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OBSERVATIONS ON THE LICHENS OF LABRADOR AND UNGAVA

PAAVO KALLIO and LAURI KÄRENLAMPI

I. INTRODUCTION

In 1963 the author Kallio had an opportunity to visit the central part of Labrador-Ungava (Map 1). The main purpose was to become acquinted with the nature of this part of Canada, which has so many features in common with the northernmost part of Finland (HUSTICH 1962, 1963). Particularly the fact that a new subartic field laboratory is being erected in Finnish Lapland (at 69° 45' N latitude) by the University of Turku led the authors to seek a wider background for studying analogies in different parts of the circumpolar subarctic zone.

As a special biological program was undertaken the collection of larger fungi about whose distribution in subarctic Labrador— Ungava and subarctic Finland very little is known (SAVILE 1963, KALLIO & KANKAINEN 1964). During the excursions also phanerogams were collected, mostly by the fellow traveller, Prof. Ilmari Hustich. Also a few bryophytes were collected (CRUM & KALLIO 1967).

The collected lichens — 107 taxa in all — are listed here. The list is based on an unsystematical collection and cannot provide any detailed information on the characteristic features of the lichen flora of the area. Because, however, the lichens of Labrador and Ungava are imperfectly known (DAHL 1954, p. 470, DIX 1956, HALE 1961) the list may give some information. The identifications were made by the younger author, and Dr. Teuvo Ahti (Helsinki) has kindly placed his experience at our disposal.

The collections were made between June 24 and August 20, 1963. The chief collection area comprised the surroundings of Knob Lake/Schefferville, where the Subartic Laboratory of McGill University is situated. This laboratory was the main base for the excursions.

The area belongs to a zone of sedimentary rocks with iron ore and basic outcrops, which have left their imprint on the vegatation and the economic life. Muskeg forests as well as dry lichen—spruce forests on sandy soil are typical of the area (HUSTICH 1949, AHTI 1959). Close by there are, however, also ridges





Fig. 1. — View from Ruth Ridge.

with a vertical forest limit at an altitude of about 700 metres. This alpine region is called tundra in the list. It is possible that this zone is somewhat overrepresented in our collections as compared with other zones of the area.

The tundra of the barren mountains is very similar to that of Finnish Lapland. The phanerogam flora is composed mostly of the same or closely related taxa (HUSTICH 1962). The birch zone between tundra and coniferous zones is lacking, but sometimes Betula glandulosa or as in one part of the east slope of Ruth Ridge B. papyrifera and B. minor form together with Alnus crispa physiognomical features similar to that in the Scandinavian upper forest limit against barren mountains. The forest limit - both vertical and horizontal - is here composed mostly by two common conifers, Picea mariana and P. glauca. Abies balsamea is here rather rare and grows mostly in the lowlands. The forest limit against tundra is never sharp. The tundra areas of the mountains are surrounded by wider or narrower zones of parklike landscape, wich are called semitundra by Hustich. Betula glandulosa occurs often as shrub vegetation both in the forest and the tundras; in the latter it often forms narrow, carpet like stands as B. nana does in Europe together with Vaccinium uliginosum, V. vitis-idaea, Arctostaphylos alpina, Diapensia lapponica, Loiseleuria procumbens, Juncus trifidus, some Carex species etc.

In places where there are basic outcrops, e. g. dolomites, the vegetation is very

Observations on the Lichens of Labrador and Ungava

PAAVO KALLIO and LAURI KÄRENLAMPI

different. Near Slimy Lake there were stands of Salix vestita and chasmophytic phanerogamic basophiles: Draba Norvegica, Minuartias, Woodsia glabella and some mosses and lichens of the same ecological group: Distichium capillaceum, Encalypta procera, E. rhabdocarpa, Tortella fragilis, T. tortuosa, Solorina saccata and Cladonia symphycarpia.

The dry forests — large areas north and east of Knob Lake up to Attikamagen Lake are covered predominantly by sparse spruce forests with some solitary tamarack trees in open places. The soil is mostly covered by lichens: *Cladonia alpestris*, *C. rangiferina*, *C. mitis* and *Stereocaulons*.

In some moist valleys and on slopes more luxuriant vegetation composed by *Hylocomium* carpet, *Vaccinium* species and balsam spruce are seen. The dominant tree in muskegs is black spruce and various heath species — often *Vaccinium sp., Ledum groenlandicum* and *Kalmia polifolia* — and a heterogeneous mosaic of mosses are typical.

