

MEDDELELSER OM GRØNLAND

UDGIVNE AF

KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND

Bd. 104 · Nr. 5

THE SCORESBY SOUND COMMITTEE'S 2ND EAST GREENLAND
EXPEDITION IN 1932 TO KING CHRISTIAN IX.s LAND

LEADER: EINAR MIKKELSEN

THE LICHENS

BY

B. LYNGE

WITH 1 FIGURE IN THE TEXT

KØBENHAVN

C. A. REITZELS FORLAG

BIANCO LUNOS BOGTRYKKERI A/S

1933

During the Scoresby Sound Committee's 2nd East Greenland Expedition in 1932 to King Christian IX's Land, under the command of Capt. EINAR MIKKELSEN, the Danish botanist Mr. TYGE WITTROCK BØCHER collected some lichens which he entrusted to me for determination.

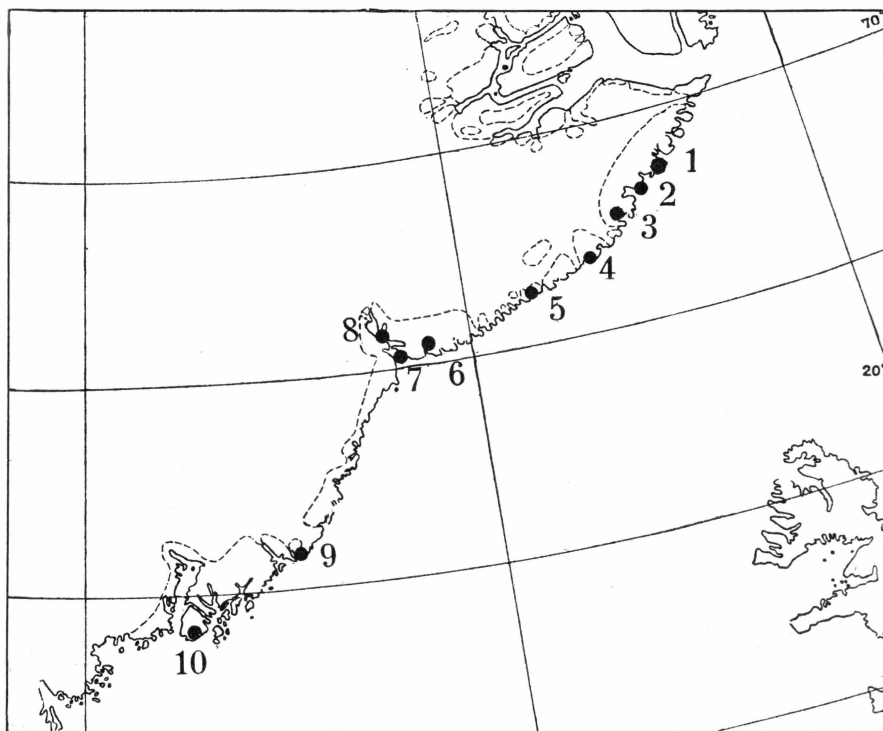
The collection is small, including only 44 species. It is, accordingly, far from representative of this large part of the east coast of Greenland. But yet I found it to be of great interest. Firstly it contained some species which are supposed to be additions to the lichen flora of Greenland. It is, perhaps, still more interesting that the collection gave us a much desired addition to the lichen flora of the region in question. Our knowledge of this lichen flora is still very imperfect. But scanty as it is, it enables us to a certain extent to make some comparisons with the lichen flora farther north which has been much better explored.

Several collections of lichens from East Greenland, some of them really large and representative collections, still await their final determination. When the results of these expeditions have been determined we will know the lichen flora of East Greenland quite as well as that of most other Arctic regions.

But Greenland is a continent more than an island, and an immense work is still to be done. If the present writer might be allowed some hints to Greenland botanists it should be to collect lichens in the bird-cliffs, and to spare no effort to explore the lichen flora of the nunataks. So far we have not a single collection of representative size from the bird-cliffs of Greenland which must be quite as interesting there as it is in other Arctic regions. And every fragment of a lichen that can be identified from a nunatak will be an exceptionally valuable find, on account of its importance for the general problem of the eventual persistence of plants from earlier geological periods.

This collection belongs to the Botanical museum of Copenhagen. The plants are labelled: "Universitetets Botaniske Museum, København. Museum botanicum Hauniense. Scoresbysund Komiteens 2. Øst-Grønlands-Expedition under Kapt. EINAR MIKKELSEN 1932".

