

**Nuts imbedded in a tree-trunk.**—About the middle of December last, some large elm trees were cut down in a field belonging to the late Mrs. Mildred, at Chigwell. At the base of one of the trees, about 5 feet from the ground, in the centre of a trunk 18 inches in diameter, was found a quantity of nuts—the fruit of the Hazel. They were most perfect, but on being opened, the kernels were perished. There was no opening in the trunk or any communication of any kind with the outside, so that these nuts may have been deposited by a squirrel more than a century ago. It appears from several instances of the kind that trees quickly close up articles deposited in a chink or hollow. I exhibited a blade of a razor extracted from the heart of a horn-beam in the Forest at the meeting of the Club on February 25th, 1899 (*ante* page 27).—S. ARTHUR SEWELL, Buckhurst Hill.

[Several occurrences of a similar kind are recorded in our publications. In 1883 Mr. Edinger gave an account of the finding of a bird's nest with eggs in it, enclosed in the wood of an elm tree (see *Journal of Proceedings, E.F.C.*, vol. iv., iii.), and Mr. C. E. Benham in 1894 recorded an example of inscribed letters having been covered up for many years by the growth of the woody tissue of an elm near Colchester. *ESSEX NAT.*, vol. viii., p. 88.—ED.]

---

**CONTRIBUTIONS TO THE PLEISTOCENE  
GEOLOGY OF THE THAMES VALLEY.  
I. THE GRAYS THURROCK AREA,  
PART I.**

By MARTIN A. C. HINTON and A. S. KENNARD.

WITH A SUB-SECTION ON THE FOSSIL FISHES.

By E. T. NEWTON, F.R.S., F.G.S.

[Read October 27th, 1900.]

*I. INTRODUCTION.*

It is to be doubted if any geological period is of greater interest than the Pleistocene, for it is the borderland of geology and history. From the early days of geological enquiry to the present time, it has attracted the attention of many of the ablest intellects who have striven to unravel the tangled web of the earth's past history. Dr. Buckland, Sir Charles Lyell, Sir Joseph Prestwich, William Whitaker, Professor James Geikie, the Woods, father and son, Alfred Tylor, John Brown, F. W. Harmer and many others too numerous to mention have endeavoured to read the secret hidden in the beds often spoken of as the "Drift," and yet in spite of this research there is no branch of science where there is greater



divergence of views. Gravels considered by one observer to be marine are by another termed fluviatile, whilst a third pronounces them to be glacial. Into the causes of this divergence of opinion it would be futile to enter, yet we are disposed to consider that a careful survey of the Pleistocene Deposits of the Lower Thames Valley will throw light on many points and may solve some of the problems. It is our intention to make a detailed examination of these deposits, and thus to lay the foundation for further speculation in this connection. The present paper contains the results of our work in the Grays district, and we venture to think that the nature of these results justifies us in bringing them before the Essex Field Club.

We would here take the opportunity of thanking the numerous friends who have so kindly aided us in our researches, and we would mention Dr. C. W. Andrews, F.G.S., Dr. H. P. Blackmore, F.G.S., Dr. Frank Corner, F.G.S., Mr. C. V. Crook, M.A., Mr. J. P. Johnson, Mr. Clement Reid, F.R.S., and Mr. B. B. Woodward, F.G.S. Mr. W. Lewis Reid has accompanied us in the field on many occasions and has materially helped us in many ways. To Mr. E. T. Newton, F.R.S., our warmest thanks are due. He has kindly identified the fish remains, a truly laborious task, and we are also indebted to him for the sub-section of this paper dealing with the Pleistocene Ichthyology of Grays.

The Authors desire to place on record their appreciation of the great service done them by Mr. F. W. Reader, who has taken a vast amount of trouble in the preparation of the blocks illustrating this paper, and they here tender him their best thanks accordingly.