The area of Northwest River near the head of Melville Lake has more southern features and mostly archean rocks. There are luxuriant spruce forests with a high proportion of balsam spruce. There are typical *Sphagnum* marshes corresponding peat bog types in Finland. Forests of lichen type are rare and less typical. Typical marshes where *Myrica gale*, *Iris* as well as *Alnus crispa* and *A. rugosa* grow border some shores of Melville and Little Lakes.

The area round Twin Falls south of Lake Michikamau is situated almost in the middle of the two areas mentioned. The big rivers give their own characteristics to the area and many different biotopes are found side by side.

Some collections were made also west of the railway from the south to Knob Lake.

Localities mentioned in the list of lichens are shortly described in the following; the numbers indicate the places in Map 1.

1. Knob Lake /Schefferville, a small town where the McGill University Subartic Laboratory is located. It is situated in Quebec, 54° 49' N, 66° 48' W, but as the boundary New Foundland—Labrador is very near, some of the following localities may be partly in Labrador: Ruth Ridge W of the Town, 54° 46' N, 66° 51, W, largely in the tundra region (greatest elevation 2400 feet, Fig. 1); Ruth Lake west of the Ridge; Bean Lake, 54° 56' N, 66° 50' W; Slimy Lake, between Ruth Ridge and the town (most collections were made on the east side of the lake near the forest limit); and Irony mountain, 54° 54' N, 67° 09' W.

All other collections were made in the following localities in New Foundland Labrador: 2. Twin Falls, about 53° 31' N, 64° 31' W, including Thomas Falls and Scott Falls (Fig, 2), a part of Unknown River, and Bonnel Creek. The waterfalls with their moist surroundigs and meadows below, the abrupt slopes of acid rocks where *Dryopteris fragrans* is almost the only vascular plant in the



Fig. 2. - Scott Falls.

fissures in many places, some valleys with balsam poplar and luxuriant spruce forests with rich herb vegetation are numerous in this area.

3. Grand Fall (of Hamilton River) 53° 36' N, 64° 18' W. Below this high waterfall (about 100 metres) on the right bank of the River there is an area of 2-3 hectares exposed to continuous «rain« (Fig. 3). This wet sloping meadow is a habitat where the growth season is very late, the growth was in early «spring« phase in the middle of July, and has thus «northern« features with *Selaginella selaginoides, Salix arctica, Scirpus caespitosus* and *Arabis alpina*. The trees in the surrounding of the meadow were rich in cryptogamic epiphytes including *Leptogium saturninum, Lobaria pulmonaria* and *Pseudocyphellaria crocata*. *Rhytidiadelphus triquetrus* was abundant in the forest bordering the meadow. Only a few hours were spent in this locality.

4. Wabush. The area around Wabush and Labrador cities, $52^{\circ} 54^{\circ}$ N, $66^{\circ} 53^{\circ}$ W.

5. The area around Ross Bay railway junction (Fig. 4). Typical dry forests of lichen type.

6. Cape Caribou, at Grand Lake, 53° 36' N, 60° 11' W has an interesting shelf flora which exhibits also some features associated with basic rocks. This was the only locality in this part of Labrador where *Cryptogramma stelleri*,

88

Observations on the Lichens of Labrador and Ungava

PAAVO KALLIO and LAURI KÄRENLAMPI



Fig. 3. - Grand Falls of Hamilton River.

Woodsia alpina, W. glabella, Cerastium alpinum, Saxifraga aizoon, S. cernua, S. oppositifolia and Oxytropis johanensis were found. Dryopteris fragrans was found on some slopes southwest of Cape Caribou.

7. The surroundings of Northwest River village including the shores of Melville Lake and Little Lake and forests both north and south (up to Goose River).

8. Mud Lake, a small village on the south side of the lowest coarse of Grand River. Only a few hours were spent in this area.

The list is based on the collected material only. All the material is placed in the Herbarium of the University of Turku (TUR).

II. LIST OF SPECIES

Dermatocarpaceae

Dermatocarpon fluviatile (Web.) Th.Fr. - 2: Unknown River.

The identification of the specimen is based chiefly on the measured spore sizes: $14.5. - 16.0 \ge 6.0 - 7.0$ microns.

