

flint; they are mostly arrow-heads with some knife flakes. I have also a large round flattish hammer-head (with a round hole in the centre), from the same locality, the weight of which is about two pounds.

JAMES R. GREGORY.

ON *HETEROPHYLLIA MIRABILIS*, DUNCAN.

SIR,—In the GEOLOGICAL MAGAZINE of this month (October, 1868), Mr. John Young, speaking of *Heterophyllia mirabilis*, and *H. Lyelli* (as described by Dr. Duncan in the Transactions of the Royal Society), suggests that the error, as he considers it, of representing the hook-shaped processes attached to *H. mirabilis* as articulated, may have arisen from the specimens examined being worn or indefinite. This was not the case. The corals, which I believe were the property of Mr. Thomson of Glasgow, were perfectly sharp and distinct. The bulb or tubercle, with a pit in its centre, and the slight concavity at the base of the hooklet being too decided to admit of any doubt or misconception. Besides, in nearly every case the hooklets had separated at the bulb. Supposing the articulation to be a mistake, these fragile appendages would hardly break invariably at that point where they are stoutest and strongest. Yet in all specimens that I have seen—and I have seen many—such is the rule. At the time the plates for Dr. Duncan's paper were drawn I had been intimately acquainted with corals, examining them day by day for a space of six years, and the conviction is strong upon me that I must have possessed sufficient discrimination to distinguish between a fracture and an articulation. That a Zoophyte has no right to this articulation is a point about which I know nothing. Like other creatures, it is possible they may occasionally exhibit eccentricities.

G. R. DE WILDE.

ON *HETEROPHYLLIA MIRABILIS*, DUNCAN.

I have, at the request of my friend Mr. Henry Woodward, very carefully examined, under the microscope, several specimens of this curious coral (described by Dr. Duncan in the Philosophical Transactions for 1867) forwarded to Mr. Woodward by Mr. John Young, Under-Keeper of the Hunterian Museum, Glasgow.

Not having seen the specimens figured by Mr. De Wilde in Dr. Duncan's plate, I cannot venture on any positive assertion as to whether or not those particular specimens have been rendered with that artist's customary accuracy;—but I have no hesitation in stating that it is easy to select specimens from those sent by Mr. Young, which present rows of tubercles, the exact counterpart of those figured by Mr. De Wilde.

On the other hand, however, there are amongst Mr. Young's specimens, some which present characters differing greatly from those figured in Dr. Duncan's plate, and in which the hooklets are broken off at various distances from the costæ—in some cases even close up to the body of the coral, leaving a concave cicatrix instead of a tubercle.

The condition of these could be best explained by an illustration which, if desired, I shall be happy to draw.—EDWARD FIELDING.

LONDON, 22nd October, 1868.

NOTE.—We feel sure that Dr. Duncan will be glad to have attention called to his interesting paper on *Heterophyllia*, and also to have the testimony of so able an artist as Mr. Fielding to the accuracy of Mr. De Wilde's delineations. We are quite certain that he will himself be only too happy to re-examine a point upon which, possibly, something more may be determined.

Mr. Young, in his paper (GEOL. MAG., October, 1868, p. 451), says, if a coral had spines articulated at their bases, upon rounded tubercles, such a structure would be quite an anomaly in a zoophyte.

We must beg Mr. Young not to reject a discovery because it is anomalous. Palæozoic life-structures present many strange features. Whether we accept or reject the doctrines of evolution and descent with modification, we cannot fail to observe many forms which present what Prof. Owen has aptly termed "a more generalized type of structure," than representatives of the class now existing.¹

In illustration of this we would refer to an admirable paper which appeared in this MAGAZINE in 1866, Vol. III., p. 356, On *Zoantharia Rugosa*, by Dr. Lindström (with a Plate). The author shows that this remarkable group of corals (before referred in part to Corals, and in part to *Brachiopoda*) were all furnished with an operculum or valve! Surely this is a still more wonderful and anomalous structure in a coral, than the lateral spines on *Heterophyllia mirabilis*.

Nor should it be assumed that an appearance like that of a ball-and-socket joint necessarily implies movement; for we have among the *Echinodermata* (both fossil and recent) immoveable and moveable spines, the former of which, when removed, leave an appearance similar to that of the latter. Such structures—like rudimentary appendages—seem rather to indicate what the earlier state of the creature may have been, than what it now is.

Among the *Crustacea*, spines exist, which, like the immoveable spines of some Echinoderms, present an articular surface, not a fracture, when they are removed (*e.g.* the spines on the rostrum of *Palæmon* and on the margin of the thorax of *Limulus*).—
EDIT. GEOL. MAG.

SYNCHRONOUS AGE OF THE GRAYS AND ERITH BRICKEARTHS.

SIR,—In reference to the Brick-earth of Erith and Crayford, which, in my paper on the Post-glacial structure of the South-east of England, published in the 23rd volume of the Journal of the Geological Society, I regarded as being distinct from that at Grays, and of an age anterior to the main sheet of the Thames gravel, I shall feel obliged if I may be permitted, through your pages, to state that I have since satisfied myself that this was an error; and that, similarly to the Brick-earths of Grays and of the Lea valley, it belongs to the lower or fluviatile terrace of the Thames gravel formation (x 5' of my papers).

I have seen no reason to qualify any of the other opinions expressed by me in reference to the beds of the Thames, East Essex, and Canterbury heights gravel series.

SEARLES V. WOOD, JUNR.

BRENTWOOD, October 10, 1868.

[¹ We strongly recommend the perusal of Professor Huxley's Lecture "On the Animals which are intermediate between Birds and Reptiles" as bearing on this subject. See GEOL. MAG. August, 1868, p. 357.—EDIT. GEOL. MAG.]