EXCURSION TO LAINDON (OR LANGDON) HILLS, ESSEX.

SATURDAY, JUNE 9TH, 1888.

(In conjunction with the Essex Field Club.)

Directors : W. WHITAKER, F.R.S., and WALTER CROUCH, F.Z.S.

(*Report by* T. V. HOLMES, F.G.S.)

The opening, on June 1st, of the new line of railway from Barking to Pitsea having made Laindon Hills much more easily accessible than they were when the old line to Southend, *via* Tilbury, was alone available, this Excursion of the above societies was very numerously attended. About ninety Members were present in spite of the unfavourable weather, which, in addition to being showery, gave little promise of the extensive panoramic views mentioned in the programme, which result from the position of Laindon Hills as an outlying patch of Bagshot Beds in the middle of a London Clay district.

At Laindon Hills Railway Station the attention of the party was directed to the deep boring which was being made for a well in order to obtain a supply of water from some water-bearing bed below the impervious London Clay, which there forms the surface. Mr. Legrand, the gentleman superintending the execution of this work, was purposely present at the station, and kindly gave much information about this boring. From him we learned that the depth then reached was 444ft., and from his remarks, and from samples of the material brought up from various depths, we ascertained that the uppermost 342ft. of the boring were in London Clay. Immediately below the London Clay were:—

Light-coloured sand with shells	...	1ft.
Pebbles		2ft.
Light-coloured sand with shells	...	21ft.

The beds below this depth of 366ft. were all more or less sandy. Mr. Legrand also stated that the septarian nodules found in

London Clay were the only sources of difficulty to the borer in that formation.

Leaving the Railway-Station, the party turned southward and ascended Laindon Hills, whose summit is about a mile away. On reaching the top it went for a distance of some two or three hundred yards along the road, which ranges in an easterly direction towards Dry Street and Vange, to a spot where on the northern side there is a pit showing 12ft. or more of Bagshot Sand below three or four feet of loamy material. Here a heavy shower of rain fell, and Mr. Whitaker, looking down on the umbrellas of his attentive audience, discoursed on the geology of Laindon Hills and the district surrounding them. At the Railway Station (he said) they had learnt that the thickness of the London Clay was 342ft. Here the surface of the ground was more than 100ft. higher than at the station, and, as the beds were lying nearly flat, they would have to add some 100ft. to the thickness pierced at the station to obtain the full amount for the London Clay of that district. The sand before them was certainly Bagshot, and in all probability Lower Bagshot. If anyone present thought it Middle or Upper Bagshot he would remind that person that with the maker of that assertion lay the *onus probandi*, the natural presumption being that it was Lower Bagshot. Above this sand they saw a few feet of loam, and in the surface-workings at the top of the hill near the Crown Inn they had seen gravel, the exact age of which was doubtful, though it was certainly of later date than the beds before them.

The rain having ceased, the party then retraced its steps a few yards, and walked through Coombe Wood, reaching the road to Horndon-on-the-Hill, a few yards south of its junction with that leading to the old church. On the eastern side of the Horndon road the gravel capping the hill has been much excavated. Examination of one of the deepest of these sections—none of which are of any great size—showed, below pebbles in a very sandy matrix, sand like that seen in the pit just visited. Mr. Whitaker and Mr. H. B. Woodward were consequently inclined to think, that though there might be some ancient drift gravel (like that at Shooter's Hill and elsewhere) on the top of Laindon Hills, yet that there seemed to be no need to assume the existence there of other pebble-beds than those of Lower Bagshot age. It may be well to give here, in order to illustrate the character of the Lower Bagshot Beds of this district, the details of a section at

Brentwood, six or seven miles away, from Mr. Woodward's 'Geology of England and Wales,' p. 440.

		Ft.
Lower Bagshot Beds	{ Pebble-beds	15
	{ Brick-earth or loam and sand	25
London Clay	{ Brick-earth or loam and clay	50
	{ Sand 2 or 3 feet	
	{ Brick-earth or loam and clay	
	{ with septaria	

This section affords a good illustration of Mr. Woodward's remark, on the same page as that on which this section appears that in sections near Brentwood the London Clay is seen to pass upwards into the Lower Bagshot Beds. Curiously enough, copies of the older map of the Geological Survey of the district (Sheet 1, S.E.), without Drift, show "Lower Bagshot pebble-beds," whilst the later edition, with Drift, shows "pebble-gravel" on the summit of Laindon Hill.

