Saturdays, Sundays, and Bank Holidays ; on other days, 1s. each is charged. (Closed on Thursdays)

The articles produced at the Pottery are now made from the Gault mixed with a certain proportion of clay imported from Scotland, but when it was first established the owner was not aware that a suitable clay existed in the neighbourhood. The Gault Clay was afterwards discovered in digging the foundation for the manager's residence. Owing to its real thinness and the high dip it forms a band only a few feet wide, at a height of some 40 feet above the base of the escarpment, the lowest part of which is cut in Folkestone Sands.

The party then walked back to Guildford along Sandy Lane, the supposed track of the "Pilgrims' Way," which leads direct to the ferry across the River Wey at St. Catherine's Chapel. This part of the Pilgrims' Way (and for some distance east of Guildford) is on Folkestone Sands, of which several sections were noted in passing.

REFERENCES.

- Geological Survey Map, 1 inch to mile, Sheet 8, 8s. 6d.
 Ordnance Survey Map, 1 inch to mile (New Series), Sheet 285, 1s.
 1904. JUKES-BROWNE, J. B.—"Cretaceous Rocks of Britain." *Mem. Geol. Survey*, vol. iii, p. 176.
 1908. YOUNG, G. W.—"The Chalk Area of Western Surrey." *Proc. Geol. Assoc.*, vol. xx, p. 422.

EXCURSION TO WHEATLEY AND ARNGROVE.

SATURDAY, JUNE 26TH, 1909.

Director: A. MORLEY DAVIES, D.Sc., F.G.S.

Excursion Secretary: MISS JOHNSTON.

A PARTY of twelve, who had travelled from London *via* Oxford, were met by the Director at Wheatley Station shortly before noon, and conducted to one of the quarries in Upper Corallian Limestone. Here a series of beds of stone was seen, some hard and compact, others of loose texture, but all apparently composed of comminuted shell-fragments. The strata showed a decided dip towards the north, although a brickfield in Hartwell Clay (which there was not time to visit) could be seen at the foot of Shotover Hill, a little distance to the south. Between the two exposures runs an important fault, but whether the dip in the stone-beds is due simply to disturbance near the fault, or whether, as suggested by Blake and Hudleston, it represents original deposition at an angle on the edge of the Lower Corallian sand-bank, was left undecided. A hunt for fossils resulted in the finding of many

loose valves of *Exogyra nana*, radioles of *Cidaris florigemma*, and a belemnite.

A walk of half a mile brought the party to the great Lyehill quarries, now little worked, but showing on the old face a magnificent development of stone like that at Wheatley, but more oolitic. As time was limited, and no great variety of fossils were to be expected, the party did not enter the quarries, but continued along the road to Forest Hill and by a footpath past Breach Farm to a spring and pond which marked the junction of the Lower Corallian and Oxford Clay. From this pond, and still better from a ditch by the side of Stanton Great Wood, close at hand, fragments of the typical *Rhaxella*-chert (Arngrove Stone) were obtained. Some evidence was also seen in the soil of the fields that this chert was overlain by a clay, and this by limestone.

At Stanton St. John, near the school, a small abandoned quarry was visited, and specimens of *Echinobryus* and a few molluscan casts obtained. Here a brake met the party, and they were driven across a low-lying area of alluvium (over Oxford Clay) to Captain Henderson's brickfield at Studley, where the uppermost beds of the Oxford Clay were seen. Here large specimens of *Gryphaea dilatata* abounded. A *Belemnites hastatus* and fragments of *Cardioceras* were also found.

Another drive of a mile and a half brought the party to Arngrove, where the Arngrove Stone (locally called gravel) is dug in shallow pits on an area of waste ground. Through the kindness of Mr. H. N. Lear, the estate agent, a quantity of the stone had been dug up, and the heaps were successfully searched for fossils, of which *Cardioceras cordatum* (Sow.) is the commonest. Amongst other fossils found were specimens of *Pinna lanceolata*, *Modiola*, and *Pholadomya aequalis*.

On the return drive to Oxford the Oxford Clay area was re-crossed and on mounting the hill at Woodperry the Upper Corallian was again seen in a small quarry, where stone very similar to that at Stanton St. John was quarried, but with a fauna in which gasteropods predominated.

The general object of the excursion was to illustrate the rapid disappearance of the typical Corallian facies north-eastwards from Oxford. While Upper Corallian stone-beds were seen well developed along the $3\frac{1}{2}$ miles from Wheatley to Woodperry, with the Arngrove Stone as an insignificant layer below, 3 miles to the north-east the Arngrove Stone, being isolated among clays, forms itself a conspicuous feature. Still farther in the same direction, as was seen in the excursion to Dorton and Brill in 1907, all stone-beds have disappeared, the Oxford, Ampthill and Kimeridge Clays forming one practically unbroken clay-series between the Cornbrash of Blackthorn and the Portland Sands of Brill.

A vote of thanks was proposed by the President at Woodperry Quarry to the Director, which was unanimously accorded. The party then proceeded to Oxford, where they dispersed.

REFERENCES.

- Geological Survey Map, Special Oxford Sheet.
 1907. DAVIES, A. M.—"Kimeridge Clay and Corallian Rocks of Brill." *Quart. Journ. Geol. Soc.*, vol. lxiii, pp. 29-43.
 1908. ПОДКОК, Т. И.—"Geology of the Country around Oxford." *Mem. Geol. Survey*, pp. 25, 38-45.

EXCURSION TO OTFORD AND THE DARENT VALLEY.

SATURDAY, JULY 3RD, 1909.

Directors: R. H. CHANDLER and A. L. LEACH.

Excursion Secretary: A. C. YOUNG.

(*Report by THE DIRECTORS.*)

THE party, numbering 37, arrived at Otford at 2.26. In the chalk pit north of the railway station the Directors drew attention to a deposit of chalky drift overlying the Chalk at about 300 ft. O.D., and extending for a considerable distance along the lower slope of the Chalk escarpment. This drift (which is probably comparable with the "Scarp Drift" mapped eastward of this area by Mr. F. J. Bennett) consists mainly of a chalky mud with granules and pellets of chalk and a small proportion of earthy matter; it contains scattered pebbles and fragments of flint and Lower Greensand chert, small flakes and chips of flint, many fragments of thin red brick resembling Roman tiles, and well-preserved shells of land mollusca in great abundance. The deposit is upwards of 8 ft. thick at the entrance to the chalk pit, but it thins off gradually against the rising slope of the Chalk escarpment. To indicate its probable mode of formation the term "rainwash" has been used by Mr. Lewis Abbot and Mr. A. S. Kennard, and this word seems appropriate, since the excellent preservation of the shells shows that the whole deposit has accumulated gradually and gently. The present annual average rainfall on the North Downs immediately above Otford is from 30 to 32.5 ins., but there is reason to think that formerly this was considerably exceeded. The age of the deposit is more open to question than its mode of formation. The Directors suggested that it was in part, at least, older than the Pilgrims' Way, which is certainly pre-Roman, but Mr. A. S. Kennard stated that he had found a Roman bronze pin at the base of the deposit and