

REMARKS ON
LITHOTHAMNION MURMANICUM

BY

M. FOSLIE

WITH 2 PLATES

DET KGL. NORSKE VIDENSKABERS SELSKABS SKRIFTER. 1908. NO. 2

AKTIETRYKKERIET I TRONDHJEM
1908

The calcareous alga in question has been described by Mr. A. Elenkin from specimens collected on the Murman coast.¹⁾ Mr. Elenkin states that the alga is most nearly approaching to *Lithothamnion nodulosum* Fosl., and refers to specimens from arctic Norway collected by Dr. Palibin and determined by me. In fact I have determined no such calcareous alga from the area quoted, but certainly from the southern part of the west coast of Norway (the neighbourhood of Bergen). This form corresponds, however, in all essentials with *L. nodulosum* whose typical form occurs in the Trondhjemsfjord. Hoping to obtain by way of exchange a specimen of *L. murmanicum* so as to be able to compare it directly with species nearly connected, I did not go more accurately over the description of the alga. But I thought it likely to be identical with *Lithoth. vardöense*, because forms of this species are in habit partly approaching to *L. nodulosum* in almost the same proportion as *L. nodulosum* and *L. fornicatum* are sometimes approaching to one another. As typically developed, however, they are much diverging.

In another paper²⁾ Mr. Elenkin tries to prove that *L. vardöense* and *L. murmanicum* are identical, and that the latter name has a priority of claim. I will not here enter on the question of priority. But after going more accurately over the description, I make out — quite the contrary — that the two species mentioned

1) Bull. Jard. Imp. Bot. St. Petersb. Vol. V. No. 5 & 6. 1905. (Russian with a summary in German).

2) Trav. Soc. Imp. des Naturalistes de St. Petersb. Vol. XXXVII. Livr. 1. (Russian with a Summary in German).

are not identical at all, but that *L. murmanicum* actually belongs to *L. breviaxe*.

As I stated in Rem. north. Lithoth. p. 61, *L. vardöense* on one side draws near to *L. tophiforme* f. *sphaerica* (cp. pl. II, fig. 12—13, 15), and is on the other side „almost fully resembling small nodules of *L. fornicatum* f. *subsphaerica*, and partly even f. *dimorpha*.“ Cp. pl. II, fig. 1—11, 14, and Norw. Lithoth. pl. 10—12. There is a possibility of *L. vardöense* embracing two different forms, but this question I cannot decide for the present, because the fertile material in hand is too scarce; the larger number of the specimens collected are sterile. When typically developed, however, it corresponds to a small *L. fornicatum*, from which it is distinguished only by developing bisporic sporangia. It shows the same relation to *L. tophiforme* f. *sphaerica* as small nodules of *L. fornicatum* are bearing to *L. soriferum* f. *globosa*. It is sometimes rather difficult to draw the line. Besides *L. vardöense* is approaching to certain forms of *L. glaciale*, and on the other hand there are also forms of *L. fornicatum* that are very nearly connected with *L. intermedium*¹⁾, a species partly corresponding to *L. glaciale*.

Of late I have given particular consideration to the partition of sporangia, and I have separated species as independent ones only on this character, whereas my earlier opinion was that some species are developing both bisporic and tetrasporic sporangia. This limitation, however, has not been thoroughly carried out in Rem. north. Lithoth.²⁾ Future investigations will show whether such a limitation is right in all cases.

The following species juxtaposed by twos are distinguished from one another only by the partition of sporangia, — the former of each group developing tetrasporic sporangia, the latter developing bisporic ones.

L. nodulosum Fosl. — *L. tusterense* Fosl.

L. Unger Kjellm. — *L. breviaxe* Fosl.

1) I have got specimens referred to this species by Prof. Kjellman which in my opinion belong to *L. fornicatum*.

2) Cp. Alg. Not. V (soon in press).

L. soriferum Kjellm. — *L. tophiforme* Ung.

L. fornicatum Fosl. — *L. vardöense* Fosl.

The same is partly the case also with *L. glaciale* Kjellm. and *L. intermedium* Kjellm.

Of the species mentioned, peculiarly the four first ones form a group distinguished by mostly short and curved or flexuous branches. Cp. pl. I and Norw. Lithoth. pl. 6—8 and pl. 21, fig. 1—6. In localities where *L. Ungerii* and *L. soriferum* are growing gregariously, it is in part rather difficult to draw the line between the two species, but they are no doubt specifically distinct. Besides, delicate forms of *L. nodulosum* are nearly connected with *L. norvegicum*, and *L. tusterense* bears partly a close resemblance to certain forms of *L. Granii*. On the other hand *L. fornicatum* and *L. vardöense* are characterized by straight — or almost straight — branches. Both *L. soriferum* and *L. tophiforme* are much varying species, approaching partly to one group, partly to the other.

