

VIDENSKAPSSELSKAPET I KRISTIANIA

RESULTATER
AV DE NORSKE STATSUNDERSTØTTEDE
SPITSBERGENEKSPEDITIONER

BIND I

Nr. 5

BERNT LYNGE:
LICHENS FROM SPITSBERGEN
I.

UTGIT PAA
DEN NORSKE STATS BEKOSTNING
VED SPITSBERGENKOMITEEN

REDAKTØR: ADOLF HOEL

KRISTIANIA
I KOMMISSION HOS JACOB DYBWAD
1924

Nr. 5

LICHENS FROM SPITSBERGEN

I

BY

BERNT LYNGE

Preface.

The lichens enumerated here were collected by several travellers: Mrs. HANNA RESVOLL DIESET (Now Mrs. RESVOLL HOLMSEN) in 1907 (R. D.). — Mission Isachsen sous la direction de S. A. S. Prince Albert Ier de Monaco.

Mr. ERIK ASPLUND in 1915 (ASPLUND). — Svenska geologiska Spetsbergsexpeditionen (The Swedish Geological Expedition); leader ERIK ANDERSSON (Now STENSIÖ):

Mr. JOHANNES LID in 1920 (LID). — Den norske Svalbardekspedition (The Norwegian State's Expedition to Svalbard [Spitsbergen and Bjørnøya]); leader ADOLF HOEL.

Mr. THOR IVERSEN and Mr. EINAR KOEFOED in 1923 (I. & K.) — Statens fiskeriundersøkelser ved Spitsbergen (The Norwegian State's Fishing Investigations at Spitsbergen); leader THOR IVERSEN.

The lichens, collected by Mrs. RESVOLL DIESET and JOHANNES LID, are the property of the Botanical Museum, in Kristiania, ERIK ASPLUND'S lichens belong to the Botanical Museum, in Upsala, and IVERSEN and KOEFOED'S plants to Bergens Museum.

Localities.

- | | | |
|------------------------------|---|--------|
| I. Sørkappøy: | Sørkapp,
Steinbruvatnet,
Mellvatnet,
Mosvatnet,
Laguna,
Trondsnes,
Harkavatnet,
Skålvatnet,
Skoltnes. | } LID. |
| II. Sørkapp-Hornsund: | Skjemmenes,
Kistefjell,
Sommerfelt Bay,
Båthamna,
Øylandet. | } LID. |

II. Sørkapp-Hornsund:	Klubben, Olsokbreen, Olsokflyan, Trollosen, Fisnes, Bjørnbeinflyan, Plogen, Lids Fjell.	}	LID.
III. Dunøyan:			LID.
IV. Bellsund:	Recherche Bay, Forsblads Hamn, Bravais Fjell, Annas Fjell, Louisefjell, Stordalen, Kapp Kjellström, Davisdalen.	}	LID.
V. Isfjorden:	Green Harbour, Longyeardalen, Hiorthamn, Kapp Boheman.	}	LID.
	Coles Bay, Kapp Boheman, Sassen Bay,	}	RESVOLL DIESET.
	Linnévatnet, Congressdalen, Kapp Bjona, Sassendalen	}	IVERSEN and KOEFOED.
	Bjørndalen, Advent Bay.	}	ASPLUND.
VI. St. Johns Bay:	Konowfjellan.		IVERSEN and KOEFOED.
VII. Prins Karls Forland:	Richards Lagune.		IVERSEN and KOEFOED.
VIII. Kings Bay-Magdalena Bay:	Ny-Ålesund. Kings Bay, Cross Bay, De 7 Isfjell, Hamburger Bay, Magdalena Bay.	}	LID.
	Diesetsletta, Lundtvedts Fjell.	}	RESVOLL DIESET.
	Diesetsletta, Lundtvedts Fjell.	}	IVERSEN and KOEFOED.
IX. North Coast:	Brucepynten, Red Bay.		IVERSEN and KOEFOED.

Acarospora MASS.1. *Acarospora molybdina* (WBG.) MASS.

IV. Bellsund: At the foot of Bravais Fjell (LID).

Alectoria ACH.2. *Alectoria jubata* (L.) NYL. f. *chalybeiformis* (L.).

- I. Sørkappøy: Steinbruvatnet and at the Laguna (LID).
- II. Sørkapp-Hornsund: In a rookery on Olsokflyan (LID).
- V. Isfjorden: Between Advent Bay and the outlet of Bjørndalen (ASPLUND).

3. *Alectoria nigricans* (ACH.) NYL.

- II. Sørkapp-Hornsund: At the foot of the Kistefjell, at Skjemmenes and at the rookery on Olsokflyan (LID).
- IX. North Coast: Brucepynten in Red Bay (I. & K.).

Bacidia (De NOTRS.) A. ZAHLBR.4. *Bacidia atrosanguinea* (SCHAER.) TH. FR.var. *muscorum* (SW.) TH. FR.

VIII. Kings Bay-Magdalena Bay: Cross Bay on a moraine (R. D.).

Biatorella (De NOTRS.) TH. FR.5. *Biatorella coracina* (SOMRFT).

- II. Sørkapp-Hornsund: At Båthamna in Sommerfelt Bay, and at Bjørnbeinflyan (LID).

Blastenia (MASS.) TH. FR.6. *Blastenia cinnamomea* (TH. FR.).

- I. Sørkappøy: Trondsnes (LID).
- V. Isfjorden: Longyeardalen, on *Andreaea* sp. (LID).

7. *Blastenia rupestris* (SCOP.) A. ZAHLBR.

- II. Sørkapp-Hornsund: Fisnes and Bjørnbeinflyan (LID).

8. *Blastenia terricola* (ANZI).

II. Sørkapp-Hornsund: Bjørnbeinflyan (LID).

9. *Blastenia tetraspora* (NYL.) TH. FR.

V. Isfjorden: Longyeardalen (LID).

Buellia De NOTRS.10. *Buellia coniops* (WBG.) TH. FR.

I. Sørkappøy: At Trondsnes, at the Laguna and at Skoltnes (LID).

II. Sørkapp-Hornsund: On a river-bank north of Olsokbreen (LID).

IV. Bellsund: At the foot of Bravais Fjell (LID).

11. *Buellia disciformis* (FR.) DEICHM. BRANTH & ROSTRUP.
var. *muscorum* (SCHAER.) VAIN.