## II. BIBLIOGRAPHY.

*Note.*—Some of the works in the following list do not relate to the Grays Thurrock area, but since we have had occasion to refer to them in the preparation of this memoir they merit inclusion here:—

- (1.) 1836. MORRIS (Prof. J.)—"On a Freshwater Deposit containing Mammalian Remains, recently discovered at Grays, Essex." *Mag. Nat. Hist.*, vol. ix., p. 261.
- (2.) 1838. MORRIS (Prof. J.)—"On the Deposits containing Carnivora and other Mammalia in the Valley of the Thames." *Mag. Nat. Hist.*, ser. 2, vol. ii., p. 539.



	ft.	in.
10. Blue clay, with shell of <i>Anodon</i> , etc., together with the remains of mosses and other plants. The lower portion of this bed contained a great deal of limonite. Nothing to ..		9
11. Finely laminated, fissile, and mottled clays, containing bones of <i>Cervus</i> , <i>Bos</i> , etc., and shells of <i>Anodon</i> and <i>Unio</i> in places. Many nodules or concretions of "race" occur throughout this division. The bottom portion was saturated with water. .. .. . About	12	0 seen

The upper surface of the Laminated Clay series (No. 11) and the under surface of the Blue Clay (No. 10) are seen to be polished and striated—the striæ running to the N.E. by E. This feature evidently owes its origin to movement between the two beds, which, of course, means slipping.

The fine sections formerly exposed in the great brickyards which extended from Grays to Little Thurrock appear to have been first described in detail by Prof. J. Morris in 1836 although Buckland, Parkinson, and Trimmer undoubtedly had some knowledge of them. Only one of these fine sections now remains, viz., that at the Globe pit, but as these exposures have so often been described, we have contented ourselves by giving full reference to the literature concerning them in our Bibliography of important works on the district.

#### V. PALÆONTOLOGY.

Grays Thurrock is famous for the fine series of organic remains that have been obtained from the various sections formerly exhibited in the district. In the present part of the paper we have given a full list of the fossils and have described the remains upon which the new records are based.

#### MAMMALIA.

(a.) *List of Species—*

*Homo sapiens* (Implements)

*Macacus pliocenus*, Owen.

*Canis lupus*, Linn.

„ *vulpes*, Linn.

*Felis catus*, Linn.

„ *leo*, Linn.

*Hyæna crocuta*, Erxl.

*Lutra vulgaris*, Erxl.



- Ursus arctos**, Linn.  
 „ **ferox**, Richd.  
**Bison bonasus** var. **priscus**, Boj.  
**Bos taurus** var. **primigenius**, Boj  
**Cervus elaphus**, Linn.  
 „ **giganteus**, Blum.  
**Capreolus caprea**, Gray.  
**Elephas antiquus**, Falc.  
 „ **primigenius**, Blum.  
**Rhinoceros antiquitatis**, Blum.  
 „ **leptorhinus**, Owen.  
 „ **megarhinus**, Christol.  
**Sus scrofa**, Linn.  
**Equus caballus**, Linn.  
**Hippopotamus amphibius**, Linn.  
**Mus sylvaticus**, Linn.  
**Microtus agrestis**, Linn.  
 „ **ratticeps**, Blas.  
 „ **amphibius**, Linn.  
 „ (**Evotomys**) **glareolus**, Schreb.  
**Castor fiber**, Linn.  
**Sorex vulgaris**, Linn.

(b.) *Notes on the Species.*

**Microtus agrestis.** Among the Rodentian remains obtained from the Orsett Road Section are three second upper molars, several mandibular rami, including one in Mr. J. P. Johnson's collection, and numerous detached teeth which are referred to *M. agrestis*. The only constant dental character which distinguishes the British Field-vole from the Continental *M. arvalis* is the development of three inner angles in the second upper cheek tooth of the former instead of two in the latter. This accessory angle of *M. agrestis* is very small. In dealing with detached teeth its possession also serves to distinguish *M. agrestis* from *M. ratticeps*. The three teeth from Grays agree with the British Field-vole in this respect and also in size. We, therefore, have no hesitation in placing them with this species.

With regard to the mandibular rami and the detached teeth other than the second upper molar, the evidence is not so positive. The former plainly belong, from the pattern of the anterior molars, to either *M. agrestis* or *M. arvalis*, while some of