

DET KONGELIGE DEPARTEMENT
FOR HANDEL, SJØFART, INDUSTRI, HÅNDVERK OG FISKERI

NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER
LEDER: ADOLF HOEL

MEDDELELSE Nr. 27

A. H. MAGNUSSON

THE LICHEN-GENUS
ACAROSPORA IN GREENLAND
AND SPITSBERGEN

Reprinted from
Nyt Magazin for Naturvidenskaberne
B. LXXV, 1935

OSLO
I KOMMISJON HOS JACOB DYBWAD
1935

The Lichen-Genus *Acarospora* in Greenland and Spitsbergen.

By

A. H. MAGNUSSON

(With 7 figures in the text)

During his expedition to North East Greenland in 1929 Prof. B. Lyngé, Oslo, collected a great number of *Acarospora*-species which were sent to me for revision or determination. To this collection was added a considerable number of specimens collected by Th. M. Fries (Th. Fr.) in West Greenland in 1871 and some from Spitsbergen in 1868. Other collections were made in Greenland by P. F. Scholander 1930, and in Spitsbergen by Lyngé 1926 and P. F. Scholander 1931. The supposition that the *Acarospora*-species of Greenland should resemble those of Northern Scandinavia has appeared to be wrong as there were no less than 8 species that could not be identified with those already known. And there seems to be several new species among the material which was too scanty to allow of a certain determination.

The specimens collected by Th. M. Fries belong to Naturhistoriska Riksmuseet, Stockholm, and those collected by Lyngé and Scholander to Botanisk Museum, Oslo. The specimens are arranged here in the order adopted by me in my Monograph of *Acarospora* 1929.

Subgenus *Xanthothallia* H. Magn.

Sect. I. *Euxanthothallia* H. Magn.

1. *Acarospora Schleicheri* (Ach.) Mass.

H. Magn., Monogr. *Acarospora* (1929) 77.

There were four localities quoted in my Monograph from East Greenland: Scoresby Sound: Gaasefjord, fertile, Danmark Island and Cape Stewart, sterile (acc. to Deichm.-Branth) and Taage Fjord, collected by N. Hartz (spec. in Copenhagen). To these localities may be added: Røhsfjorden, in the King Oscar Fjord region, collected by Scholander, 1930, abundantly fertile.

Sect. II. *Epithallia* (Trev.) Zahlbr.2. *Acarospora oxytona* (Ach.) Mass.

H. Magn., Monogr. *Acarospora* (1929) 99.

West Greenland. Nugssuaq Peninsula north of Disko: Atanikerdluk, 1871, Th. Fries, several specimens. Only after long researches and comparison with several specimens of both *chlorophana* and *oxytona* I have ventured this determination, because this locality lies far outside the hitherto known distribution of *A. oxytona*. But at least a great number of specimens have a rather typical appearance with flattened, dilated and contiguous lobes and plane apothecia with a livid yellow disc and visible margin. The hymenium is 85 μ high with 60—65 μ long asci, and there is a distinctly limited, 15—25 μ thick granular epithecium as in the compared specimens of *oxytona*, while *chlorophana* has the granules scattered through the whole hymenium. The central lobes or the whole thallus is dissolved into \pm scattered verrucae in several specimens as is often the case in *chlorophana*, but there are every transitional stage to fully and regularly developed specimens.

3. *Acarospora chlorophana* (Wnbg.) Mass.

H. Magn., Monogr. *Acarospora* (1929) 103.

A number of localities are recorded in my Monograph from Greenland and some from Spitsbergen, and this number is greatly increased by the recent collections. The latter localities are: Isfjorden: Hotellneset (Høeg, Lynge) and Repjadalen (Lid); Magdalenefjorden (Høeg); Hinlopen: Torellneset (Schol.); Lady Franklinfjorden: Franklinfjellet and Persberget (Schol.); Murchisonfjorden: Sveanor (Schol.).

Subgenus *Phaeothallia* H. Magn.

Sect. I. *Euacarospora* (Trev.) Zahlbr.4. *Acarospora lapponica* (Ach.) Th. Fr.

Lich. scand. (1871) 218. H. Magn., Monogr. *Acarospora* (1929) 123.

East Greenland. Wollaston Forland: Kapp Wynn—Flache Bay. Franz Josef Fjord: Kjerulf fjorden, intermingled with *A. montana*. Ymer Island: Vargbukta, f. *minuta* H. Magn. In all cases very sparingly. All collected by Lynge, 1929.

5. *Acarospora fusca* B. de Lesd.

Recherch. lich. Dunkerque (1914) 100. H. Magn., Monogr. *Acarospora* (1929) 135.

East Greenland. Geogr. Society Island: West of Scott Keltie Islands, Lyngé, 1929. One specimen, perhaps not quite certain. Areolae dispersed with mostly solitary, impressed apothecia. Upper cortex about 35 μ thick with distinct, 3—4 (5) μ large, thin-walled lumina. Hymenium 150—170 μ high, I + blue. Medulla poorly developed.

On the same stone another *Acarospora*-species with rather plane, pale, scattered squamules and solitary apothecia. Upper cortex 10—15 μ thick, CaCl—, cells 2—4 μ in diam. Lower side pale. Hymenium only 60—70 μ high, I + reddish yellow. Paraphyses 1.7—2 μ thick. Perhaps a new species, but too scanty.

6. *Acarospora smaragdula* (Wnbg.) Th. Fr.

Lich. spitsb. (1876) 19. H. Magn., Monogr. *Acarospora* (1929) 139.

East Greenland. Wollaston Forland: Kapp Wynn—Flache Bay, Lyngé, 1929. Areolae rather dark brown.

West Greenland. Disko: Nordfjord, 1871, Th. Fries. Areolae alutaceous.

Spitsbergen. Isfjorden: Adventfjorden (Advent Bay), 1868, Th. Fries (recorded already in the Monogr.). Areolae dark brown.

7. *Acarospora sinopica* (Wnbg.) Kbr.

Parerga (1859) 57. H. Magn., Monogr. *Acarospora* (1929) 147.

West Greenland. Holsteinsborg, 1871, Th. Fries. One very well developed specimen, areolate, with numerous punctiform apothecia. Also collected there 1833 by Vahl. Nanortalik (acc. to Branth & Grønl., 1888). Okivisekan, Vahl (Copenhagen).

Spitsbergen. Western coast. Bellsund: Eholmen, Lyngé, 1926. Two very small specimens.

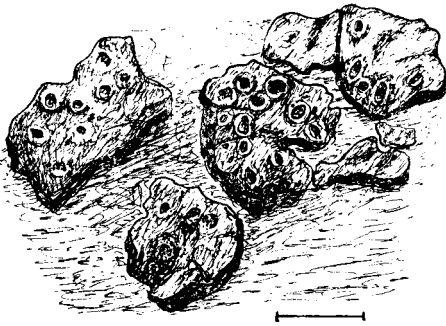


Fig. 1. *A. pyrenopsoides*. Atanikerdluk.
Some isolated squamules.