V. Isfjorden: Longyeardalen (LID).

Caloplaca TH. FR.12. *Caloplaca elegans* (LINK) TH. FR.(p. m. p. var. *tenuis* (WBG.) TH. FR.)

II. Sørkapp-Hornsund: At a rookery on Olsokflyan, and at Fisnes (LID).

III. Dunøyen (LID).

IV. Bellsund: At the foot of Bravais Fjell (LID).

V. Isfjorden: Sassendalen, on a raised beach (I. & K.), and at Kapp Bjona (I. & K.).

VIII. Kings Bay-Magdalena Bay: Magdalena Bay and De 7 Isfjell (R. D.).

13. *Caloplaca gilva* (HOFFM.) A. ZAHLBR.

II. Sørkapp-Hornsund: Plogen (LID).

14. *Caloplaca Jungermanniae* (VAHL) TH. FR.

II. Sørkapp-Hornsund: At a rookery on Olsokflyan (LID).

15. *Caloplaca stillicidiorum* (HORNEM.).

I. Sørkappøy: Trondsnes (LID).

16. *Caloplaca* cfr. *vitellinula* (NYL.) OLIV.

II. Sørkapp-Hornsund: Bjørnbeinflyan (LID).

Dr. MALME, Stockholm, suggested this determination. Habitually the Spitsbergen plant agrees entirely with NORRLIN et NYLANDER Herb. Lich. Fenn. No. 271 (*Lecanora vitellinula*), but there is a considerable difference with respect to the spores: Spitsbergen plant: narrow spores with their cell-rooms not distantly polar, $8-10,5 \times 4,5-5 \mu$, in

N. et N. No. 271, the spores are larger and especially broader: 10—13 \times 7—8, with distant cell-rooms, the spores are typically "polari-dyblastae." HARMAND Lich. France pag. 841 writes: "spores polocaelées, à loges parfois très rapprochées, 9—14 \times 4,5—7 μ "; indicating narrower spores.

Calloporisma vitellinula ARNOLD Lich. Exsic 923 has a darker disk than the formerly mentioned plants.

There is evidently much confusion about this species. I have not seen NYLANDER's authentic plants.

I have had no opportunity of seeing *Placodium murorum* var. *obliterata*, Vainio Pitlekai pag. 63 (spores 12—14 \times 5—6 μ).

Caloplaca pyracea from Vendomkap, Ellesmereland, (DARBISHIRE Lichens in Sec. Norw. Arct. Exp. Fram, pag. 31, is *C. Jungermanniae* var. *subolivacea*.

Candelariella MÜLL. ARG.

17. *Candelariella cerinella* (FLK.) A. ZAHLBR.

- I. Sørkappøy: Trondsnes (LID).
- IV. Bellsund: Bravais Fjell (LID).
- V. Isfjorden: Kapp Bjona (I. & K.).

Young apothecia should be examined, old apothecia contain often only empty asci.

18. *Candelariella vitellina* (EHRH.) MÜLL. ARG.

- I. Sørkappøy: Trondsnes (LID).
- II. Sørkapp-Hornsund: Near a spring containing sulphuretted hydrogen on Olsokflyan, Bjørnbeinflyan, and Fisnes (LID).

Cetraria ACH.

19. *Cetraria cucullata* (BELL.) ACH.

- IV. Bellsund: At the foot of Bravais Fjell (LID).
- VIII. Kings Bay-Magdalena Bay: Cross Bay; De 7 Isfjell (the third), and Nunatak in Hamburgerbreen at Hamburger Bay (R. D.).

20. *Cetraria Delisei* (BORY) TH. FR.

Syn. *Cetraria hiascens* (FR.) TH. FR.

- I. Sørkappøy: Sørkapp, cairn west of Steinbruvatnet, Mellvatnet, at the Laguna, Harkavatnet, Trondsnes, and Skålvatnet. (LID).
- II. Sørkapp-Hornsund: Skjemmenes, at the foot of the Kistefjell, Øyrlandet, rookery on Olsokflyan, and Bjørnbeinflyan (LID).
- V. Isfjorden: Coles Bay and Kapp Boheman (R. D.).
- VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).
- VIII. Kings Bay-Magdalena Bay: Kings Bay and Cross Bay (R. D.), and Diesetsletta (I. & K.).

21. *Cetraria hepaticon* (ACH.) VAIN.

- I. Sørkappøy: Mellvatnet, at the Laguna and at Skålvatnet (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell, River-bank north of Olsokflyan, and at Bjørnbeinflyan (LID).

22. *Cetraria islandica* (L.) ACH.

- VIII. Kings Bay-Magdalena Bay: Cross Bay, and De 7 Isfjell (the 5th), (R. D.).

23. *Cetraria nivalis* (L.) ACH.

- II. Sørkapp-Hornsund: At the foot of the Kistefjell, rookery on Olsokflyan, and Fisnes (LID).
- V. Isfjorden: North side of Linnévatn, Kapp Bjona (I. & K.).
- VI. St. Johns Bay: Konowfjellan on the north side of the fjord (I. & K.).
- VIII. Kings Bay-Magdalena Bay: Cross Bay (R. D.), Diesetsletta and the promontory on the north side of the lagune near Lundtvedts Fjell (I. & K.).
- IX. North Coast: Brucepynten on the east side of Red Bay (I. & K.).

24. *Cetraria tenuifolia* (RETZ.) VAIN.

Syn. *Cetraria crispa* (ACH.) NYL.

- I. Sørkappøy: Steinbruvatnet, Mellvatnet, at the Laguna, Harkavatnet, and Skålvatnet (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell, in a rookery on Olsokflyan, near a spring containing sulphuretted hydrogen on Olsokflyan, Fisnes, Plogen, and Lids Fjell (LID).
- VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).
- VIII. Kings Bay-Magdalena Bay: The promontory on the north side of the lagune near Lundtvedts Fjell (I. & K.).
- IX. North Coast: Brucepynten in Red Bay (I. & K.).

25. *Cetraria tenuissima* (L.) VAIN.

- I. Sørkappøy: Skålvatnet (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

Cladonia (HILL.) VAIN.26. *Cladonia coccifera* (L.) WILLD.
var. *pleurota* (FLK.) SCHAEER.

