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STUDIES ON THE MELOBESIOIDEAE OF JAPAN. IV

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7. **Polyporolithon reclinatum** (Foslie) L. R. Mason

Pls. I—IV

Mason, 1935, p. 319, pl. 30; Tokida & Masaki, 1960, p. 497.

Syn. ***Lithothamnium conchatum*** Setchell et Foslie f. ***reclinatum*** Foslie, 1906, p. 6. ***Lithothamnium reclinatum*** (Foslie) Foslie, 1907, p. 14: 1929, p. 45, pl. 10, figs. 14-17; De Toni, 1924, p. 618.

Japanese name. Kasa-kinoko-ishimo (n. n.).

Habit and distribution, in literature. Hemiparasitic on *Cheilosporum frondescens, Bossiella, and Corallina.* From Vancouver Island, B. C., to California along the coast of North America.

Specimens collected. On *Pachyarthron cretaceum.* Muroran, 20 March 1960, Tokida and Masaki; 1 June 1960, Yamamoto. Shirikishinai, near Hakodate, 23 July 1960, Niihama.

The following description is based on the specimens from Muroran.

Thallus irregularly circular or elliptical small disk, sessile, often recurved and encircling host partly or completely, up to 1.8 cm long by 0.7 cm broad, 0.3-1 mm thick, attached to host by sub-penetrating base near the center of lower surface, deep reddish purple in color, polystromatic to margin; epithallium 1-3 layers of cells thick except at the very edge of the thallus where it is lacking, cells in section rectangular and 7 μ in diam. or subquadrate and 5-9 μ long by 4-7 μ broad; perithallium 0.15-1.3 mm μ thick, cells subquadrate, 10-17 μ diam., or elongated and 15-26 μ long by 8-12 μ broad, uppermost cells deeply stained with haematoxylin and anilin blue, vertically elongated and 12-30 μ long by 5-9 μ broad; hypothallium 50-230 μ thick, composed of branched cell-rows curved upward and downward, cells rectangular, 13-50 μ long by 8-13 μ broad; coalescence of cells between adjacent cell-rows in perithallium and hypothallium present; sporangial conceptacles 147-273 μ high, 290-435 μ diam., deeply embedded, roof flat or slightly convex, perforated by 25-30 pores, sporangia tetrasporic, 109-197 μ long, 45-87 μ diam., 7-10 sporangia standing on floor of each sporangium; sexual plant normally dioecious but sometimes monoecious; procarpic conceptacles slightly convex, 126-252 μ high, 147-190 μ diam., auxiliary cells carrying one or two carpogonial branches, procarps and their supporting cells filled with protoplasmic contents and stained deeply with haematoxylin and anilin blue; cystocarpic conceptacles slightly convex, (230-) 273-380 μ high, 292-462 μ diam., carpospores arising from the periphery of fusion cell which is often discontinuous in section; spermatangial conceptacles nearly flat on surface, sometimes embedded deeply, 90-230 μ high, 290-460(-700) μ diam., opened by a very narrow orifice, without a spout,

spermatangia globular, 3 μ diam., when detached and set free in conceptacle cavity which is wholly lined with a layer of uninucleate palisade-like cells or spermatangium mother cells.

The genus *Polyporolithon* was established by L. R. Mason in 1953 to comprise four hemiparasitic and mushroom-like species formerly classified in *Lithothamnium*. one from Australia and New Zealand and the rest from the Pacific coast of North America. The writers' specimens from Muroran are referable to the present species as the above description shows. The male plant which has hitherto been unknown to this species is described here for the first time. The spermatangial conceptacles are quite peculiar in structure as shown in Pl. Ⅲ, Fig. 2. A specimen of *Pachyarthron cretaceum* collected by Mr. Hidehiro Niihama at Shirikishinai which has been deposited in the writers' herbarium bears an epiphyte, a sporangial disk of *Polyporolithon reclinatum*.

