the Peasemarch anticline, which soon dies away to the east, and the wide outcrop of Atherfield Clay in the East Shalford district.

The party descended the slope and visited the brickyard near the railway. Here a few feet of Atherfield Clay is seen to be overlain by Drift. In this district the lower part of the Atherfield Clay contains a band of very fossiliferous nodules. These are not seen in the brickyard, but a few were obtained from the bed of the Tillingbourne, near by, and exhibited to the members. *Thetis minor*, Sow., *Arca raulini*, Leym, *Perna*, and many other fossils could be seen in them.

The party then returned to Guildford, where tea was obtained. In the station yard a vote of thanks was accorded to the Director, who replied, and the party returned to town by the 7.41 train.

REFERENCES.

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Ordnance Survey Map, one inch, New Series, Sheet 285.

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- 1876. CH. BARROIS.—“Terrain Crétacé de l'Angleterre.”
- 1884. R. A. GODWIN-AUSTEN and W. WHITAKER.—“New Railway Cutting at Guildford.” *Quart. Journ. Geol. Soc.*, vol. xl, pp. 599—613.
- 1891. “Record of Excursions,” pp. 93, 97, 98, 100.

EXCURSION TO SILCHESTER.

SATURDAY, JUNE 30TH, 1900.

Director: J. H. BLAKE, ASSOC. M. INST. C. E., F. G. S.

Excursion Secretary: A. C. YOUNG, F. G. S.

(Report by THE DIRECTOR.)

THE members assembled at Reading Station at 12.49 p.m., and proceeded to the Reading Museum and examined the Romano-British collection from Silchester. Mr. Colyer, the assistant-curator, pointed out many of the most interesting relics, amongst them being a considerable number of Roman silver and bronze coins, ranging from B.C. 39 to A.D. 423. After a vote of thanks to Mr. Colyer, proposed by the President, the members returned to the station and entrained for Mortimer, where they arrived about 2 p.m. They then walked nearly two miles in a south-westerly direction to a projecting spur of plateau-gravel westward of Brocas Land Farm, where a fine view of the surrounding country was obtained. The Director briefly explained the

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geological structure of the district, and stated that the plateau-gravel (Southern Drift) rested upon Lower Bagshot Beds overlying London Clay. But what he particularly drew attention to, and wished to impress upon them, was the large amount of denudation that had taken place since the deposition of the plateau-gravels. These occupied all the highest ground in the district, and often occurred as isolated patches on outliers of the Bagshot Beds, one of which he pointed out three-quarters of a mile to the east of Silchester, where the plateau-gravel was at the same level as that at Silchester, namely, 300 ft. above sea-level, with a valley intervening more than 100 ft. in depth.

The members, who were here joined by the cyclists with Mr. Monckton, then resumed their walk. During their descent into the valley separating them from Silchester, attention was drawn to an exposure of Lower Bagshot Beds in the road-cutting; and to the junction of the Bagshot Beds with the London Clay on the opposite side of the valley, where a spring was thrown out.

On arrival at the Amphitheatre, Mr. Mill Stephenson—in charge of the Silchester excavations for the Society of Antiquaries—conducted the party first into the Amphitheatre, then to the north wall of the Roman city, and afterwards through the Manor Farm to where the excavations were in progress, south-east of the North Gate. Here the foundations of houses were exposed, with tessellated pavements and mosaic floors, hypocausts, etc., and rubbish-pits (about 6 ft. in depth) from which so many relics had been obtained. Four special excavations had been made by Mr. Mill Stephenson to show the junction of the plateau-gravel with the underlying Lower Bagshot Beds. The deepest well that had been explored was 32 ft. in depth. After an inspection of the relics that had been found this year, the Forum (now much grown over) was visited and described by Mr. Mill Stephenson.

Leaving the City by the West Gate, the members proceeded to a large gravel-pit on Silchester Common, which showed a section 6 ft. in thickness, of pebbly and subangular flint-gravel, characteristic both in constituents and thickness of the plateau-gravel (Southern Drift) of this district.