Lichens were collected in the following places, enumerated from north to south:



- | | |
|-------------------------------------|---------------|
| 1. Cape Ewart | 69°20' N. |
| 1. Cape Dalton | 69°25' N. |
| 2. Cape Barclay | 69°15' N. |
| 3. D'Aunay Bay | 69°05' N. |
| 4. Cape Daussy | 68°43' N. |
| 5. Fjord north of Cape Ravn | 68°31' N. |
| 6. Kangerdlugssuaq: Mikifjord | 68°10' N. |
| 7 and 8. Kangerdlugssuaq | 68°—68°40' N. |
| 10. Angmagssalik (Tasiussaq) | 65°37' N. |

The author begs to express his gratitude to Mr. BØCHER, and to the staff of the Botanical Museum of Copenhagen, for valuable information on the distribution of some lichens in Greenland, drawn from the Copenhagen Arctic herbarium.

Acarospora MASS.

1. *Acarospora chlorophana* MASS.

D'Aunay Bay, on stones, 1520 m above sea level. — It is an interesting find, for there is but one find from the East coast in the Copenhagen herbarium, viz. from Danmarks Ø (Denmark Island), in Scoresby Sound, leg. HARTZ. JENS VAHL, the indefatigable explorer of the Greenland flora, collected it in 5 localities in West Greenland, viz. at Ujarasurksoit, Segliviarsuk, Tessermiut, Kuksus, and "prope coloniam Holstensborg".

The marginal lobes are smooth, that will exclude *Acarospora oxytona*.

During the Sec. Norw. Arctic Exped. in the Fram Simmons collected an *Acarospora* which Darbishire referred to *Acarospora chlorophana* (Ellesmereland: Framhavn, Darb. Lich. Sec. Arct. Exp. 1909, p. 42). MAGNUSSON has seen the plant and confirmed the determination.

Biatorella (D NOTRS.) TH. FR.

2. *Biatorella coracina* (SOMRFT.) LYNGE.

D'Aunay Bay, 1520 m above sea level.

Candelariella MÜLL. ARG.

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

Cape Dalton, only one apothecium, and a few thalline fragments.

Cetraria ACH.

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

D'Aunay Bay, Cape Daussy, Cape Ewart, Kangerdlugssuaq, and Cape Dalton. — There were several finds, and many plants, of this species, the commonest *Cetraria* in the Arctic.

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

var. *rigida* (RETZ.) VAIN. Lich. Pitlek., 1909, p. 20.

Angmagssalik. Kangerdlugssuaq: Mikifjord.

var. *maculata* VAIN. l. c. p. 21.

Kangerdlugssuaq. — A very narrow forma, habitually var. *tenui-*

folia (RETZ.) VAIN. rather than *Cetraria islandica* itself. But the plants are distinctly maculated also on the lamina.

var. *tenuifolia* (RETZ.) VAIN. l. c. p. 21. Syn. *C. crispa* (ACH.) NYL.

Cape Daussy. Cape Dalton. — A plant with connivent margins where no white maculae are visible.

It is difficult to distinguish specifically between *Cetraria crispa* and *Cetraria islandica* (L.) ACH. In his paper on the lichens from the Pitlekai winter-station of the Vega expedition VAINIO found it impossible.

However that may be it is an interesting fact, and a well established one, that the plants with connivent margins have a very wide distribution in East Greenland. We only quite exceptionally found the broadly-leaved forma of *Cetraria islandica* in Northeast Greenland between 71°30' N. lat. and 75°30' N. lat., but as soon as a botanist collects some lichens south of Scoresby Sound, he is sure to find it.

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

Kangerdlugssuaq, Cape Daussy, and Cape Dalton.

Cladonia (HILL) VAIN.

7. *Cladonia bellidiflora* (ACH.) SCHAER.

Angmagssalik — A few destroyed podetia.

8. *Cladonia coccifera* (L.) WILLD.

var. *pleurota* (FLK.) SCHAER.

Angmagssalik.

var. *stemmatina* ACH.

Cape Barclay, Cape Ewart, and Cape Dalton. — At Kangerdlugssuaq Mr. BØCHER collected some basal squamules without podetia. — *Cladonia coccifera* is one of the commonest and most widely distributed species of its genus in the Arctic.

9. *Cladonia deformis* HOFFM.

Tasiussaq. — On the east coast of Greenland it is one of the southern species.

10. *Cladonia elongata* (JACQ.) HOFFM.

Angmagssalik, Tasiussaq, and Fjord north of Cape Ravn.