Baeomycetaceae

Baeomyces roseus Pers. — 1: woodlands between Knob Lake and Attikamagen Lake. — On sandy soil in *Cladina* woodland (Fig. 5).

Cladoniaceae

Cladonia acuminata (Ach.) Norrl. var. acuminata. — 2: small valley east of Bonnel Creek valley; Scott Falls. — 3: Grand Fall. — On moist riverbanks among mosses.

C. alpestris (L.) Rabenh. var. alpestris. — 1: Irony Mountain; Ruth Ridge. — 2: near Simson Pond. — 3: Grand Fall. — 5: Ross Bay Junction. — 7: Northwest River. — In many kinds of habitats, from riverbanks to tundra. The species was reported by HUSTICH (1951) to occur in the Knob Lake area.

C. alpicola (Flot.) Vain. — 2: small valley east of Bonnel Creek valley; Twin Falls. — On mineral soil.

C. amaurocraea (Flk.) Schaer. — 1: Irony Mountain, mountain between Ruth Lake and Bean Lake. — 2: small valley east of Bonnel Creek valley; Twin Falls; Unknown River. — 5: Ross Bay Junction. — Common on mossy rocks, in lichen woodlands and in tundra.

C. bellidiflora (Ach.) Schaer. — 1: east of Ruth Lake; Snowy Channel. — Found only in tundra.

C. cariosa (Ach.) Spreng. — 1: Slimy Lake. — Typically calciphilous habitat on a dolomitic slope.

C. carneola (Fr.) Fr. — 2: Scott Fall. — A small piece on wood beside the waterfalls. C. cenotea (Ach.) Schaer. — 7: Northwest River. — On mineral soil.

C. chlorophaea (Gaudich.) Spreng. s. lat. — 2: Scott Fall. — 3: Grand Fall. — On decaying wood on moist edges of waterfalls.

C. coccifera (L.) Willd. var. coccifera. — 1: woodlands between Knob Lake and Attikamagen Lake; mountain between Ruth Lake and Bean Lake. — 2: little valley east of Bonnel Creek valley; Twin Falls. — 5: Ross Bay Junction. — On soil, only this variety. Reported by HUSTICH (1951) from the Knob Lake area.

C. coniocraea (Flk.) Spreng. — 2: Scott Fall. — 3: Grand Fall. — Mostly on rotting wood. Like many other non-arctic species C. coniocraea grows on climatically favourable rocky slopes in valleys.

C. cornuta (L.) Schaer. — 1: mountain between Ruth Lake and Bean Lake. — 5: Ross Bay Junction. — 7: Northwest River. — On forest floors and in tundra.

C. crispata (Ach.) Flot. — 1: near Irony Mountain; Irony Mountain. — 2: Twin Falls. — 7: Northwest River. — On stones in tundra. The specimen from the Irony Mountain tundra is the alpine strain var. cetrariaeformis (Del.) Vain.

C. cristatella Tuck. — 7: Northwest River. — 8: Mud Lake. — On decaying wood.

C. deformis (L.) Hoffm. — 2: Twin Falls. — In North America the species is boreal, not arctic (AHTI 1964), resembling thus the distribution in Fennoscandia. The collected specimen was found on a climatically favourable rocky slope, where also Dryopteris fragrans was collected.

C. degenerans (Flk.) Spreng. - 2: Scott Fall.

C. digitata (L.) Hoffm. — 3: Grand Fall. — On decaying wood on moist edges of waterfalls.

C. ecmocyna (Ach.) Nyl. — 4: near Wabush. — 7: Northwest River. — In a forest among mosses.

90

PAAVO KALLIO and LAURI KÄRENLAMPI



Fig. 4. - Cladonia-Lichen-forest at Ross Bay.

C. fimbriata (L.) Fr. — 2: Unknown River. — On a mossy boulder in a rocky forest habitat of Dryopteris fragrans.

C. gonecha (Ach.) Asah. — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain. — 2: Twin Falls; near Bonnel Creek power station. — 5: Ross Bay Junction. — 7: Northwest River. — Common in lichen woodlands and in tundra.

