EXCURSION TO WANTAGE.

MONDAY, MAY 7TH, 1877.

Directors—Professor JOHN MORRIS, F.G.S., President Geologists' Association, and E. C. DAVEY, Esq., F.G.S.

(*Report by* E. C. DAVEY, Esq., and W. H. HUDLESTON, Esq., M.A.)

This was an excursion, to a certain extent, supplementary to the Faringdon Excursion of the previous year (Proc. Geol. Assoc., Vol. iv., p. 543). Mr. Davey, who had on that occasion acted as the chief local Director, was desirous to complete the history of the "Sponge Gravel" district, by exhibiting to the Members the unrivalled collection from those beds, which is stored in his private museum at Wantage. As Mr. Davey has thoroughly studied and re-classified the numerous Sponges on a far more scientific basis than has been done previously, it was all the more necessary for those Members interested in Cretaceous Palæontology to have the opportunity of inspecting so complete a collection, and of hearing Mr. Davey's views on the subject.

After delivering a short address explanatory of the Cretaceous geology of the neighbourhood, Mr. Davey conducted the visitors to his museum, in which were displayed a fine series of the fossils of the district, together with collections of coins, pottery, celts, and the spolia of a Roman villa recently discovered near Wantage, an account of which was read before the Archæological Institute in February. The fossils are all catalogued in a pamphlet printed expressly for the Members of the Association, two copies of which have been presented to the Library.

Were we to judge solely by the results recorded by the Geological Survey, we might conclude that Wantage was an unpromising district for the palæontologist, inasmuch as the scantiest lists of fossils belonging to the Upper Greensand and Chalks are to be found in the Memoirs to Sheets 13 and 34; but Mr. Davey's catalogue is the best proof that no part of the Chalk range from Wilts to Herts possesses more characteristic fossils than Berks, and no part of Berks so complete as Wantage.

After partaking of the generous hospitality of Mr. Davey *al fresco*, the party proceeded in conveyances to Lockinge Clump, East Hendred, and Cuckhamsley hill. The lowest Cretaceous beds seen on the route are "whitish calcareo-siliceous strata," known as Firestone,

resting on the Gault and forming a prominent narrow ridge, which overlooks and bounds the Vale of White Horse for many miles in succession. It is the same stone that is quarried near Godstone Merstham, and Nurstead, in Surrey, and has been extensively used in the Isle of Wight for building churches, &c. (Mantell, "Geological Excursions," Chap. viii., p. 177). It may probably be correlated with the Blackdown-beds and with Dr. Barrois' zone of *Ammonites inflatus*. No fossils had hitherto been reported from this zone in Berks, but Mr. Davey has obtained more than a dozen species, the most remarkable being some Echinoderms of the genus *Cardiaster*. The most abundant one is a flat species with 5 ambulacra—a specimen of which may be seen in York Museum labelled *Micraster Murchisoniæ*. Besides these urchins, the Firestone contains *Pecten orbicularis*, *Pholadomya decussata*, *Plicatula inflata*, and three species of *Nautilus*.

Resting on this Firestone are beds, thirty feet in thickness, of soft glauconitic sands well exhibited in various sections round Wantage, and seen by the Association on Lockinge Clump. These sands are decidedly fossiliferous, especially in their higher portion, and yield *Pecten asper*, *Discoidea subuculus*, *Pleurotomaria Rhodani*, *Terebratula biplicata*, and other species characteristic of the Warminster-beds with which the Wantage sands seem identical (see Quart. Journ. Geol. Soc. for 1875, p. 272, and Barrois' "Recherches sur le Terrain Crétacé Supérieur de l'Angleterre et de l'Irlande," pp. 36, 62, 70).

After passing through East Hendred, the Members lingered somewhat in a quarry of Lower Chalk (zone of *Holaster subglobosus*) half way up Cuckhamsley hill. This hill has other attractions besides fossils, for on its summit is a large mound, which Kemble supposed to be the most commanding barrow in England, and the resting place of Cwichelm, the first Christian king of Wessex ("Archæological Journal" for 1857, p. 131). Arrived on the summit of the downs, the party was addressed by Professor Morris on the physiography of the immense district which is commanded by this elevated ridge. All the points in connection with last year's excursion to Faringdon were in view, and the Professor completed his exposition of the structure of the country, as given in the Report, to which reference has already been made.