11. *Cladonia lepidota* NYL.

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

Angmagssalik and Cape Ewart. — A common Arctic lichen.

12. *Cladonia mitis* SANDST.

Angmagssalik, Tasiussaq, Fjord north of Cape Ravn, Kangerdlugssuaq between Mikifjord and Watkin's Fjord, and Cape Ewart. — Again one of the relatively southern *Cladoniae* on the East coast of Greenland. During two summers of lichenological research Dr. SCHOLANDER and myself only obtained a few finds of it in Northeast Green-

land between 71°30' N. lat. and 75°30' N. lat. But in the more southern regions it is found in abundance, even in quite small collections.

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

var. *pachythallina* (WALLR.) VAIN.

Kangerdlugssuaq.

14. *Cladonia rangiferina* (L.) WEB.

Angmagssalik. — This is also a southern species along this coast, found in all the collections from Southeast Greenland, but lacking in the large Norwegian collections from Northeast Greenland between 71°30' N. lat. and 75°30' N. lat. in 1929 and 1930.

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

Angmagssalik, Tasiussaq, and Kangerdlugssuaq.

In this collection we find no less than 9 species of *Cladoniae*. The Norwegian expeditions to Southeast Greenland in 1931 where lichens were only incidentally collected by non-lichenologists obtained 12 different species of this genus. During the two Norwegian expeditions to Northeast Greenland between 71°30' N. lat. and 75°30' N. lat. in 1929 and 1930 Dr. SCHOLANDER and myself made very representative collections of lichens, but we only found 14 different *Cladoniae*.

There are 3 species of *Cladoniae* (*Cl. bellidiflora*, *deformis*, and *rangiferina*) in the present small collection which we did not find in Northeast Greenland between 71°30' N. lat. and 75°30' N. lat., and the Norwegian expeditions to Southeast Greenland detected 5 such species (*Cl. alpicola*, *bellidiflora*, *deformis*, *degenerans*, and *rangiferina*).

There are not many species of *Cladoniae* on the east coast of Greenland, and our present knowledge of their distribution suggests no less than 5 of them to be southern species.

Gyrophora ACH.

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

Kangerdlugssuaq, from several places, e. g. Mikifjord, and from Cape Dalton. — The plants are coarse, as usual in the Arctic, more or less representing var. *Delisei* (DESPR.) TH. FR.

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

Kangerdlugssuaq.

Lecanora (ACH.) TH. FR.

18. *Lecanora gibbosa* (ACH.) NYL. s. l.

Cape Dalton. — There is but one plant. Habitually it resembles Malme Lich. Suec. No. 919. The thallus is, however, thinner, a common feature in the Arctic, and it is paler grey which may be due to the

exposition. — The spores are broadly ellipsoidal, I measured $15-17 \times 10-12.5 \mu$, the medulla is $J \div$, and $KOH \div$, the hymenium J vinous red.

19. *Lecanora melanophthalma* (D.C.).

D'Aunay Bay, on a vesicular basaltic lava, 1520 m above sea level. — Evidently found on a resting-place of birds, for it is one of the most typical ornithocrophilous lichens of the east coast of Greenland.

20. *Lecanora perradiata* NYL.

Zahlbruckner Die Gattung *Lecanora* (Dr. LYNGE's Novaya Zemlya collection), 1928, p. 9, ubi syn.

D'Aunay Bay, with *Lecanora melanophthalma*. — It is supposed to be an addition to the lichen flora of Greenland, and as such one of the most interesting plants in the collection. But there is every reason to suppose that it will appear in several of the other large Greenland collections which are at present under determination.

It is one of the commonest lichens in Novaya Zemlya, and I have also found it in abundance in Spitsbergen. It was first described by NYLANDER in the Vega collections from the East Siberian coast. — It was not mentioned by MERRILL in his Report on the lichens of the Canadian Arctic Expedition, and we have, so far, no record from the American Arctic coast. But this coast is the terra incognita of Arctic lichenology.

The Greenland find suggests it to be a circumpolar species.

21. *Lecanora polytropa* (EHRH.) TH. FR.

var. *alpigena* (ACH.) DALLA TORRE et SARNTH.

Zahlbruckner Die Gattung *Lecanora* (Dr. LYNGE's Novaya Zemlya collection), 1928, p. 28. Kangerdlugssuaq.

var. *leucococca* (SOMRFT.) TH. FR.