The measure below the figures always means 1 mm.

Squamules rather pale brownish red or very dark brown forming a continuous crust. Apothecia very numerous, several in each squamule (Fig. 1). Type-specimen from Nennese, collected by J. Vahl.

8. *Acarospora pyrenopsoides* H. Magn.

Monogr. *Acarospora* (1929) 156.

West Greenland. Nugssuaq Peninsula, north of Disko: Atanikerdluk, 1871, Th. Fries. Four very well developed and typical specimens, probably from a place rich in ammonium salts, for there are traces of *Candelariella vitellina* and *Physcia* sp.

9. *Acarospora scyphulifera* Vain.

Lich. Pitlekai (1909) 147. H. Magn., Monogr. *Acarospora* (1929) 158.

West Greenland. Godthaab, 1871, Th. Fries. Two small specimens, somewhat uncertain because there are only few and young apothecia, but they have a wall-like prominent dark margin.

10. *Acarospora verruciformis* H. Magn.

Monogr. *Acarospora* (1929) 161.

West Greenland. Holsteinsborg, 1833, J. Vahl (Oslo).

11. *Acarospora groenlandica* H. Magn.

Monogr. *Acarospora* (1929) 163.

East Greenland. Scoresby Sound: Danmark Island, 1892, N. Hartz (Copenhagen).

12. *Acarospora scabrida* (Hedl.) H. Magn.

Monogr. *Acarospora* (1929) 164.

East Greenland. Traill Island: Kapp Simpson, 1929, Lynge. Only a few, mostly sterile squamules, some with large, rather young apothecia. The inner structure of the thallus typical.

West Greenland. Julianehaab, 1828, J. Vahl (Copenhagen).

13. *Acarospora tuberculata* H. Magn. n. sp.

Thallus indeterminatus, squamuloso-areolatus, \pm pallide fuscorufus, areolae subcontiguas vel dispersas, subcrassas, convexas et valde inaequales, tuberculatas, nitidas, basi constrictas, \pm laxe affixas, subtus pallidas, KOH —, CaCl —. Apothecia solitaria vel pauca, immersa, saepius rara, disco concavo, atro, irregulari, scabrido, margine indistincto circumdato. Cortex superior mediocris, strato amorpho crasso tectus. Hyphae medullares laxae. Hymenium subcrassum, spores tenuiter ellipsoideae.

Areolae 1—2.5 mm large, 0.5—1 (1.5) mm thick, rarely contiguous for 1—2 cm, mostly grouped and separated by unequally broad cracks, or \pm isolated, of an unusual, rather pale brown-red colour, mostly very shiny, apparently subpellucid, often thinly white margined from the thick amorphous stratum. Surface unevenly and densely tuberculate (Fig. 2).

Upper cortex (20) 25—35 μ thick, transparent, exterior 10—13 μ bright yellow-brown with indistinct limits, amorphous stratum unequally thick, (20) 40—65 (100) μ , gelatinized, refracting. Cortical lumina \pm indistinct in water, 1.5—2 μ large, rounded, thick-walled, end-cells 3.5—4 μ , brown. Gonidia 8—15 μ large, very pale, stratum very irregular, 50—100 μ thick, upper limit somewhat even. Medulla 300—700 μ thick, \pm transparent or gray, hyphae 3—3.5 μ thick, moderately thick-walled, with \pm abundant, angular crystals on their surface, in HCl lax to very lax, loosely intricate with cylindric lumina. Lower surface widely attached, pale.



Fig. 2. *A. tuberculata*.
Atanikerdluk. Some areolae in the crust.

Apothecia rare in most parts of the thallus, sometimes crowded in a small area, very irregular in shape and size, disc 0.3—0.5 (0.6) mm broad, \pm deeply concave, almost smooth or usually somewhat rough or even rugose, not always distinctly limited towards the slightly prominent thallus margin.

Wetted apothecia 0.7—1 mm broad, 150—300 μ deep at the centre, only 50—70 (100) μ at the margins. Exciple very thin below, 50—70 μ at the surface. Hypothecium 50—100 μ thick, I+ dark blue. Hymenium (85) 90—110 μ high, lower limit indistinct; I+ dark or pale blue. Paraphyses 1.7 (2) μ thick, dense, apices in KOH red-brown capitate, 4—5 μ , discrete, with \pm thick amorphous stratum. Asci 65—85 \times 20—25 μ . Spores 100—200, in KOH 3—3.5 \times 2—2.5 μ , broadly ellipsoid to subglobose.

Pycnoconidia 1.7 (2) \times 0.7 μ upon about 10 μ long sterigmata.

Habitat. On granitic stone with *Caloplaca elegans* etc., indicating a place rich in ammonium salts.

Locality. West Greenland. Nugssuaq Peninsula north of Disko: Atanikerdluk, 1881, Th. Fries, several specimens.

This species is characterized through the very uneven, thick areolae with an unusually thick amorphous stratum, through the broad spores and the very minutely cellulose cortex.

14. *Acarospora Durietzii* H. Magn.

Monogr. *Acarospora* (1929) 187.

East Greenland. Hudson Land: Jackson Island, 1929, Lyngé, on rocks near the houses. Two small, but well developed and typical specimens. Areolae with numerous cracks and very irregular, rough apothecia. Spores very broadly ellipsoid.

15. *Acarospora veronensis* Mass.

H. Magn., Monogr. *Acarospora* (1929) 191.

Spitsbergen. Bellsund: Forsbladhanna, 1926, Lyngé, three scanty, but typical specimens.

West Greenland. Nugssuaq Peninsula north of Disko: Atanikerdluk, 1871, Th. Fries. Only a few, but typical verrucae (also in inner structure).

16. *Acarospora persimilis*

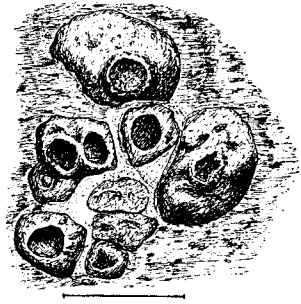
H. Magn. n. sp.

Thallus squamulosus, obscure rufofuscus, squamulae saepius valde dispersae, convexae, opacae, arcte adnatae, margine tenui inferiore obscuro, KOH —, CaCl —. Apothecia in quavis areola pauca, demum subdilatata, disco concavo, margine thalino distincto prominente circumdato. Cortex superior pellucidus, cellulis minutis, indistinctis. Hymenium subcrassum. Sporae ellipsoideae.