C. gracilis (L.) Willd. — 1: mountain between Ruth Lake and Bean Lake; Irony mountain. — 2: Scott Fall; Twin Falls; near Simson Pond; near Bonnel Creek power station; small valley east of Bonnel Creek valley. — 3: Grand Fall. — 5: Ross Bay Junction. — 7: Northwest River. — 39 miles east of Esker. — In forests and in tundra. All common types (var. gracilis, var. dilatata and var. elongata) are represented in the material. The species was reported by HUSTICH (1951) from the Knob Lake area.

C. mitis Sandst. — 5: Ross Bay Junction. — On sandy soil in lichen woodland. Reported by HUSTICH (1951) from the Knob Lake area.

C. pyxidata (L.) Hoffm. — 2: small valley east of Bonnel Creek valley; Scott Fall; Unknown River. 3: Grand Fall. — Among mosses on moist edges of waterfalls.

C. rangiferina (L.) Wigg. — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain. — 5: Ross Bay Junction. — In lichen woodlands and in tundra. Reported by HUSTICH (1951) from the Knob Lake area.

C. scabriuscula (Del.) Leight. — 2: Unknown River. — 3: Grand Fall. — On mossy habitats at waterfalls.

C. squamosa (Scop.) Hoffm. — 1: Irony Mountain. — The only specimen was found on a tundra heath.

C. symphycarpia (Flk.) Arnold — 1: Slimy Lake. — Typically calciphilous habitat on a dolomitic slope.



Fig. 5. - View from the south shore of Attikamagen Lake.

C. turgida (Ehrh.) Hoffm. — 1: Irony Mountain. — 2: near Simson Pond. — On mossy ground.

C. unicialis (L.) Wigg. — 1: Ruth Ridge. — 5: Ross Bay Junction. — Recently it was found that C. uncialis differs in maritime and continental districts in Eastern Fennoscandia (KÄRENLAMPI 1964). The continental race branches polytomously, its internodes are short and axils perforate, whereas the maritime race branches dichotomously and has long slender internodes and imperforate axils. The Ross Bay Junction specimen grew in lichen woodland and resembles the continental race. The Ruth Ridge specimen was from the severe climatic conditions of the alpine region and exhibits the maritime features.

C. verticillata (Hoffm.) Schaer. var. verticillata. - 5: Ross Bay Junction. - On sandy soil in a spruce forest.

Collemataceae

Collema tuniforme (Ach.) Ach. — 2: Unknown River. — On wet stones on a riverbank.

Leptogium saturninum (Dicks.) Nyl. — 2: Scott Fall; Unknown River. — 3: Grand Fall. According to AHTI (1964), the species has an oceanic distribution. Like others with such a tendency it was very common in the moist microclimate near falls.

Lecanoraceae

Icmadophila ericetorum (L.) Zahlbr. - 2: Twin Falls.

92

17

Lecideaceae

Mycoblastus sanguinarius (L.) Norm. — 1: north of the McGill research station. — 2: small valley east of Bonnel Creek valley; Scott Fall; Twin Falls; between Twin Falls and Esker, 79 miles east of Esker. — On twigs and trunks of *Picea mariana*.

Pannariaceae

Parmeliella corallinoides (Hoffm.) Zahlbr. — 3: Grand Fall. — On tree trunks in moist places.

Parmeliaceae

Cetraria andrejevii Oxner, det Teuvo Ahti 1965. — 1: Ruth Ridge; mountain between Ruth Lake and Bean Lake. — On tundra and near timberline.

KROG (1962) reported *C. andrejevii* as a new species on the American continent, found in Alaska. It is now known to occur in the middle parts of Arctic North America (specimens in H, identified by Krog). Originally the species was known from the Asiatic part of the USSR. Thus we could conclude from our specimens, that *C. andrejevii* is transcontinental in America. According to KROG (1962), the species has only few laminal pseudocyphellae, but in the Labrador specimens they are quite numerous, though very inconspicuous, because of the small size and the brownish grey colour.

C. ciliaris Ach. — 1: north of the McGill Research Station. — 2: Twin Falls; between Esker and Twin Falls, 79 miles from Esker. — 4: near Wabush. — 6: Cape Caribou. — 7: Little Lake. — Common on spruce (*Picea mariana*), regularly together with Alectoria nidulifera.

C. cucullata (Bell.) Ach. — 1: mountain between Ruth Lake and Bean Lake; Ruth Ridge; Irony Mountain; Snowy Channel near Irony Mountain. — Collected only in tundra.

