earth, with which are intermingled seams of gravel and many large quartzite pebbles, is probably nearly 20 ft. thick, and is said to rest in places on mottled clay, but is mostly in the form of pipes into the underlying chalk. The surface is at the same level as that of the brick-earth seen last May at Pinkney's Green, and it is noteworthy that palæolithic implements of the same type are met with at both places.

Passing on into Burnham Beeches, a gravel pit was visited close to their western boundary. It is at a level of about 260 ft. O.D., and shows 10 ft. of very evenly-bedded gravel. A walk of about a mile through some of the prettiest scenery of the Beeches brought the party to the tea gardens as darkness was coming on. After tea and the usual vote of thanks, proposed by Mr. Whitaker, the members left by special motor carriage, arriving at Slough Station in time for the 7.29 train for London.

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EXCURSION TO THE LONDON AND NORTH WESTERN RAILWAY, NEAR HARROW.

SATURDAY, SEPTEMBER 25TH, 1909.

Directors: J. H. WOODHEAD, F.G.S., AND H. KIDNER, F.G.S.

(*Report by MR. KIDNER.*)

THIS excursion was made known on the three preceding excursions, but it was not arranged in time to appear in the printed circular. Heavy rain fell up to the time of starting from Euston by the 1.45 train, and only five were present. The object was to examine sections exposed in constructing the new line from Euston to Watford. Mr. J. H. Woodhead, of the Engineer's Department, L. & N. W. Railway, met the party at Harrow Station, and a walk was taken along the roadway to Kenton Lane Bridge. Here, by leave of Messrs. Naylor Brothers, the contractors, the party was conducted through the cutting. On the south-eastern side of the bridge, and on the up (north-eastern) side of the line, the thickness of the section was from 12 to 15 feet; but only the lower part, from 4 to 6 ft., consisted of London Clay *in situ*, the upper part being made-ground. This

made-ground was seen to extend south-eastwards more than half-way to the foot bridge which crosses the line. A darkish-grey band 3 or 4 inches thick, probably representing the previous land surface, divided the London Clay *in situ* below and the disturbed material above. This upper part was almost entirely brown clay derived from the London Clay, and it contained *septaria*; but the absence of the ochreous bands seen in the lower part, the nodules being sometimes broken, the occurrence of scattered pebbles, angular stones, and other materials, and the dark band above-mentioned, led to the conclusion that it was a tip-heap, made when the line was constructed or widened. The upper part of the grass-covered material north-west of Kenton Lane Bridge on the up side is also probably part of a spoil-heap.

South-east from Kenton Lane, about half-way to the foot-bridge, and about 2 feet above the level of the rails, a gravelly band, 4 inches thick, overlaid with a clayey deposit, was seen, resting on the London Clay, and covered with made-ground. It was thought that this might represent a pond; but Mr. Woodhead finds that no pond is shown on the parliamentary plan of the original railway (1833). The cutting here was made in sloping ground, higher on the down than on the up side. On the down side, opposite the section described, there is a culvert constructed to receive a sluggish stream, which was seen on the day of the visit. This stream flows in a trench, cut along the bottom of a trough-like depression of marshy ground, which slopes upwards towards Harrow, and doubtless once continued across where now is the cutting. The gravelly band and clayey deposit would therefore represent this old surface drainage. The ochreous bands in the London Clay attracted attention, and it was observed that the *septaria* were flat in shape. Crossing to the down side at the footbridge, the whole of the section showed London Clay *in situ*. Holes dug to a depth of 18 ft. for new piers for the bridge showed brown and ochreous clay in the upper, and bluish grey clay in the lower part. This, however, could not be seen on the day of the excursion. A large number of crystals of selenite occurred at this spot, and many were still to be seen. The total thickness of London Clay exposed here was about 31 ft. A heavy downpour of rain drove the party to shelter, and it was not practicable to proceed farther in the direction of Sudbury. Mr. Woodhead says, "I have not noticed any traces of made-ground in Wembley cutting, nor do I know of any spoil-heap on the down side. The railway was widened on the up side, and the extra stuff would naturally go to spoil on that side."

Further examination being impossible, the party returned along the down side of the cutting to the Rest Hotel, where tea was taken and Mr. Woodhead heartily thanked for his services. After tea the return to London was made from Harrow Station.

It is hoped next year to visit cuttings to be made near Pinner and Bushey, when interesting sections in the Basement Bed of the London Clay and the Reading Beds will probably be exposed.

VISIT TO THE MINERAL COLLECTION AT THE IMPERIAL INTERNATIONAL EXHIBITION, SHEPHERD'S BUSH.

SATURDAY, SEPTEMBER 4TH, 1909.

Directors: The late PROF. H. BAUERMAN, A.M.I.C.E., A.R.S.M.,
F.G.S., AND H. T. BURLS, F.G.S., M.I.M.E.

THE Cornish Committee's excellent exhibit of minerals was inspected and was explained by Mr. E. W. Newton.

The minerals in the official collection are selected from the Collections of the School of Mines, Camborne, and the Royal Geological Society of Cornwall, Penzance, and include practically every species found in the county.

It is supplemented by collections from the following exhibitors: The School of Mines, Redruth, who exhibit a case of metallic minerals of especial interest; Mr. James Wickett, Redruth, who sends perhaps the most interesting collection in this section, the tin specimens being exceptionally fine, and showing varieties from many localities now unobtainable; this also applies to his fine and complete series of copper arseniates, many of which were found in the early part of the last century when the Cornish mines were so rich in copper. A fine case of pitchblende and other uranium minerals and products is exhibited by the British Metalliferous Mining Company from their mines at Grampound; and a case of minerals by Mr. E. W. Newton.

The combined exhibits in this section form, no doubt, the finest and most complete collection of Cornish minerals ever on exhibition, and prove conclusively that Cornwall produces practically every mineral of commercial importance, from gold on the one hand, to uranium (and incidentally radium) on the other; and it is probably the most highly mineralized district in the world.

Cases illustrating the preparation of china clay and china stone in their various stages, the different varieties of Cornish granite and their uses, and the machinery used in Cornish mining were examined and explained.

Much interest was also shown in Mr. Burls' collection of auriferous rocks and specimens of gold obtained from Ogofan, South Wales.