- V. Isfjorden: Congressdalen (I. & K.).

var. *stematina* ACH.

- I. Sørkappøy: At the Laguna (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).
- V. Isfjorden: Coles Bay (R. D.).
- VI. St. Johns Bay: Konowfjellan on the north side of the fjord (I. & K.).

27. *Cladonia deformis* HOFFM.

V. Isfjorden: Congressdalen (I. & K.).

28. *Cladonia gracilis* (L.) WILLD.

var. *chordalis* (FLK.) SCHAER.

II. Sørkapp-Hornsund: At the foot of the Kistefjell, rookery on Olsokflyan, and at Fisnes (LID).

VIII. Kings Bay-Magdalena Bay: De 7 Isfjell and nunatak in Hamburgerbreen (R. D.).

var. *elongata* (JACQ.) HOFFM.

I. Sørkappøy: Harkavatnet (LID).

II. Sørkapp-Hornsund: Øyrlandet, rookery on Olsokflyan, and Fisnes (LID).

29. *Cladonia lepidota* NYL.

var. *stricta* (NYL.) D. R.

Syn. *Cladonia gracilescens* (FLK.) VAIN. var. *cerasphora* (VAIN).

I. Sørkappøy: Sørkapp, at the Laguna, and at Skålvatnet (LID).

30. *Cladonia mitis* SANDST.

I. Sørkappøy: Mellvatnet, Harkavatnet, and Skålvatnet (LID).

II. Sørkapp-Hornsund: At the foot of the Kistefjell, and at Plogen 350 m. s. m. (LID).

IV. Bellsund: Kapp Kjellström, 300 m. s. m. (LID).

VIII. Kings Bay-Magdalena Bay: Cross Bay, De 7 Isfjell and nunatak in Hamburgerbreen (R. D.).

31. *Cladonia pyxidata* (L.) FR.

var. *neglecta* (FLK.) MASS.

I. Sørkappøy: Harkavatnet (LID).

II. Sørkapp-Hornsund: At the foot of the Kistefjell, rookery on Olsokflyan, near a spring containing sulphuretted hydrogen, and at Fisnes (LID).

V. Isfjorden: Coles Bay (R. D.).

VI. St. Johns Bay: Konowfjellan on the north side of the fjord (I. & K.).

var. *Pocillum* (ACH.) FLOT.

II. Sørkappøy: Øyrlandet, and rookery on Olsokflyan (LID).

32. *Cladonia uncialis* (L.) WEB.

I. Sørkappøy: Cairn west of Steinbruvatnet (LID).

II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

IV. Bellsund: Kapp Kjellström, 300 m. s. m. (LID).

VIII. Kings Bay-Magdalena Bay: Nunatak in Hamburgerbreen (R. D.).

Collema (HILL.) A. ZAHLBR.33. *Collema ceranoides* (SCHAER.).

- VIII. Kings Bay-Magdalena Bay: Crossbay (R. D.) and Diesetsletta (I. & K.).

34. *Collema flaccidum* ACH.

- II. Sørkapp-Hornsund: Rookery on Olsokflyan (LID).

35. *Collema multifidum* (SCOP.) SCHAER.

- II. Sørkapp-Hornsund: Skjemmenes and rookery on Olsokflyan (LID).

36. *Collema polycarpon* NYL.

- II. Sørkapp-Hornsund: Rookery on Olsokflyan (LID).

Dermatocarpon (ESCHW.) TH. FR.37. *Dermatocarpon aquaticum* A. ZAHLBR.

- II. Sørkapp-Hornsund: At a spring containing sulphuretted hydrogen on Olsokflyan (LID).

38. *Dermatocarpon rufescens* (ACH.) A. ZAHLBR.

- II. Sørkapp-Hornsund: Skjemmenes (LID).

Gyrophora ACH.39. *Gyrophora arctica* ACH.

- I. Sørkappøy: Trondsnes, cairn west of Steinbruvatnet, Skålvatnet, at the Laguna, and at Sørkapp (LID).
 II. Sørkapp-Hornsund: At the foot of the Kistefjell, on a river-bank north of Olsokbreen, and at a spring containing sulphuretted hydrogen on Olsokflyan (LID).
 V. Isfjorden: Between Advent Bay and the outlet of Bjørndalen (ASPLUND).
 VIII. Kings Bay-Magdalena Bay: Cross Bay and De 7 Isfjell (R. D.).

40. *Gyrophora crustulosa* ACH.

- IV. Bellsund: Summit of a mountain at Kapp Kjellström, 300 m. s. m. (LID).

41. *Gyrophora cylindrica* (L.) ACH.

- I. Sørkappøy: Mellvatnet, cairn west of Steinbruvatnet, Skålvatnet, and at the Laguna (LID).
 II. Sørkapp-Hornsund: Plogen 500 m. s. m. and at Båthamna in Sommerfelt Bay (LID).
 VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).

var. *Delisei* NYL.

- I. Sørkappøy: Cairn west of Steinbruvatnet (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell, and at Plogen, 500 m. s. m. (LID).

42. *Gyrophora erosa* (WEB.) ACH.

- I. Sørkappøy: Mellvatnet, Steinbruvatnet, Trondsnes, Skålvatnet, at the Laguna, and Sørkapp (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell, and at Båthamna in Sommerfelt Bay (LID).
- V. Isfjorden: Between Advent Bay and the outlet of Bjørndalen (ASPLUND).

43. *Gyrophora hyperborea* ACH.

- I. Sørkappøy: Mellvatnet, Trondsnes, cairn west of Steinbruvatnet, at the Laguna, Skålvatnet, Skoltnes, Steinbruvatnet, and Sørkapp (LID).
- II. Sørkapp-Hornsund: At the foot of the Kistefjell, on a river-bank north of Olsokbreen, Plogen 500 m. s. m., Bjørnbeinflyan, and at Båthamna in Sommerfelt Bay (LID).
- V. Isfjorden: Between Advent Bay and the outlet of Bjørndalen (ASPLUND).

Some of ASPLUND'S plants are coarse and large, but the dark colour of the under side distinguishes them from *G. arctica*.

44. *Gyrophora proboscidea* (L.) ACH.