The present species is at first a small circular disk attaching laterally on the internode surface of a single articulation of the host by means of a sub-penetrating base (Pl. Ⅰ, Figs. 1*f* & 2*f*; Pl. Ⅱ, Fig. 2). The disk later becomes irregularly expanded laterally or lengthwise, and more or less recurved, sometimes encircling the host partly or completely (Pl. Ⅰ, Figs. 1 & 2). In such cases the disk may cover several articulations of the host but it has no attachment to them except the original single one (Pl. Ⅰ, Fig. 2*c-e*). In some cases, however, several articulations of the host plant may be firmly adherent to one disk of the present species when they are emdedded in the calcareous bodies of epiphytic animals such as a Bryozoa (Pl. Ⅰ, Fig. 2*a*) or *Spirorbis* (Pl. Ⅰ, Fig. 2*f*). *Spirorbis* is commonly found attached in groups to the lower concave surface of the disk (Pl. Ⅰ, Fig. 2*d-f*). Its calcareous tubes sometimes happen to hold some of the host articulations making the attachment of the epiphyte to the host much more stable.

Summary

Polyporolithon reclinatum (Foslie) L. R. Mason, which has hitherto been known from the Pacific coast of North America, is reported herein to occur in Hokkaido. Besides the previously described sporangial and female plants, the male plant was newly observed and illustrated.

Literature

Foslie, M. (1906). Algologiske Notiser. Ⅱ. *K. Norske Vidensk. Selsk. Skr.*, 1906 (2), 1-28.

Tokida, J. & Masaki, T. (1960). On the occurrence in Japan of a calcareous coralline, *Polyporolithon reclinatum* (Foslie) L. R. Mason. *Bot. Mag. Tokyo* 73 (869), 497.

(For further references: see the preceding report Ⅲ).

(**ERRATA** for the preceding report, Ⅲ, in *Bull. Fac. Fish., Hokkaido Univ.*, 11 (2): read "Foslie, 1929" for "Foslie, 1919" on p. 37, p. 38 and p. 41).

EXPLANATION OF PLATES

PLATE I

Polyporolithon reclinatum (Foslie) L. R. Mason

Habit of plants growing on *Pachyarthron cretaceum* from Muroran

Fig. 1. Viewed from upper surface of thalli

Fig. 2. Viewed from lower surface of the same thalli as shown in Fig. 1

a & b. Thallus encircling host segments completely at least in part

c–e. Thallus in the form of a recurved disk which is firmly attached to a single segment of host indicated by arrow

f. A small young circular disk and an older recurved disk infested with a number of calcareous tubes of *Spirorbis* which hold several segments of the host in a firm attachment to the disk

