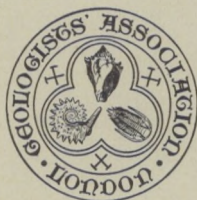


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# Field Meeting at Wrotham and the Maidstone By-Pass

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# Field Meeting at Wrotham and the Maidstone By-Pass

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Report by the Director: R. CASEY

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THE PURPOSE of this meeting was to examine new sections in the Lower Greensand and Gault made available by the construction of a by-pass road at Maidstone. A halt was first made at Wrotham in order to visit the Rugby Portland Cement Company's workings at Ford Place, situated immediately north of the pit described by E. E. S. Brown (1941, 5, 8). These workings cut through the top of the Lower Greensand (Folkestone Beds) and most of the Gault and provide a standard of comparison for the scattered exposures of the by-pass.

At Ford Place the buff, incoherent sands of the Folkestone Beds display high-angle current-bedding and are succeeded abruptly by glauconitic clayey sands and sandy clays which form a passage into the blue-grey clays of the Gault. These passage beds are about eight feet thick and contain in their upper part numerous gritty phosphatic nodules concentrated in three main seams, the whole referable to the *mammillatum* Zone. Differential oxidation of the glauconite causes a gradual colour-change upwards from rusty brown to dark green. Fossils are not common in the topmost seam of nodules, though collecting over the years has brought to light an interesting set of ammonites comparable with those found in the matrix of the Main *mammillatum* Bed and in the Sulphur Band at Folkestone, but best known from their occurrence at Machéroménil (Ardennes), France. The finds include *Protohoplites* (*Protohoplites*) *archiacianus* (d'Orbigny), *P. (P.) michelinianus* (d'Orb.), *P. (P.) latisulcatus* (Sinzow), *P. (Hemisonneratia) puzosianus* (d'Orb.), *P. (H.) gallicus* (Breistroffer), *Otophoplites guersanti* (d'Orb.), *O. auritiformis* (Spath), *Pseudosonneratia* spp. nov., *Sonneratia dutempleana* (d'Orb.), *Tetrahoplites* cf. *subquadratus* (Sinzow) and *Tegoceras gladiator* (Bayle). From the nodule-bed in the overlying *dentatus* Zone, which floors part of the workings, the party obtained prodigious quantities of *Hoplites*. An intensive search of this bed (for which Mr. R. A. Milbourne and colleagues were chiefly responsible) had in the past produced ammonites identifiable as *Oxytropidoceras roissyanum* (d'Orb.), *O. mirapelianum* (d'Orb.), *O.* sp. nov. cf. *cantianum* Spath,

*Mojsisovicsia delaruei* (d'Orb.), *Falloticerus* cf. *proteus* (d'Orb.), together with species of *Metahamites* and *Brancoceratidae*. The fauna has much in common with that of the *dentatus* Zone of Escragnolles, in the Alpes Maritimes Department of France, to which area the genus *Falloticerus* was hitherto believed to be endemic. In its essential features the rest of the Lower Gault is like that of Dunton Green (Wright, 1947) and Greatness Lane, Sevenoaks (Milbourne, 1956), differing from the Folkestone sequence in its expanded development of the upper part of the *dentatus* Zone and its reduced thickness of *lautus* Zone.

Examination of the by-pass excavations commenced at the 'clover leaf' north of the Chiltern Hundreds Inn, on the Detling road, on the north-east side of Maidstone. From here to a point where the by-pass route crosses the Maidstone-Ashford railway at Chrismill Bridge, nearly three miles to the south-east, there are isolated cuttings in the Gault, which, pieced together, give the following succession:

	Zone	Thickness
Upper Gault	{ <i>Stoliczkaia dispar</i> <i>Mortonicerus inflatum</i>	20 ft. +
		45-50 ft.
Lower Gault	{ <i>Euhoplites lautus</i> <i>Hoplites dentatus</i> <i>Douvilleicerus mammillatum</i>	3-4 ft.
		20 ft.
		5 ft.