C. delisei (Bory) Th.Fr. — 1: mountain between Ruth Lake and Bean Lake; Ruth Ridge. — Near the timberline and in tundra.

C. ericetorum Opiz — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain; Snowy Channel near Irony Mountain. — 2: Unknown River. — Most specimens were from tundra. They all have a good positive PD reaction.

C. glauca (L.) Ach. — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain. — 7: Northwest River. — On twigs of a conifer and on a *Betula* trunk.

C. hepatizon (Ach.) Vain. — 1: Irony Mountain; stony slope east of Ruth Lake; Snowy Channel near Irony Mountain. — 2: Unknown River. — On open rocks. Plants are dark coloured and have narrow lobes.

C. islandica (L.) Ach. — 1: mountain between Ruth Lake and Bean Lake. — Near timberline.

The specimen gave a positive PD reaction, and the laminal pseudocyphellae are large and white. Reported by HUSTICH (1951) from the Knob Lake area.

C. nivalis (L.) Ach. — 1: mountains between Ruth Lake and Bean Lake; Irony Mountain; stony slope east of Ruth Lake. — 2: small valley east of Bonnel Creek valley. — 5: Ross Bay Junction. — Collected from lichen woodlands up to tundra. Reported by HUSTICH (1951) from the Knob Lake area.

C. nigricans Nyl. — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain; Ruth Ridge. — Numerous specimens from tundra.

C. pinastri (Scop.) S. Gray — 2: Scott Fall; woodland near Simson Pond. — 7: Northwest River. — 8: Mud Lake. — On twigs and trunks of various trees.

Hypogymnia austerodes (Nyl.) Räs. — 2: near the Bonnel Creek power station. — On dry wood.

H. bitteri (Lynge) Ahti — 1: north of the McGill Research Station. — 2: Scott Fall; near the Bonnel Creek power station; between Twin Falls and Esker, 79 miles from Esker; Unknown River. — On trunks and twigs of conifers.

H. physodes (L.) Nyl. — 2: between Twin Falls and Esker, 79 miles from Esker; Unknown River. — 4: Wabush. — On living conifers and on dead wood.

Parmelia centrifuga (L.) Ach. — 1: Irony Mountain. — 2: Unknown River. — On rock and on the thallus of Umbilicaria muehlenbergii.

P. exasperatula Nyl., det. T. Ahti, 1965. — 6: Cape Caribou. — On Lobaria pulmonaria on tree twigs.

P. fraudans Nyl. — 2: Unknown River. — On rocky slope in forest. Dryopteris fragrans habitat.

P. infumata Nyl. -- 2: Unknown River. -- On rock.

P. omphalodes (L.) Ach. - 2: Bonnel Creek; Unknown River.

P. saxatilis (L.) Ach. var. saxatilis. — 2: small valley east of Bonnel valley. — On dead trunk of a conifer.

var. divaricata Del. ex Nyl., det. Teuvo Ahti 1965. — 2: Scott Fall; small valley east of Bonnel Creek valley. — On trunks of living trees. The specimens are easily distinguished from var. saxatilis, because the upper cortex of var. divaricata is only poorly reticulately ridged or cracked and its sparse isidia are long, slender and pale in colour. DIX (1956) found var. divaricata on trunk of dead tamarack and var. saxatilis chiefly on rocks.

P. trabeculata Ahti (Paratypes) — 2: Unknown River. — 6: Cape Caribou. — On trunk of *Populus balsamifera* (2) and on *Lobaria pulmonaria* on tree twigs (6). For diagnosis and discussion of distribution, see AHTI (1966).

P. sulcata Tayl. — 2: Scott Fall; Unknown River; between Twin Falls and Esker, 79 miles from Esker. — Abundant on various trees.

Parmeliopsis ambigua (Wulf.) Nyl. — 2: Twin Falls; Unknown River; near the Bonnel Creek power station; between Twin Falls and Esker, 79 miles from Esker. — 7: Northwest River. — On various trees.

P. aleurites (Ach.) Nyl. — 2: Unknown River. — On the thallus of Umbilicaria muchlenbergii.

P. hyperopta (Ach.) Arnold — 1: north of the McGill Research Station. — 2: Scott Fall; near the Bonnel Creek power station; between Twin Falls and Esker, 79 miles from Esker. — 3: Grand Fall. — 7: Northwest River. — On various trees together with P. ambigua.

