

EAST MIDLANDS GEOLOGICAL SOCIETY
EXCURSION REPORTS, 1965

THE LOWER KEUPER AND TRIASSIC FAULTING IN NORTH NOTTINGHAMSHIRE

Leader: R.E. Elliott

Sunday, 11th April 1965

A coach load of 40 members met in Nottingham and was conveyed to Kirton Brickworks (E.4693, N. 3680) in North Notts.

A succession from near the top of the Waterstones up to a level probably high in the Carlton Formation (Elliott, 1961) exposed on the quarry face was examined in detail. The party was fortunate in that excavations for an extension to the works had exposed more of the Waterstones than usual, and micaceous bedding planes with parting lineation were seen on blocks of sandstone. A few feet above the Waterstones a green and purple mudstone was noted, and near the top of the quarry five prominent green beds were pointed out. In addition at various horizons abundant ripple marks, few "miniature ripples", desiccation cracks and rare salt pseudomorphs were found. It was noted that thin fibrous gypsum layers occurred within a few feet of the surface in the highest part of the quarry, but for the most part the gypsum had been weathered out, as evidenced by numerous cavities in the silts and sands. The leader considered that the green and purple bed and strata up to and containing other thin purple mudstones, some 25 ft. higher in the succession, were equivalent to the Radcliffe Formation of South Notts. A brown siltstone skerry about fourteen inches thick, with load casts, occurring about 9 ft. above the highest purple layer, was thus near the base of the Carlton Formation. On this basis the Radcliffe Formation at Kirton was 40 ft. to 50 ft. thick.

On leaving Kirton Brickworks the route taken followed the foot of a marked topographic feature, with Keuper Green Beds to the left, and Waterstones to the right, as far as Kirton Church. An exposure of Waterstones (E.4692, N.3693) with parting lineation was pointed out in the cutting below the church, and having climbed the hill on to the Keuper Marl, an exposure of the green and purple bed was noted in a bank to the right of the road (E.4698, N.3694). The bus turned left towards Walesby and descended the same topographic feature, but the green and purple bed was noted in a cutting towards the bottom of the hill. Immediately after turning right for Milton, the bus was halted for a description of the relationship of topography to the four formations, namely Bunter Pebble Beds, Keuper Green Beds, Waterstones, and Keuper Marl, which were dislocated by a fault at that point (E.4690, N.3709) throwing Waterstones opposite basal Keuper Green Beds.

Continuing towards Milton, the location of the Waterstones outcrop, sometimes forming a low feature just above the alluvium, was noted; also the location of further exposures of the green and purple bed. A brief stop was made close to the Waterworks (E.4709, N.3725) at Milton to describe the mapping of a fault dislocating the nearby green and purple bed. At Markham Moor temporary exposures of the green and purple bed (E.4718, N.3736) and the green beds (E.4722, N.3736), previously seen near the top of the Kirton quarry, were pointed out in the low ground near the roundabout. The leader reminded the party that the green and purple bed was at the top of the scarp at Kirton, and had been seen at progressively lower points on the same topographic feature as the party travelled towards Markham Moor. Therefore this topographic feature was not controlled by the stratigraphy, and was probably topped by a plane of erosion.

After lunch at Markham Moor, the party proceeded to Retford via Gamston, in the vicinity of which outcrops of basal Keuper Green Beds and Waterstones were observed in passing. A low scarp and

soil colour change, marking the boundary between the Keuper and the Bunter, were noted on the disused Gamston Aerodrome (E.4695, N.3765).

At Retford two exposures of a sandy facies mapped by the Geological Survey as basal Keuper Green Beds were examined in detail, one at Bolham Lane (E.4706, N.3823) and the second at the main road bridge over the Gainsborough railway (E.4709, N.3804). At the former locality the sands were mainly reddish brown in colour, and at the latter green. A possible lateral passage between Bunter and Keuper in the Retford district was briefly discussed.

Returning through Gamston, the party assembled by the roadside close to Haughton Park House Farm, east of Bothamsall (E.4686, N.3740), where a fault throwing red Waterstones against basal Keuper Green Beds was clearly visible in a ploughed field, in spite of a thin covering of pebbly drift. Journeying through Haughton Hamlet, a stop was next made at Haughton Decoy (E.4679, N.3718), where evidence for a larger fault throwing Keuper against Bunter was described.

The bus proceeded through New Ollerton and Wellow towards Eakring, and 2 ft. diameter borehole cores from water boreholes (E.4677, N.3648) were pointed out in passing. The leader stated that the cores commenced in the Keuper Marl and passed through Waterstones and Green Beds into Bunter Pebble Beds. At Stonish Hill, Eakring (E.4665, N.3622), an exposure of Waterstones was visited, from which the horny brachiopod Lingula had been recorded (Rose and Kent, 1955); several specimens were collected.

The journey back to Nottingham was broken between Bilsthorpe and Farnsfield at a point where the Bilsthorpe Fault outcrops. The party took a short walk eastwards along the line of the fault (E.4646, N.3592 to E.4637, N.3591), noting a Bunter Sandstone ridge on the left, overlooking low ground on the right composed of marls low down in the Waterstones and the basal Keuper Green Beds. Small temporary exposures of these formations were briefly examined. The leader mentioned that the fault had a throw of 228 ft. in the Coal Measures at Bilsthorpe Colliery, and probably about 70 ft. at the surface in the Triassic.

R. E. E.

REFERENCES

- ELLIOTT, R. E. 1961. The stratigraphy of the Keuper Series in Southern Nottinghamshire. Proc. Yorks. Geol. Soc., Vol. 33, pp. 197 - 234.
- ROSE, G. N. & KENT, P. E. 1955. A Lingula-bed in the Keuper of Nottinghamshire. Geol. Mag., Vol. 92, pp. 476 - 480.