- I. Sørkappøy: Mellvatnet, Steinbruvatnet, at the Laguna, Sørkapp, and Trondsnes (LID).
- II. Sørkapp-Hornsund: Plogen, 500 m. s. m. (LID).
- VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).

Lecania (MASS.) TH. FR.45. *Lecania aiopspila* (WEB.) TH. FR.

- II. Sørkapp-Hornsund: Skjemmenes (LID).

Lecanora ACH.46. *Lecanora alpina* SOMRFT.

- II. Sørkapp-Hornsund: Skjemmenes (LID).

47. *Lecanora badia* (PERS.) ACH.

- I. Sørkappøy: Skoltnes (LID).

48. *Lecanora castanea* (HEPP) TH. FR.

- V. Isfjorden: Coles Bay (R. D.).
Spores 20—28 · 6—8 μ .

49. *Lecanora cinereorufescens* (ACH.) TH. FR.

- I. Sørkappøy: At the Laguna and at Skålvatnet (LID).

50. *Lecanora dispersa* FLK.

- IV. Bellsund: Annas Fjell (LID).

51. *Lecanora epibrya* (ACH.) NYL.

- II. Sørkapp-Hornsund: Øyrlandet (LID).
VIII. Kings Bay-Magdalena Bay: Ny-Ålesund (LID), Cross Bay on a moraine (R. D.).

52. *Lecanora gelida* (L.) ACH.

- II. Sørkapp-Hornsund: Fisnes (LID).

53. *Lecanora gibbosa* (ACH.) NYL.

var. *squamata* (FW.) TH. FR. Spitsb. 1867 pag. 23.

- I. Sørkappøy: Mellvatnet, and at Trondsnes (LID).
II. Sørkapp-Hornsund: Fisnes and Bjørnbeinflyan (LID).
V. Isfjorden: Kapp Bjona (I. & K.).

This is an excellent proper species, quite distinct from *Lecanora gibbosa*. It is very common on Novaya Zemlya, and evidently also on Spitsbergen. Dr. ZAHLBRÜCKNER, Vienna, will determine my material of the genus *Lecanora* from Novaya Zemlya, and he will clear up the question in his work.

54. *Lecanora Hageni* (ACH.) KBR.

- II. Sørkapp-Hornsund: Fisnes (LID).

55. *Lecanora intricata* ACH.

- I. Sørkappøy: At the Laguna and at Trondsnes (LID).
II. Sørkapp-Hornsund: Fisnes (LID).

56. *Lecanora melanophthalma* (DC.).

- II. Sørkapp-Hornsund: River north of Olsokbreen, and Fisnes (LID).
IV. Bellsund: Davisdalen (LID).
VIII. Kings Bay-Magdalena Bay: Magdalena Bay (R. D.).

57. *Lecanora polytropha* (EHRH.) NYL.

- I. Sørkappøy: At the Laguna, Trondsnes, Skålvatnet and Skoltnes (LID).
II. Sørkapp-Hornsund: Fisnes and Bjørnbeinflyan (LID).
IV. Bellsund: Davisdalen (LID).
V. Isfjorden: Kapp Bjona (I. & K.).

58. *Lecanora thulensis* TH. FR.
var. *feracissima* TH. FR.

IV. Bellsund: Forsblads Hamn (LID).

59. *Lecanora verrucosa* (ACH.) LAUR.

II. Sørkapp-Hornsund: Olsokflyan, near a spring containing sulphuretted hydrogen, and on river-bank north of Olsokbreen (LID).

Lecidea (ACH.) TH. FR.

60. *Lecidea alpestris* SOMRFT.

I. Sørkappøy: Skålvatnet (LID).

The plant was small, and the apothecia juvenile. The determination is not quite certain.

61. *Lecidea armeniaca* (DC.) TH. FR.

II. Sørkapp-Hornsund: Trollosen (LID).

The red KOH-colour is very distinct. The colour of the thallus is "ochroleucus", not "ochraceus" or "rufescens".

62. *Lecidea atrobrunnea* (RAM.) SCHAER.

II. Sørkapp-Hornsund: Olsokflyan (LID).

63. *Lecidea auriculata* TH. FR.
var. *evoluta* TH. FR.

VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).
var. *diducens* (NYL.) TH. FR.

II. Sørkapp-Hornsund: Bjørnbeinflyan (LID).

64. *Lecidea cyanea* (ACH.) TH. FR.
β *polaris* TH. FR.

II. Sørkapp-Hornsund: Olsokbreen (LID).

65. *Lecidea Dicksonii* ACH.

I. Sørkappøy: Sørkapp, Steinbruvatnet, Mellvatnet, at the Laguna, Trondsnes and Skålvatnet (LID).

II. Sørkapp-Hornsund: Bjørnbeinflyan (LID).

IV. Bellsund: At the foot of Bravais Fjell (LID).

VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).

66. *Lecidea elata* SCHAER.

I. Sørkappøy: Trondsnes, on the beach (LID).

II. Sørkapp-Hornsund: Skjemmenes, Olsokflyan, river north of Olsokbreen, and Fisnes (LID).

67. *Lecidea flavocaerulescens* HORNEM.

- I. Sørkappøy: Mellvatnet and at the Laguna (LID).
 V. Isfjorden: Kapp Bjona (I. & K.).

68. *Lecidea glomerulosa* DC.

var. *Wulfenii* (HEPP) VAIN.

Syn. *Lecidea elaeochroma* var. *muscorum* (WULF.) TH. FR.

- V. Isfjorden: Sassen Bay (R. D.).
 VIII. Kings Bay-Magdalena Bay: Cross Bay on a moraine (R. D.).

69. *Lecidea goniophila* FLK.

var. *incongrua* (NYL).

Syn. *Lecidea elaeochroma* var. *pitularis* (DAV.?) TH. FR.

- II. Sørkapp-Hornsund: Fisnes (LID).
 IV. Bellsund: Davisdalen (LID).
 V. Isfjorden: Kapp Bjona (I. & K.).

70. *Lecidea impavida* TH. FR.

- I. Sørkappøy: Skålvatnet (LID).
 II. Sørkapp-Hornsund: River north of Olsokbreen and Bjørnbeinflyan (LID).

71. *Lecidea neglecta* NYL.