Peltigeraceae

Peltigera aphthosa (L.) Willd. s.str. — 2: Scott Fall; small valley east of Bonnel Creek valley. — 3: Grand Fall. — 6: Cape Caribou. — On mossy places.

P. canina (L.) Willd. s.str. - 2: Scott Fall. - On mosses on riverbanks.

P. leucophlebia (Nyl.) Gyeln. — 2: Scott Fall; Twin Falls; Unknown River. — 3: Grand Fall. — 7: Northwest River, 10 miles to Goose Bay. — Chiefly on more naked places than P. aphthosa (see AHTI 1964).

P. malacea (Ach.) Funck var. lyngei (Gyeln.) — 2: Twin Falls. — On mosscovered rocky slope.

Observations on the Lichens of Labrador and Ungava

The variety has not been reported before from the American continent, because THOMSON (1950, 1955) does not name it. THOMSON (1955) supposed *P. lyngei* Gyeln. to be closely related to *P. scabrosa*, but in our specimen the malacea-like undersurface is very clear, and the verruculose scabrid uppersurface as well. POELT (1962) called *P. lyngei* a variety of *P. malacea*, and stated it to be an arctic type, which was confirmed by LYNGE (1938), who reports about *P. malacea* found in Spitsbergen that: «On the upper surface there is a minute tomentum, almost calling to mind the scabrous surface of *Peltigera scabrosa*«.

P. polydactyla (Neck.) Hoffm. — 3: Grand Fall. — 6: Cape Caribou. — 7: Northwest River, 10 miles toward Goose Bay. — On mossy rocks. These localities fill quite a large gap in the distribution map of *P. polydactyla* (THOMSON 1950). The same applies to most of the other *Peltigerae* listed here.

P. praetextata (Flk.) Zopf. — 2: Unknown River. — Among mosses.

P. rufescens (Weis) Humb. — 1: Slimy Lake. — 2: Unknown River. — 6: Cape Caribou. — The most typical specimen was found on a dolomitic slope near Slimy Lake.

P. scabrosa Th.Fr. — 1: Snowy Channel. — 2: Twin Falls. — 6: Cape Caribou. — 7: Northwest River. — Collected in lichen woodlands, on rocky slopes and in tundra heath.

P. scutata (Dicks.) Duby — 3: Grand Fall. — 6: Cape Caribou. — On mossy tree trunks at waterfalls. Narrow lobed, richly sorediate forms. For the discovery of *P. scutata* in Eastern North America, see AHTI (1964).

P. spuria (Ach.) Lam. & DC. — 1: Slimy Lake. — 6:Cape Caribou. — 7: Northwest River: Sand Hill. — On soil in open areas (dolomitic slope, roadside).

Nephroma arcticum (L.) Torss. — 2: small valley east of Bonnel Creek valley; Twin Falls. — 3: Grand Fall. — Northwest River. — Among mosses in lichen woodlands and on riverbanks. Reported by HUSTICH (1951) from the Knob Lake area.

N. parile (Ach.) Ach. — 3: Grand Fall. — 6: Cape Caribou. — WETMORE (1960) mapped the species of Nephroma in North and Middle America; the present localities occupy a gap between Quebec and Southern Greenland.

N. resupinatum (L.) Ach. — 2: Unknown River. — 7: Northwest River. — About the distribution, see note under N. parile.

Solorina crocea (L.) Ach. — 1: between Knob Lake and Attikamagen. — On sandy soil in *Cladina* woodland.

S. saccata (L.) Ach. - 1: Slimy Lake. - On dolomitic slope among mosses.

Physciaceae

Physcia aipolia (Ehrh.) Hampe — 2: Unknown River. — On trunk of Populus balsamifera.

P. intermedia Vain. — 2: Unknown River. — On boulder in forest habitat of Dryopteris fragrans.

P. muscigena (Ach.) Nyl. - 1: Slimy Lake. - On dolomitic slope.

Stereocaulaceae

Stereocaulon alpinum Laur. — 1: Irony Mountain; Ruth Ridge. — 2: small valley east of Bonnel Creek valley. — 3: Grand Fall.

