

TWO NEW LITHOTHAMNIEAE, CALCAREOUS ALGAE,
FROM THE LOWER MIOCENE OF TRINIDAD, BRITISH
WEST INDIES.

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The following are descriptions of two species of fossil calcareous algae from Trinidad, submitted by T. W. Vaughan :

LITHOTHAMNIUM PENNYI, new species.

Plates 1 and 2.

Thallus forming irregular nodulose or verrucose concretions 3.5–5 cm. in diameter, the verrucae, knobs, or short branches up to 5 mm. high, 2–7 mm. broad, obtuse or subtruncate; transverse fractures of the knobs showing pronounced irregularly concentric, more or less plicate lamellae mostly 0.15–0.2 mm. thick; transverse or radio-vertical sections of the knobs conspicuously zonate by the frequent alternations of large-celled secondary hypothallia and small-celled perithallia; cells of medullary hypothallia irregular in outline and arrangement, mostly 25–50 μ high by 13–25 μ broad; cells of secondary hypothallia (or of large-celled perithallia?) 14–25 μ high, 13–28 μ broad, subquadrate, often broader than high, less commonly higher than broad, distinctly layered in the outer zones, less distinctly in the inner; cells of the perithallia minute, subquadrate, 4–7 μ high or broad, rather indistinctly layered; conceptacles (tetrasporic) becoming embedded, the cavity 350–600 μ in maximum width, 150–200 μ in height, the roof usually well defined.

A single, nearly free specimen in Matchepoorie quarry, longitude 61° 14' 35'' W.; latitude 10° 27' 25'' N., Trinidad, British West Indies, F. W. Penny No. 5, station No. 8301 (lower Miocene).

Type in U. S. National Museum, Cat. No. 36604.

Of the hitherto described American fossil Lithothamnieae, *Lithothamnium pennyi* is apparently most nearly allied to *L. vaughanii* M. A. Howe¹ from the Oligocene of the Panama Canal Zone, but differs in having a thallus the surface of which is knobbed or verrucose rather than developing anastomosed branches, in the larger

¹ U. S. Nat. Mus. Bull. 103, 1919, p. 6, pl. 7, figs. 1 and 2, and pl. 8.

cells of the large-celled zones, the smaller cells of the small-celled zones, and the consequently more pronounced zonation, and in the somewhat smaller tetrasporic conceptacles. The conceptacles sometimes show small pores in the roof with sufficient clearness to leave no doubt that the type specimen is a tetrasporic plant of the genus *Lithothamnium*.

LITHOPHYLLUM TRINITENSE, new species.

Plates 3 and 4.

Thallus crustaceous, 0.75–2 mm. thick, becoming superposed, massive, and 0.5–3.5 cm. thick, the surface nearly smooth, undulate-rugose, or broadly and irregularly submammillate, delaminating; vertical fractures showing undulate-plicate zonations 1 mm. or less broad; hypothallia usually inconspicuous, the cells $15\text{--}26\mu \times 10\text{--}13\mu$, not distinctly "coaxial" or layered; perithallium rather distinctly or somewhat obscurely zonate, its cells $9\text{--}18 (2\pm)\mu$ high and $8\text{--}13\mu$ broad, usually higher than broad, or subquadrate, in very distinct layers; conceptacles $320\text{--}450\mu$ in diameter, becoming embedded.

A single specimen, more or less embedded, associated with corals (?) and occasionally intercalated with *Lithoporella melobesioides* (Foslie) Foslie, and forming the greater part of a mass that is 9 cm. long, 5 cm. broad, and 4 cm. thick, in Gasparillo quarry, Trinidad, British West Indies, F. W. Penny, No. G 5, station No. 8297 (lower Miocene).

Type in U. S. National Museum, Cat. No. 36605.

Of the hitherto described American fossil Lithothamnieae, *Lithophyllum trinitense* is perhaps best comparable with *L. homogeneous*, M. A. Howe² from the upper Eocene or lower Oligocene of St. Bartholomew, British West Indies, but the thallus appears to strictly crustaceous, showing at most only low elevations in place of the well-developed branch system of *L. homogeneous* and in a thin ground section the general structure is seen to be more zonate and less homogeneous and the cells of the hypothallium less distinctly "coaxial" or layered. Conceptacles were not found in *L. homogeneous*.

EXPLANATION OF PLATES.

PLATE 1.

Lithothamnium pennyi M. A. Howe.