- I. Sørkappøy: At the Laguna, and at Skoltnes (LID).

72. *Lecidea pantherina* (ACH.) TH. FR.

- I. Sørkappøy: Steinbruvatnet, at the Laguna, Trondsnes, Skålvatnet, and Skoltnes (LID).
 II. Sørkapp-Hornsund: Øyrlandet, north side of Olsokbreen, and Fisnes (LID).
 VIII. Kings Bay-Magdalena Bay: Ny-Ålesund (LID).

There were several specimens in the collection, it is supposed to be common in Spitsbergen as in other Arctic countries.

73. *Lecidea pauperula* TH. FR.

- I. Sørkappøy: Mellvatnet, at the Laguna, at Trondsnes and at Skålvatnet (LID).
 II. Sørkapp-Hornsund: Øyrlandet (LID).

74. *Lecidea pungens* (KBR.)

- I. Sørkappøy: Trondsnes and Skoltnes (LID).
 II. Sørkapp-Hornsund: Rookery on Olsokflyan, and Plogen (LID).

75. *Lecidea speirea* ACH.

- I. Sørkappøy: Skålvatnet (LID).
 II. Sørkapp-Hornsund: Skjemmenes and Fisnes (LID).

76. *Lecidea subfumosa* (ARN.) ZWACK.

Syn. *Lecidea atrobrunnea* (RAM.) SCHAER. in Spitsbergen literature.

- II. Sørkapp-Hornsund: River north of Olsokbreen (LID).
 V. Isfjorden: Kapp Bjona (I. & K.).

77. *Lecidea vernalis* (L.)ACH.

- VIII. Kings Bay-Magdalena Bay: Cross Bay (R. D.).

Lobaria (SCHREB.) HUE.78. *Lobaria linita* (ACH.) VAIN.

- II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

Lopadium KBR.79. *Lopadium pezizoideum* (ACH.) KBR.

var. *coralloidea* NYL.

- I. Sørkappøy: Skålvatnet (LID).

Ochrolechia MASS.80. *Ochrolechia tartarea* (L.) MASS.

- I. Sørkappøy: Cairn at Steinbruvatnet, Mellvatnet, at the Laguna, Skålvatnet, and Skoltnes (LID).
 II. Sørkapp-Hornsund: At the foot of the Kistefjell, and Fisnes (LID).
 V. Isfjorden: Longyeardalen (LID), and Coles Bay (R. D.).
 VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).
 VIII. Kings Bay-Magdalena Bay: Diesetsletta, and promontory on the north side of the lagune near Lundtvedts Fjell (I. & K.).

This lichen which is almost ubiquitous in Arctic countries, presents the common variation. The plants from Kistefjell are var. *frigida*.

Pannaria DEL.81. *Pannaria elaeina* (WBG.) TH. FR.

- II. Sørkapp-Hornsund: Plogen, 350 m. s. m. (LID).

82. *Pannaria Hookeri* (HOOK.) NYL.

- II. Sørkapp-Hornsund: Plogen, 350 m. s. m. (LID).

Parmelia (ACH.) DE NOTRS.83. *Parmelia alpicola* TH. FR.

- II. Sørkapp-Hornsund: At the foot of the Kistefjell and at Båthamna in Sommerfelt Bay (LID).
 V. Isfjorden: Between Advent Bay and the outlet of Bjørndalen (ASPLUND).

84. *Parmelia intestiniformis* (VILL.) ACH.

V. Isfjorden: Sassendalen (I. & K.).

85. *Parmelia pubescens* (L.) VAIN.

- I. Sørkappøy: Cairn west of Steinbruvatnet, Mellvatnet, at the Laguna, Harkavatnet and Skålvatnet (LID).
 II. Sørkapp-Hornsund: At the foot of the Kistefjell, at Båthamna in Sommerfelt Bay, river north of Olsokbreen, near a spring containing sulphuretted hydrogen on Olsokflyan, and Bjørnbeinflyan (LID).

The plants were well developed, var. *minuscula* was not found in the collection.

86. *Parmelia saxatilis* (L.) ACH.

- I. Sørkappøy: Cairn west of Steinbruvatnet, and Skålvatnet (LID).
 II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

Peltigera WILLD.87. *Peltigera aphthosa* (L.) HOFFM.

- II. Sørkapp-Hornsund: Fisnes (LID).
 IV. Bellsund: Davisdalen (LID).

88. *Peltigera canina* (L.) HOFFM.

(incl. var. *rufescens* (HOFFM.).)

- I. Sørkappøy: Steinbruvatnet (LID).
 II. Sørkapp-Hornsund: In a rookery on Olsokflyan and at Fisnes (LID).
 IV. Bellsund, several places (LID).
 V. Isfjorden: Sassen Bay (R. D.).
 VIII. Kings Bay-Magdalena Bay: Nunatak in Hamburgerbreen (R. D.).

I have formerly treated the "*rufescens*" as a proper species (LYNGE Studies Norw. Lich. pag. 124), although with much doubt. But the more I have seen of it, the more my doubts have increased. I now find it impossible to maintain it as a proper species, at least in Arctic countries. In southern countries the differentiation is evidently more advanced.

All the Spitsbergen plants were of a brownish colour, compared with NORRL. & NYL. Herb. Lich. Fenn. No. 569. The plant from Hamburgerbreen had large rounded lobes, was not very crisp and almost appressed to the substratum, it grew on mossy ground and resembles brownish plants of *Peltigera canina* var. *membranacea* as seen in our forests. All the other plants are more microphylline, the plants from the rookery are typically var. *rufescens* and the others are intermediate. In my opinion they should be rather classified to var. *rufescens* than to the type of *Peltigera canina*.

89. *Peltigera polydactyla* (NECK.) HOFFM.

- II. Sørkapp-Hornsund: Near a spring containing sulphuretted hydrogen on Olsokflyan (LID).

90. *Peltigera scabrosa* TH. FR.

- V. Isfjorden: Hiorthamn (LID).

Pertusaria DC.91. *Pertusaria bryontha* (ACH.) NYL.

- II. Sørkapp-Hornsund: Skjemmenes (LID).

The plants were sterile and not well developed.

92. *Pertusaria oculata* (DICKS.) TH. FR.