Called upon by the President to give views as to the gravel before them, Mr. Monckton remarked that they were on a plateau a little more than 300 ft. above the sea, capped with what he had termed the Silchester type of Southern Drift.* He looked upon all these gravels as river-gravels, the composition depending upon the various rocks to be found in the drainage-area of the various streams. This gravel contained no Lower Greensand débris and no Bunter pebbles, and was evidently deposited by a river draining a Chalk and Tertiary country, much the same as the present Kennet-Loddon drainage-area.

* *Quart. Journ. Geol. Soc.*, vol. xlviii, 1892 (Map on p. 38).

The next gravel-capped plateaux to the east, Spencerwood Common, Heckfield Heath, etc., were capped by gravel containing an abundance of fragments from the Hythe Beds of the Lower Greensand, and may perhaps be looked upon as gravel of an old edition of the River Blackwater. The present Blackwater does not, however, drain any Lower Greensand country; it is separated from the nearest outcrop of that formation by the River Wey, and the speaker suggested that these gravels show that the Blackwater used to have a great drainage area to the south or south-east which has now been acquired by the River Wey, just as much old Thames drainage-area has been acquired by the River Severn.

The débris of the Hythe Beds, so abundant in the gravel of Spencerwood Common, has not only been brought across the present course of the Wey, but also across the present course of the Loddon, and this looks as though the Blackwater used to join the Loddon a little farther west than now. Mr. Monckton suggested that Spencerwood Common was very probably the actual point of junction of the two streams.

The Director then exhibited the new Geological Survey Maps of the district, one with Drift and the other without, and explained how very different from the present the conditions and physical features of the country must have been when the extensive spreads of plateau-gravels were deposited. He also referred to the distribution of the Northern Drift, characterised by its numerous large rounded quartzites, in contradistinction to that of the Southern Drift, which did not contain any. Pointing to the hills visible in the distance, he stated they were the abrupt uprise of the Chalk on the south side of the London Basin.

Tea was partaken of at the Crown Inn, when a cordial vote of thanks, proposed by the President, was accorded to the Director, to Mr. Mill Stephenson, and to the Society of Antiquaries.

The party returned by a different route to Mortimer Station, and in Wall Lane inspected another section (6 ft. in thickness) of plateau-gravel, which, though a continuation of the same spread of gravel, showed a much more stratified appearance than that in the pit on Silchester Common.

Reading was reached at 7.15 p.m., when some of the members visited the Abbey ruins and Forbury Gardens before leaving by the 8.20 p.m. train.

After tea those members who had brought cycles accompanied Mr. Monckton to Heckfield Heath, where they visited a pit in what he called old Blackwater gravel, now 270 feet above the sea. The abundance of fragments from the Hythe Beds was noticed.

Mr. Monckton remarked that other flats occur at lower levels

and illustrate the remarks as to step terraces which he made at Kingston Hill on April 28th (see p. 444). He considered that these flats marked pauses in the process of elevation of the land. The gravel at Heckfield was seen to be much more clearly stratified than that at Silchester Common.

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- Geological Survey Map, One-inch (Drift Edition), Sheet 268.
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EXCURSION TO KETTERING AND THRAPSTON.

SATURDAY, JULY 7TH, 1900.

Directors : PROF. J. F. BLAKE, M.A. AND BEEBY
 THOMPSON, F.G.S.

Excursion Secretary : W. P. D. STEBBING.

(*Report by J. F. BLAKE.*)

THE party from London met some of the members from Northampton, including one of the Directors, at Kettering Station, whence they walked to the brickyard on the Thrapston Road. Here is seen an apparent junction of the upper beds of the Lias with the overlying Northampton Sands, or Ironstone; but it was pointed out by Mr. Thompson that the upper hard beds were wont to slip over the soft unctuous clay, particularly on the slopes of hills, and that in all probability some of the highest beds of the Lias, here really existing, were thus concealed. He pointed out, some ten feet below the apparent summit, a line of white weathering nodules, often coated with encrusting organisms as though they had long lain exposed on the sea bottom, above which there was a different fauna to that in the beds below—a fact easily verified by the members. Hence he regarded this line as the palæontological summit of the Lias proper, the beds above being the *A. furens*-beds, which are continued into the base of the ironstone.

From this brickyard the members had a walk of about four miles
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