Squamules 0.6—1 (1.5) mm large, 0.2—0.3 (0.4) mm thick, rarely a few approaching or grouped, mostly widely dispersed and very convex. — Upper cortex (12) 15—20 (25) μ thick, transparent, regular, CaCl —, upper 6—8 μ dark red-brown, amorphous stratum \pm regularly developed (0) 6—10 (20) μ thick. Cortical cells very indistinct in water, also in HCl rather indistinct, 1—2 μ large, thick-walled, hyphae intricate, indistinct also in KOH. Gonidia 7—12 μ large, stratum 50—80 μ thick, regular, limits rather distinct. Medulla poorly developed or 200—300 μ thick, \pm air-filled, hyphae 3—4 μ thick, \pm intricate, thick-walled. Areolae fastened with most part of the medulla; only 100—200 μ of the exterior margin of the underside dark (Fig. 3).

Apothecia (1) 2—5 in the squamules, frequently covering most of the surface, disc 0.2—0.5 mm broad, at first deeply impressed and reddish, finally \pm dilated, concave and concolorous with the thallus, with distinct, prominent margin. — Exciple at least in older apothecia distinct at the bottom, 10—17 μ thick, in KOH slightly yellowish, in water refracting, widened at the surface, J —. Hypothecium narrow, 15—25 (35) μ , I + blue. Hymenium (70) 85—100 (110) μ high, I + greenish blue or \pm brownish yellow, upper 5—15 μ \pm brown. Paraphyses 1.5—2 μ thick, also in KOH, apices coherent, swollen, dark brown, 3—4 μ . Asci 65—80 \times 17 μ large. Spores about 200, 3—4.5 \times 1.7 μ , oblong.

Habitat. On non-calciferous stone with different *Lecidea* species etc.

Fig. 3. *A. persimilis*.

A group of squamules on the stone, from the authentic spec. Between the squamules granules of sand.

Distribution. East Greenland. Wollaston Forland: Kapp Herschell (forma). Hudson Land: Kapp Bennet, two specimens (auth. spec.). Ymer Island: Dusénfjorden, inwards of Kapp Graah (three spec.); Sofiasund, below Celsiusfjellet, 1929, Lyngé.

West Greenland. Nugssuaq Peninsula north of Disko: Atanikerdluk, 1871, Th. Fries (forma). Disko: Mellemfjorden, 1871, Th. Fries (forma).

Spitsbergen. Van Mijenfjorden: Braganzafjorden at Sveagruva, 1926, Lyngé; Bellsund: Forsbladhamna, 1926, Lyngé.

The new species resembles outwardly *A. veronensis*, but cannot be united with this species on acc. of the different structure of the cortex and medulla. The cells are in *veronensis* very distinct, 3—5 μ large, thin-walled. Its appearance is slightly different too. There seems to be some variability in the height of the hymenium (up to 125 μ), and in the thickness of the upper cortex (in one specimen 35—45 μ). The last mentioned specimen (Atanikerdluk) has a paler and redder colour and may be something else, but the inner structure agrees rather well.

Most specimens consist of only a few squamules or groups of squamules upon the naked stone, partly associated with scattered different other lichens.

17. *Acarospora hospitans* H. Magn.

Monogr. *Acarospora* (1929) 217.

East Greenland. Ymer Island: Vargbukta, 1929, Lyngé.

Only a few \pm scattered areolae upon the naked stone with *Parmelia sorediata*, *Caloplaca elegans* and *A. rosulata*. Hymenium only 60—70 μ high. Spores 3—4 \times 1.7—2 μ , not so broadly ellipsoid as in the type. Structure on the whole agreeing.

18. *Acarospora Friesii* H. Magn. n. sp.

Thallus indeterminatus, squamuloso-areolatus, obscure rufofuscus vel piceus, squamulae subcontiguae vel subdispersae, inaequales et irregulares, sublobatae, adpressae, marginibus libris, subtus obscurae. Apothecia numerosa, immersa, in quavis squamula pauca, disco dilatato, thallo subconcolore, concavo, inaequali,

margine indistincto prominente circumdato. Cortex superior subcrassus, CaCl—. Hymenium subaltum. Sporae tenuiter ellipsoideae.

Squamules 1—3 mm large, 0.4—0.7 mm thick, grouped or separated by cracks, often \pm confluent and very irregular, surface somewhat shiny, on the whole plane but minutely uneven. — Upper cortex indistinctly limited in water, 35—40 μ thick, colourless, exterior 6—10 μ dark red-brown, amorphous stratum 10—18 μ , even. Cortical cells \pm indistinct, 1.7—2.5 μ , globular, thick-walled, hyphae in the cortex and the gonidial stratum distinct in KOH, 3—3.5 μ thick, thick-walled, in the cortex \pm perpendicular with distinct apices at the surface, 4—5 μ thick. Gonidia up to 20 μ large, stratum not dense, partly interrupted, surface not distinct. Medulla below the apothecia colourless or obscured by air, hyphae very densely intricate, rather thick-walled, indistinct, 2—3.5 μ thick. Lower side, 10—15 μ , blackish brown, also laterally up to the apothecial margin.

Apothecia (1)2—5 in the squamules, disc 0.6—1 mm large, in thallus level, brownish black, somewhat darker than the surface, irregular in shape, its surface somewhat rough or rugose. — Exciple distinct, colourless, 20—40 μ thick below, the same at the surface or narrower, indistinct, I—. Hypothecium 50—70 μ , cloudy or not, I + blue. Hymenium varying in height, 70—100 μ high, lower limit indistinct, I — or yellowish. Paraphyses indistinct in water, apparently short-celled, in KOH distinct, 1.7—2 μ thick, straight, short-celled, apices dark brown, 4—5.5 μ thick, coherent, clavate-capitate. Asci 70—80 \times 18—24 μ . Spores at least 200, in KOH 3.5(4.5) \times 1.7 μ , easily escaping, somewhat broadly ellipsoid.

Pycnidia present, immersed, colourless, simple, conidia 2.5—3 \times 1.5 μ , ellipsoid.

Habitat. On non-calciferous mica-schist in a place rich in ammonium salts, associated with *Lecanora* conf. *contractula*, *polytropa*, *Candelariella*, *Caloplaca* etc.

Locality. West Greenland. Nugssuaq Peninsula north of Disko: Atanikerdluk, 1871, Th. Fries. Two specimens.

The new species is characterized by its very dark colour, its large, confluent squamules with large, little conspicuous apothecia and dark lower side. It may be rather near to *A. Almqvistii*, but cannot be united with this species.

19. *Acarospora nitrophila* H. Magn.

Monogr. *Acarospora* (1929) 221.