D'Aunay Bay, 1520 m above sea level, and Cape Dalton. — Inconspicuous plants with small dispersed crenate areolae, often sparingly fertile. In one plant from Cape Dalton the thallus is infected by a parasite, which I have not determined.

Lecanora polytropa is an ubiquitous plant in the Arctic.

Lecidea (ACH.) A. ZAHLBR.

22. *Lecidea Dicksonii* ACH.

Kangerdlugssuaq and Cape Dalton. — Hardly ever lacking in Arctic collections, though often overlooked, and at times recorded as *Rhizocarpon Oederi*. So far I have seen no correctly determined Arctic plant of the latter species.

23. *Lecidea fuscoatra* (L.) ACH.

Cape Dalton. — A few rounded, rather thick, plane areolae with pale margins. — The apothecia are plane, about 1 mm in diam., the

hypothecium dark, but paler if KOH is added. The hymenium is bluish in its upper part. The spores $8-10 \times 4-5 \mu$.

The reaction with J prevents a confusion with *Lecidea pauperula*, and the spores with *Rhizocarpon Rittokense*.

24. *Lecidea leucophaea* (FLK.) TH. FR.

var. *obscurescens* VAIN.

Lich. Fenn. IV, 1933, species No. 82 (in print). *Lecidea leucophaea* β . *griseoatra* TH. FR. Lich. Scand. II, 1874, p. 460. VAIN. Lich. Pitlek., 1909, p. 123. LYNGE, Lich. Nov. Zemlya, 1928, p. 112.

Cape Dalton.

Thallus areolatus, areolae plus minusve discretæ, crenulatae, obscure cinereae (cinereo-nigricantes), minute rimuloso-rugosae.

Apothecia mediocria, diam. ca. 0.5 mm, arcte adpressa, discus fere ater, margine nitidulo persistenti, crassiusculo circumdatus. Excipulum fuscum, hypothecium incoloratum, hymenium superne sat pallide olivaceum, sporae ellipsoideae (non oblongae), $11-14 \times 5.5-7 \mu$.

Pycnoconidia valde arcuata, longa, $20-25 \mu$ inter apices.

Hymenium J e caeruleo sordide decoloratum, asci solum subsistente colorantur. Medulla J $\div$, KOH $\div$. Excipulum KOH fugaciter rubescens.

These data limit the determination to *Lecidea subplumbea* ANZI (syn. *L. obnubila* TH. FR. et HELLB. in TH. FR., Lich. Scand. II, p. 459, and syn. *L. tumidior* NYL., see VAIN., Lich. Fenn. IV, 1933, species No. 79, in print), and *Lecidea leucophaea* var. *obscurescens* VAIN. l. c. (syn. *L. leucophaea* β . *griseoatra* TH. FR. l. c. p. 460). I have given preference to the latter possibility, on account of the rather broad, strictly ellipsoidal and not oblong spores, and the colour of the excipulum which is "atro-purpureum" in the former species.

The thallus of *Lecidea subplumbea* is also different.

The areolae are larger, 1—1.5 mm in diam., against 0.3—0.4 mm in *Lecidea leucophaea* var. *obscurescens*, they are also higher and more verrucose in the Arctic plants of *Lecidea subplumbea* which I have seen. It is, perhaps, more difficult to explain the difference in colour, but *Lecidea subplumbea* is more leaden-grey as the name suggests, *Lecidea leucophaea* var. *obscurescens* is more greyish-black.

In Lichenographia Fennica, vol. IV, now in print, VAINIO has shown that "*Lecidea panaeola* var. *griseoatra*" Flot. Bot. Zeit., 1828, p. 675, is a proper species, not identical with the present plant, as supposed by TH. FRIES in Lich. Scand. l. c. VAINIO has, accordingly, introduced a new name for it.

I am much inclined to regard this variety a proper species distinct from the more southern *Lecidea leucophaea*, and I will reserve a final

decision on that question, until I shall have determined the large collections of this genus from Spitsbergen and Greenland.

This species was an interesting find, for it is supposed to be an addition to the lichen flora of Greenland. There is no plant of that name in the Greenland herbarium in Copenhagen.

25. *Lecidea soledizodes* (ANZI) VAIN.

VAIN., Lich. Fenn. IV, 1933, species No. 72 (in print).

var. *ochracea* LYNGE var. nov.

Fjord north of Cape Ravn.

