

N. Wheeler, Esq.; William Thomas White, Esq.; and W. A. Wickes, Esq.

The following paper was read:—

ON THE GEOLOGY AND PHYSICAL FEATURES OF THE BAGSHOT DISTRICT.

By the President, Prof. T. RUPERT JONES, F.R.S., &c.

EXCURSION TO UPNOR.

SATURDAY, MAY 8TH, 1880.

*Director*:—WILLIAM WHITAKER, Esq., B.A., F.G.S., of the Geological Survey of England.

(*Report by THE DIRECTOR.*)

On leaving the railway at Strood, we took to the footpath up Frindsbury Hill, where a halt was made and the features of the district were explained, including the dip-slope of the Lower Greensand (seen through the gap in the Chalk ridge made by the Medway) and the tendency of the Chalk to have a small second escarpment, of which the standpoint was an example.

The large chalk quarries by the river side, on the south-east, were then visited. Here some well-marked layers of flint were noted, and also some pipey masses of irregular gravel on the Chalk, apparently the remains of a high terrace of Medway Gravel.

The walk having been continued northward, we came to the most southerly of the Upnor sections, a disused pit at the south of Tower Hill, showing the junction of the Thanet Sand and the Chalk, with the usual greenish bed and its green-coated flints.

We then went on by the side of the Medway, until, just before reaching the village of Upnor, a new section was seen in the River Drift, which here cuts across the low hill. It showed some feet of brick-earth, with gravelly layers, over gravel. Pointing across to the opposite side of the river, attention was drawn to the spot where *the largest fossil in the world* (a Dutch war-ship) had been found in the alluvium in the works of the new Chatham Extension Dockyard.

The party straggled somewhat through the village, presumably to investigate the water-supply, but was soon re-united in the first of the great Tertiary sections, which unfortunately were not in such good order as when first known to the writer when mapping the neighbourhood for the Geological Survey some years ago. In this pit the junction of the sand of the Woolwich Beds with the Thanet Sand was seen ; but the clay shell-beds of the former and the overlying Oldhaven Beds and London Clay could only be got at with difficulty. From the north-east dip, however, these higher beds are brought down in the next pit, at the back of the cement-works.

In this latter pit a longer stay was made. The frequent occurrence of selenite was noticed, not only in the London Clay but also in the underlying beds. In the London Clay it often occurs here in thin sheets along joint-fissures, as well as in detached crystals or masses of crystals. In the estuarine shelly clays of the Woolwich Beds masses of crystals also occur, whilst in the intermediate Oldhaven Sand a peculiar variety is found, consisting of masses in which the fine grains of sand have been caught up between the plates of the crystals, forming, indeed, a sort of sandstone, which sometimes makes casts of the shells, and sometimes occurs in layers some feet long. This variety of the mineral has been found only in the two chief Kentish sections of the Oldhaven Sand, those of the Upnor pits, and of Reculver cliffs. A number of fossils were got here from the Oldhaven Beds ; but the estuarine shells in the midst of the Woolwich Beds were mostly hidden by talus.

In the furthest pit the London Clay, with its septaria, was well seen, whilst the shelly clays of the Woolwich Beds could be worked at the floor.

A return was then made to Rochester, an advanced guard being successfully thrown forward for foraging purposes. After a good meat-tea, the visit was brought to an end by a stroll to the Norman keep of Rochester Castle, from the top of which a fine view was had.

For details of the sections seen the reader is referred to Vol. iv. of the "Geological Survey Memoirs" (1872), pp. 28, 73, 143-145, 360.

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