S. condensatum Hoffm. - 5: Ross Bay Junction. - On sandy soil in lichen woodland.

S. dactylophyllum Flk. — 2: Twin Falls. — According to AHTI, 1964) S. dactylophyllum is suboceanic in distribution. The habitat is again 'fallside' with «oceanic« features. The species is somewhat southern as it is common in the southern Appalachian Mountains (HALE 1961), though reported by MACOUN (1902) from Greenland. The identification of our specimen seems to be realiable in view of the positive K reaction of the medulla.

S. paschale (L.) Hoffm. — 1: east of Ruth Lake. — 5: Ross Bay Junction. — In tundra and in lichen woodland.

S. subcoralloides Nyl. - 2: small valley east of Bonnel Creek valley. - On a rock.

Stictaceae

Lobaria pulmonaria (L.) Hoffm. — 2: Scott Fall; Twin Falls; small valley east of Bonnel Creek valley; Unknown River. — 3: Grand Fall. — 6: Cape Caribou. — 7: Northwest River, 10 miles toward Goose Bay; on the way from Northwest River to Goose River. — On various trees and rocky slopes.

All Labrador specimens are PD + deep yellow or somewhat orange, especially in soralia, whereas all examined Finnish specimens show PD + deep red. The K reaction is a similar reddish yellow in both areas. POELT (1962) has stated the PD reaction to be red in Europe, but HALE (1961) says that L. pulmonaria in America contains norstictic acid (PD + orange-yellow) and stictic acid (PD + pale orange). Obviously the strains of the two continents are different.

L. scrobiculata (Scop.) DC. — 2: Scott Fall; small valley east of Bonnel Creek valley. — 6: Cape Caribou. — 7: mountains between Northwest River and Goose River; 7 and 10 miles from Northwest River towards Goose Bay; — On rocks, but also on trees.

Pseudocyphellaria crocata (L.) Vain. -- 3: Grand Fall. -- Together vith Lobaria pulmonaria on rotten twigs of a tree.

The species is oceanic and southern in distribution (AHTI 1964). The microclimate of the habitat of the specimen is obviously moist on the edges of waterfalls, resembling thus that of coastal districts. The nearest localities listed by LEPAGE (1947—49) are on the Atlantic coast of Southern Quebec.

Teloschistaceae

Xanthoria elegans (Link.) Th.Fr. — 2: Unknown River. — 6: Cape Caribou. — On rock.

Umbilicariaceae

Umbilicaria hyperborea (Ach.) Hoffm. — 1: mountain between Ruth Lake and Bean Lake; near Attikamagen Lake; Irony Mountain; Snowy Channel near Irony Mountain. — 2: small valley east of Bonnel Creek valley; Twin Falls; between Twin Falls and Esker, 79 miles from Esker. — Common and abundant in open places on stones in tundra.

U. muchlenbergii (Ach.) Tuck. — 1: Irony Mountain; Ruth Ridge; east of Ruth Lake. — 2: small valley east of Bonnel Creek valley; between Twin Falls and Esker, 17 miles from Esker; 79 miles from Esker; Unknown River. — Common and abundant like the preceding species.

Many lichens e.g. Cetraria hepatizon, Mycoblastus sanguinarius, Parmelia centrifuga, Parmeliopsis aleurites, P. ambigua and P. hyperopta grow on the thallus of U. muchlenbergii.

U. proboscidea Shrad. — 1: mountains between Ruth Lake and Bean Lake; Irony Mountain; east of Ruth Lake; Ruth Ridge; Snowy Channel near Irony Mountain. — Common on open rocks, especially in tundra.

U. pensylvanica Hoffm. — 2: small valley east of Bonnel Creek valley.

This species has not been found before in Labrador though it has been found in Greenland (LLANO 1950) and Ontario (AHTI 1964); it is common in the Appalachian Mountains.

U. torrefacta (Lightf.) Schrad. - 1: Irony Mountain. - A few specimens in tundra.

U. vellea (L.) Ach.) — 2: small valley east of Bonnel Creek valley; Unknown River. — 6: Cape Caribou. — 7: beside the road between Northwest River and Goose River. — On cliffs.

Usneaceae

Alectoria jubata (L.) Ach. coll. — 2: between Twin Falls and Esker, 79 miles from Esker. — On dead branches of a conifer.

In his recent studies MOTYKA (1960 and 1964) divided A. jubata (L.) Ach. coll. into many species. The present specimen resembles A. tenerrima Mot. (Canadian specimens of Teuvo Ahti were examined for comparison).

