

communication published in the Transactions of the Institute of France, denies that there is any evidence for the assertion that these are works of art, and he also takes exception to the name given to them in this country. He asserts that these fossils are found in the Chalk, perforated in the same manner as those specimens found in the Drift; and adds that this is not surprising, because the central part of the sponges is generally cellular! Surely the latter assertion cannot be accepted as a satisfactory account of the *Coscinopora*.

Under the present aspect of the question, it may be considered as not unworthy of discussion in these pages, and with this view it is suggested that some account of the observations of geologists well acquainted with the condition of these fossils in their natural beds in the chalk should be solicited, as well as of those who find them in their transported position in the Drift. With this view I forward specimens from the gravel for comparison with any which may be obtained from the chalk; and it will be well if a microscopic examination of the borings in both kinds be made, so as to afford some information upon the mode in which they were drilled. I think it may be taken as a certainty that the *Coscinopora* or *Orbitolina*, in its first or living state, has no hole through it, but a small indentation, which may be observed in many of those in a fossil state. But on this point valuable information could be given by Mr. Rupert Jones, who is so well acquainted with the Foraminifera, if he will pardon my reference to him. At all events, the perfect hole through the ball is not, in my opinion, a part of the natural structure of this variety of the *Orbitolina*, and the question is therefore, was it a work of simple art of some of the earliest tribes of the human family?

CORRESPONDENCE.

The so-called Beads from the Drift.

DEAR SIR,—In reply to the above inquiry respecting the small, subglobular, perforated bodies found not unfrequently in the gravel of chalk-districts, and particularly noticed to occur in Bedfordshire and at St. Acheul, I have to state that, as everybody knows, they have been derived from the Chalk, in which similar fossils are abundantly found, either in the perforated condition, or solid, or with a more or less shallow hole in their substance. They may be found by careful search in the chalk itself, on the beaches under chalk-cliffs (as at Ramsgate, etc.), and in drift beds the materials of which have been furnished by the Chalk (in the gravels above-mentioned, in more limited deposits of chalky drift, as at Copford, Essex, or in the decomposed surface of chalk and chalk-marl along the bottom slopes of the North and South Downs).

These little fossils have had several names given to them, and they have usually been regarded as sponges; but, in 1860, my friend Mr. W. K. Parker and myself were led to study them in the course of our researches on Foraminifera, on account of one curious little form after another coming under our notice from different sea-sands and fossil deposits, all of which

were related to Williamson's *Patellina* on one hand, and to D'Orbigny's *Orbitolina* on the other. These varieties we described very briefly in the 'Annals of Natural History' for July, 1860 (3rd series, vol. vi.), and we traced a strong line of natural connection between some twelve more or less distinct varieties of what we termed *Orbitolina concava*, Lamarck, sp. Since then, we have again worked at this subject, with Dr. Carpenter; and, having somewhat modified our opinion as to the closeness of the presumed relationship of *Patellina* and *Orbitolina* (*Tinoporos*, Carpenter), we do not regard the Patelline as belonging to the same species as the Orbitoline forms—making two species instead of one. But we still are fully convinced that, however spongioid it may appear, the *Orbitolina globularis* is a foraminifer, and a variety of *O. concava*, Lamarck, sp. The specimens usually found in the chalk and other cretaceous beds are large individuals of this very protean species, the typical form of which is concavo-convex, or cupuliform; whilst other varieties have flat, plano-convex, or even biconvex and globular shapes. The concavity of the typical variety becomes, in many of the globular forms, a small cavity, a hole, or even a neat cylindrical perforation. The last feature may be due, perhaps, to the *Orbitolina* having grown around a smooth stem of seaweed. At all events, such perforated specimens are natural, and as abundant in the chalk as those of different conformations.

In the 'Annals of Natural History' above referred to, after describing those *Orbitolinæ* to which De Montfort's *Tinoporos baculatus* is referable, we go on to a largish sugar-loaf form from the Upper Chalk of Ciply, Belgium, and to a smaller and globular variety in the same deposit, thus:—
 "In the same deposit are somewhat smaller and globular specimens, in which the granular growth of the septal edges is still greater; so that continuous, rough, sinuous walls of division are produced, marking out irregular polygonal spaces, including one or more cells, the faces of which lie low down below the surface. Essentially similar septal projections constitute the limbate feature in *Rotalia Beccaria*, var. *Schræteriana*, and *R. repanda*, var. *Carocolla*. Similar globular *Orbitolinæ* (*O. globularis*, Phillips, sp.) are common in other cretaceous deposits.

"*Millepora? globularis*, Phillips (Geol. Yorksh., pl. 1. f. 12) and Woodward (Geol. Norfolk, pl. 4. f. 10–12), *Tragos globularis*, Reuss (Böhm. Kreid., p. 78, pl. 20, f. 5), *Coscinopora globularis*, D'Orb. (Prodrom., ii. p. 284), and Morris (Catal. Brit. Foss., 2nd edit., p. 27), is our *Orbitolina globularis*. Michelin's *Ceripora Avellana* (Icon. Zooph., p. 208. pl. 52. f. 13), from Sarthe, appears to us to be a large specimen of the same variety. Its probably adherent habit and perforated condition are not inimical to this view.

"In some of the figured specimens of *O. globularis*, the not unusual hole in the base is indicated. Occasionally individuals are perforated by a more or less irregular tubular cavity. The roundness of the specimens, and their holes and tubular cavities, appear to have suggested to the old Flint-folk of the Valley of the Somme, that they might be used for beads; for such perforated *Orbitolinæ* are frequent in the gravel that yields the flint axes" (pp. 34, 35).

I may add, that the imperforate *Orbitolinæ* occur in the gravels, just as much as the perforate. Also that the perforation of the non-drifted specimens in the chalk is often just as smooth and straight as if artificial; the interior surface is not worn, however, but consists of the natural structure of the organism.

T. RUPERT JONES.

April 22, 1862.