

In the higher parts of the Hampstead district the London Clay is nearly 400 feet thick, and it usually appears as a very stiff, dark brown, or grey clay, with many concretionary masses of argillaceous limestone known as *septaria*. The higher portion of the London Clay becomes coarser in character, and consists of a mixture of sand and clay.

Fossils are very abundant in this part of the deposit, and fine examples were obtained many years since from the cutting at the Highgate Archway.

In June, 1871, some drains were constructed in the Finchley Road, near Childs Hill, and the section then exposed, to the depth of 30 feet, showed at the bottom stiff, dark-coloured clay with *Modiola elegans*, passing up into grey sandy clay abounding with well preserved fossils, the most characteristic of which were *Pectunculus decussatus*, *Pecten corneus*, *Caridum nitens*, *Cytherea tenuistria*, and *Voluta nodosa*.

The highest part of the section consisted of brown clayey sand, derived probably from the disintegration of the bed below, and from the subaerial denudation of the neighbourhood.

EXCURSION TO WARWICKSHIRE, JULY 10th and 11th, 1871.

Directors—The Rev. P. B. BRODIE, M.A., F.G.S., and J. W. KIRSHAW, Esq., F.G.S.

Members proceeded by the Great Western Railway to Harbury Station, near Leamington, and were there met by the Honorary Secretaries to the Warwickshire Archæological and Natural History Society, the Rev. P. B. Brodie, M.A., F.G.S., and J. W. Kirshaw, Esq., F.G.S., who most efficiently acted as Directors of the Excursion. After partaking of luncheon kindly provided by Messrs. Greaves and Bull, the proprietors of the extensive Lias quarries and cement works of the neighbourhood, the party visited the quarries, where the Lower Lias is exposed to a depth of fifty feet for a quarter of mile, showing one of the finest inland sections of the Lower Lias in England. This may be considered a typical section of the "Lima-beds" of the Lower Lias, which are seen to consist of alternate beds of a bluish-white limestone, and dark-coloured shale and clay. The limestone is quarried for the manufacture of

"hydraulic cement," but the clay is not here employed for any economic purpose, though in other places Lias clay is advantageously used for brick and tile making. Palæontologically, the Harbury Lias does not equal in interest the corresponding beds at some other localities. The *Gryphæa incurva* is not uncommon in the clay bands and *Rhynchonella variabilis* is the most abundant species in the limestone, while *Lima gigantea*, *L. Hermannii*, *Pecten-Pradoanus*, *Plesiosaurus rugosus*, and the genera *Ammonites*, *Nautilus*, *Ostrea*, *Perna*, and *Pinna*, are also, though sparingly, represented. The Members were invited to inspect the cement works, and afterwards the party proceeded northwards along the railway in the direction of Leamington to examine the fine section exposed in the railway cutting near Harbury. As the railway is nearly at right angles to the dip of the strata, which is a slight one to the south, beds lower than those seen in the quarry are exposed, and the section extending for upwards of a mile the lowest beds of the Lias, beds of the Rhætic Series, and, still further, the Red Marls of the Trias are seen. After this very instructive section had been carefully observed, the train was taken for Warwick, and the Members re-assembled at the Woolpack Hotel, where they dined, and were briefly addressed by the President, Professor Morris, and the Rev. P. B. Brodie, M.A.

In the evening the Museum in the Town Hall, a building of great antiquity, was lighted with gas for the first time in its annals, to allow of an inspection of the very valuable collection of Triassic and other fossils there deposited, without any of the small number of hours of daylight at the disposal of the party being employed for the purpose. This was an honour to the Geologists' Association which the Members did not fail to appreciate. The organic remains from the Triassic rocks of Warwickshire, on account of their extreme rarity, give a special character and high palæontological value to the Warwick Museum. These fossils consist chiefly of the remains of Labyrinthodonts, of Ichnites or footprints of Cheirotherium, and of the little crustacean *Estheria minuta*, once thought to be a mollusc, and called for a time *Posidonomya minuta*. But in addition to these, the Warwick Museum contains a very fine typical collection of the characteristic fossils of each British formation, and is thus valuable alike to the more and to the less advanced student of Palæontology.