East Greenland. Hudson Land: Myggbukta, abundantly, well developed (11 spec.). Kapp Bennet. Ymer Island: Vargbukta (one spec.) and Kapp Humboldt (three spec., one on earth). Geogr. Society Islands: West of Scott Keltie Island (four spec.), all collected by Lynge 1929.

20. *Acarospora glaucocarpa* (Wnbg.) Kbr.

H. Magn., Monogr. *Acarospora* (1929) 233.

East Greenland. Hudson Land: Myggbukta (seven spec.): *v. sarcogynoides* (Vain.) H. Magn., on calciferous sandstone. Squamules scattered, numerous, without accompanying species, partly growing in a brook with granules of sand between the squamules. Ymer Island: Kapp Humboldt, two almost sterile specimens on earth, and one from Vargbukta, white marginated, approaching the type; two specimens on calciferous stone with thick, lecanorine apothecia with whitish margins, as if denudated by an unfavourable climate, approaching *v. sarcogynoides*. Geogr. Society Island: west of Scott Keltie Island, ad *v. sarcogynoides*, numerous dense apothecia with thin margin, all collected by Lynge 1929.

Spitsbergen. Bellsund: Van Mijenfjorden: Bromelldalen, three spec.; Braganzafjorden: Sveagruva, two spec.; Mortonstua, one spec.; Blåhuken, two spec.; Litledalen, three spec.; all collected 1926 by Lynge. Isfjorden: Grønfjorden (Green Harbour), 1924, Høeg, all *v. sarcogynoides*, though partly somewhat deformed and not typical.

21. *Acarospora Lyngei* H. Magn. n. sp.

Thallus indeterminatus, squamulosus, 'obscure rufofuscus, squamulae subdispersae, mediocres, ± umbilicatae, KOH —, CaCl —, irregulares, interdum sublobatae, inaequales, subtus obscurae. Apothecia crebra, pauca plurave in quavis squamula, mox dilatata, disco plano, atro, laevigato vel leviter scabrido, margine prominente tenui circumdato. Hymenium subcrassum. Cortex superior mediocris, distincte cellulosus, cellulis rotundatis. Sporae subpaucae, subminutae, late ellipsoideae.

Squamules of different size, between the unevennesses of the stone 0.5—1 mm, on the earth up to 3 mm broad, surface opaque or slightly shiny, very uneven, subverrucose, sometimes with wide, short furrows or depressions. — Cortex 25—35 μ thick, transparent, exterior 8—10 μ red brown, amorphous stratum 10—50 μ thick, indistinctly and very minutely cellulose. Cortical cells fairly distinct in water, 2.5—3.5 (4) μ or partly 4×2.5 μ large, rounded or irregular, moderately thin-walled, irregularly reticularly arranged. Gonidia 8—10 (15) μ in diam., stratum continuous, 100—150 (200) μ thick, also below the apothecia, lower limit often indistinct. Medulla \pm developed, transparent, hyphae intricate, rather dense, 3—4 μ thick, thin-walled with often elongate, rectangular cells. Lower side pale, without cortex (in stone spec.).

Apothecia beginning as small depressions, soon widening, 0.5—0.8 mm large, plane, blackish, as old rough, in thallus level or slightly prominent, surrounded by a slightly prominent or depressed, thin thallus margin. — Exciple indistinct in young apothecia, in older ones \pm developed, I—, at the margin 15—35 (75) μ broad, prominent or not, below 20—35 μ or \pm indistinct. Hypothecium (50) 100 μ thick or even more, grumose, partly with distinct oil-drops, lower part I— or pale blue. Hymenium 85—100 (115) μ , colourless, upper 12—15 (25) μ yellow brown or sordid brown, surface \pm uneven; I+ blue. Paraphyses (1.7) 2—2.5 (3) μ thick, distinctly septate in water, partly also thin-walled, in KOH 2.5—3 μ thick, apices hardly swollen, in much gelatin. Asci 65—85 \times 15—19 μ , clavate. Spores hardly 100 in number, 4—6 \times 3 (3.5) μ , broadly ellipsoid.

Habitat. On easily crumbling stone, accompanied by *Caloplaca elegans*.

Distribution. East Greenland. Geogr. Society Island, 1929, Lynge, several specimens. — West Greenland. Disko: Ritenbenk, 1871, Th. Fries, on earth(?).

This species is easily recognized by its rather large spores and besides by its uneven squamules with large, blackish apothecia, often several in one squamule.

Variability. A specimen with only few, young, impressed apothecia is rather different from one with old, flat, blackish

apothecia. I have seen as many as seven apothecia in one areola, rosulately arranged and covering the whole thalline surface (3 mm broad). When the squamules are appressed to the stone the lower side is pale on account of the absent cortex, but when the lower side is free and the squamules \pm umbilicate it is \pm dark brown and corticated. The upper cortex may be thinner, the cells smaller, about 2 μ , and more thick-walled, the paraphyses sometimes 3—3.5 μ thick and the exciple much developed at the upper margin.

22. *Acarospora badiofusca* (Nyl.) Th. Fr.

Lich. arctoi (1860) 90. H. Magn., Monogr. *Acarospora* (1929) 255.

East Greenland. Ymer Island, at the foot of Celsiusfjellet, 1929, Lyngé, six well developed, typical specimens; Kapp Humboldt, in a brook with melting water, 1929, Lyngé, very scantily, uncertain.

Spitsbergen. Bellsund: Van Keulenfjorden, Ullaberget, 1926, Lyngé, typical, but only a few squamules, and Forsbladhamna, 1926, Lyngé, very scantily, uncertain.

23. *Acarospora rosulata* (Th. Fr.) H. Magn.

Monogr. *Acarospora* (1929) 286.

East Greenland. Kjerulffjorden, 1929, Lyngé, several developed specimens, partly pitch-black: f. *picea*; Ymer Island: Vargbukta, 1929, Lyngé, four specimens, very scantily; Dusénfjorden, 1929, Lyngé, a few areolae immixed among *Lecanora melanophthalma*, uncertain.

Spitsbergen. Adventfjorden, 1868, Th. Fries, three specimens, somewhat different in appearance but with a structure agreeing with *A. rosulata*.

24. *Acarospora montana* H. Magn.

Monogr. *Acarospora* (1929) 287.

East Greenland. Kjerulffjorden, 1929, Lyngé, four specimens, mostly very scanty and partly immixed among other lichens as *Lecanora melanophthalma*, in one specimen together with *A. lapponica*.

Spitsbergen. Bellsund: Van Mijenfjorden, Kolfjellet, 1926, Lyngé, very scantily and uncertain.

25. *Acarospora scrobiculata* H. Magn. n. sp.