After exhausting the geological side of the subject, the history of the district came in for its share of attention, and the Members were much interested in a brisk discussion which ensued between

Mr. Davey and Mr. James Parker as to the origin of the name of the mound which is on the summit of this part of the Wantage downs. As this question belongs to the domain of archæology rather than of geology, no further reference need be made to the subject here. But it might be gathered from what was said that the boundary between Wessex and Mercia in these parts seems to have run along the line of the Chalk escarpment. Hence, like all border districts, many a battle would be fought within its confines between those two rival combinations of the Anglo-Saxon tribes, who had but lately wrested the fairest portions of this island from the Romanised Britons.

A general move was now made to a fine section in the nodular "Chalk Rock," 500 yards west of Cuckhamsley Barrow, and here hammers and chisels were eagerly brought into requisition, with results which evidently gave both surprise and satisfaction. At the date of the Geological Survey, the Chalk Rock of Berks was returned as well nigh barren, but subsequent researches have proved that this singular bed is as fossiliferous in Berks as in Herts. The more this bed is studied, the more striking are its peculiarities. The Chalk Rock may be seven and possibly ten to twelve feet in thickness, but nine-tenths of the fossils are found in a seam that rarely exceeds three or four inches in depth. Above this thin line fossils are scarce and restricted to half-a-dozen kinds; below, the rocks are devoid of any but minute organisms. Above, the Chalk is milk-white, soft, and interspersed with flints; but the "Chalk Rock" is hard, cream-coloured, filled with dark phosphatic nodules, and contains no flints. Above, not a single gasteropod has yet been discovered;* but the moment the Chalk Rock is reached, an extraordinary assemblage of univalves is disclosed. Deep-sea bivalves are present, but the majority of the fossils belong to the genera *Trochus*, *Cinulia*, *Pleurotomaria*, &c., and as these are all inhabitants of shallow waters, we must conclude that a beach existed where these molluscan remains are embedded. Nevertheless, the Chalk Rock contains no trace of sand, or pebbles, or wood, to denote the vicinity of land. The conditions under which the Chalk Marl was deposited seem to have been repeated in the Chalk Rock—both being "littoral" and not "abysmal" deposits—for we find *Hamites*, *Scaphites*, and gasteropods in both. Of the Echinoderms, the most abundant

* According to Professor Phillips, Gasteropods are unknown in any part of the Yorkshire Chalk.—"Rivers, Mountains," &c., Chap. vii., p. 182.

and characteristic is a dwarf species, which is probably that distinguished as *Cardiaster pygmaeus* of Forbes, by Mr. Price in his communication to the Geological Society, March 7, 1877. From these remarks it will be gathered that the Chalk Rock is a stratum of peculiar interest, and worth the attention of palæontologists. Numerous quarries are worked in this rock near the summit of the Berkshire Downs from Ilsley to Uffington, and afford excellent opportunities for further investigations and discoveries.

The visitors would willingly have spent more time in extracting the beautiful and well-preserved fossils which were revealed at almost every stroke of the hammer, but it was found necessary to commence the journey homewards, and this was accomplished by a pleasant drive along the ancient grassy road known as the Ridgeway and downwards through the grounds of Betterton House and Lockinge Park. Wantage was reached at half-past five, which allowed a little time for tea and refreshments. Then the party travelled to Wantage Road Station by the novel conveyance of a steam tramway, and left for their various destinations by the last up-train, having thoroughly enjoyed their visit to Wantage and the Berkshire Downs, under the favouring conditions of a hearty reception, a charming drive, successful fossil hunting, and brilliant weather.

VISIT TO THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS.

(RED CRAG MAMMALIAN REMAINS.)

MAY 12TH, 1877.

Director—Professor W. H. FLOWER, F.R.S., F.G.S., &c.,
Conservator of the Museum.

(*Report by* PROF. G. S. BOULGER, F.L.S., F.G.S.)

The Members having assembled in the Palæontological Hall of the Museum, Professor Flower directed their attention to the Mammalian Remains from the Red Crag, and illustrating his remarks by the specimens before him, proceeded to observe that these remains were obtained from the so-called coprolite-beds which occur at the base of the Crag, resting on the London Clay, between the rivers Orwell and Deben, and which are worked for the manufacture of super-phosphates. The remains found in these beds consist chiefly of shark's teeth, the shells, etc., of inverte-