The Director reminded members that the idea of a large gap in the Lower Gault succession in this area, expressed by some authors, had been refuted by the Geological Survey (1957, 48), and work on the by-pass exposures had confirmed that despite the very thin *lautus* Zone the sequence was complete. On the recently published one-inch geological map of the Maidstone district (Sheet 288) the site of the 'clover leaf' was shown as lying at the eastern end of a long strike fault that affected the junction of the Folkestone Beds and the Gault. The new exposures, not available to the surveyors, had amplified information on this faulted ground. It appears that a subsidiary fault extends eastwards from the southern boundary of Park Wood into Horish Wood, forming the northern limit of a steeply dipping wedge of strata in which the Folkestone Beds-Gault junction is preserved intact. At the western end of Horish Wood, Folkestone Beds are brought against the top of the *inflatum* Zone of the Upper Gault, indicating a minimum throw of seventy feet.

The cutting through Horish Wood is the most important of the new sections. Over one hundred yards long and up to fifteen feet high, it exposed at the bottom a bed of glauconitic marl, about two feet thick, resting on an irregular surface of normal Gault clay. The bed held a great quantity of black and brown phosphatic nodules, many recognisable as

rolled internal moulds of ammonites and other fossils, and had yielded water-worn bones and teeth of fish and marine reptiles, neural plates of turtles, bones of pterodactyls, and carapaces of crabs. The bed had no definite top, the nodules and glauconite dying out upwards. In its field relations, lithology, and fossil content the bed is strikingly similar to the well-known Cambridge Greensand, though study of the ammonites, of which more than fifty species have been identified, shows that it does not lie on quite the same horizon. The true Cambridge Greensand forms the base of the Chalk and contains a remanié of strata equivalent to Beds XII and XIII of the Folkestone Gault, whereas the bed exposed in Horish Wood represents in condensed form the forty feet of clay of Beds XI and XII of Folkestone, Bed XIII of the Gault here intervening between the 'Greensand' and the Chalk. It is evident that Bed XII of Folkestone, itself a 'greensand' bed, is a feeble expression of the same phase of interrupted deposition. Some of the more common and interesting fossils found in the 'Greensand' at Horish Wood are listed below, determinations of the reptilia being those of Dr. W. E. Swinton: Reptilia: *Ichthyosaurus campylodon* Carter (vertebrae and ? ribs) *Polyptychodon interruptus* Owen (teeth), *Plesiosaurus cantabrigiensis* (Lyd.) (vertebra), *Ornithocheirus* spp. (wing bones), Pisces: *Ischyodus* sp. (large dental plates), *Lamna* ? (teeth and vertebrae), Lamellibranchiata: *Aucellina gryphaeoides* (J. de C. Sow.), '*Cardita*' *tenuicosta* (J. de C. Sow.), *Diploschiza* sp. (encrusting nodules), Cephalopoda: *Mortoniceras* (*Mortoniceras*) *inflatum* (J. Sow.), *M. (M.) potterense* Spath, *M. (M.) fissicostatum* Spath, *Hysterocheras bucklandi* (Spath), *H. carinatum* (Spath), *H. subbinum* Spath, *Prohysterocheras* (*Goodhallites*) *goodhalli* (J. Sow.), *P. (Neoharpoceras) coptense* Spath, *Cantabrigites cantabrigensis* Spath, *Callihoplites auritus* (J. Sow.), *C. tetragonoides* Spath, *C. seeleyi* Spath, *Epihoplites gibbosus* Spath, *Anahoplites costosus* Spath, *Discohoplites coelonotus* (Seeley), *Euhoplites alphalautus* Spath, Gen. nov. ('*Placenticerus*') sp. nov., *Scaphites simplex* Jukes-Browne, *Stomohamites duplicatus* (Pictet & Campiche), *S. funatus* (Brongniart), *Idiohamites favrinus* (Pictet), Crustacea: *Notopocorystes stokesi* (Mantell), *Homolopsis edwardsi* Bell.

Owing to the cutting having been allowed to weather down during the winter, the party could inspect this remarkable bed *in situ* only at one or two points, though the nearby dumps of excavated material provided good fossil-hunting.

Proceeding to Water Lane, about two miles to the south-east, the party next examined sections of the top of the Lower Gault and the lower part of the Upper Gault extending through Longham Wood.

Tea was taken in Maidstone, where the party, numbering thirty, accorded a vote of thanks to the Director and to Miss E. W. Andrews, who had acted as Secretary for the Meeting. It rained all day.

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