Thallus indeterminatus, areolatus, obscure rufofuscus, areolae insulatim contiguae vel interdum separatae, crassae, irregulares, superne valde inaequales, scrobiculatae, arcte affixae, subtus pallidae. Apothecia haud rite evoluta. Cortex superior mediocris, sulcatus, superiore parte CaCl + rubescente. Pycnidia numerosa, immersa, inconspicua.



Fig. 4.

A. scrobiculata
One areola from the crust, showing its scrobiculate surface.

Areolae (0.5) 1—2 mm large, 0.5—0.8 mm thick, forming islets up to 2×2 cm large between other lichens, very irregular in size and shape, crowded without distinct cracks, or approaching, or rarely dispersed, somewhat shiny or opaque, the surface of the areolae very rough from the prominent ridges between \pm dense furrows, when frequently crossing one another forming a surface apparently composed of irregular granules. (Fig. 4).

Areolae at least 0.5 mm thick, surface with \pm deep (50—100 μ) furrows or irregularly undulate, cortex therefore uneven in thickness, in average 28—35 μ thick. Lower half colourless, upper part cloudy, CaCl + red, uppermost 7—10 μ dark brown-yellow, amorphous stratum \pm even, 5—9 μ . Cortical cells indistinct in water, irregular in shape and arrangement, rounded or stretched. Gonidia 5—10 μ or even 18 μ in diam., stratum 100 (200) μ thick, mostly continuous, not dense, lower limit very indistinct, large gonidia sporulating. Medulla 100—300 μ thick, transparent, lax, hyphae 3—5 μ thick, thin-walled, intricate, long-celled, towards the under surface short-celled, \pm rounded. Lower side pale, not distinctly corticated, partly with dark adherent particles. Upper cortex I+ rather faintly reddish.

Only one young apothecium found among several well developed specimens, about 0.4 mm broad, 0.2 mm deep, separated from a pycnid by a 16—19 μ broad gonidial line. Exciple 10—15 μ thick, laterally not very distinct, widened at the surface up to 50 μ , uppermost 12—14 μ red brown. Hypothecium 50—100 μ thick, colourless, not cloudy, I+ very pale bluish, rather distinctly cellulose, cells 1.5—2.5 μ . Hymenium about 100 μ high, I+ pale dirty yellowish; upper 15 μ brown, amorphous

stratum \pm developed. Paraphyses about 1.7μ thick, apices coherent, K + discrete, $3-3.5 \mu$, pale brown. Asci about $85 \times 16 \mu$. Spores about 200, $3-4 \times 1.5 \mu$.

Pycnidia numerous, quite immersed, inconspicuous, 150μ deep, $50-70 \mu$ broad. Conidia $2-2.5 \times 0.6-0.9 \mu$, punctiform.

Habitat. On non-calciferous rocks in places rich in ammonium salts, often associated with *Caloplaca elegans*, sometimes with *Physcia* sp.

Distribution. East Greenland. Geogr. Society Island: West of Scott Keltie Islands, a great number of specimens, on crumbling stone. Scott Keltie Islands, Gåsøya, one spec., less thick, very dark, almost piceous. King Oscar Fjord: Holmsvika, only few areolae, rather thin, furrowed, 1929, Lyngø.

Certainly a good species, though almost sterile, and unlike all others seen by me on account of the coarsely scrobiculate thallus surface.

26. *Acarospora aspera* H. Magn. n. sp.

Thallus indeterminatus, squamuloso-areolatus, squamulae obscure rufofuscae, crassae, subcontiguae vel approximatae, convexae, superne valde inaequales, rimosae vel compositae, basi constrictae, subtus pallidae. Apothecia crebra, immersa, partim confluentia, disco plano, atro, aspero, irregulari, margine thallino indistincto circumdato. Cortex superior thalli mediocris, CaCl + rubescens. Hymenium altum. Sporae breves, late ellipsoideae.

Thallus forming a dark, not continuous, $1-2$ mm thick crust of $(1)2-3$ mm large, very irregular squamules, the surface of which soon becomes very uneven from cracks, furrows and irregularly protruding apothecia. — Upper cortex $35-60 \mu$ thick, \pm indistinctly transparent, upper half CaCl + red; uppermost 16μ gradually \pm red-brown; amorphous stratum $10-25 \mu$ thick with even surface. Cortical cell-lumina indistinct, also in HCl, $3-4 \mu$ large, irregular. Gonidia $10-15 \mu$ in diam., stratum $50-100$ (150) μ thick, dense, upper surface even. Medulla $100-150 \mu$ thick or more, \pm transparent, or opaque in the lower part from grains; hyphae rather densely intricate, $3-4 \mu$ thick, mostly distinctly thin-walled with cylindric or stretched lumina. Lower side pale or pale brown, being a continuation from the lateral

cortex which reaches to the hymenial margin. (Fig. 5).

Apothecia 0.5—1 (1.5) mm large, disc on the whole plane but exceedingly rough, almost gyrose. Margin often consisting of wart-like thallus parts, not always distinct along the whole circumference. — Exciple distinct, spreading towards the surface, 50—80 μ broad, some-

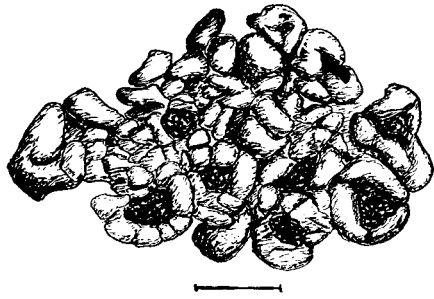


Fig. 5. *A. aspera*. Some mostly fertile areolae from the crust.

times prominent, with parallel widened hyphae, surface dark red-brown. Hymenium 100—120 (150) μ high, upper 15—20 μ brown, often very dark, with uneven amorphous stratum; I + reddish yellow. Paraphyses 1.7—2 μ thick, not well discrete in water, in KOH 1.5—1.7 μ , apices dark brown capitate, coherent or \pm discrete, 4—5 μ . Asci 85—100 \times 17—19 μ , \pm clavate. Spores about 200, 2—4 \times 1.7—2 μ , broadly ellipsoid, especially in KOH.

Habitat. On granitic rocks, intermingled with *Caloplaca elegans* and *Xanthoria candelaria*, probably in a place very rich in ammonium salts.

Locality. East Greenland. Geogr. Society Island, west of Scott Keltie Islands, 1929, Lynge, two specimens.

A. aspera comes near to *A. montana* in many details of the structure but has another development of the apothecia from the beginning and has very furrowed squamules.

27. *Acarospora peliocypha* (Wnbg.) Arn.

H. Magn., Monogr. *Acarospora* (1929) 290.

East Greenland. Ymer Island: Kapp Humboldt, 1929, Lynge. A very small specimen but with numerous apothecia. Surface of the areolae rough, resembling that of *A. scrobiculata*.