The following is a list of Organic Remains obtained from the

Trias of Warwickshire, and preserved in the Warwick Museum and the Collection of the Rev. P. B. Brodie* :—

PLANTÆ.			
Calamites	Upper Keuper	Rowington	W. M. & Col. B.
„ ?	Lower Keuper	Warwick	W. M.
Echinostachys ?	Upper Keuper	Rowington	W. M. & Col. B.
Voltzia	Upper Keuper	Rowington	W. M. & Col. B.
Walchia ?	Upper Keuper	Rowington	W. M. & Col. B.
Calyx of plant	Upper Keuper	Rowington	Col. B.
Fruit (Carpolithus ?)	Upper Keuper	Rowington	W. M. & Col. B.
CRUSTACEA.			
Estheria minuta	Upper Keuper	Shrewley	W. M. & Col. B.
PISCES.			
Lophodus (teeth and spines)	Upper Keuper	Shrewley	W. M. & Col. B.
Palæoniscus superstes	Upper Keuper	Rowington	Col. B.
Skin of Shark	Upper Keuper	Shrewley	W. M. & Col. B.
REPTILIA.			
Cheirotherium (footprints)	Upper Keuper	Preston Bagot	W. M.
Cladyodon Lloydii	Lower Keuper	Coton End and Cubbington	W. M.
Hyperodapedon Gordoni	Lower Keuper	Coton End	W. M. & Col. B.
Labyrinthodon leptognathus	Lower Keuper	Coton End and Cubbington	W. M.
„ pachygnathus	Lower Keuper	Coton End and Cubbington	W. M.
„ salamandroides	Lower Keuper	Coton End and Cubbington	W. M.
„ ventricosus	Lower Keuper	Coton End and Cubbington	W. M.
Rhynchosaurus (footprints)	Upper Keuper	Shrewley	W. M. & Col. B.
„ „	Lower Keuper	Warwick	W. M.

The under-mentioned species have been found in the Permian rocks of Warwickshire :—

Breea eulassoides	Permian	Meriden	W. M.
Caulerpites oblonga	Permian	Meriden	W. M.
„ triangularis	Permian	Meriden	W. M.
Coniferous Wood	Permian	Allesley	W. M.
Dasyceps Bucklandi	Permian	Kenilworth and Coventry	W. M.
Labyrinthodon (?) (jaw)	Permian	Coventry	

In the Museum of Practical Geology, London, there are fossils from the Permian of Exhall representing the following genera :—*Calamites*, *Lepidodendron*, *Sternbergia*, and *Strophalosia*.

On the following morning a visit was paid to that grand old pile, Warwick Castle. The Castle stands upon a cliff of Keuper Sandstone, which rises by the side of the Avon and is cut through by the road from the Lodge, along which a section of this important member of the Trias may be observed. Subsequently the

* The Editor is indebted to the courtesy of the Rev. P. B. Brodie for this valuable list of Triassic fossils.

party left Warwick for Wilmcote, where extensive quarries in the Lower Lias, similar to those at Harbury but exposing still lower beds, are situated. In the sections at Wilmcote an exceedingly interesting bed, but wanting at Harbury, is found. This is the "Insect-bed" of the Rev. P. B. Brodie, who has obtained from it a large and valuable collection of insect remains. The Insect-bed is almost the lowest bed of the Lower Lias, and reposes upon the "White Lias" bed at the top of the Rhœtic series. Saurian remains are here frequently met with, and some members of the party obtained good specimens of the jaw of *Ichthyosaurus*. The sections along the railway between Wilmcote and Stratford-on-Avon were next examined. In these exposures the *Cardinia ovalis* bed, the Insect-bed, the "black shales" of the Rhœtic series, and the *Estheria minuta* band of the Keuper marls, are well seen. Under the able guidance of Mr. Brodie, *elytra* of insects were found without much difficulty in the Insect-bed, and some very good specimens were secured. On arriving at Stratford-on-Avon visits were paid to the world-famed "House," the birth-place of Shakespeare, and to the church where the tomb as well as the baptismal register of the great bard are to be found, and the return to Warwick by way of Charlecote Park concluded an excursion abounding in both Geological and Archæological interest.

The Members had been invited by Mr. Brodie to inspect his collection of fossils, and those of the party who remained until the following day and visited Rowington Vicarage were highly gratified with their inspection of Mr. Brodie's museum, which contains, as a portion of a large general collection, the Lower Liassic insect remains which that gentleman has made special objects of search and examination during many years, and which he has very carefully figured and described.

ORDINARY MEETING, NOVEMBER 3rd, 1871.

THE REV. THOMAS WILTSHIRE, M.A., F.G.S., &c., President, in the Chair.

The following Donations were announced :—

"Quarterly Journal of the Geological Society," from that Society.