Thallus areolatus, areolae subplanae vel—praecipue versus marginem—magis convexae usque bullatae, secundum peripheriam thalli subdiscretae, majusculae, diam. ca. 1 mm, vel etiam majores, crenatae, rimis reticulatis crebre divisae, micro-areolae angulatae, 0.2—0.3 mm latae. Areolae demum mox confluentes, thallum continuum, sed crebre minute reticulato-divisum formantes. Cortex hydrate ferrico tinctus et eam ob causam ochraceus. Thallus soledii (soraliis) crateriformibus, rotundatis, diam. 0.4—0.7 mm crebre instructus.

Apothecia et pycnides desunt.

Medulla J non caerulea, etiam KOH non tincta.

This is a well-known Arctic plant. TH. FRIES called it *Lecidea flavicunda* ACH. (Lich. Arct. p. 208). But according to VAINIO, Lich. Fenn. IV, species No. 73, *Lecidea flavocaerulescens* (in print) Acharii *Lecidea flavicunda* is identical with the esorediated *Lecidea flavocaerulescens*.

Its chemical reaction with J, and with KOH, prevents a confusion with the ochraceous formae of *Lecidea lapicida* and *Lecidea pantherina*, and its large thick thallus is essentially different from the small and thin *Lecidea Dicksonii*. — It must be referred to the *Lecidea macrocarpa*-section where its soledia place it with *Lecidea soledizodes*, the only esorediated species of that section in the northern floras, as far as I know.

26. *Lecidea* cfr. *vorticosa* (FLK.) KBR.

TH. FRIES, Lich. Scand. II, 1874, p. 515, ubi syn. DEICHM. BRANTH et GRÖNL., Grönlands Lich. Flora, 1888, p. 499. LYNGE, Lich. Novaya Zemlya, 1928, p. 82.

Kangerdlugssuaq. — A few small plane or only slightly convex apothecia, with traces of a whitish thallus. — The hypothecium is brownish-black, as is also the excipulum. The paraphyses are coherent, the hymenium intensely smaragdine in its upper part, bluish-violet by HNO_3 . The spores are oblong, $11\text{--}12.5 \times 4\text{--}5 \mu$.

These data suggest *Lecidea vorticosa*, but the few apothecia cannot ensure an unobjectionable determination.

Lecidea vorticosa is a rare plant in Greenland. DEICHM. BRANTH et

GRÖNLUND only record one find, from Nanortalik in the Julianehaab district, Southwest Greenland. I have not seen his plant.

Ochrolechia MASS.

27. *Ochrolechia frigida* (SW.) LYNGE.

Kangerdlugssuaq (optime fructifera), Cape Daussy. — Inevitable in Arctic collections.

Parmelia (ACH.) DE NOTRS.

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

Kangerdlugssuaq, in Kremer's island. — The only *Parmelia* in the collection. It is of interest that this section of the genus was represented by this species, and not by the more northern *Parmelia minuscula*.

Peltigera WILLD.

29. *Peltigera canina* (L.) WILLD.

var. *membranacea* DUBY.

Cape Dalton. — Again a more southern species, present also in the Norwegian collections from Southeastern Greenland, but lacking in the Norwegian collections from Northeast Greenland between 71°30' N. lat. and 75°30' N. lat. farther north.

30. *Peltigera leucophlebia* (NYL.) GYELN.

GYELNIK, Ueber eine neue Flechte, nebst kritische Bemerkungen über *Peltigera aphthosa*. Mag. Bot. Lapok, 1925, p. 79. G. (NILSSON) DEGELIUS, Zur Flechtenflora Ångermanlands, Arkiv för Bot., 1931, p. 37, ubi syn. *Peltigera variolosa* (MASS.). GYELNIK, vide LYNGE and SCHOLANDER, Lich. from Northeast Greenland, 1932, p. 28, ubi syn. — As justly mentioned by DEGELIUS l. c. GYELNIK was not justified in changing the fully valid combination which he had himself formerly introduced.

Kangerdlugssuaq.

31. *Peltigera malacea* (ACH.) FR.

D'Aunay Bay. — Very sparingly, a plant of the "complicata"-type which is so common in Arctic *Peltigerae*.

32. *Peltigera rufescens* (WEISS) HUMB.

Kangerdlugssuaq, Cape Dalton, D'Aunay Bay, and unnamed Fjord north of Cape Dalton.

Some of the plants are well fertile, and represent the "*Peltigera Suomensis*" of GYELNIK. It now seems to me that this "species" is only a fertile *Peltigera rufescens*. I know that also other Scandinavian lichenologists are of opinion that GYELNIK's splitting up of many lichen species is based on methods which we must resent.

Pertusaria DC.