Spitsbergen. Isfjorden: Grønfjorden (Green Harbour) 1868, Th. Fries. Quite typical.

28. *Acarospora fuscata* (Nyl.) Arn.

H. Magn., Monogr. *Acarospora* (1929) 294.

Spitsbergen. Isfjorden: Grøn fjorden (Green Harbour), 1868, Th. Fries, one specimen, not typical. Adventfjorden (Advent Bay), 1868, Th. Fries. Very scantily. Bellsund: Van Mijenfjorden, 1926, Lyngé, a few squamules on another lichen, not typical.

29. *Acarospora interposita* H. Magn.

Monogr. *Acarospora* (1929) 306.

East Greenland. Kjerulffjorden, west of Ymer Island, 1929, Lyngé. Rather scantily among *Lecanora melanophthalma*,

30. *Acarospora insignis* (Th. Fr.) H. Magn.

Monogr. *Acarospora* (1929) 308.

East Greenland. Kjerulffjorden, west of Ymer Island, 1929, Lyngé. Only a few areolae among other crustaceous lichens, but typical in appearances and structure.

31. *Acarospora cartilaginea* H. Magn. n. sp.

Thallus indeterminatus, squamuloso-areolatus, \pm obscure rufofuscus, squamulae contiguae, crassae, irregulares vel sublobatae, umbilicatae, partim subimbricatae, subtus late nigrae. Apothecia minuta, partim dense evoluta et pauca in quavis areola, immersa, disco concavo, fuscoatro, impresso, indistincte marginato. Cortex superior mediocris, CaCl ope rubescens. Hymenium altum, paraphysibus tenuibus. Sporae tenuiter ellipsoideae.

Squamules (0.5) 1—2 (3) mm large, (0.3) 0.5—0.7 mm thick, contiguous for one to several centimeter broad areas, often crowded or partly subimbricate, cartilaginous, only young squamules \pm appressed, the margins mostly raised and sublobate, surface generally opaque, partly also \pm blackish (from parasitic hyphae?), base very narrow. (Fig. 6).

Upper cortex 30—40 μ thick, opaque in the upper part and CaCl + distinctly red, exterior 3—5 μ red brown, amorphous stratum 8—14 μ , \pm uniformly developed. Cortical cells very indistinct, also in HCl, about 2 μ in diam. Gonidia 8—12 μ in

diam., stratum 50—90 μ thick, dense, continuous. Medulla very thick, rather dense, transparent or air-filled, hyphae perpendicularly intricate, 3—4 μ , somewhat thick-walled with cylindric lumina, or very thin, packed in irregularly directed strands.

Apothecia in some parts of the thallus absent, in other parts abundantly developed, immersed, (1) 2—5 (10) in each squamule, disc

impressed, opaque but not rough, round or oblong, 0.4—0.6 mm large, brownish black. — Exciple \pm distinct at the sides, 10—20 μ thick, colourless, I—, only little widened at the surface. Hypothecium with underlying tissue conical, 150—250 μ high, I+ dark blue, at least in the upper part. Hymenium 100—115 (135) μ high, exterior 5—10 μ brown-yellow; I+ greenish yellow. Paraphyses rather discrete, especially in KOH, 1.5—1.7 μ thick, apices KOH + pale brown, partly 3.5—4 μ , brownish. Asci 85—100 \times 17 μ , narrowly clavate. Spores at least 200, 3—3.5 (5) \times 1—1.5 μ , oblong, in KOH easily escaping from the asci.

Habitat. On non-calciferous stone in places rich in ammonium salts, associated with *Caloplaca* and *Candelariella* sp., *Lecanora polytropa*, *Physcia* sp. etc.

Locality. West Greenland. Nugssuaq Peninsula: Atanikerdluk, 1871, Th. Fries, six specimens.

The new species has many details in structure common with *A. Marcii* but is a much coarser plant with subimbricate squamules, thicker cortex and higher hymenium. It seems to deserve a proper name.

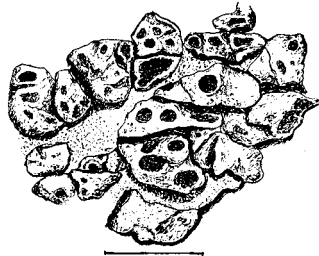


Fig. 6. *A. cartilaginea*. Some squamules on the stone.

32. *Acarospora atomariospora* H. Magn. n. sp.

Thallus squamulosus, obscure rufofuscus, squamulae dispersae, minutae, subverruciformes, basi constrictae, subtus \pm obscurae. Apothecia solitaria vel dua, impressa, minuta, disco concavo saepe punctiformi. Cortex superior mediocris vel subtenuis,

CaCl ope rubescens, cortex inferior saepe evolutus. Hymenium subcrassum. Sporae breves, minutissimae, subglobosae vel late ellipsoideae.

Squamules widely dispersed in the unevennesses of the stone or \pm linearly arranged, 0.5—0.8 (1) mm large, 0.3—0.5 mm thick, with narrower base, rather loosely attached to the stone, irregular in shape, \pm verruciform or subcomposed, with smooth surface. — Upper cortex 20—25 (35) μ thick, only lowest part transparent, most part \pm cloudy, CaCl + red, exterior 8—10 μ red brown-yellow. Amorphous stratum hardly developed. Cortical cells very indistinct in water, about 1.5 μ in diam., thick-walled, hyphae in KOH distinct, 2.5—3 μ thick, intricate, apices 5—7 μ thick, dark brown. Gonidia 10—17 μ large, stratum 70—100 (200) μ thick, upper surface well limited. Medulla 100—200 μ thick, mostly transparent, hyphae \pm lax, intricate, in KOH thick-walled, with long cells. Cortex developed also marginally and partly below the squamules, its surface \pm dark brown.

Apothecia at first impressed at the top of the verruca, gradually enlargening with plane, slightly rough, blackish brown, up to 0.5 mm broad disc, rather regularly circular, surrounded by the prominent wall-like part of the verruca. — Apothecia 200—250 μ deep with indistinct exciple. Hypothecium 30—40 μ thick, cloudy from oil-drops. Hymenium 100—150 μ high, I + pale blue; upper 15—25 μ dark red-brown or brown-yellow, surface uneven with \pm gelatinous cover. Paraphyses 1.7—2 μ thick, \pm distinct, apices coherent, 3—4 μ large. Asci 85 (100) \times 20 μ , numerous, very easily bursting, why the hymenium always is filled with free spores. Spores about 200, 2—2.5 \times 1.8—2 μ , subglobose or broadly ellipsoid.

Habitat. On non-calciferous stone with *Lecanora atro-sulphurea* etc.

Locality. East Greenland. Kjerulffjorden west of Ymer Island, 1929, Lyngø.