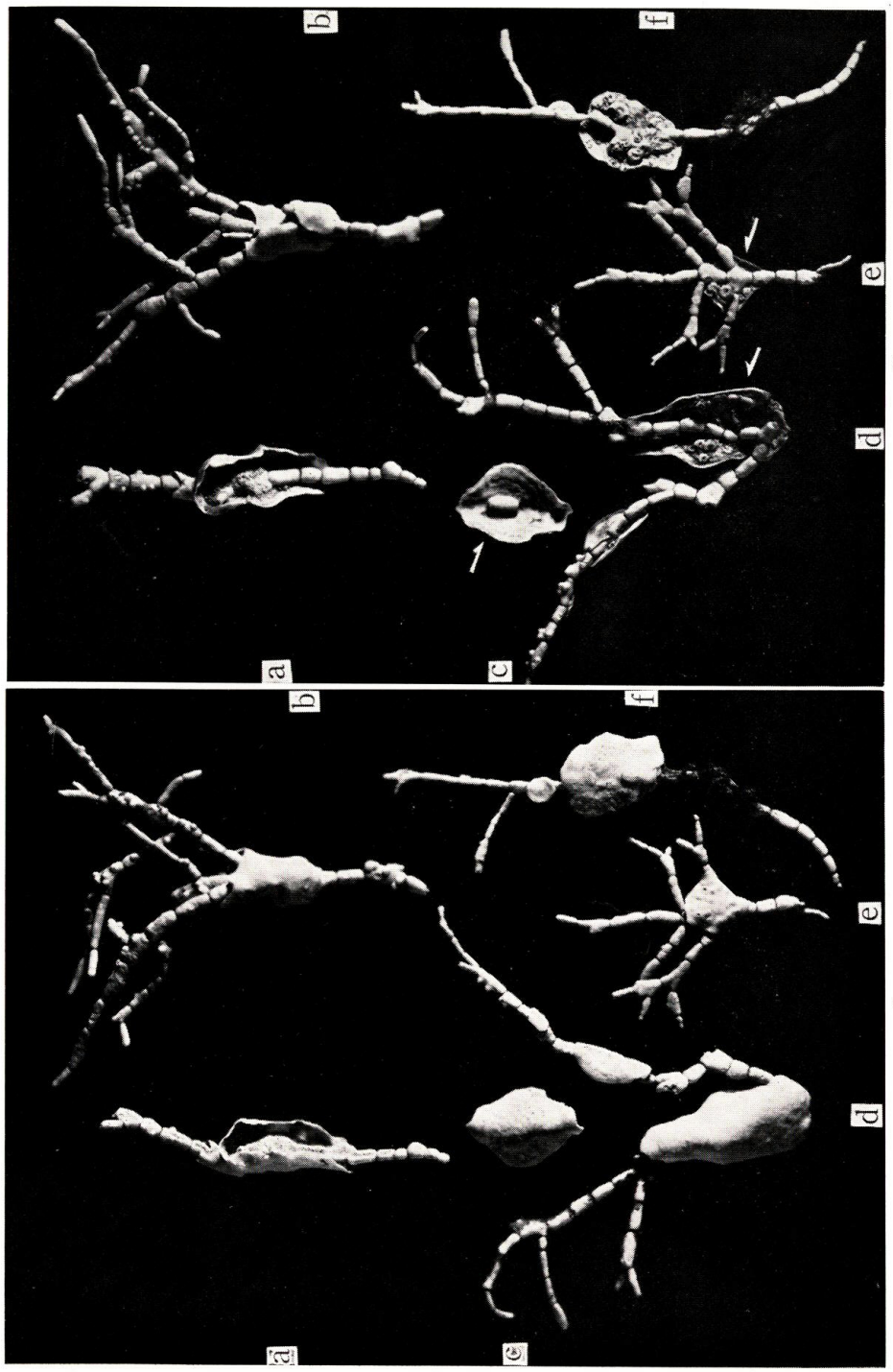

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PLATE II

Polyporolithon reclinatum (Foslie) L. R. Mason

Fig. 1. Habit of fertile plant bearing cystocarpic conceptacles ×2.5

Fig. 2. Vertical section through thallus base penetrating into host tissue ×70

Fig. 3. Procarpic conceptacle ×70

Fig. 4. Cystocarpic conceptacles ×45

Fig. 5. Cystocarpic conceptacle ×70

Fig. 6. Spermatangial conceptacles ×45

Fig. 7. Tetrasporangial conceptacle ×70

Fig. 8. Part of surface view of tetrasporangial plant showing pores perforating roof of conceptacle ×70