FIGS. 1 and 2. Photographs showing opposite sides, in lengthwise view, of the single type specimen, from Matchepoorie quarry, Trinidad, F. W. Penny, No. 5, station S301, natural size.

3. Photograph of a transverse or slightly oblique section through one of the knobs of the above specimen, enlarged 42 diameters.

² Carnegie Inst. Washington Publ. no. 291, 1919, p. 14, pl. 1, fig. 1 and pl. 3.

PLATE 2.

Lithothamnium pennyi M. A. Howe.

Photograph of a part of a transverse section, through one of the knobs, enlarged 100 diameters.

PLATE 3.

Lithophyllum trinitense M. A. Howe.

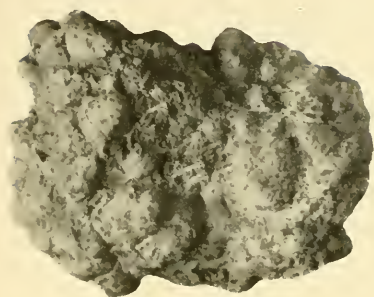
FIG. 1. Photograph of the single type specimen, natural size, showing the superposed laminations of the *Lithophyllum*, seen especially well in the median zone. Above the center, a little at the left, are the remains of a very different organism (coral?). Gasparillo quarry, Trinidad, F. W. Penny, No. G. 5, station 8297.

2. Photograph of a vertical section, showing one lamina, its hypothallium, conceptacles, etc., enlarged 42 diameters.

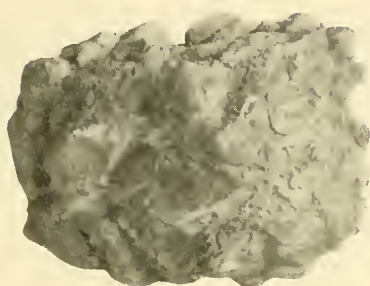
PLATE 4.

Lithophyllum trinitense M. A. Howe.

Photograph of a vertical section, showing zonations, perithallia, conceptacles, etc., enlarged 100 diameters.



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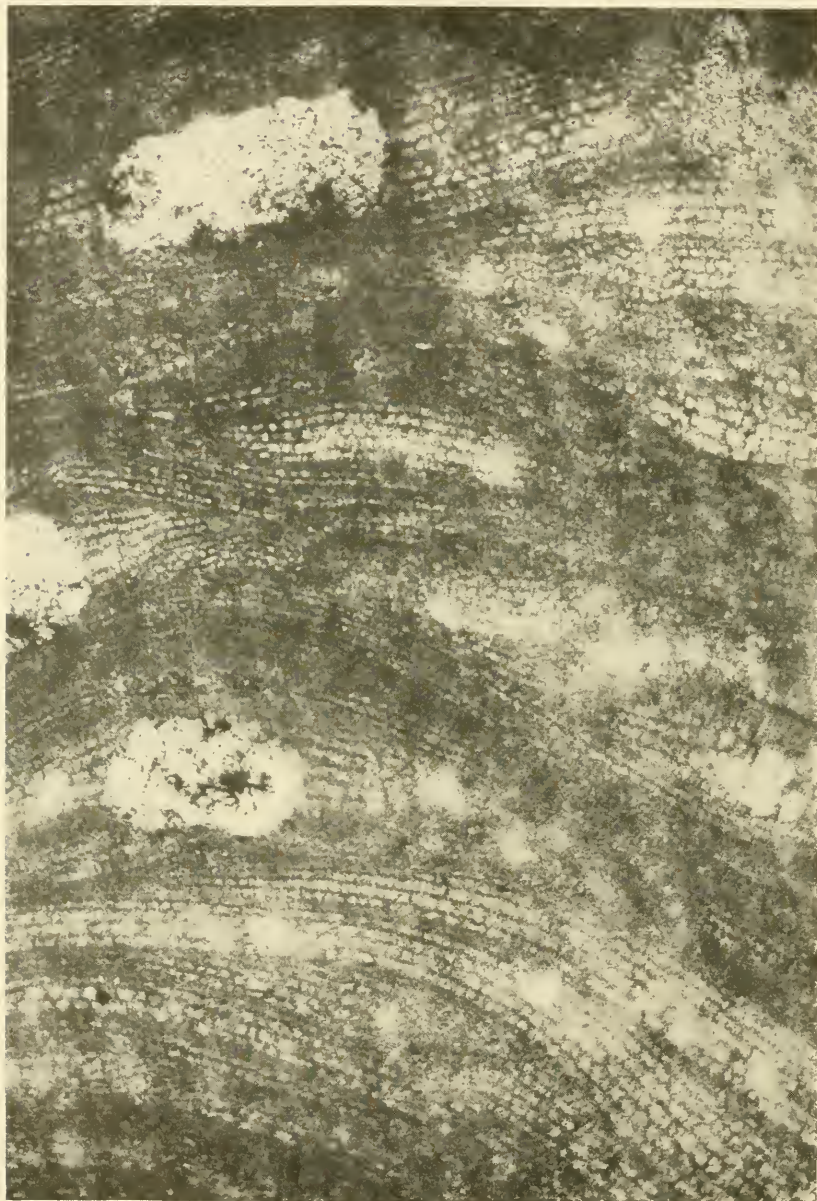
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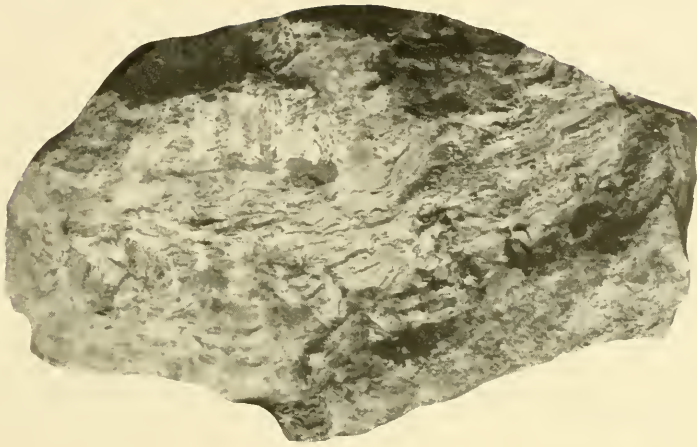
LITHOTHAMNIUM PENNYI M. A. HOWE.

