

**Ophiolepis mirabilis**

IN a review of Lyman's description of the Ophiurans of the *Challenger*, which appeared in *NATURE*, vol. xxi. p. 513, I was much surprised to find a criticism relating to a remarkable species which I described last year in the *Proceedings* of the Linnean Society.

The reviewer informs your readers that *Ophiolepis mirabilis*, Duncan, is a true Ophiopholis, having all the structures of the genus, and that it is allied to *O. aculeata*. This simple statement leaves the impression that I have made a mistake, and that I am ignorant of a well-known form. I therefore extract the following from the *Proc. Linn. Soc.*, vol. xiv., *Zool.*, p. 479, 1879:—

"*Ophiolepis mirabilis*.—This common species has the disk of Ophiopholis as diagnosed by Müller and Troschel; that is to say, the scales, which are of good size, and the large radial shields are environed by rows of small scales, as by belts. But the upper arm-plates have also the supplementary rows of small scales around them, and there are also large accessory side-pieces. Moreover, there are hooks on the side arm-plates. This mixture of Ophioplepian and Ophiopholian characters is very interesting, and this species, I consider, renders the abolition of *Ophiopholis* as a genus inevitable." In fact the beautiful Ophiuran is a synthetic type, and I prefer its teachings to authoritative statements. P. MARTIN DUNCAN

Hastings, April 9

**The Stone in the Nest of the Swallow**

YOUR correspondent, P. P. C. Hoek (Leiden), will find the information which he asks for under this heading (vol. xxi. p. 494) in an article which appeared in the *Zoologist* for May, 1867, entitled "An Inquiry into the Nature and Properties of the Swallow Stone and Swallow's Herb," by J. E. HARTING 24, Lincoln's Inn Fields, London, W.C., April 14

THE SONGS OF BIRDS.—Mr. C. C. Starling asks to be informed of any book or paper which treats upon the musical properties of the songs of birds.

DEW CLAWS.—A. N. asks if any correspondent familiar with wild species of *Canis* can tell him whether the rudimentary hind toe is invariably present, or, if not, in what proportion of individuals, and whether it has bony function with the metatarsus?

**THE EASTER EXCURSION OF THE GEOLOGISTS' ASSOCIATION TO THE HAMPSHIRE COAST<sup>1</sup>**

THE head-quarters of the Association were fixed at Bournemouth. A large number of members arrived before Easter, and were able to explore the freshwater series to the west of Bournemouth, which could not be visited on the excursion. An excavation into the leaf-beds having been opened a few days previously by Mr. Gardner, Prof. Morris, Dr. Henry Woodward, Prof. Corfield, and Mr. Birch, a number of fine leaves were obtained, and Dr. John Evans, Prof. McKenna Hughes, Mr. Warrington Smyth, Prof. Bonney, and many others, were enabled to see the leaves *in situ* and the method of work.

On Easter Monday some fifty or sixty members assembled, and the party proceeded to Boscombe. On the way the director pointed out the position of the Bournemouth series in the eocene formation, and the chief geological features of the coast. Far to the west could be traced the cliffs whence had been obtained a rich dicotyledonous flora, shed apparently from forest trees, which clothed the hilly slopes of the right bank of the eocene river. It is remarkable to notice in how many respects this flora differs from those found nearer Bournemouth, most notably so in the total absence of palms. The next mass of cliffs is almost unfossiliferous, and from its confused bedding is now conjectured to present a transverse section of the actual bed, silted up, of the old eocene river. Between this and Bournemouth, for nearly a mile, extends the eastern series of leaf-beds, containing the remains of a more tropical flora, derived, perhaps, from low-lying country on the left

<sup>1</sup> Director, J. Starkie Gardner, F.G.S. &c.

bank of the old river. Among the palms, which are abundant, can be recognised such genera as *Phoenix*, *Calamus*, *Iriartea*, *Sabal*, &c., and among the ferns, species scarcely differing from such magnificently tropical forms as *Osmunda javanica*, *Chrysodium aureum*, *Gleichenia dichotoma*, *Lygodium dichotomum*, &c. Beyond these cliffs, skirting the downs of nearly vertical chalk, are the Lower Bagshot beds, in which the well-known leaf-beds of Creech Barrow, and Alum and Studland Bays are situated. A very small portion, however, of the freshwater Bournemouth series could be actually examined on Monday, for the chief object in view was to investigate the recently-discovered marine series, described for the first time in the pages of the *Journal* of the Geological Society less than twelve months ago. The passage from the one series to the other was well seen, although from the absence of slips and consequent inaccessibility of the beds, few fossils could be obtained. The beds are mostly dark sandy clays, highly charged with lignitic matter, and they contain in places well-preserved fruits and teredo-bored wood. The evidence of their marine origin is amply demonstrated by the presence of casts of Bracklesham mollusca, masses of oysters, bryozoa, and crustaceans. Overlying them are the clean white sands, with flint shingle beds, of the Boscombe series. These eocene shingle beds, from the perfectly-rounded form of the pebbles composing them, show the former prevalence of heavy surf upon the old shore-line. In many cases the condition of the silex is wholly or partially changed into a soft, white, chalk-like mass, entirely free from carbonates however, and much speculation was indulged in concerning the nature of this change. The party having been joined by Dr. Alman, president of the Linnean Society, and Mr. Pike, owner of the vast china-clay pits near Wareham, the curious Honeycomb chimes were explored, and the zone of nipadites pointed out, crowded in places with the empty husks of fruits which had floated out to sea. At another point proteaceous leaves and tubular borings of annelids, filled in with horizontally-disposed lignitic matter, were noticed. On the way to Hengistbury Head it became apparent that as the freshwater beds present a transverse section across a vast river channel, so the marine beds present a similar section through a great eocene beach which formerly sheltered a stagnant lagoon. These towards the east are seen to be composed of larger and larger shingle, whose well-rolled appearance indicates the distance it must have travelled. Attention was particularly called to the resemblance of the Boscombe series to the so-called Upper Bagshots of the London Basin.

Arriving at the Headland, after skirting its base and examining its remarkable geology, the party somewhat rapidly made their way through the heather on the summit, past the prehistoric double wall and ditch, and across the Stour and Avon by ferry to Christchurch, where Mr. George H. Birch gave a most interesting historical sketch of the priory.

The second day was devoted to the cliffs between Mudiford and Hordwell. The main features of the coast were well seen as the haze lifted. The sequence of the beds from Hengistbury to Highcliff was pointed out by the director, and the Barton clays and sands, the Upper Bagshots and Headon beds of Hordwell were examined, and numerous fossils collected. During the short stay for lunch Prof. Morris favoured the party with an address, in which he clearly placed before them the data for the correlation of these beds with those of the rest of Europe, and sketched in eulogistic terms the work of those who have made it possible to trace the history of their deposition. The members reached Lymington in time to return to London or Bournemouth by the 5.50 train.

The excursion, which was unusually largely attended, was keenly enjoyed, owing to the magnificent weather and the beauty and interest of the country traversed.