Few heights in the south-east of England equal Laindon as a spot from which the physiography of the surrounding district can be explained. On a clear day the spectator is enabled, by slightly shifting his position within a circle having a radius of about 200 yards from the crown of the hill, to see for a considerable distance in every direction. Eastward are the ridge on which Rayleigh and Hadleigh stand, the flats of Canvey Island, and the cliffs of Sheppey. Southward are the Kentish villages of Cliffe and Cooling, and the long dip-slope of the North Downs. Westward the most conspicuous object is Shooter's Hill, while the northward view is bounded by the high ground between Brentwood and Danbury. The broad Thames, besides forming an extremely obvious topographical guide, adds to the scene an element of beauty often wanting in extensive panoramic views, especially in this part of England. It was, doubtless, this possession of all the elements necessary to form a perfect landscape that caused Morant, the county historian, to describe Laindon as commanding the finest views in Essex, if not in England. And we have more unbiassed testimony in a work entitled, 'A Six-weeks' Tour through the Southern Counties of England and Wales' (Lond., 1768). This book, which Mr. H. B. Woodward had brought with him, and which was stated to be written by the author of the 'Farmer's

Letters,' was identified by a gentleman present as a work of the well-known Arthur Young. As might be expected, the writer treats mainly of the agricultural condition of the various counties visited, though he by no means ignores either the beauties of Nature or those of Art. His journey into the Laindon district seems to have been extremely unpleasant. He remarks that "of all the cursed roads that ever disgraced this kingdom, in the very ages of barbarism, none ever equalled that from Billericay to the King's Head at Tillbury." This road seems to have been not only extremely narrow but full of ruts of "incredible depth"; in addition, he was perpetually meeting with chalk-waggons, themselves stuck fast. Yet, he adds, "a turnpike was much solicited for by some gentlemen, to lead from Chelmsford to the Ferry at Tillbury Fort, but opposed by the Bruins of this country—whose horses are torn in pieces with bringing chalk through those vile roads. I do not imagine that the kingdom produces such an instance of detestable stupidity; and yet in this tract are found numbers of farmers who cultivate above £1,000 a year."

But his excusable indignation at the state of the roads did not prevent him from admiring the views from Laindon Hills, of which he thus writes:—"I forgot to tell you that near Horndon, on the summit of a vast hill, the most astonishing prospect that ever was beheld by human eyes breaks almost at once upon one of the dark lanes. Such a prodigious valley, everywhere painted with the finest verdure, and intersected with numberless hedges and woods, appears beneath you that it is past description; the Thames winding through it, full of ships, and bounded by the hills of Kent. Nothing can exceed this amazing prospect, unless it be that which Hannibal exhibited to his disconsolate troops when he bade them behold the glories of the Italian plains! If ever a turnpike should lead through this country, I beg you will go and view this enchanting prospect, though a journey of 40 miles is necessary for it. I never beheld anything equal to it in the West of England, that region of landscape."

This paragraph was read out to the great satisfaction of the audience.

Though our journey of 40 miles from London to Laindon and back was quick, easy, cheap, and luxurious to a degree that if foretold to Arthur Young would have seemed to him wildly Utopian, the weather prevented us from enjoying anything that could fairly be called an "enchanting prospect," and, con-

sequently, from getting much physiographical instruction from the views. We had, in addition, to lament the unavoidable absence of Mr. Walter Crouch, through a sudden attack of illness, and the loss of the notes on the chief points of archæological and historical interest in the surrounding district which he had kindly promised to furnish. The places he had intended to mention are all easily seen from Laindon on a clear day. We may hope, however, to be more fortunate as regards both circumstances on some future occasion.

We next visited the old church on the western slope of Laindon Hills, which was kindly opened for our inspection; and the chief points of interest in it explained by the rector, the Rev. Alfred Poole. It is dedicated to St. Mary the Virgin and All Saints, and is in the Late Perpendicular style (or later), affording an example of sixteenth century brickwork. Re-ascending to the summit of the hill, tea was partaken of at the "Crown."

After tea an adjournment took place to the garden of the Inn, where, at a spot commanding extensive views to the north and east in clear weather, votes of thanks were heartily given to Mr. Whitaker for his exertions as geological guide, and to Messrs. W. Cole and W. White, of the Essex Field Club, for their services in organizing the Excursion. Mr. Whitaker then, at the request of many Members, gave some account of the geological conditions necessary to ensure success in the boring of deep wells, such as that at the Railway Station, and the party descended the northern slope to catch the London train.

REFERENCES.

Geological Survey Map (Drift Edition), Sheet No. 1, S.E.

WHITAKER, W.—'Geological Survey Memoir,' Vol. iv, pp. 327-8.

(The locality visited is marked on the map and named in the Memoir as "Langdon Hill.")

EXCURSION TO READING.

SATURDAY, JUNE 16TH, 1888.

Director : J. H. BLAKE, F.G.S., Assoc.M.Inst.C.E., of the Geological Survey.

(*Report by* THE DIRECTOR.)

The Members left London (Paddington) at 10 a.m., and arrived at Reading at 10.55, where they were met by the Director and a few gentlemen connected with various local