FOR EXPLANATION OF PLATE SEE PAGE 2.

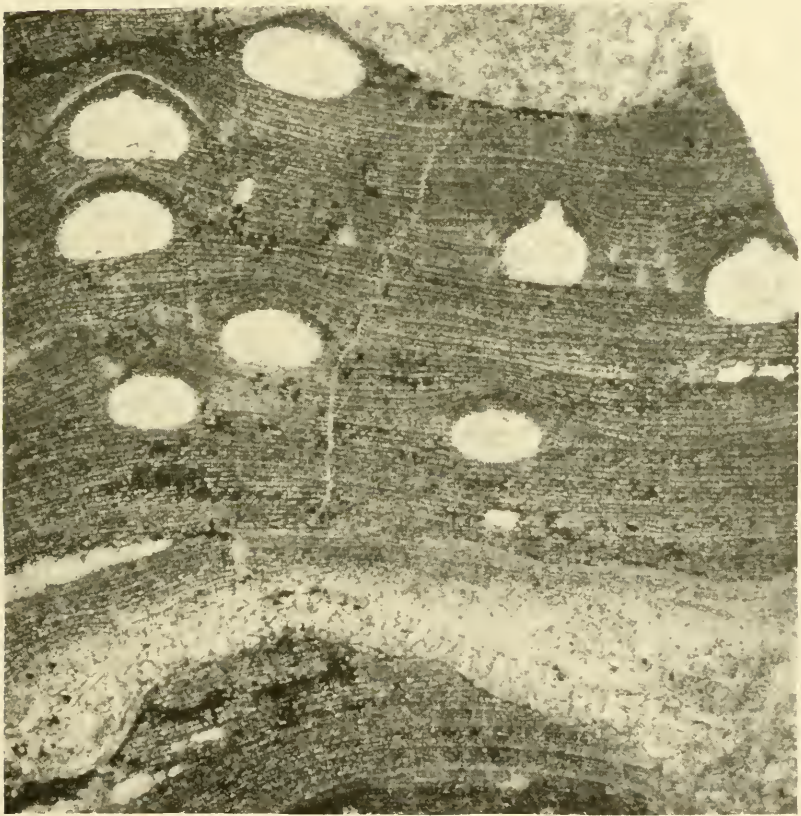


LITHOTHAMNIUM PENNYI M. A. HOWE.

FOR EXPLANATION OF PLATE SEE PAGE 3



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2

LITHOPHYLLUM TRINITENSE M. A. HOWE.

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