REMARKS

ON TWO FOSSIL LITHOTHAMNIA

BY

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By the benevolence of Dr. Ed. Bornet I have had the opportunity of examining a piece of limestone and a ground section of a fossil calcareous alga, both labelled „*Lithothamnion marmoreum* Mun.-Chalm. Belgique. Calcaire carbonif." On the section was besides added: „Reçu de M. Munier-Chalmas".

I have not succeeded in finding out where this alga has been described. Nor it is known to Dr. Bornet or Dr. Wright. I only know the following note on it in Proceedings Dublin micr. Club, Nov. 19, 1880, p. 11: „Dr. E. Perceval Wright exhibited sections of a small morsel of marble from the „Calcaire Carbonifère, terrein primaire" of Namur, in Belgium, under a $^1/_4$-inch objective, which clearly showed the cell-system of an alga. This most ancient seaweed has been described by M. Munier-Chalmas in 1876 as *Lithothamnion marmoreum*. The wonderful state of preservation of this fossil plant enabled almost the minutest details of cell-structure to be seen".

The said section and handpiece in Dr. Bornet's herbarium includes, however, two different species, of which I will here give a short description. Thus the calcareous alga in the section represents an *Archæolithothamnion,* and has to be looked upon as a typical *A. marmoreum*. In the handpiece, on the contrary, I have not found this species, but still it may occur. In two slides of the same handpiece occurs another species distinguished from *A. marmoreum* by thin fragments of terete branches, by longer cells and by the want of sporangia grown in. It, therefore, is likely to belong either to the genus *Lithophyllum* or to the genus *Lithothamnion,* probably to the former.

Archæolithothamnion marmoreum (Mun.-Chalm.) Fosl. mscr.

Lithothamnion marmoreum Mun.-Chalm. (1876) sec. spec. herb. Bornet; Wright, Proc. Dubl. micr. Club 1880 p. 11; De Toni, Syll. Alg. IV p. 1763.

In the slide of this species the alga forms fragments in the calcareous mass of irregular roundish form, about 3—4 mm. in diameter. There is no distinct disjunction of hypothallium and perithallium. The cells are partly subsquare, 9 (7)—14 μ in diameter, partly and oftener vertically elongated, 11—22 (25) μ long and 9—14 μ broad, here and there in the outermost part of the perithallium horizontally elongated, 6—9 by 9—12 μ. The cavities of sporangia overgrown are densely crowded, separated from one another by cells much elongated, diverging from the normal cells and forming long curved rows according to the form of the cellular layers. They are 54—76 μ long and 29—40 μ broad.

The species, on one side, seems to approach *A. nummuliticum* (Gümb.) Fosl., but is, on the other hand, probably more nearly related to *A. Aschersonii* (Schw.) Fosl. It is distinguished from the latter by longer cells.

Lithophyllum(?) belgicum Fosl. mscr.

In the handpiece mentioned this species forms terete, partly somewhat knobby, whitish fragments of branches. They are 2—9 mm. long and 1—2 or mostly about 1.5 mm. thick. They occur in large numbers and constitute about three fourths of the whole mass. In this respect the alga seems to appear in almost the same way as *Lithothamnion parisiense* Gümb. Nullip. p. 42. In a longitudinal section a medullary hypothallium forms the essential part of the thickness of the branch. The two sections mentioned, however, have not hit the longitudinal axis, but have fallen somewhat obliquely to it. Therefore, I cannot state certain measures of the hyphothallic cells. They do not form well-defined cup-shaped layers of tissue, as in the branched forms of the genus *Lithothamnion,* but are without any fixed order. The cells are about 25—50 μ long and 11—16 (18) μ broad, with the longitudinal walls more or less curved. The former measures, however, are very uncertain, as in most cases, particulary in the central

parts, the transverse walls of the cells cannot be seen in the section, and, therefore, are likely to be longer. In a transverse section of a branch, these cells are angular, isodiametrical, about 11—18 μ. The perithallic cells are rectangular, the length being mostly $1^1/_2$—2, seldom $2^1/_2$ times the breadth, sometimes subsquare, or 14 (12)—29 (36) μ long by 12 (10) - 18 μ.

As the species wants conceptacles, it cannot be settled to what genus it belongs. It appears most likely to be a *Lithophyllum* on account of the long and narrow hypothallic cells without any defined stratification. Among fossil forms it probably is most nearly related to *Lithothamnion (Lithophyllum?) amphiroœformis* Rothpl., which is perhaps a form of the recent *Lithoph. byssoides* (Lamk.) Fosl.

It is unknown to me from what geological period these two species date. According to a geological map the town of Namur is situated in the coal formation. A little to the south there are large fields of lower levels (silure, devon), and a little to the north there is a large field of older tertiary (eocene and oligocene). Somewhat to N. E. occurs the chalk formation. The most ancient species of *Archæolithothamnion* hitherto known date from the period last mentioned.