the bridge crosses the line near the northern end of the cutting, there had been much excavation in the upper, or thicker, pebble bed, in order to make approaches to the bridge on the western side of the line. There were seen many masses of pebbles cemented together, the masses occurring in a curiously irregular manner. Though the section as a whole had deteriorated in consequence of the sloping of the sides of the cutting, this part of it in the pebble beds was far finer than any seen on former occasions.

REFERENCES.

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VISIT TO THE ZOOLOGICAL GARDENS.

SATURDAY, APRIL 25TH, 1891.

Directors: P. L. SCLATER, PH.D., F.R.S., and G. A. BOULENGER, F.Z.S.

By kind permission of the Council of the Zoological Society, Members of the Association were admitted to the Gardens after two p.m., free of charge, by the principal entrance in the outer circle, upon producing their Excursion Circular and signing their names.

At three p.m. the party assembled at the Lion-house, where Dr. Sclater gave a short discourse on "The Larger Cats." They then proceeded to the Reptile-house and had its more interesting features pointed out to them by Mr. Boulenger.

A vote of thanks to the two Directors brought a successful afternoon to its close.

EXCURSION TO GUILDFORD.

SATURDAY, MAY 2ND, 1891.

Directors: LIEUT.-COL. GODWIN-AUSTEN, F.R.S., HORACE W. MONCKTON, F.G.S., AND R. S. HERRIES, M.A., F.G.S.

(*Report by* MR. MONCKTON.)

The party assembled at Guildford station at 12.30 p.m., and walked to the old quarry in Bargate Stone, from which Mr. Meyer formerly obtained a large collection of fossils. It is on the west of the footpath from Braboeuf House to Orange Grove, and one mile south-west of Guildford Castle. The quarry itself is now disused, but a smaller pit a little to the west, which is still worked, was visited.

This last pit shows irregular beds of stone and whitish, very coarse sand. The stone is a coarse calcareous grit, and both it and the sand are full of pebbles and sub-angular fragments derived from older formations. These pebbles and fragments are mostly small; only one pebble over an inch in length was observed. Amongst them are many fossils and bits of fossils, probably from various Jurassic formations; some pebbles of Lydian stone, and a few of quartz, reaching a length of half an inch, also occur.

The Bargate Stone and the pebbly beds are very well shown in a larger pit at Littleton, a little east of Losely House; but unfortunately, owing to heavy rain, this pit was visited by only a few of the party.

The succession of beds forming the Lower Greensand here, is as follows:—

1. Yellow sands, very much false-bedded, containing very irregular bands of ironstone or grit, with many very small pebbles not exceeding three inches in size, about	Ft.
160
2. Bargate Stone in layers, alternating with coarse whitish sand; sometimes a coarse calcareous grit, almost a conglomerate; pebbles and fragments of older formations very abundant in places, about	50
3. Sands (not exposed here), about	200
4. Atherfield Clay, about	60

The thicknesses of the beds are taken from Topley, "Geology of the Weald," p. 2.

There is, as the Directors explained, a difference of opinion as to the manner in which Nos. 1, 2 and 3 of the above beds should be classified. On the Geological Survey Map, No. 1 is called Folkestone Beds, and Nos. 2 and 3 Hythe Beds, the Sandgate Beds being supposed wanting. Mr. Meÿer, however, a leading authority on this district, whom everyone was glad to see on the excursion, holds that Nos. 1 and 2 should both be included in the Folkestone Beds, and that No. 3 is partly Sandgate and partly Hythe Beds. Amongst those present there seemed to be considerable difference of opinion on this difficult question.

Besides the fossils derived from older formations, the pits visited afford many contemporaneous Lower Greensand forms, several of which were collected by the visitors.

Leaving the Bargate Stone pits, the party crossed the level flat of the Wey Valley named Pease Marsh, beneath the gravels of which the late Mr. Godwin-Austen found traces of an old forest growth with mammalian remains.

The next halt was made at a new brickfield in Atherfield Clay near East Shalford. Here Col. Godwin-Austen drew attention to the gravel which fills a series of troughs in the clay. These troughs run east and west, that is, in the direction of the valley. The gravel is composed of flints, both unworn and sub-angular, derived from the chalk, of ironstone derived from the Folkestone

Beds, of chert from the Sandgate or Hythe Beds, and of small quartz pebbles. The workmen are said to have found bones in it, but unhappily none have been preserved.

One of the Members exhibited a block of Atherfield Clay full of fossils, and Mr. Meyer said that he had made a large collection from the lane between the brickfield and the Tillingbourne.

Crossing the stream, the party walked through the fields to Halfpenny Farm, where a lane shows a series of sections from the Folkestone down to the Hythe Beds, and here the discussion as to the sub-division of the Lower Greensand was revived. At the top of the lane occur yellow sands with ferruginous layers and concretions; these are admittedly Folkestone Beds. Throughout almost the whole series shown below these sands, the pebbles and fragments from older formations abound. Bargate Stone occurs some way down, but here is not suitable for building. According to Mr. Drew, the Sandgate beds are absent at Godalming, but represented here by a few feet of clayey sand containing many pebbles and small patches of fuller's earth.†

St. Martha's Church, which stands on the top of the Lower Greensand hills, at about 500 feet above Ordnance Datum, was then visited, and it was seen to be built of, or at least faced with, ironstone from the Folkestone Beds and Bargate Stone.

Leaving the church, the party walked through Colonel Godwin-Austen's beautiful woods, to Shalford House, where they were most hospitably received by Colonel and Mrs. Godwin-Austen. After dinner the visitors accorded a hearty vote of thanks to their kind host and hostess, and, in proposing it, Mr. Holmes took occasion to refer to the services that Colonel Godwin-Austen had himself rendered Geology, and to the great geological attainments of his father, whose prophetic essays on the existence of coal at a workable depth in the south-eastern counties had recently been verified by the Dover boring.

The party returned to London by the 7.26 p.m. train from Guildford.

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† Topley, "Geology of the Weald," p. 122.