they have small unconvoluted brains, they are unguiculate and clavicate; some are fitted for flight (*Vespertilionidæ*), some for swiftly burrowing in the earth (*Talpida*), some for swimming and diving (*Soricidæ*), others for rapid course over the dry land (*Macroscelidæ*).

All that can be legitimately inferred as to the grade of mammalian structure now brought to light from the oldest of the Wealden epochs is that it displays the mammalian modification which we know to be best adapted to profit by a co-existence with the insect population of the same period.

2. *On a SECTION lately exposed in some Excavations at the WEST INDIA DOCKS.* By W. T. BLANFORD, Esq.

[Communicated by the President.]

AN excavation lately made to join two portions of the West India Docks has exposed a section of the deposits in the valley of the Thames to a depth of above 30 feet, showing beds of peat with stems of trees, and, below these, gravels containing organic remains. The thickness of the different beds varies considerably, but their general succession and their measurement where best exposed are shown by the accompanying diagram, p. 434.

The two beds, *c* & *d*, vary in character and thickness; stems of trees, most of which lie horizontally, though some of the smaller ones are vertical, are scattered throughout the peat; and this deposit is interspersed with specks of blue phosphate of iron. Throughout the clay, *c*, are sparingly scattered the following species of freshwater shells:—

Bithinia tentaculata.
Limnæus palustris.

Limnæus pereger.
Ancylus fluviatilis.

At the bottom of the bed of peat at one place a considerable number of land and freshwater shells of the following species occur (the bivalves having both valves together):—

Helix nemoralis.
H. rotundata.
Clausilia laminata.
Succinea putris.
Valvata piscinalis.

Bithinia tentaculata.
Ancylus fluviatilis.
Pisidium amnicum.
Unio.

This bed, *d*, rests on the very uneven surface of the underlying clays, sands, and gravels (*e, f, g*), which are much false-bedded, and in some places evidently deposited by currents of considerable strength; beds of sand and small rolled pebbles, dipping at a considerable angle, lie between other beds which are horizontal, though thinning out at short distances. Towards the bottom these are exclusively of pebbles, much larger than those in the upper part, and mainly composed of chalk-flints, some of which are very much rolled, others very little; many broken, and with the edges but little rolled. Pebbles of different kinds of sandstone and of vein-quartz also occur.

Without much change in general character, these gravels become mixed at the bottom with shells in great numbers. These appear to be always broken, and the few fragments of *Ostrea* which occur are equally comminuted with the more fragile *Cyrenæ* (mainly *C. cuneiformis*) which form the main bulk of the shells. I also found two fragments of *Pectunculus*. Rolled pieces of clay of various sizes abound in the bed. This clay is dark and much resembles some of the bands in the Woolwich beds.

Section exhibited by Excavations in the West India Docks.

At the bottom of the excavation occur some patches of greenish sand, *g**, intercalated with the pebbles; these patches are a yard or more in thickness in places, but seem to be in isolated masses, only extending for a few feet and then abruptly cut off. They contain

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thin bands of twigs, leaves, and seeds of plants, with beetle remains, lying inclined at an angle of about 15° towards the north.

Borings in the vicinity have been made; and at a few feet beneath the bottom of the excavation a hard calcareous rock was reached containing *Cyrenæ*.

A similar deposit of peaty and argillaceous matter, with stems of trees, occurs at the excavations now making for Victoria Docks*, about a mile lower down the river. I have also seen something like it at Woolwich; and it is probably continuous over all this part of the valley of the Thames. At Victoria Docks a similar shelly bed occurs, containing most of the shells above enumerated, with one or two additions, viz.:—

Limnæus auricularis.
Neritina fluviatilis.

Helix rufescens.
Planorbis nitidus.

3. *On the DISTINCTIVE PHYSICAL and PALEONTOLOGICAL FEATURES of the LONDON CLAY and the BRACKLESHAM SANDS; and on the INDEPENDENCE of these two GROUPS of STRATA.*
By JOSEPH PRESTWICH, Jun., F.R.S., F.G.S.

§ 1. *On the difference of the Species, and of the physical structure.*

THE fact of the London Clay proper having been considered, until within a comparatively recent period, synchronous with the clays and sands of Bracklesham and Barton, gave rather naturally greater weight and prominence to the resemblances than would attach to the differences, in the character of the fauna of these several beds. Not that the differences were overlooked, but they were, owing to this presumed synchronism, referred to changes dependent upon geographical distribution, depth of water, and variations of sediment; and their true value was in consequence hardly sufficiently allowed. This supposition, which levelled the distinction of age, led to the union of the three distinct faunas of the above-named deposits; and consequently, both here and abroad, the comparison of this associated group with the continental tertiary faunas almost necessarily caused the three, as a whole, to be considered synchronous with that deposit with which it possessed a majority of fossils, *i. e.* the *Calcaire grossier*; whilst by a natural reaction the differences in the faunas thus wrongly paralleled were inevitably referred to such causes as had been used to account for the anomalies arising from associating together

* The following is the section at Victoria Docks:—

	ft. in.
Brown clay, with some land and freshwater shells	6 0
Peat	4 0
Sandy clay and sand, with roots of trees	5 0
Gravels and sands, false-bedded, unfossiliferous, about	20 0
Blue clay, apparently unfossiliferous.	