EXCURSION TO BATTLE AND NETHERFIELD.

SATURDAY, MAY 19TH, 1906.

Directors : E. J. BAILY AND W. WHITAKER, F.R.S.*Excursion Secretary* : ALFRED C. YOUNG.*Report by* W. WHITAKER.

ON reaching Battle at 11.15 a.m., a party of 17 drove from the station for some three miles northward, then turning westward to Mountfield and to the office of the Gypsum Works in Millham Wood.

Whilst waiting here some remarks were made on the general geology of the district, and on the deep borings, made for the purpose of scientific exploration, and which had resulted in the finding of a large bed of workable gypsum.

Some cars had been prepared for the use of members by the kindness of Mr. H. W. Kemp, manager of the works (who gave every facility to the Association), and in these they were taken along the Company's railway in the valley through the woods for about a mile W.S.W. to the works, which are in the midst of the woods on the left or northern side of the little River Line.

A plan of the underground gypsum-mine was shown, specimens of the rock were taken from the heaps, and the manufacture of plaster of Paris was explained.

The details of the two great borings of "The Sub-Wealden Exploration" have been printed in various publications, and one need only refer for them to the *Geological Survey Memoir* on "The Water Supply of Sussex" (pp. 65-70).

The Purbeck Beds here come to the surface, and in them the gypsum is found at a depth of over 120 ft., some of the beds being several feet thick.

At the depth of about 170 ft. Portland Beds are reached, and found to be from 105 to 110 ft. thick.

Beneath this formation Kimeridge Clay comes on, and was found to have the extraordinary thickness of not far short of 1,300 ft., its greatest in the kingdom. Corallian Beds continue the downward succession, with a thickness of about 240 ft., and then Oxford Clay, in which the deeper boring ends at the depth of 1,906 ft.

It was pointed out that the object of this exploration was not to find coal, as is often said, but simply to see what rocks occurred at great depth beneath the Purbeck Beds, the lowest geologic division that comes to the surface in the whole Wealden area. Of course there was a hope that at great depth some much older rock might be reached; but the boring has proved

what was not known or even suspected before, namely, that here there is a regular normal sequence downward through the Upper well into the Middle Jurassic, both divisions being well represented, as far as the boring has gone.

After thanking Mr. Kemp for all his kind favours the party walked westward to a large quarry by the western end of Counsellor's Wood, and a little south-eastward of Darvell Beech, which is worked for road-metal. Here there are alternations of clay, stone and shells, and many fish-remains have been found.

There was here some discussion as to whether the Geological Survey was right in mapping these beds with the Purbecks, or whether they might not be a faulted mass of Wadhurst Clay. It should be remarked of the various beds of the central Wealden area that one of their characteristics is to be somewhat like each other, whereby classification is sometimes made difficult. A fault that would bring Wadhurst Clay into this position would have to be of considerable throw, and to accept the Wadhurst view would need much more evidence than some likeness in the beds to what may be seen in the Wadhurst Clay elsewhere.

Walking to Netherfield the party again took to the carriages and drove into Battle, and saw Mr. Baily's fine collection of local fossils found in the Wadhurst Clay and Purbeck Beds. These fossils have all been carefully labelled, showing the quarry from whence they came, and comprise over one hundred bones and over two hundred teeth of the extinct dinosauria of the Wealden Formation, including a splendid skull of *Goniopholis Simus* from the Purbeck Beds.

After viewing the above the party drove to the Black Horse Quarry, Telham Hill, and there saw a somewhat overgrown section of Wadhurst Clay with layers of stone, which latter are now worked for road-metal in bell-pits on the northern side of the old pit. These pits have yielded Mr. Baily many of his best specimens. Thence they walked to Crowhurst village and saw a pit on the northern side of the line about a quarter of a mile W.N.W., showing clay with layers of stone, the latter being thicker in the lower part, the Wadhurst Clay being here again worked for road-metal.

Most of the party then walked southward to the village, saw the old church, with a notably large yew tree in the churchyard, and the remains of the Manor House, returning to the Station Hotel for meat tea, where a hearty vote of thanks was accorded the Directors.

REFERENCES.

- Ordnance Map, New Series, 320.
 Geological Survey Map, Sheet 5.
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 1836. FITTON, W. H.—"On the Strata between the Chalk and the Oxford Oolite in the S.E. of England." *Trans. Geol. Soc.*, series 2, vol. iv.

1875. TOPLEY, W.—“Geology of the Weald” *Geol. Survey Memoir*.
 1878. DIXON.—“Geology of Sussex.” New Edition.
 1882. CONWAY, M. D.—“Report of Excursion of Geological Association to Battle.” Sept. No. of *Atlantic Monthly*.
 1899. “The Water Supply of Sussex from Underground Sources”
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EXCURSION TO LEWES.

SATURDAY, JUNE 23RD, 1906.

Director : G. E. DIBLEY, F.G.S.*

(Report by THE DIRECTOR.)

THE party, numbering seven, arrived at Lewes in glorious midsummer weather, and proceeded to the pits at the eastern end of the town. The first two, locally known as the Navigation Pits, are situated in the *Micraster cor-anguinum*-zone. The dust and heat from the factory prevented the second being visited. At the southern end of the first pit a fine layer of subsequently formed tabular flint was noticed cutting the beds at about 40°.

A few yards farther to the east the celebrated Southerham Pit of Mantell exhibited features of special interest. Upon entering, the *Micraster cor-anguinum* beds revealed the same horizontality as in the former pits, but at about 100 ft. from the Lewes end the chalk dips northwards, which brings the lower beds up at nearly 30°, and thus exposes the whole of the *Holaster planus* and the greater part of the *Terebratulina gracilis*-zones.

A very interesting section in the *Holaster planus* chalk, formerly overgrown with ivy, had been specially cleared for the party through the kindness of the manager, Mr. Weller. This section had been noticed by Mr. Strahan,† and the particular band referred to in the programme consisted of an exceedingly hard layer 1 ft. 6 in. in thickness, very like the Chalk Rock. Overlying this is the band of distinctly phosphatic chalk of Mr. Strahan. Samples were taken, but only one fossil—a fragment of *H. planus*—was discovered. A few hundred yards to the south-east, owing to the rapid dip, a pit was reached revealing Lower Chalk. The Director had observed a large Ammonite the previous evening, but owing to extensive blasting operations just prior to the entrance of the party it had been obscured by the débris. The Director and certain members have much cause to be thankful, for just before leaving the pit an enormous mass of

* Owing to the unfortunate indisposition of Mr. C. Davies Sherborn, F.G.S., F.Z.S., who had arranged for this excursion, it was undertaken, at his request, by G. E. D.

† “On a Phosphatic Chalk with *Holaster planus* at Lewes,” *Quart. Journ. Geol. Soc.*, vol. lii, p. 463.