A. lanea (Ehrh.) Vain. — mountains between Ruth Lake and Bean Lake. — On the ground in tundra.

A. nibulifera Norrl. — 1: north of the McGill Research Station. — 2: Twin Falls; between Twin Falls and Esker, 79 miles from Esker. — 4: Carol Lake (near Wabush). — 6: Cape Caribou. — Abundant together with *Centraria ciliaris* on twigs of conifers.

A. nigricans (Ach.) Nyl. - 1: Ruth Ridge. - On the ground in tundra.

The species belongs to the arctic group, which is more common on the coasts of Labrador (Howe 1911).

A. ochroleuca (Hoffm.) Mass. — 1: mountains between Ruth Lake and Bean Lake; Irony Mountain; Ruth Ridge. — On the ground in tundra. Apothecia seem to be common; the species differs thus from the Finnish populations.

A. sarmentosa (Ach). Ach. — 1: mountain between Ruth Lake and Bean Lake; Irony Mountain. — 7: Northwest River. — On twigs of conifers near timberline.

A. simplicior (Vain.) Lynge — 2: near the Bonnel Creek power station. — 7: Little Lake. — On twigs of conifers.

Cornicularia divergens Ach. — 1: Irony Mountain; Ruth Ridge. — On ground in tundra.

Ramalina pollinaria (Liljebl.) Ach. coll. — 1: Irony Mountain. — 2: Unknown River. — 6: Cape Caribou. — On rocks.

Sphaerophoraceae

Sphaerophorus fragilis (L.) Pers. — 1: Ruth Ridge. — Only a small specimen on a rock in tundra.

S. globosus (Huds.) Vain. - 1: Irony Mountain. - Among mosses on rock in tundra.

Basidiolichenes

Coriscium viride (Ach.) Vain. — 1: Irony Mountain, together with Omphalina luteolilacina. About the Coriscium problem see HEIKKILÄ and KALLIO (1966).

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ASAHINEA CHRYSANTHA (TUCK.) CULB. ET CULB. IN FENNOSKANDIEN

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Im August 1965 besuchten wir während des vom Botanischen Institut der Universität Turku auf der Subarktischen (biologischen) Forschungsstation Kevo in Utsjoki veranstalteten Symposions der Pilz- und Flechtenforscher auch Finnmarken auf der norwegischen Seite. Dabei stiessen wir am Südufer des Varangerfjord, etwa 3 km E von Karlbotn, auf die Flechte Asahinea chrysantha (Tuck.) Culb. et Culb. an ihrem vorläufig westlichsten bekannten Fundort in der Osthemisphäre. Der Standort liegt etwa 20 m vom Fjordufer entfernt etwa 3 m über dem Meeresspiegel. Die Art wuchs hier spärlich auf der Scheitelfläche eines etwa halbmeterhohen losen Steins auf einer dünnen Detritusschicht an ziemlich trockenem Ort in Begleitung einiger xerophilen Flechten, wie etwa Alectoria jubata coll., A. pubescens, Parmelia centrifuga, P. sorediosa, Sphaerophorus fragilis und Umbilicaria proboscidea. Der fragliche Stein befindet sich auf der Westseite einer einige Meter hohen Felswand im Schutze vor den längs den Fjord streichenden Ostwinden. Die nächste Ungebung besteht aus baumloser nordborealer Heide, einer sog. sekundären Tundra (vgl. Ahtt u. Mitarb. 1964, p. 23; Hämet-Ahti 1965). Nur an geschützten Abhängen findet man niedrigen dichten Birkenwald.1

Dieser neue Fund der Flechte ist der zweite in Fennoskandien. Vordem hat die Art aus der Gegend von Chibin (Hiipinä) auf der Kolahalbinsel vorgelegen, wo TRASS u. Mitarb. (1963, p. 135) sie in den Jahren 1958 und 1959 auf dem nördlichen Suoluaiv-Fjeld in einem oroarktischen Steinicht fanden. Auch östlicher wird die Art hauptsächlich von Steinen angegeben (u.a. SAVICZ 1936, p. 317: auf moosbedecktem Stein am Flussufer), es kann also der Standort der Flechte am Varangerfjord als durchaus spezifisch angesehen werden. Auch die

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¹ I. J. 1966 fand Verf. HAKULINEN ein reichliches Vorkommen der Flechte etwa 200 m weiter von Westen von dem erwähnten Standort.