EXCURSION REPORT : A TRAVERSE ACROSS THE EAST MIDLANDS COALFIELD

Leader: R.E. Elliott — Sunday, 3 September 1972

Assisted by: P.K. Boam

Members of the Society left Nottingham by coach at 9 a.m. and after calling at Chesterfield, continued to the first locality on Duckmanton Moor (SK 425704). This was the disused railway cutting immediately west of Arkwright Colliery. Here small exposures of the Sitwell, 2nd Waterloo and 1st Waterloo Coals were seen. Members spent some time inspecting the roof of the Sitwell Coal and viewing civil engineering works associated with a new drift between the Waterloo Coals at Arkwright Colliery.

The party then continued to Buttermilk Lane (SK 454720) to view small exposures of contorted coal measures alongside a canalised reach of the River Doe Lea. These were overlain by some 10 ft. of head and the leader explained that similar disturbed measures were found to exist to a depth of about 200 ft. in a series of closely spaced boreholes drilled in the nearby Markham Colliery yard. It was explained that these structures were likely to be examples of valley-bulging, as suggested in the Memoir of the Geological Survey covering 1 in. Geological Sheet 112. Members also took the opportunity of searching for fossils on the lower slopes of the nearby colliery spoil heap.

The party then journeyed by 'bus through Bolsover, noting a landslip on the Permian scarp below the castle.

Lunch was taken at Scarcliffe and the traverse was then continued to Pleasley. A disused railway cutting (SK 495637) immediately south of the colliery was approached by way of Batley Lane. Here the Lower Magnesium Limestone was seen to be well bedded and exhibiting cross bedding, stylolites and well-developed joints. Some of the joints had pulled open, particularly at the west end of the cutting, where intermediate blocks of limestone were tilted, the most south westerly one with a dip of 25°. The open joints were seen to be filled by collapse from above and the wider ones had been consolidated by stone walls when the railway was constructed. The normal dip of limestone in an adjacent cutting was referred to by the leader as 1 - 2° east, whereas the tilt of the blocks was directed south-west, valley-wards. The leader explained that the widened and collapsed joint structures have been called gulls and that the tilt had been attributed to cambering in the above mentioned Memoir. He described how these structures and the valley-bulging seen alongside the River Doe Lea were two aspects of the same phenomena, which was usually considered to have originated under peri-glacial conditions.

On the walk back to the 'bus, the party noted springs emerging from the base of the limestone.

The next locality visited was another disused railway cutting (SK 521670) extending SSW from the old station at Shirebrook and on the same line as the Pleasley locality. This was referred to as the Hodhill Cutting and provided a high and extensive section of the uppermost part of the Lower Magnesium Limestone. The leader pointed out six features: a scarp along the line of a fault which is known underground at Shirebrook Colliery and which terminates the cutting at its northern end; numerous mound like structures, revealed by beds dipping up to 25°; wedge and cross bedding associated with these mounds; sedimentary dykes filled with red marl and fine sandstone recalling the overlying Middle Permian Marl known about a mile to the east; and the position of a fault crossing the cutting between the first and second bridges to the south, this also being known from underground workings.

The party returned to the 'bus ahead of schedule and as a result was able to visit Pleasley Vale, where a cave (SK 517650) in the Magnesium Limestone was examined. The leader referred

Mercian Geologist, Vol. 5, No. 1. 1974. pp. 81-82.

to a published list of Pleistocene animal bones found in a nearby cave, including bison, hyena, lynx, reindeer, wolf, arctic fox and woolly rhinoceros.

After this digression the members journeyed across the Bunter outcrop of Sherwood Forest, through Ollerton, to Kirton Brickworks (SK 692680), where the features of the Keuper succession previously seen by the Society in April 1965 (Elliott 1966) were re-examined. About 150 ft. of strata were seen, including the topmost beds of Waterstones, the Radcliffe Formation and higher strata representing the lower part of the Keuper Marl. The green and purple beds of the Radcliffe Formation were well exposed and a relatively coarse sandstone layer close to the top of the waterstones yielded small pebbles of quartzite. Sedimentary structures such as salt pseudomorphs, dessication cracks and ripple marks aroused considerable interest. Only very small traces of gypsum were found, virtually the whole quarry being in the weathered zone.

During the course of the day, a number of features were pointed out en route. These included outcrops of the thicker sandstones in the Coal Measures and the positions of the Clay Cross Two Foot and Mansfield Marine Bands: the leader also gave a few statistics regarding each of the collieries passed by.

The party returned to Nottingham via Chesterfield and disbanded at about 7 p.m.

Reference

ELLIOTT, R.E. 1966, The Lower Keuper and Triassic Faulting in north Nottinghamshire. *Mercian Geol.*, vol. 1, No. 3 pp. 265-266.

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Editor's note: The excursion report for the visit on October 1st 1972, to the Monsal Railway Cuttings, led by Dr. T.D. Ford was published as an appendix to the paper by Butcher and Ford (1973), The Carboniferous Limestone of Monsal Dale, Derbyshire, *Mercian Geologist* Vol. 4, No. 3, pp. 179-196. Appendix pp. 193-196.