- II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

Physcia (SCHREB.) VAIN.93. *Physcia caesia* (HOFFM.) NYL.

- II. Sørkapp-Hornsund: Olsokflyan (LID).

- V. Isfjorden: Hiorthamn (LID).

The first mentioned plants are typically subsp. *ventosa* LYNGE, the latter are more intermediate between the type of the species and subsp. *ventosa*, their colour is the bluish-violet or greyish-violet, which is so common in alpine plants.

The lichen vegetation on the stone from Olsokflyan indicates a hard struggle for existence. Evidently the stone first belonged to *Rinodina milvina*. But this plant is overgrown by *Lecanora melanophthalma*, *Physcia caesia* and *Gyrophora arctica*. *Candelariella vitellina*, which must be a quick grower, settles everywhere at its own pleasure, except on the large *Gyrophorae*. *Physcia caesia* cannot maintain itself against *Lecanora melanophthalma*. This is easily understood, for *Ph. caesia* is strictly appressed to the substratum whereas the latter species has almost free margin. The powerful *Gyrophorae* with quite free margins kill everything.

94. *Physcia muscigena* (ACH.) NYL.

- II. Sørkapp-Hornsund: Olsokflyan (LID).

- V. Isfjorden: Hiorthamn (LID).

95. *Physcia sciastra* (ACH.).

f. *lithotea* (ACH.) LYNGE comb. nova.

Syn. *Physcia lithotea* (ACH.) NYL.

- II. Sørkapp-Hornsund: Fisnes (LID).

- III. Dunøyen (LID).

The name *sciastra* was used as a specific name as early as 1803 (ACHARIUS Methodus Supplementum pag. 49). The name *lithotea* was used by ACHARIUS in the same work as a variety name: *Parmelia cyclozelis* var. *lithotea* ACH., as a specific name by NYLANDER as late as 1877 (De gonidiid, Flora 1877). The *lithotea* is the type of the species, the *sciastra* only a less isidiate forma.

96. *Physcia tribacia* (ACH.).

II. Sørkapp-Hornsund: Several places on Olsokflyan (LID).

Placynthium (ACH.) HARM.

97. *Placynthium asperellum* (ACH.).

II. Sørkapp-Hornsund: Fisnes, Bjørnbeinflyan and Plogen, at the last place, 350 m. s. m. (LID).

Polyblastia (MASS.) LÖNNR.

98. *Polyblastia hyperborea* TH. FR.

II. Sørkapp-Hornsund: Plogen, 350 m. s. m. (LID), Fisnes (LID).

There is hardly any thallus visible in the plants from Fisnes, in the other specimen the thallus is a little better developed. — The spores measured were quite uncoloured, rather multiloculated, and not large: 22—27 × 13—17 μ . This agrees well with the statements by TH. FRIES Lich. Arct. p. 267: 25—30 × 15—17. VAINIO writes (in Lich. Fenn. I, pag. 106) 30—45 × 16—20 μ . — ZAHLBRUCKNER unites this species with *P. intercedens* LÖNNR. (Catalogus I, pag. 148).

Psoroma (ACH.) NYL.

99. *Psoroma hypnorum* (DICKS.) HOFFM.

I. Sørkappøy: Skoltnes (LID).

V. Isfjorden: Longyeardalen (LID), Sassen Bay (R. D.) and Coles Bay (R. D.).

VIII. Kings Bay-Magdalena Bay: Cross Bay on a moraine (R. D.).

Rhizocarpon (RAM.) TH. FR.

100. *Rhizocarpon badioatrum* (FLK.) TH. FR.

I. Sørkappøy: Mosvatnet (LID).

II. Sørkapp-Hornsund: Fisnes (LID).

101. *Rhizocarpon chioneum* (NORM.) TH. FR.

II. Sørkapp-Hornsund: Båthamna in Sommerfelt Bay (LID).

102. *Rhizocarpon Copelandi* (KBR.) TH. FR.

I. Sørkappøy: Between Mellvatnet and Steinbruvatnet (LID).

Hymenium superne aeruginosum, 150—160 μ altum. Sporae nigrae, dyblastae, saepe corrugatae, 25—28 : 13—14 μ . Paraphyses distincte ramosae, apice non incrassatae.

The plant is not so well developed as usual in our country, a well known thing with Arctic lichens. The areolae are more discrete and paler of colour than usual.

103. *Rhizocarpon expallescens* TH. FR.

II. Sørkapp-Hornsund: Fisnes, Bjørnbeinflyan, and Plogen (LID).

This species is also represented in my Novaya Zemlya collection. It is evidently an Arctic species, found also in the Scandinavian mountains.

104. *Rhizocarpon geminatum* (FLOT.) KBR.

I. Sørkappøy: Trondsnes (LID).

II. Sørkapp-Hornsund: Fisnes, river north of Olsokbreen, Plogen 350 m. s. m., and Bjørnbeinflyan (LID).

105. *Rhizocarpon geographicum* (L.) DC.

I. Sørkappøy: Mellvatnet, Trondsnes, Steinbruvatnet, at the Laguna, Skålvatnet, and Sørkapp (LID).

II. Sørkapp-Hornsund: Fisnes, river north of Olsokbreen, Plogen 350 m. s. m., Bjørnbeinflyan and Øyrlandet (LID).

IV. Bellsund: Davisdalen (LID).

106. *Rhizocarpon grande* (FLK.) ARN.

I. Sørkappøy: Beach at Trondsnes (LID).

107. *Rhizocarpon jemtlandicum* MALME.

II. Sørkapp-Hornsund: Båthamna in Sommerfelt Bay (LID).

108. *Rhizocarpon polycarpum* (HEPP) TH. FR.

I. Sørkappøy: Skålvatnet, at the Laguna, and on the beach at Trondsnes (LID).

II. Sørkapplandet: Bjørnbeinflyan (LID).

VIII. Kings Bay-Magdalen Bay: Ny-Ålesund (LID).

Rinodina (MASS.) STIZ.

109. *Rinodina milvina* (WBG.) TH. FR.

II. Sørkapp-Hornsund: Near Olsokbreen, and Bjørnbeinflyan (LID).

Hypothecium incoloratum, paraphyses concretae, apice clavato-incrassatae, sporae 16—18 \times 8 μ , pycnoconidia recta, anguste ellipsoidea 3 μ longa.