It is not clear from Mr. Elenkin's description whether *L. murmanicum* bears short and curved branches, nor does it appear with certainty from the plate, in which, by the bye, the specimens seem to have been reproduced on a scale rather considerably reduced, though I cannot find the reduction stated. However, in fig. 1, p. 13, and particularly in fig. 1, p. 26, it is quite distinctly seen that the branches are flexuous. Mr. Elenkin states p. 25 that they are about 3 mm. thick. The branches of *L. Ungerii* and of *L. breviaxe*, according to my measures, are 1.5—2.5 mm., and those of *L. nodulosum* and of *L. tusterense* are only 1—1.5 (1.8) mm. thick. This proportion may be somewhat more varying, but at any rate it shows that *L. murmanicum* is frequently much coarser than *L. nodulosum*. In *L. vardöense* the branches are 1.5—2 (2.5) mm. thick, but they are — as above mentioned — straight or almost straight. There are certainly forms of *L. nodulosum* with partly almost straight branches (*f. congregata*), but this is never the case in *L. Ungerii* or *L. breviaxe*.

I, therefore, must consider it as a probability verging on the certain that *L. murmanicum* belongs to *L. breviaxe*. Cp. pl. I.

In a third paper¹⁾ Mr. Elenkin declares my denomination *Lithoth. tophiforme* Ung. in Rem. north. Lithoth. p. 51 to be „contre toutes les lois de la nomenclature“. He goes on maintaining that this species is identical with *L. vardöense*, and that both species belong to *L. murmanicum*.

As I have observed above, I have thought it necessary for the circumscription of the species to give consideration to the partition of sporangia. In consistency with this principle *L. soriferum* Kjellm. includes two species, one with tetrasporic sporangia and the other with bisporic ones. In describing *L. murmanicum*, Mr. Elenkin has acted up to the same principle; for otherwise he should have referred this plant to *L. Ungerii*, to which it is corresponding except in the fact that *L. Ungerii* is developing tetrasporic sporangia, whereas *L. murmanicum* bears bisporic ones.

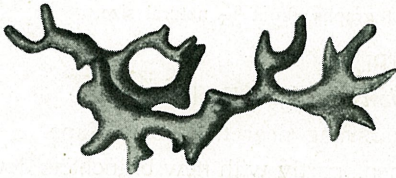
I think it superfluous to enter on the supposition of Mr. Elenkin that *L. tophiforme* should belong to *L. murmanicum*. The consequence would be that also the corresponding species *L. soriferum* and *L. Ungerii* had to be considered as identic.

The plant denominated by Unger as *Lithoth. tophiforme* is indeed incompletely described²⁾, and his referring to *Millepora polymorpha* var. *tophiformis* Esp. is hardly correct. He mentions it thus: „Eine dritte strauchartige Art von *Lithothamnium* mit glatter, glänzender Oberfläche und rosenrother Farbe, die ich *Lithothamnium tophiforme* (Fig. 14) nennen will, ist durch die sparrig abstehenden, geweihförmig verzweigten Äste ausgezeichnet. Das abgebildete kleine Exemplar findet sich im kais. Hof-Naturalien-Cabinette und stammt aus Grönland. Es scheint mir der *Millepora polymorpha* var. *tophiformis* Esper zu entsprechen. Die Elementartheile und ihre Zusammensetzung sind ganz nach dem Schema der vorigen Arten, nur dürften die unregelmässige Form

1) Trav. Soc. Imp. des Naturalistes de St. Petersb. Vol. XXXVII, Livr. 1. No. 7—8. (Russian with a summary in French).

2) F. Unger. Beiträge zur näheren Kenntniss des Leithakalkes, nentlich der vegetabilischen Einschlüsse und der Bildungsgeschichte derselben. — Denkschriften der kaiserlichen Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Classe. Bd. 14. Wien 1858. P. 21, t. V, fig. 14.

der Glieder und die Anastomosen der Röhren hier häufiger als in



Lithothamnion tophiforme Ung.
(After Unger).

jenen vorkommen“. However, the figure of the said plant drawn by Unger l. c., here reproduced, is consistent with the form with sporangia bisporic which corresponds in habit with *L. soriferum* f.

squarrosa, and which I have denominated *L. tophiforme* f. *divergens*. It is peculiarly this form of the species that occurs on the coasts of Greenland, whereas *L. soriferum*, in the limitation mentioned, is not yet known to have been found there. I, therefore, thought I had better adopt the denomination of *L. tophiforme* than give the plant a new name. There are several similar older species that are identified only from habit-figures with an incomplete description, and there is — as far as I know — no regulation in the rules of nomenclature rejecting the adoption of such a name.

