

THE OCCURRENCE OF A DINOSAURIAN PHALANX IN THE LOWER OXFORD CLAY OF PETERBOROUGH, CAMBRIDGESHIRE

by

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Summary

A dinosaurian bone, probably a 1st or 2nd phalanx of the IV or II digit of an ornithopod dinosaur is described. The significance of dinosaurian remains in fully marine sediments is discussed with respect to the proximity of land and other palaeogeographic problems.

Introduction

Dinosaur remains account for approximately 1.0% of fossil reptile accessions from the Lower Oxford Clay of England in British museums. It is therefore important that all such finds from this formation are recorded. The purpose of this paper is to record an isolated bone discovered by a workman in one of the large brick pits in the vicinity of Peterborough, Cambridgeshire.

The discovery was brought to light when in the autumn of 1983 a collection of fossil reptile bones arrived in the City Museum, Peterborough. The collection includes the remains of ichthyosaurs, plesiosaurs, pliosaurs and crocodiles. Most of the material is of a fragmentary nature, although a portion of the axial skeleton of a *?Cryptoclidus* is included. Amongst this material is an isolated dinosaurian bone, City Museum, Peterborough accession number - R50/1984.

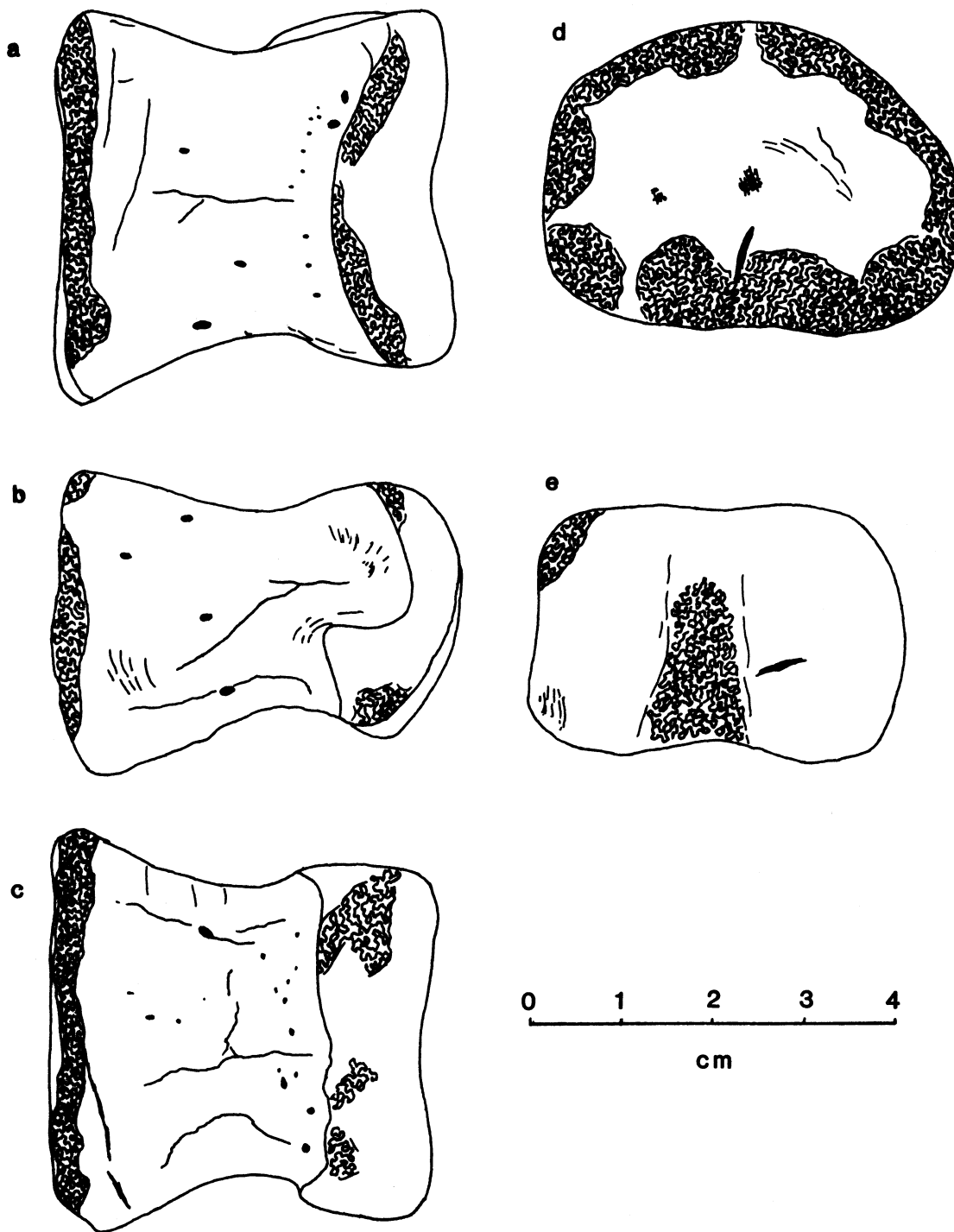
The material was collected from the now disused brick pit known as Hicks and Gardner No. 3 (M.Howe, pers.comm.), which lies to the south of Peterborough, East of the main A15, National Grid Reference TL 1985.

