

ARTICLE XVIII.—*Notice of a new fossil body, probably a sponge related to Dictyophyton.* By R. P. WHITFIELD.

In the spring of 1876, I obtained from the slates at Kenwood, near Albany, New York, at an outcrop not more perhaps than forty or fifty feet from the layer which contains the Utica slate graptolites, a number of fossil bodies, which, although much resembling plant remains in their general form and fragmentary condition, still possess almost too definite a structure and too much substance for any known form of fossil fucoid of that period. The specimens are of all sizes, from a diameter of a fourth of an inch to that of the largest one figured on Plate 35 of this Bulletin, which is three and three-quarter inches in its greatest breadth. The substance of these fossils is a thin, pyritous film, seldom exceeding a thirtieth of an inch in thickness, and often scarcely possessing an appreciable thickness. The substance is made up of two or three sets of bars or rods, the principal ones of which are straight, rigid, and apparently cylindrical; although as yet I have been unable to isolate any one of them from the surrounding substance. The rods are arranged at varying distances from each other, from being nearly in contact to about a sixteenth of an inch apart. They are usually finer and more slender near the margin of the body. Crossing these at various angles, other than at right angles, and usually quite oblique to the primary series, is a second set, arranged very much closer and of finer texture, as well as usually much more flexible. Apparently a third still finer series crosses both of these, whereby the interspaces become interwoven and filled, forming a textile pattern very closely resembling the surface of Turkey Morocco leather, although somewhat more regular. The margins of the fronds, as well as spots of considerable size over the discs, and often nearly the entire surface of many of the smaller specimens are smooth, with a semi-polished surface, closely resembling that known as "slickensides," but when examined with a lens even these surfaces are seen to be underlaid with the same structure, but of very fine texture. As stated above, the substance is usually pyritous, and the pyrite is often gathered into small globules or aggregations of globules; but the edges of the discs or fronds are usually thin, and the rods

[Dec. 28th,

very slender or obsolete. I am somewhat at a loss to know whether to consider these bodies as of animal origin, and closely related to the *Dictyospongida*, or to refer them to the vegetable kingdom, classing them near the marine fucoids. They seem unlike vegetable remains on account of the rigid nature of the frame work, and their pyritous remains; while the carbonaceous, smooth, filmy structure and shapeless form is somewhat plant-like. I am more strongly inclined to believe, however, that they will prove to be of animal origin, and related to *Dictyospongida*. For these bodies I propose the new generic name *Rhombodictyon*, in reference to the rhombic character of the spaces formed by the different sets of rods forming the net work of their substance.

Rhombodictyon, n. gen.

Globular, discoid or broadly cyathiform fossil bodies, composed of two or more sets of more or less rigid rods or threads, crossing each other at various angles, but not bifurcating or dividing, and leaving rhombic spaces which are filled with carbonaceous or other substance. Type *R. reniforme*, Whitf.

Rhombodictyon reniforme, n. sp.

PLATE 35, FIGS. 2-7.

General form of the body reniform, discoid, possibly in the living state broadly cyathiform, substance in all the examples known pyritous, and of not more than a thirtieth of an inch in thickness, often much thinner; rods or threads very distinct and long, the principal set being rigid and arranged at distances of from a sixteenth of an inch to less than a fiftieth of an inch apart, and always oblique to the apparent axis of the frond. Secondary rods thread-like and somewhat flexuose, very much finer and more closely arranged than the primary set, and at various angles from fifty to eighty degrees, but never yet observed at right angles to the primaries. A third still finer set of threads is arranged at still different angles, giving a finely net-like structure. Toward the edges of the frond the rods become more slender, and often more closely arranged from the intercalation of other individuals, but none are seen to bifurcate.

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Var. rhombiforme. PLATE 35, FIGS. 8-9.

Very many small individuals are found scattered over and through the shale, varying in size and form, but many, perhaps the greater number, being rhombic in outline, with the threads running sometimes across the shorter diameter and as often parallel to one of the longer sides of the specimen. These may possibly be only fragments of the larger specimens broken up, or may possibly be young individuals; but they do not have that appearance, as the rods all become indistinct before reaching the margins. For this I suggest the varietal name *rhombiforme*.

Rhombodictyon discum, n. sp.

PLATE 35. FIG. 1.

Frond small, discoid, with strong and very distinct rods or threads, arranged about as in *R. reniformis*, substance comparatively thick, in the type example having been pressed into the shale so as to imbed the edges. Diameter of the only individual observed, about one inch.

I am strongly inclined to think this species was globular during life, and that what we see preserved is only the flattened frame work of the specimen.

All the specimens I suppose to belong to the same geological formation, as the *Graptolites* of Kenwood or Norman's Kill, Albany County, N. Y., described in Vol. 1, Pal. N. Y., and in the 12th, 13th and 20th Reports on the New York State Cabinet, from that locality, namely, the Utica Slate: as they are found in a layer of shale but a few feet from an outcrop of that Graptolite-bearing stratum.

[Dec. 28th, 1886.]

EXPLANATION OF PLATE 35.

Rhombodictyon discum, Whitf. Page 348.

Fig. 1. View of the specimen, natural size.

Rhombodictyon reniforme, Whitf. Page 347.

Fig. 2. View of a small specimen, apparently double.

Fig. 3. View of a medium sized, very perfect specimen.

Fig. 4. View of the largest and most perfect specimen yet seen.

Figs. 5-7. Enlargement to show the different appearances presented in different lights.

Rhombodictyon reniforme var. **rhombiforme**, Whitf.

Page 348.

Figs. 8 & 9. View of two different specimens presenting the features described.