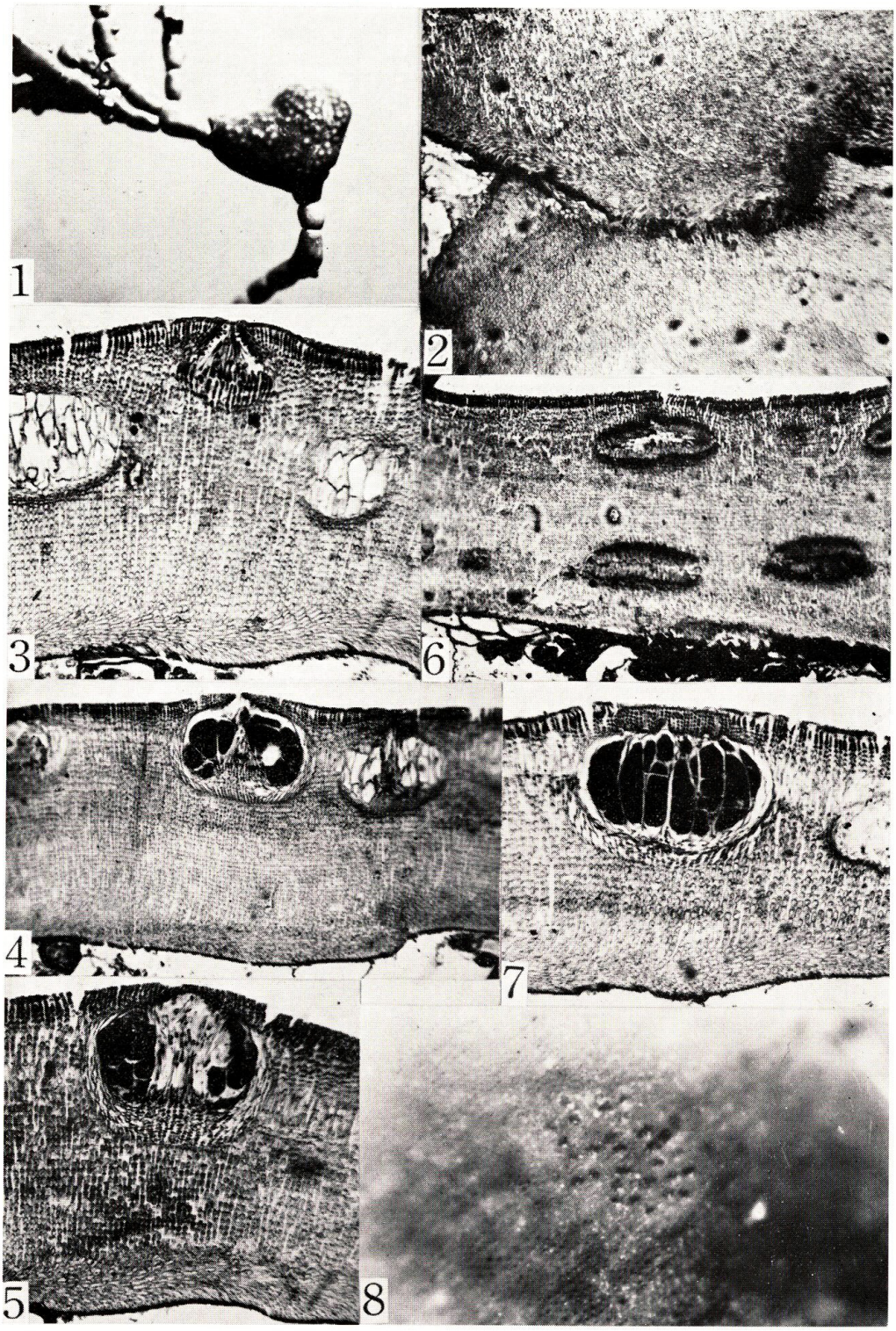

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PLATE Ⅲ

Polyporolithon reclinatum (Foslie) L. R. Mason

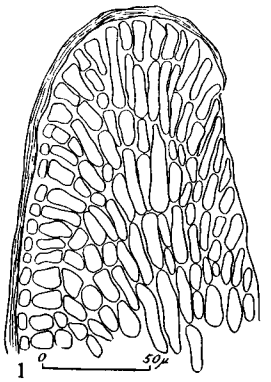
Fig. 1. Vertical section through marginal portion of thallus