This inconspicuous species is above all characterized by its very small and subglobose spores, only rarely found within this section. It is separated from *A. sphaerospora* through the much thinner cortex, smaller spores etc.

33. *Acarospora macrospora* (Hepp) Bagl.H. Magn. Monogr. *Acarospora* (1929) 333.

West Greenland. Julianehaab District: Nanortalik (acc. to Branth & Grøn. 1888).

Sect. II. *Trochia* (Mass.) H. Magn.34. *Acarospora nitida* H. Magn. n. sp.

Thallus determinatus, radiatus, piceus vel fusco-nigricans, ambitu indistincte lobatus, pro maxima parte in verrucis discretis, semi-globosis dissolutus, arcte adnatus, subtus pallidus. Apothecia in quavis areola centrali solitaria vel interdum pauca, immersa, disco punctiformi, impresso, thallo concolori ornata. Cortex superior subcrassus, CaCl—, medulla crystallis obscurata. Hymenium subcrassum. Paraphyses crassae. Sporae late ellipsoideae.

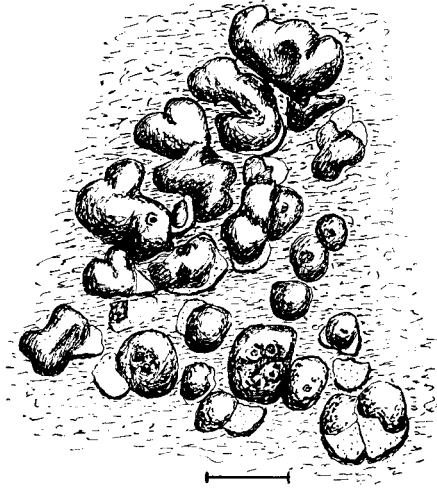


Fig. 7. *A. nitida*. Part of the thallus, to the left with marginal lobes, below with isolated central verrucae on the stone.

The single thalli dispersed upon the stone, about 1 cm in diam., \pm circular, only few, very convex marginal lobes developed, 1—1.5 mm long and about 0.5 mm broad, partly sinuate at the apices, firmly affixed. Central verrucae somewhat regularly half globose and 0.5—0.7 (1) mm in diam., 0.3—0.4 mm thick, their cortex, especially round the base, destroyed so that the white medulla is visible, often as a narrow ring at the base. (Fig. 7).

Upper cortex 35—45 (50) μ thick, transparent, exterior 8—12 μ very dark brown, amorphous stratum 5—7 μ thick, regularly developed, even. Cortical cells indistinct, also in KOH or HCl, 1.5—3 μ in diam., irregular, hyphae apparently intricate. Gonidia

7—13 μ in diam., stratum 50—75 μ thick, continuous, with even surface. Medulla 100—400 μ thick, gray from granules on the hyphae. These 3—4 μ thick, in KOH or HCl distinctly thick-walled, very long-celled and very loosely intricate. Marginal cortex dark brown, areolae largely attached to the stone with the medulla.

Apothecia at first in the shape of a slight depression at the top of the verruca, solitary, finally somewhat prominent and simple with rough disc, 0.4—0.3 mm large, or consisting of 2—5 very minute, punctiform apothecia. — Exciple 10—15 μ thick at the bottom, widened towards the surface, sometimes the exciples of approaching apothecia touching one another. Hypothecium 20—30 μ thick, I + dark blue, little developed. Hymenium 85—110 μ high, upper 20—30 μ blackish brown; I + greenish or pale blue. Paraphyses 2—3 μ thick, apices KOH + dark brown, 3—4 μ thick. Asci 65—70 \times 25 μ , easily bursting. Spores about 100, 3—4.5 \times 1.7 (2) μ , somewhat broadly ellipsoid, especially as young.

Habitat. On non-calciferous mica-schist with a specimen of *Sporastatia testudinea* and traces of *Caloplaca* and *Gyrophora*, but most part of the stone devoid of lichens.

Locality. East Greenland. Franz Josef Fjord: Reinbukta, 1929, Lynge.

One of the most curious species I have met with in this genus, through colour and marginal lobes reminding of a meagre species of *A. molybdina*, but quite different from that species in structure.

35. *Acarospora molybdina* (Wnbg.) Trev.

H. Magn., Monogr. *Acarospora* (1929) 349.

This species is, acc. to Th. Fries, Lich. arct. † (1860) 91, "secus insul. Spitsbergensium et Groenlandiae haud infrequens". Several localities are mentioned in my monograph and there is a great number of specimens from Greenland in the collections made by Th. Fries 1871, and by him, Lynge, and others from Spitsbergen, viz.:

West Greenland: Godthaab; Holsteinsborg; Disko Island: Godhavn, Maligiaq, Uivfaq, Sartoq and Iglutjat, Th. Fr.

Spitsbergen: Bellsund: Sørhuken, Calypsobukta, Reinholmen and Observatoriefjellet in Recherchefjorden, and Ahlstrandodden, Forsbladhamna, Eholmen and Mitterhuken in Van Keulenfjorden, Lyngø. Adventfjorden (Advent Bay), Th. Fr., Prins Karls Forland (Charles Foreland), Th. Fr., Kongsfjorden (Kings Bay) and Kobbefjorden (Kobbe Bay), Th. Fr., Magdalenefjorden (Magdalena Bay) and Smeerenburgfjorden, Høeg. Indre and Ytre Norskøya, Risen, Fuglesangen (Vogelsang), Klovningen (Cloven Cliff), and Raudfjorden (Red Bay), Høeg. Mofen, Schol.

Nordostlandet (North East Land): Murchisonfjorden: Floraberget, Schol. Brennevinsfjorden (Brandywine Bay): Floraberget, Schol.

There are, in the collections received from Oslo, also not a few specimens of *Acarospora*, which are too scanty or too little developed to be determined with certainty. They are here omitted. Several specimens belong to the lichen called *Lecanora glaucocarpa* v. *endocarpoides* by Vainio in *Adjumenta* II (1883) 208. (See also H. Magn. *Monogr. Acarospora* p. 243). They are all sterile, but pycnidia with cylindrical, 3—4 μ long conidia have been found. It is probably not an *Acarospora* species. Its localities are: East Greenland. Ymer Island: Kapp Humboldt, a great number of specimens, and Vargbukta, one specimen, 1929, Lyngø. Traill Island, 1929, Lyngø, one specimen. West Greenland. Ujaragssugssuk, 1871, Th. Fries, one specimen. Always on earth.

Printed, November 26th, 1935.

NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER

MEDDELELSER:

- Nr. 1. PETTERSEN, KARL, *Isforholdene i Nordishavet i 1881 og 1882*. Optrykk av avisartikler. Med en innledning av Adolf Hoel. — Særtrykk av Norsk Geografisk Tidsskrift, b. 1, h. 4. Oslo 1926.
- ” 2. HOEL, ADOLF, *Om ordningen av de territoriale krav på Svalbard*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 2, h. 1. Oslo 1928.
- ” 3. HOEL, ADOLF, *Suverenitetsspørsmålene i polartraktene*. — Særtrykk av Nordmands-Forbundet, årg. 21, h. 4 & 5. Oslo 1928.
- ” 4. BROCH, O. J., E. FJELD og A. HØYGAARD, *På ski over den sydlige del av Spitsbergen*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 2, h. 3—4. Oslo 1928.
- ” 5. TANDBERG, ROLF S., *Med hundespenn på eftersøking etter „Italia“-folkene*. — Særtrykk av Norsk Geografisk Tidsskrift b. 2, h. 3—4. Oslo 1928.
- ” 6. KJÆR, ROLF, *Farvannsbeskrivelse over kysten av Bjørnøya*. Oslo 1929.
- ” 7. NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER, *Jan Mayen. En oversikt over øens natur, historie og bygning*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 2, h. 7. Oslo 1929.
- ” 8. I. LID, JOHANNES, *Mariskardet på Svalbard*. II. ISACHSEN, FRIDTJOV *Tidligere utforskning av området mellom Isfjorden og Wijdebay på Svalbard*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 2, h. 7. Oslo 1929.
- ” 9. LYNGE, B., *Moskusoksen i Øst-Grønland*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 3, h. 1. Oslo 1930.
- ” 10. NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER, *Dagbok ført av Adolf Brandal under en overvintring på Øst-Grønland 1908—1909*. Oslo 1930.
- ” 11. ORVIN, ANDERS K., *Ekspedisjonen til Øst-Grønland med „Veslekari“ sommeren 1929*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 3, h. 2—3. Oslo 1930.
- ” 12. ISACHSEN, GUNNAR, *I Norske Undersøkelser ved Sydpolllandet 1929—31. II. „Norvegia“-ekspedisjonen 1930—31*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 3, h. 5—8. Oslo 1931.
- ” 13. *Norges Svalbard- og Ishavs-undersøkelers ekspedisjoner sommeren 1930*. I. ORVIN, ANDERS K., *Ekspedisjonen til Jan Mayen og Øst-Grønland*. II. KJÆR, ROLF, *Ekspedisjonen til Svalbard-farvannene*. III. FREBOLD, H., *Ekspedisjonen til Spitsbergen*. IV. HORN, GUNNAR, *Ekspedisjonen til Frans Josefs Land*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 3, h. 5—8. Oslo 1931.
- ” 14. I. HØEG, OVE ARBO, *The Fossil Wood from the Tertiary at Myggbukta, East Greenland*. II. ORVIN, ANDERS K., *A Fossil River Bed in East Greenland*. — Særtrykk av Norsk Geologisk Tidsskrift, b. 12. Oslo 1931.
- ” 15. VOGT, THOROLF, *Landets senkning i nutiden på Spitsbergen og Øst-Grønland*. — Særtrykk av Norsk Geologisk Tidsskrift, b. 12. Oslo 1931.

- Nr.16. HØEG, OVE ARBO, *Blütenbiologische Beobachtungen aus Spitzbergen*. Oslo 1932.
- „ 17. HØEG, OVE ARBO, *Notes on Some Arctic Fossil Wood, With a Re-description of Cupressinoxylon Polyommatum, Cramer*. Oslo 1932.
- „ 18. ISACHSEN, GUNNAR OG FRIDTJØV ISACHSEN, *Norske fangstmenns og fiskeres ferder til Grønland 1922–1931*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 4, h. 1–3. Oslo 1932.
- „ 19. ISACHSEN, GUNNAR OG FRIDTJØV ISACHSEN, *Hvor langt mot nord kom de norrøne grønlandinger på sine fangstferder i bygdene*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 4, h. 1–3. Oslo 1932.
- „ 20. VOGT, THOROLF, *Norges Svalbard- og Ishavs-undersøkelers ekspedisjon til Sydøstgrønland med „Heimen“ sommeren 1931*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 4, h. 5. Oslo 1933.
- „ 21. BRISTOWE, W. S., *The Spiders of Bear Island*. — Reprinted from Norsk Entomologisk Tidsskrift, b. 3, h. 3. Oslo 1933.
- „ 22. ISACHSEN, FRIDTJØV, *Verdien av den norske klappmyssfangst langs Sydøst-Grønland*. Oslo 1933.
- „ 23. LUNCKE, BERNHARD, *Norges Svalbard- og Ishavs-undersøkelers luftkartlegning i Eirik Raudes Land 1932*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 4, h. 6. Oslo 1933.
- „ 24. HORN, GUNNAR, *Norges Svalbard- og Ishavs-undersøkelers ekspedisjon til Sydøstgrønland med „Veslemari“ sommeren 1932*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 4, h. 7. Oslo 1933.
- „ 25. ORVIN, ANDERS K., *Norges Svalbard- og Ishavs-undersøkelers ekspedisjoner til Nordøst-Grønland i årene 1931–1933*. — Isfjord fyr og radiostasjon, Svalbard. Særtrykk av Norsk Geografisk Tidsskrift, b. 5, h. 2. Oslo 1934.
- „ 26. GRIEG, JAMES A., *Some Echinoderms from Franz Josef Land, Victoriaøya and Hopen*. Collected on the Norwegian Scientific Expedition 1930. Oslo 1935.
- „ 27. MAGNUSSON, A. H., *The Lichen-Genus Acarospora in Greenland and Spitsbergen*. — Reprinted from Nyt Magazin for Naturvidenskaberne. Bind 75. Oslo 1935.
- „ 28. BAASHUUS-JESSEN, J., *Arctic Nervous Diseases*. Reprinted from Skandinavisk Veterinär-Tidsskrift, No. 6, 1935.
- „ 29. I. KOLSRUD, OLUF, *Til Østgrønlands historie*. II. OSTERMANN, H., *De første etterretninger om østgrønlandingerne 1752*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 5, h. 7. Oslo 1935.
- „ 30. TORNØE, J. KR., *Hvitserk og Blåserk*. — Særtrykk av Norsk Geografisk Tidsskrift, b. 5, h. 7. Oslo 1935.
- „ 31. HEINTZ, A., *Holonema-Reste aus dem Devon Spitzbergens*. — Sonderabdruck aus Norsk Geologisk Tidsskrift, b. 15, Oslo 1935.
- „ 32. ANDERS K. ORVIN, *Norges Svalbard- og Ishavs-undersøkelers ekspedisjoner i årene 1934 og 1935*. Særtrykk av Norsk Geografisk Tidsskrift, b. 5, h. 8. Oslo 1935.