky ground that marked a substantial landslip in Namurian shales. We also examined a limestone slab covered in galena crystals on the fault plane of the Chrome Hill Fault that defines

On the Chrome Hill ridge, looking towards Parkhouse Hill.

the northeast face of that hill. A few shallow overgrown pits indicate former workings for lead at this locality.

From the summit of Chrome Hill we enjoyed extensive views, particularly westward to Axe Edge and southwards to the hills around the Manifold and Dove valleys including Ecton Hill. We were able to see that the dip of the fore-reef limestones on the southwest slope of the hill is sub-parallel to this slope, indicating a dip-slope. The limestone dip has been shown to approximate to an original depositional dip.

As it was still only mid-afternoon, we then drove to Apes Tor in the Manifold Valley. Here, disused roadside quarries expose excellent sections in the intensely folded limestone turbidites that comprise the Ecton Limestones Formation. These beds are a remarkable contrast to the thickly-bedded, gently dipping limestones of about the same age seen earlier around Earl Sterndale and on our route down Long Dale into Hartington.

References

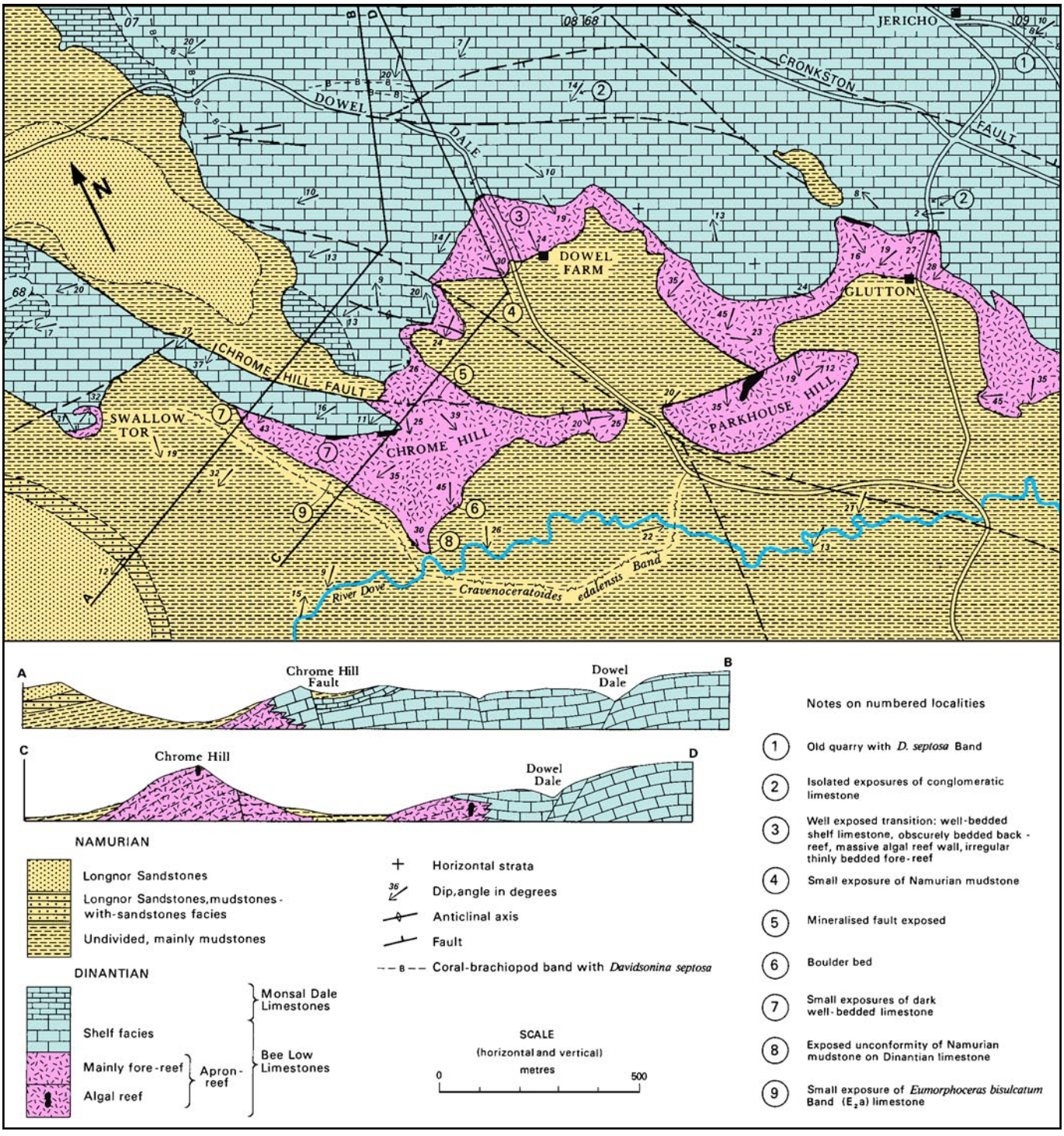
Aitkenhead, N., Chisholm, J.I. and Stevenson, I.P., 1985. Geology of the country around Buxton, Leek and Bakewell. *Mem. Brit. Geol. Surv.,* Sheet 111.

Wolfenden, E. B., 1958. Paleoecology of the Carboniferous reef complex and shelf limestones in north-west Derbyshire, England. *Bull. Geol. Soc. Amer.,* ***69***, 871-898.

Opposite above: The geology of the reef limestones at Chrome Hill (after Aitkenhead et al., 1985).

Opposite below: View up the Dove valley with Chrome Hill in the centre and Parkhouse Hill to the right.

Left: Society members at the galena exposure on the Chrome Hill Fault.


JERICHO
CRONKSTON
FAULT
DOWEL
DALE
DOWEL FARM
GLUTTON
CHROME HILL FAULT
SWALLOW TOR
CHROME HILL
PARKHOUSE HILL
River Dove
Cravenoceratoides edalensis Band
A
B
C
D
Chrome Hill Fault
Dowel Dale
Chrome Hill
Dowel Dale
NAMURIAN
Longnor Sandstones
Longnor Sandstones, mudstones-with-sandstones facies
Undivided, mainly mudstones
DINANTIAN
Shelf facies
Mainly fore-reef
Algal reef
Apron-reef
Monsal Dale Limestones
Bee Low Limestones
Horizontal strata
Dip, angle in degrees
Anticlinal axis
Fault
Coral-brachiopod band with Davidsonina septosa
SCALE
(horizontal and vertical)
metres
0
500
Notes on numbered localities
1 Old quarry with D. septosa Band
2 Isolated exposures of conglomeratic limestone
3 Well exposed transition: well-bedded shelf limestone, obscurely bedded back-reef, massive algal reef wall, irregular thinly bedded fore-reef
4 Small exposure of Namurian mudstone
5 Mineralised fault exposed
6 Boulder bed
7 Small exposures of dark well-bedded limestone
8 Exposed unconformity of Namurian mudstone on Dinantian limestone
9 Small exposure of Eumorphoceras bisulcatum Band (E2a) limestone