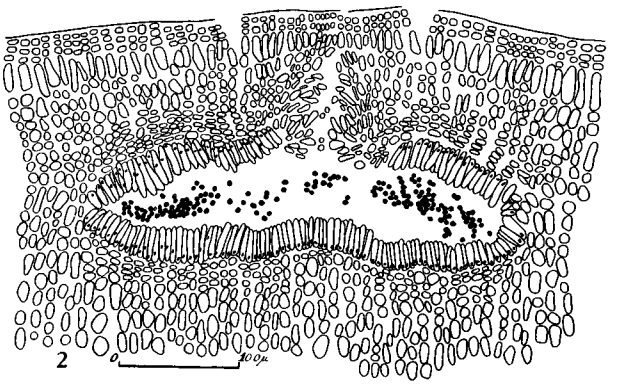
Fig. 2. Vertical section through spermatangial conceptacle

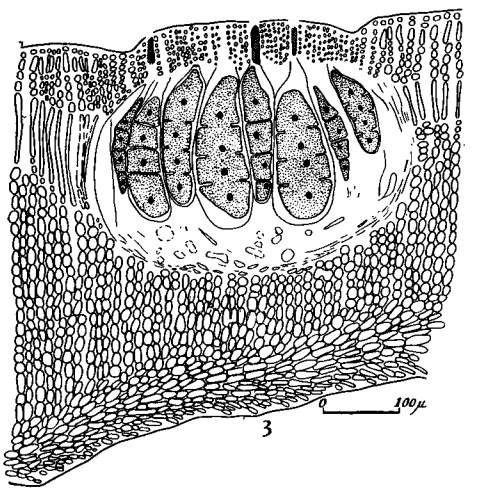
Fig. 3 & 4. Vertical section through tetrasporangial conceptacle

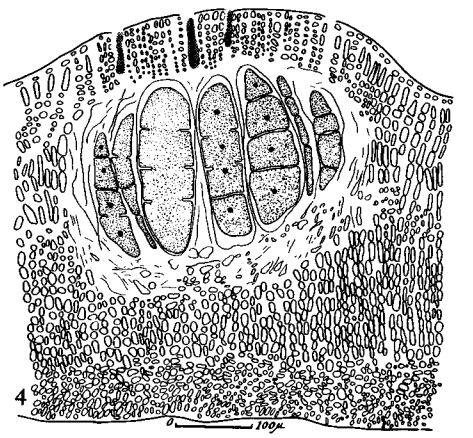
Fig. 5. Vertical section through procarpic conceptacle

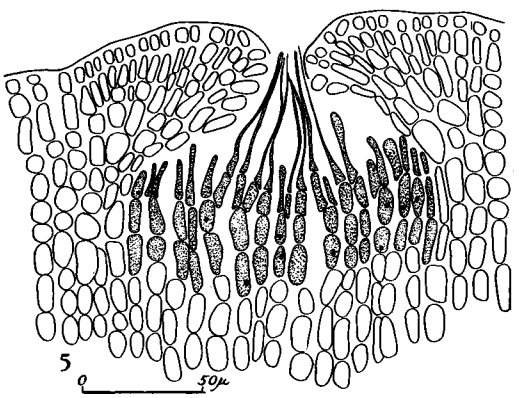
Fig. 6. Vertical section through young cystocarpic conceptacle