Explanation of the Plates.

All the figures from photographs about $\frac{6}{7}$ natural size.

Pl. I.

Lithothamnion breviae Fosl.

- Fig. 1—2. Specimens from Skarsvaag near the North Cape.
 Fig. 3. Water-worn specimen, partly with new branchlets developed from the worn parts, seen from above. Kjelmö in Varangerfjord.
 Fig. 4. The type-specimen figured in Norw. Lithoth. pl. 2, fig. 1, seen from below. Kjelmö in Sydvaranger.

Pl. II.

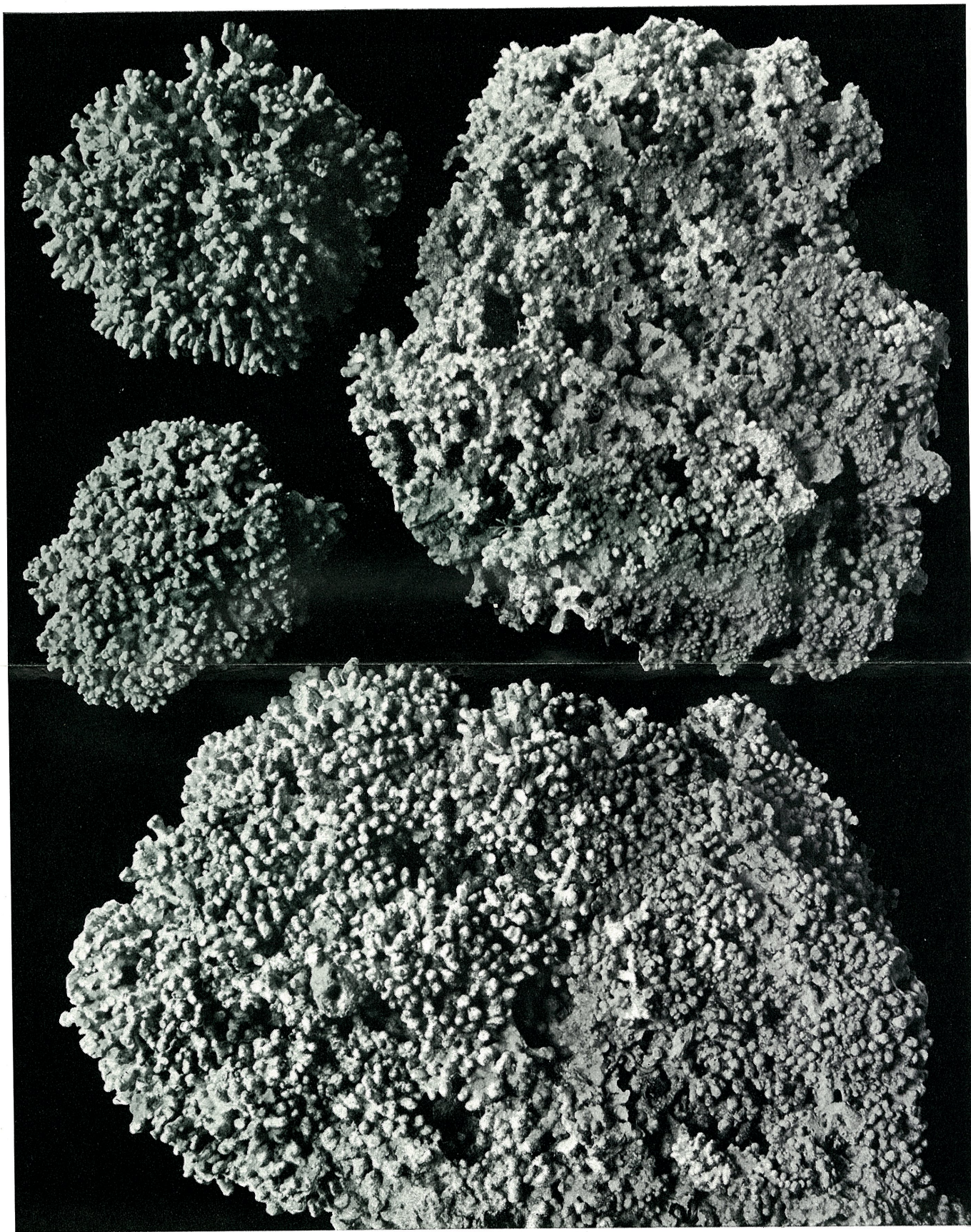
Lithothamnion vardöense Fosl.

