the chambers around the "penecropline" umbilicus, so that they completely enclose it annularly. But the chambers, instead of being partitioned into chamberlets, show only the indications of subdivision which are marked on the "internal casts" of the sarcodic body[1] as slight constrictions;—the type thus presenting as complete a link between the undivided "penecropline" and the labyrinthic "orbitoline" systems of chambering as it does between their respective geometrical plans of growth. It occurs in the "sables de Fontainbleau," near Rennes, which form part of the "Oligocene" Tertiaries.

3. *Orbitolites duplex*, Carpenter (Pl. III. figs. 8–14; Pl. IV. figs. 6–10; Pl. V. figs. 1–10).

Amphisorus hemprichii, Ehrenberg, Familien und Gattungen der Polythalamien. in Abhandl. der könig. Akad. der Wissenschaften zu Berlin, 1839.

Orbitolites, duplex type, Carpenter, Phil. Trans., 1856, pp. 220, 224, and Introd. to Study of *Foraminifera*, 1862, p. 118.

Orbitolites macropora (?), Lamarck, Animaux sans Vertèbres, ed. 2, tom. ii. p. 196; figured in Goldfuss's Petrefacta, pl. xii. fig. 8.

In my former Memoir (Phil. Trans., 1856, §§ 4, 59, 68) I indicated the existence of a well-marked type of Orbitoline structure, which differs from the ordinary "simple" type in having a double series of marginal pores, and from the "complex" in the limitation of the pores to two rows. My knowledge of this *duplex* type was at that time chiefly derived from the small and worn specimens of it which I had picked out of some shell-sand brought from the Red Sea; and these I could pretty certainly identify with the forms on which Prof. Ehrenberg had founded his genus *Amphisorus*, and which he had ranked with his *Sorites* (*Orbitolites marginalis*) among Bryozoa. But the large number of unworn specimens of this type—many of them alive when captured—that are contained in the collection made in the 18 fathoms' dredging of the Challenger on the Fiji reef, enables me now to furnish a more accurate and complete account of it than it was formerly in my power to give.[2] As this type is sufficiently and constantly differentiated by the character I have just specified, I designate it as *Orbitolites duplex*.

The disks of this species (Pl. III. fig. 8) have usually a very regular circular form, and a nearly plane surface; their thickness being almost uniform, with the exception that the inner or central portion of any disk is usually rather thinner than its outer or peripheral portion. The greatest diameter I have met with in the disks of this species is 0·32 inch, and the greatest thickness 0·012 inch, the proportion of the two dimensions being thus that of a

[1] I am not fully satisfied that I am correct in my interpretation of the structure of this fossil; the *shell* of which seems to me to have undergone the same kind of softening that is common in that of deep-water *Miliolines*, whilst the cavitary system appears to have been occupied by a calcareous deposit of much firmer consistence.

[2] In my former description of it, I fell into the error of supposing that the doubling of tha series of pores indicates the existence, not only of two tiers of chamberlets, but of two annular canals. There is, as I shall presently show, only a single annular canal, and, strictly speaking, but a single series of chamberlets, although there is frequently a want of continuity between the upper and under portions of each cylindrical cavity.