- 33.
- Pertusaria oculata*
- (DICKS.) TH. FR.

Angmagssalik and Cape Ewart. — The commonest Arctic *Peltigera*.

Psoroma (ACH.) NYL.

- 34.
- Psoroma hypnorum*
- (DICKS.) HOFFM.

Angmagssalik.

Rhizocarpon (RAM.) TH. FR.

- 35.
- Rhizocarpon disporum*
- (NAEG.) MÜLL. ARG.

Kangerdlugssuaq.

- 36.
- Rhizocarpon geographicum*
- (L.) D. C.

Kangerdlugssuaq and Cape Dalton. — There were several plants.

Rinodina (S. GRAY) MASS.

- 37.
- Rinodina mniaraea*
- (ACH.) TH. FR.

D'Aunay Bay. — It was a little unexpected to find this *Rinodina* in the collection, and not *Rinodina turfacea*, which is supposed to be a more common species, here as elsewhere in the Arctic.

Solorina ACH.

- 38.
- Solorina crocea*
- (L.) ACH.

Angmagssalik, Cape Barclay and Cape Ewart. — Another more southern species, found in many localities also by the Norwegian expeditions to Southeast Greenland, but rare farther north in Northeast Greenland between 71°30' N. lat. and 75°30' N. lat. where we only obtained it in a few places (LYNGE and SCHOLANDER, Lich. from North-East Greenland, 1932, p. 27).

Sphaerophorus PERS.

- 39.
- Sphaerophorus globosus*
- (HUDS.) VAIN.

Angmagssalik. — Perhaps more common in Southeast Greenland than farther north, for we obtained it only once in the large Norwegian collections from Northeast Greenland between 71°30' N. lat. and 75°30' N. lat. in 1929—30.

Stereocaulon SCHREB.

- 40.
- Stereocaulon alpinum*
- LAUR.

Angmagssalik, Kangerdlugssuaq and Cape Dalton. — The well known parasite *Scutula Stereocaulorum* KBR. was found in the material. It deforms the plants not a little, and there is a certain possibility that one of these infested plants could be a *Stereocaulon rivulorum* MAGN.

41. *Stereocaulon denudatum* FLK.

β. *pulvinatum* (SCHAER.) TH. FR.

Kangerdlugssuaq. — Several finds, including a mighty pulvinate plant.

42. *Stereocaulon paschale* (L.) FR.

Tasiussaq. — Again a southern plant, found also in the Norwegian collections from Southeast Greenland, but lacking in our collections from Northeast Greenland between 71°30' N. lat. and 75°30' N. lat.

Usnea (DILL.) PERS.

43. *Usnea sulphurea* (KÖNIG) TH. FR.

Cape Dalton. — It was found at Cape Dalton also by the Amdrup expedition (VAINIO, Lich. Exped. AMDRUP 1905, p. 126). So far it is the southern limit of the species in East Greenland. It was not detected by the trained lichenologist P. F. SCHOLANDER who visited Southeast Greenland as a member of the Norwegian expedition in 1932. It is not probable that such a conspicuous species should have escaped him if it had been present there.

Verrucaria (WIGG.) TH. FR.

44. *Verrucaria aethiobola* WBG.

See VAINIO, Lich. Fenn. I, 1921, p. 27, ubi syn.

Cape Dalton, stone on the beach of the lagoon. — A thin, brown thallus, nucleus wine-red (vinosus) by J, peritheciium entire (integrum), black, spores generally about $25 \times 11 \mu$, poorly developed.

The plant comes nearest to var. *primaria* VAIN. l. c. VAINIO refers Malme Lich. Suec. No. 175 to this variety. The Greenland plant has a much thinner thallus, hardly visible to the naked eye, and accordingly more protruding perithecia.

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Lichen collections from East Greenland which have not yet been definitively determined:

1929. SEIDENFADEN, G. From North East Greenland between 71°30' N. lat. and 75°30' N. lat.

1929. LYNGE, B. From North East Greenland between $71^{\circ}30'$ N. lat. and $75^{\circ}30'$ N. lat.
1930. SCHOLANDER, P. F. From North East Greenland between $71^{\circ}30'$ N. lat. and $75^{\circ}30'$ N. lat. The first part of the results of these two expeditions have been published by LYNGE and SCHOLANDER, 1932.
1932. SCHOLANDER, P. F. From South East Greenland.

The first collection belongs to the Botanical Museum, Copenhagen, the last mentioned three collections to the Botanical Museum, Oslo.
