

angles to that usually seen, the two rows of cells being pressed flat against each other, and so producing a form like that figured and described by Hisinger, Portlock, Hall, &c. under the name of *Graptolites scalaris*; as the numerous specimens under my examination shew every stage of the accident, I do not hesitate to recommend the suppression of that species.

Position and Locality.—Abounding in the black shale of Lockerby, Dumfriesshire.

Explanation of Figures.—Plate 1. B. fig. 8. Natural size from Lockerby, of an average sized perfect specimen, with its filiform apex preserved.—Fig. 8 a. Do. Portion magnified six diameters, shewing the rectangular form of the two rows of denticles.—Fig. 9. Do. Portion of specimen compressed at right angles to the direction of the above.—Fig. 10. Do. Shewing an intermediate state of the above accidental distortion.

DIPLOGRAPTUS? sextans (Hall. Sp.)

Syn. and Ref.—*Graptolites sextans*. Hall. (Pal. N. Y. t. 74. f. 3.)

Sp. Ch.—Polypidom about five lines long, formed of two branches diverging from the base at an angle of 60°, rather less than half a line wide, inner margin of each smooth, outer margin with rather large acute denticles, having the upper margin straight, slightly inclined upwards, the lower margin slightly sigmoid, very oblique, and nearly twice the length of the upper, the projecting angle slightly mucronate: five denticles in the space of two lines.

From the strong affinity between this species and the *D. furcatus* (Hall. Sp.), I provisionally leave it in the present genus, though it differs much from the normally formed species. Those species bifid from the base as this, the *serratulus* (Hall), *Murchisoni* (Beck), &c. form a peculiar little group, having one row of cells on each branch, sometimes on the inner, sometimes on the outer edge: if necessary, they might be called *Didymograptus*—the twin-graptolites.

Position and Locality.—Not uncommon in the glazed slates of Cairn Ryan, Ayrshire; Hall's locality is the Utica slates, near Albany.

2nd Ord. ZOOPHYTARIA (*Blainv.*)

= *Zoocorallia-octactinia* (*Ehrenb.*) = *Alcyoniens* (*M. Edwards.*) = *Alcyonaria* (*Dana.*)

Animal with eight equal tentacles (never more nor less), each fringed with perforated papillæ; individuals always united into compound masses by a common tissue, either fleshy alone, or with calcareous or siliceous grains, spicula or threads developed in the substance. When a regular calcareous corallum exists, it is invariably destitute of radiating lamellæ, or internal vertical striæ, and is formed by the aggregation of the earthy grains in the outer coat. When an internal axis is formed, it is fibrous, horny, spicular, or of a cork-like texture, and being secreted by the in-turned bases of all the polypes, it exhibits concentric rings of growth, and is without cells; the polypes being lodged in the outer fleshy or granular crust.

The order is divided into three families:—1st, *Alcyonidæ* (not known in Palæozoic strata), having a fleshy or coriaceous polypiary, strengthened by irregularly arranged calcareous spicula, cells superficial; 2nd, *Gorgoniadæ*, with a distinct branching basal, corneous, calcareous, or siliceous axis, coated by a fleshy crust, strengthened by calcareous granules, in which the polypes are placed, either in impressed or in pedunculated cells; 3rd, *Tubiporidæ*, having a distinct, unradiated, tubular calcareous corallum.

2nd Fam. GORGONIADÆ (see supra.)

To this family I provisionally refer the two following genera, from the relation of their nearest living analogues.

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