Rinodina cacuminum was not found in the collection.

110. *Rinodina mniaraea* (ACH.) TH. FR.

V. Isfjorden: Longyeardalen (LID).

111. *Rinodina roscida* (SOMRFT.).

II. Sørkapp-Hornsund: Rookery on Olsokflyan (LID).

112. *Rinodina turfacea* (WBG.) TH. FR.

VIII. Kings Bay-Magdalena Bay: Cross Bay on a moraine (R. D.).

Solorina ACH.113. *Solorina bispora* NYL.

II. Sørkapp-Hornsund: Øyrlandet and Fisnes (LID).

114. *Solorina crocea* (L.) ACH.

II. Sørkapp-Hornsund: Skjemmenes (LID).

VII. Prins Karls Forland (R. D.), Island in Richards Lagune (I. & K.).

Sphaerophorus PERS.115. *Sphaerophorus globosus* (HUDS.) VAIN.

I. Sørkappøy: Steinbruvatnet, Mellvatnet, at the Laguna and at Skålvatnet (LID).

II. Sørkapp-Hornsund: At the foot of the Kistefjell (LID).

VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).

VIII. Kings Bay-Magdalena Bay: Cross Bay, De 7 Isfjell, and Hamburger Bay (R. D.).

Staurothele (NORM.) TH. FR.116. *Staurothele clopima* (WBG.) TH. FR.

V. Isfjorden: Kapp Bjona (I. & K.).

Sporae binae, obscurae, 45—50 × 18—20 μ , gonidia hymenialia bacillaria, recta vel leviter curvata.*Stereocaulon* SCHREB.117. *Stereocaulon alpinum* LAUR.

V. Isfjorden: Coles Bay, and Sassen Bay (R. D.), Kapp Bjona (I. & K.).

VI. St. Johns Bay: Konowfjellan (I. & K.).

VIII. Kings Bay-Magdalena Bay: Cross Bay and Hamburger Bay (R. D.).

118. *Stereocaulon denudatum* FLK.

I. Sørkappøy: Mellvatnet, at the Laguna and at Skålvatnet (LID).

IV. Bellsund: Davisdalen (LID).

VII. Prins Karls Forland: Island in Richards Lagune (I. & K.).

Thamnotia ACH.119. *Thamnotia vermicularis* (Sw.) ACH.

II. Sørkapp-Hornsund: Olsokflyan (LID).

V. Isfjorden: Advent Bay, on a mountain near Longyear City (ASPLUND).

Usnea (DILL.) PERS.120. *Usnea sulphurea* (KÖNIG) TH. FR.

IV. Bellsund: Louisefjell, 550 m. s. m. (abundant) and Davisdalen (LID).

Verrucaria PERS.121. *Verrucaria aractina* WBG.

II. Sørkapp-Hornsund: Skjemmenes, and Øyrlandet (LID).

In the first mentioned plant the thallus was poorly developed. I ventured the determination after the prominent apothecia, the spore size (ca. $16 \times 9 \mu$), and the J reaction of the nucleus: blue, not red.

122. *Verrucaria maura* WBG.

I. Sørkappøy: Beach at Trondsnes (LID).

II. Sørkapp-Hornsund: Fisnes (LID).

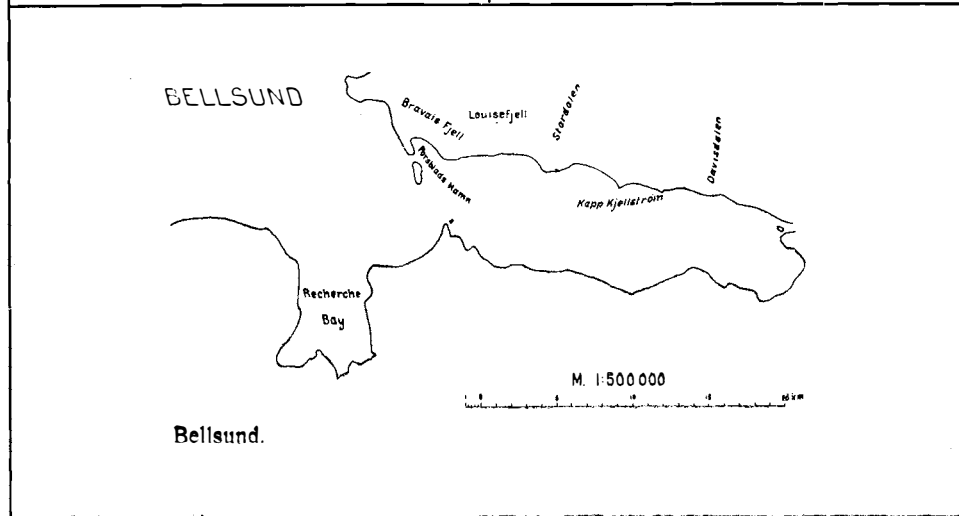
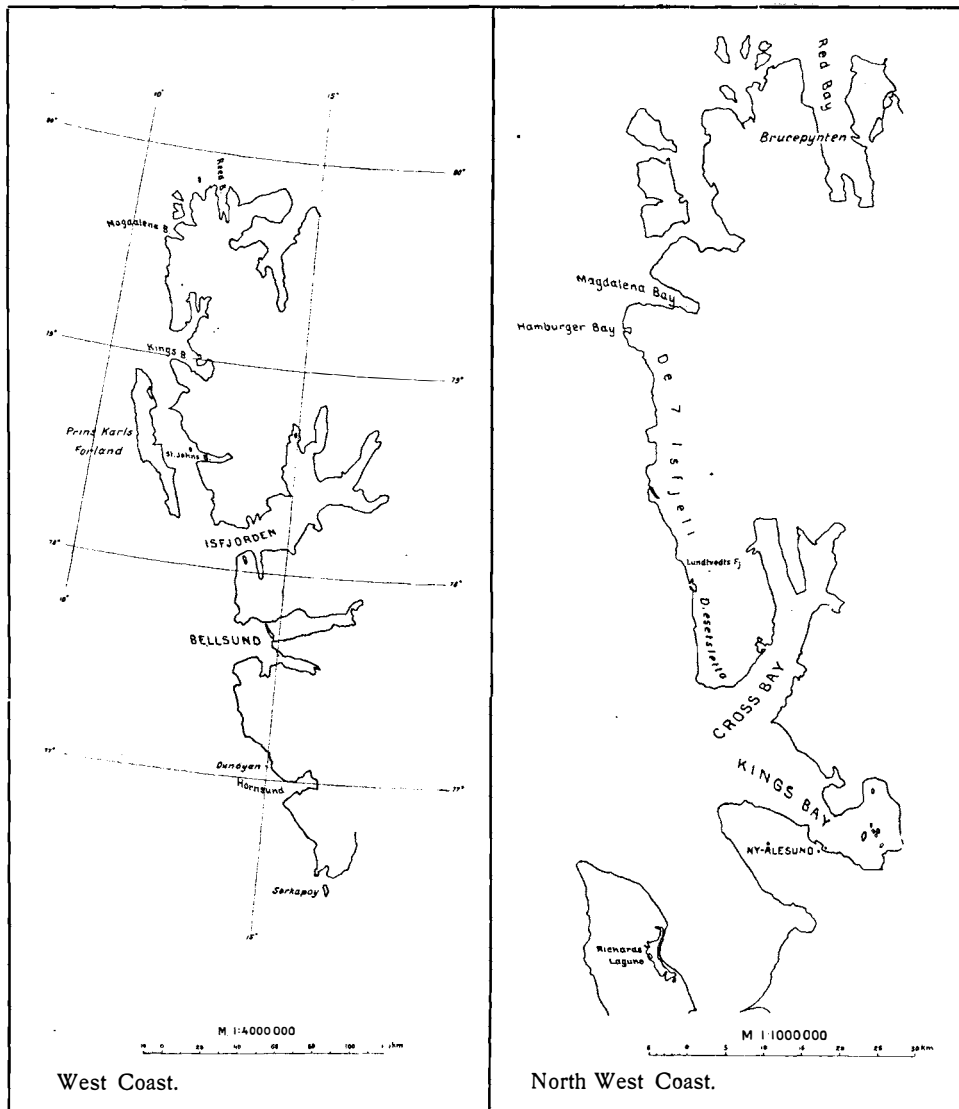
123. *Verrucaria striatula* WBG.