- Fig. 1—9. Young and older specimens resembling in habit small nodules of *Lithoth. fornicatum*, in part water-worn. Balstad in Lofoten.
 Fig. 10. A much water-worn, compressed specimen, with new branches being developed only from parts of the edges. Balstad in Lofoten.
 Fig. 11. One half of a parted specimen approaching in habit certain forms of *Lithoth. glaciale*, in the central parts attacked by boring muscles. Mjaanes in Alten.
 Fig. 14. A dead specimen taken up by excavators in the harbour of Vardö.
 Fig. 12—13, 15. Specimens approaching in habit *Lithoth. tophi-forme* f. *sphaerica*. Svolveær in Lofoten.
-

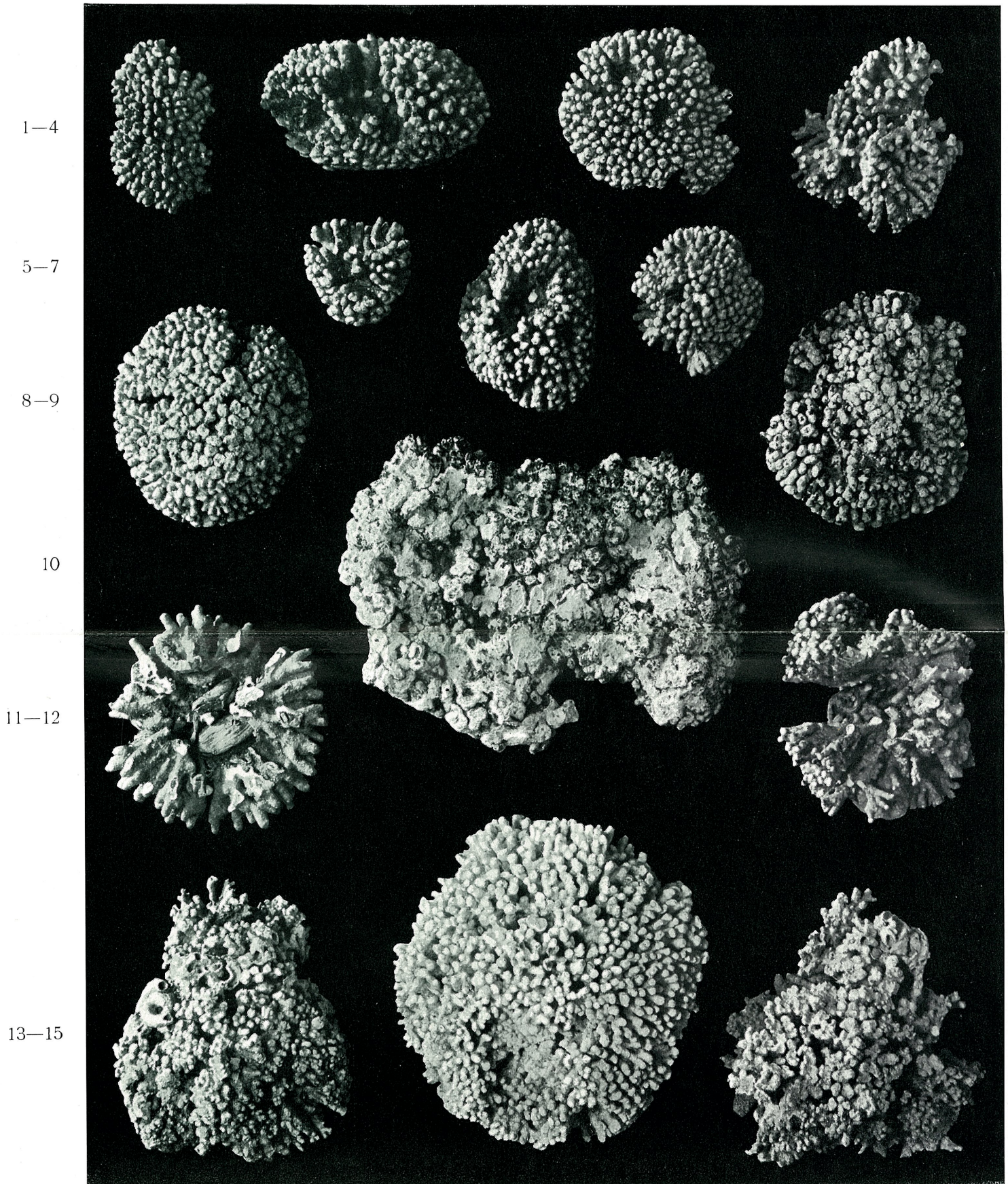
1, 3

2

4



Lithothamnion breviaxe Fosl.



Lithothamnion vardöense Fosl.