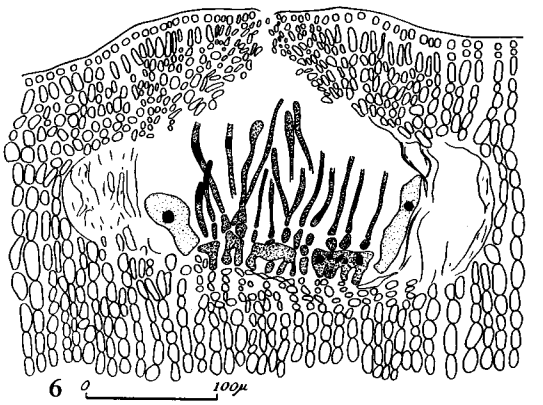


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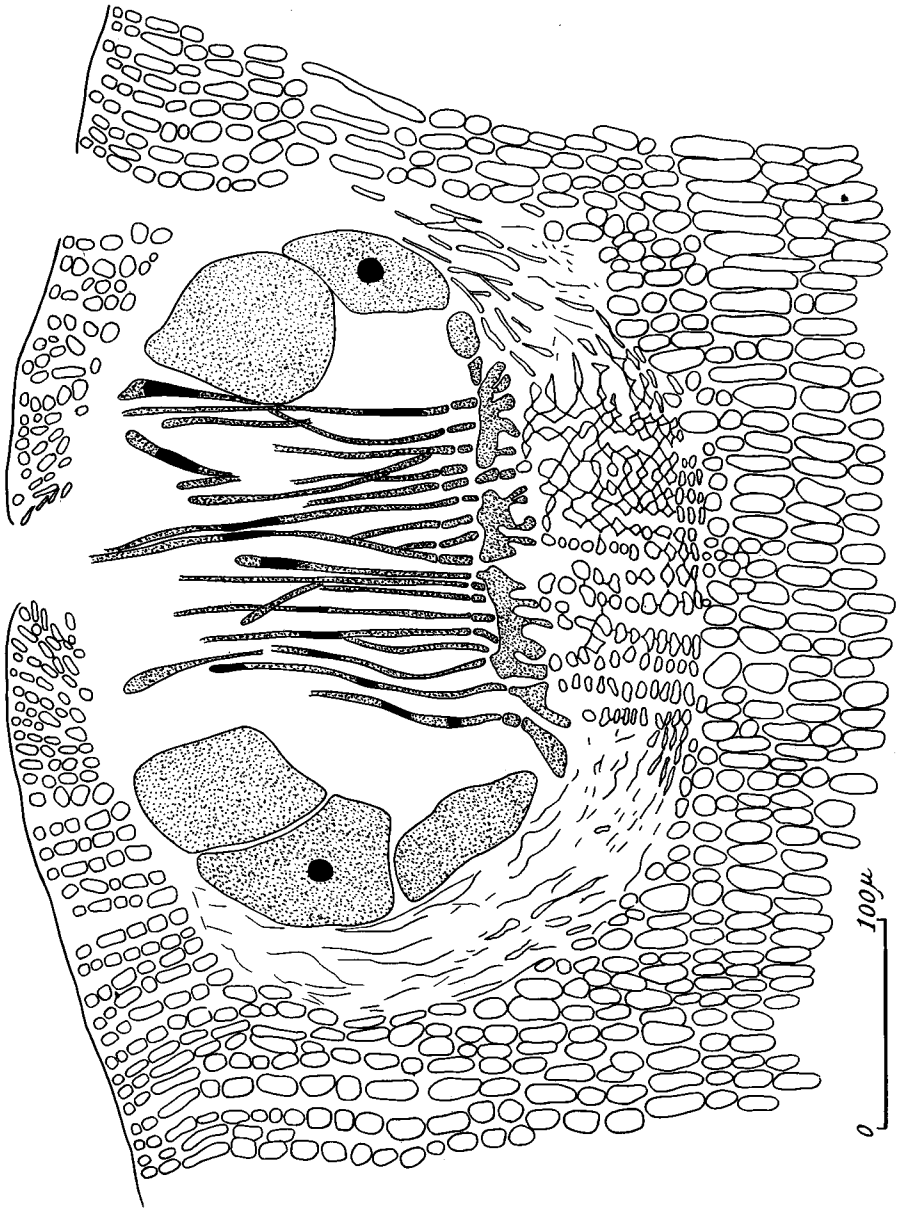
PLATE Ⅳ

Polyporolithon reclinatum (Foslie) L. R. Mason

Vertical section through mature cystocarpic conceptacle



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