The pit was dug for the Lower Oxford Clay (Callovian), a highly bituminous shale from which the Fletton brick is made. Usually the Lower Oxford Clay is dug in the jason to athleta zones, but in this vicinity only the jason to coronatum zones are present, the athleta zones having been removed by glacial erosion. It is therefore probable that the specimen came from one of these two zones, with the basal shell bed (Bed 11 of Calloman, 1968) being the most likely horizon (Duff, 1974).

Description

The dinosaurian bone is a well preserved isolated 1st or 2nd phalanx of the IV or II digit respectively, of the pes of an ornithopod dinosaur (text-fig.1). The bone is 40 mm long, 37 mm wide anteriorly, 41 mm wide posteriorly, 19 mm high centrally, 24 mm high anteriorly and 30 mm high posteriorly. The articular facet with the metatarsal or 1st phalanx is flat, with slight rugosity and a central depression, the trabecular nature of the bone is exposed indicating some wear to have taken place. The intraphalangeal articular facet, for 2nd and 3rd phalanx is smoothly convex, with a medium depression. There is a lateral and dorso-ventral constriction of the bone centrally, with a pronounced depression of the sides anteriorly. Nutritive foramina are conspicuous laterally, dorsally and ventrally. Some post-mortem cracking of the bone has taken place.

Mercian Geologist, vol. 9, no. 4,
1984, pp. 209-211, 1 text-fig.



Text-fig. 1

Five views of specimen R50/1984 an ornithopod dinosaurian pes phalanx, a) dorsal view, b) right lateral view, slightly oblique from below, c) ventral view, d) posterior view showing facet for union with metatarsal, e) anterior view showing intraphalangeal articular surface, all x 1.5.

Affinities

The above description proves that the bone is from an ornithopodous dinosaur, and has close affinities with phalanx elements from the pes of the Iguanodontidae. It is not possible, or desirable, to attempt to identify the bone with any known genus, other than to suggest that strong similarities exist with *Camptosaurus* (Galton and Powell, 1980) and some hadrosaurs (Romer, 1956).

Recent work on dinosaurs from the Oxford Clay (Galton, 1973, 1974 a & b, 1975, 1977 a & b, 1980 a & b, 1981, Charig, 1980 and Walker, 1964) show that the Lower Oxford Clay contains a rare, but diverse fauna. Amongst this fauna are two ornithopod dinosaurs, the camptosaurid *Callovosaurus leedsi* (Lydekker) and a possible hypsilophodontid ?*Dryosaurus* sp. Each is known only from isolated bones and it is possible that this specimen may have come from one of these dinosaurs.

Discussion

The Lower Oxford Clay is a fully marine formation yielding abundant cephalopods, bivalves and gastropods; and comparatively abundant marine reptiles. The occasional discovery of dinosaur bones, and the superabundance of fossil wood indicate that land was in close proximity.

Apart from a few rare, complete or partially complete skeletons, dinosaur remains in the Oxford Clay consist of isolated bones only. The dinosaur remains so far discovered in the Oxford Clay are likely to be the prey of large crocodiles or carnivorous dinosaurs. Large crocodiles are known to drag their prey into water to drown. Such a process would enable at least a few mutilated carcasses to drift into the sea. Crocodiles are a common element of the Peterborough fauna, although the forms, *Steneosaurus* and *Metriorhynchus* were fully adapted to a marine environment, more terrestrially adapted crocodiles may have lived in local rivers and estuaries.

Acknowledgments

I should like to thank Dr. Peter Crowther of Leicester Museum for bringing the new Peterborough accession to my attention.

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