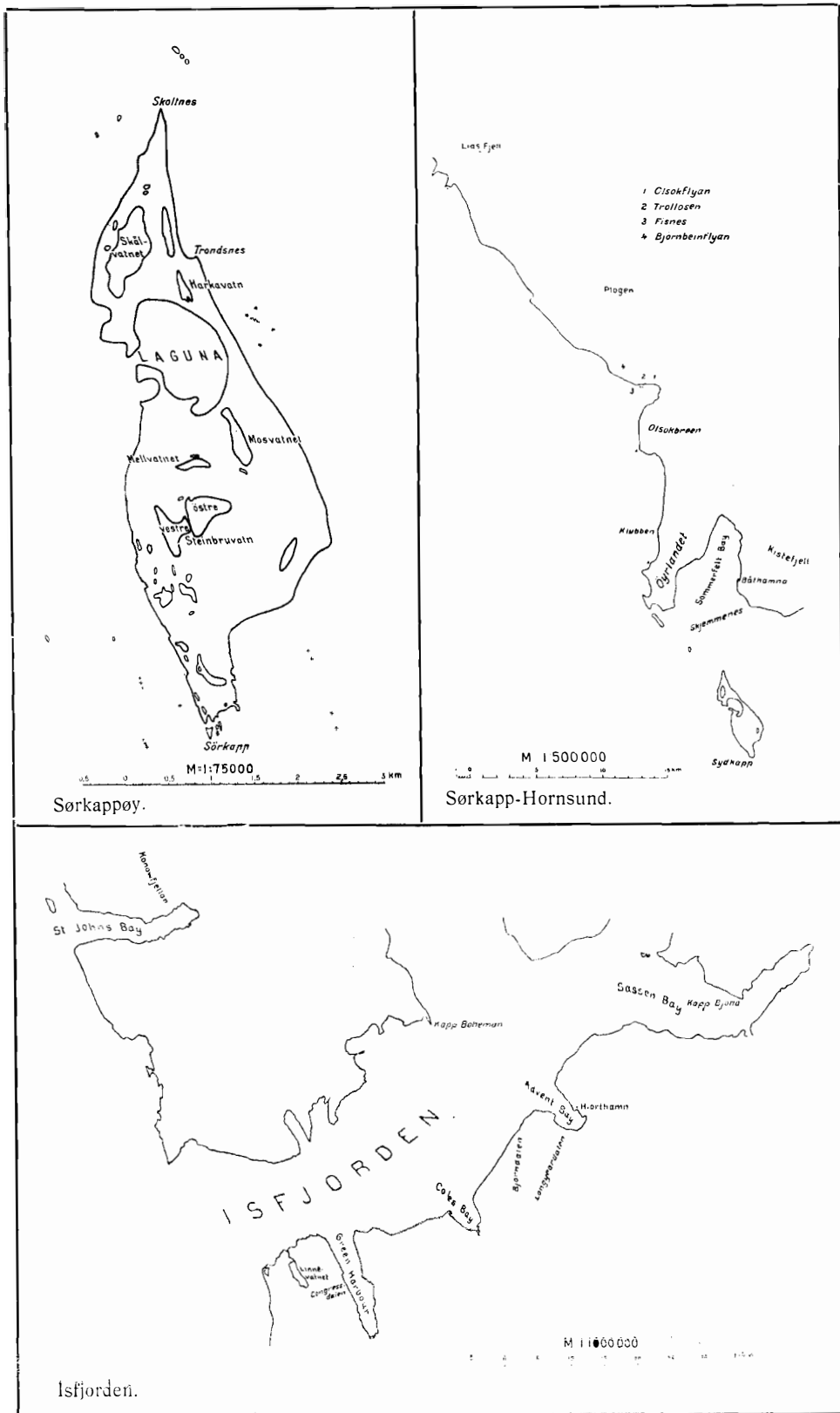
I. Sørkappøy: Trondsnes (LID).

The thallus is poorly developed, hardy "striate". The apothecia prominent, the spores little variable, $8 \times 5 \mu$ large.



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A. W. BRØGGERS BOKTRYKKERI A/S