

Above the Neocomian follows the dark grey Gault clay; but neither the upper nor lower junctions of this clay are well seen now, and no fossils were found. The Upper Greensand seems to pass insensibly into the Gault, and the micaceous marls and sandstones at the base are poor in fossils. The glauconitic sandstone above has the true Upper Greensand characters, and the fossils are more abundant. The Chloritic Marl here can scarcely be made into a separate division, phosphatic nodules and fossils being the same as in the Greensand.

There was no time for working further round the point. Indeed the Chalk could only be examined at low water, or in fallen blocks.

A return was made up the zigzag path which leads past Redhill Battery, and so by Yaverland Manor House back to Brading.

The beauty of the scenery on a lovely morning compensated for the wet walk of the previous afternoon. The party returned to London by an afternoon train.

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## EXCURSION TO HIGHAM, KENT.

JUNE 18TH, 1881.

*(Report by the Director, W. WHITAKER.)*

The object of this excursion was to examine some cuttings on the railway through the Hundred of Hoo, which have laid open good sections of the Lower Tertiary beds. The excursion was probably the first in which the sections to be seen were as new to the Director as to those who trusted to his direction.

We were met at Higham Station by some gentlemen of the neighbourhood, amongst whom was the Rev. C. H. Fielding, of Higham, who kindly placed his knowledge of the country at our service. Our progress was also much aided by Mr. H. Russel, of Cliffe, by whose good offices we were carried along the line by a contractor's engine and truck, and so enabled to see all that the sanguine author of the programme (who was not present) had proposed, which could not otherwise have been done.

It may be better to describe the cuttings from west to east, without regard to the order in which they were actually seen, merely remarking that the district is part of the slight trough between the Thames and the Medway, and is bounded on the south by a wooded range of London Clay hills, and on the

north by the marshes of the Thames, interrupted by the rise of the Chalk at Cliffe.

The new railway leaves the North Kent line some three miles E. of Gravesend, passes at first over a small flat of river-gravel, and then crosses the Canal, where a good deal of peat, with remains of trees, was found, to an island in the marsh on the west of Higham. Here there is a small cutting in brown London Clay. The line then runs over the marshes for more than a mile, until near Cliffe Rectory, just to the south of which is a long and deep cutting excavated in Thanet Sand, and very wet at the bottom. In the middle of this sand are seen here and there signs of slight erosion, or of gentle current bedding, a most unusual thing in this division of the Lower London Tertiaries. The next cutting eastward is small, and seemed to be in the same sand; but we did not stop to examine it.

The chief cutting is through the hill eastward of Cooling Court, and it shows the whole of the beds from the bottom of the London Clay to the top of the Thanet Sand. Owing to the westerly slope of the line, and to the slight easterly dip, the lowest beds are cut into only towards the west, whilst at the east the shelly clay of the Woolwich Beds sinks to the level of the rails. The beds are as follows, and they occur in even succession without any erosions :—

	Brown clay, apparently London Clay, but without any sign of the usual pebbly basement-bed; up to about 8 feet.	
OLDHAVEN BEDS.	{	Fine buff slightly false-bedded sand, with masses of fossils in places ( <i>Cardium</i> , <i>Pectunculus</i> , <i>Natica</i> , <i>Corbula</i> , <i>Lamna</i> teeth and vertebræ, and pieces of carapaces of Turtle) (?); up to 8 or 10 feet.
		Small flint-pebbles in sand, generally about 6 inches; but in one part nearly 3 feet.
WOOLWICH BEDS.	{	Light-coloured sand, with incipient tubular concretions, (?) about 7 feet.
		Shelly clay ( <i>Cyrena</i> ), about 3 feet.
		Sharp grey sand, with traces of peaty matter in the upper part; many feet, but the whole thickness not seen at one place.
		Thin layer of very small flint pebbles in pale greenish sand.
	Fine soft Thanet Sand; a few feet.	

At the eastern end of the cutting there is a mass of brown

brick-earth, probably the result of the wash of the hill. Many fossils were collected from the Oldhaven sand; but it is to be feared that few were successfully brought home, on account of their perishable nature.

A small unfinished cutting, a little further east, is in sand, which probably forms part of the bed beneath the shelly clay.

After a meat-tea we strolled into the combined cutting and pit at Higham Station, and noticed the junction of the Thanet Beds and the Chalk, thus continuing and completing the downward procession of the Tertiary Series. A persistent layer of flint through the midst of the chalk was also observed.

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## EXCURSION TO TOTTERNHOE, KENSWORTH, AND LUTON.

SATURDAY, 25TH JUNE, 1881.

*Directors*.:—PROFESSOR MORRIS, M.A., F.G.S., JAMES SANDERS, Esq., AND JOHN HOPKINSON, Esq, F.L.S., F.G.S.

(*Report by MR. HOPKINSON.*)

The Dunstable Downs form the most elevated tract of country north of London, within the area of the Chalk formation, in the trough of which lies the London Tertiary Basin, their highest point, Kensworth Hill, being at least 800 feet above sea-level. The Chalk here forms two escarpments, but the higher beds of the Upper Chalk are not represented, the main escarpment exposing the outcrop of the Lower Chalk and the lower beds of the Upper Chalk, and the secondary escarpment the lower beds of the Lower Chalk and the upper portion of the Chalk Marl, with the Totternhoe Stone forming its highest bed.

To gain a knowledge of the physical features of the Dunstable Downs and surrounding country, and to examine the Totternhoe Stone, which only occurs on the north-west outcrop of the Chalk Marl, the members of the Geologists' Association, the Hertfordshire Natural History Society, and the Luton Natural History Society assembled at Stanbridgeford Station at about half-past 11, and at once proceeded, some in carriages and some on foot, to the Totternhoe quarries, where a good section of the Totternhoe Stone is exposed.