A LIST OF BRYOPHYTES COLLECTED IN THE GEORGE RIVER DISTRICT, QUEBEC.

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The coastal region of the Ungava peninsula has been fairly well explored owing mainly to the work of A. P. Low (1897, 1898, 1901 & 1902), one of the foremost pioneers in Canadian geology. On the other hand, little is known about the greater area inland as only a few exploratory missions have ventured into the interior. In overland crossings, explorers have habitually proceeded from the Hudson Bay shore via Richmond Gulf, Clearwater and Lower Seal Lakes and Larch River. Or else, they have traversed New Quebec from a more northern point of departure on the Bay, reaching Ungava's eastern shore via Minto Lake and Leaf River. One of the early Low expeditions, however, that of 1893-94, started from Lake St. John, traveled over Lakes Mistassini and Nichikun, and reached Ungava Bay by means of the Kaniapiskau and the Koksoak Rivers.

V. Tanner (1948) attributes generally the preference of field workers to survey arctic wastes north of the timber line to the fact that the ground is covered with comparative ease. In addition, they have found their endeavors rewarded by a generous yield of records which at times bordered on the sensational. The neighboring areas immediately within the tree line, though perhaps not as thickly wooded as some of the vast stretches found in adjoining but more meridional localities, offer many of the hardships and the hazards of travel which render penetration of the boggy taïga an unforgettable, if not disagreeable, experience. Yet not often enough does the final result yield more than just a little that is new or that could be considered as a deserving reward with which to offset the effort expended. Nevertheless, central Ungava, which possibly holds the solution to a number of boreal distributional problems, remains on the whole a strikingly primitive territory where much scientific field work has yet to be accomplished to satisfy more fully geological and botanical curiosity.

That so little of the physiography or the biology of the George has been published may be imputed to the fact that

the river has, to date, only caught the attention without actually receiving the visit of either the professional physiographer or the biologist. The narratives, for instance, of Mrs. Leonidas Hubbard Jr. (1908), Dillon Wallace (1907), and H. H. Prichard (1911), who have journeyed on its waters, would more appropriately come under the heading of travel rather than scientific literature. Justification for grouping their writings as such finds corroboration in the selection of the titles chosen for their published accounts. From their records, H. C. Cooke (1929) has adroitly compiled a brief physiographical sketch of the George River basin. Tanner (1948) also made use of practically the same sources, the only available ones, to complete an impression of the natural features of the George which he observed from the air.

One of the two main Ungava waterways, George River flows in the central portion of the peninsula between 54°46′ Lat. N., 64°20′ Long. W. and 58°50′ Lat. N., 60° Long. W., and drains the northeasternmost corner of Quebec adjoining Labrador. From Hubbard Lake, its source located approximately fifteen miles north of the cartographically impressive body of water Lake Michikamau, it makes its way first through a chain of shallow and boulder-strewn lakes, after which it narrows its course for most of its whole length. Occasionally it widens downstream to form lake-like expansions which have received geographical recognition in names such as Resolution Lake, Indian House Lake, etc. As the George wends its way northward from its headwaters, it follows a capricious course which at times lies within twenty miles and seldom, if ever, beyond 100 miles west of the height of land. The latter, likewise, pursues a vaguely flexuous course in a south-north direction and, in this sector, serves as the boundary line between the politically independent Province of Quebec and Labrador, which comes under the political jurisdiction of the Province of Newfoundland.

The head of the George lies in a plateau-like terrain monotonously lacking in elevations or rock outcrops. In an unpublished preliminary report to which the author has had

access, Dr. Jacques Rousseau (1948A) observes that the stretches of rapids in the river between its source and approximately 55°05′ Lat. N. are caused by accumulations of stones or glacial boulders rather than by obstructions created by projecting rock formations in situ. However, towards 55°23′ Lat. N. the river, which upstream gives the impression of a superficial stream loosely meandering over the Laurentian Plateau, proceeds to cut its way more deeply into the Precambrian Shield. The topography of its shorelines completely changes in physical aspect. Its waters flow through a submature valley, falling or cascading over jutting outcrops in the river bed. The hills on either side of it rise to a height of 800-900 feet, progressively gaining altitude northward till they attain approximately 1500 ft. in elevation.

Dr. Rousseau describes the surroundings of Lake Hubbard as a bog-covered plateau in the subarctic forest belt. The main trees are black spruce (*Picea nigra* Link) and tamarack (*Larix laricina* (DuRoi) Koch). The taïga uniformly covers the terrain up to about 55°05′ Lat. N. More northwardly (Rousseau 1948B), the forest rapidly dwindles and seeks refuge in the moisture-saturated atmosphere of the river's shores and their immediate environs. The arctic tundra meanwhile puts in a timid initial appearance in the surrounding higher and more windswept regions. Further northward, in the proximity of Indian House Lake, the forest cover thins out to a degree that, but for a few thicket-like remnants of spruce woods, the countryside assumes the physical characteristics of tundra-growth. However, some distance downwards, in the neighborhood of Helen Falls, near 58°08′ Lat. N., Dr. Rousseau was struck by the density of the wooded area. At a point some 25 miles south of the river's mouth, the formation is almost luxuriant in comparison with the stands of trees encountered miles upstream.

To Dr. Jacques Rousseau goes the credit for being apparently the first naturalist to successfully carry out an expedition devoted exclusively to the study of the natural history of the George River. Accompanied by four Indian

guides from Seven Islands, the party landed on Hubbard Lake and from there proceeded by canoe down to the river's mouth. They took approximately four weeks, July 14 to August 8, 1947, to cover the 350-odd miles of the journey.

Collections were made at a number of stops along the route and total 1500 numbers. Fifty-one of them were bryophytes collected purposely. The author has had the privilege of examining them. They serve as the basis for the present report. The hepatics total ten species spread over four families. Six of them belong to the Jungermanniaceae. Fourteen moss families appear in the list below, the species, varieties, and forms amounting to 32 in all.

The comparatively small number of hepatic and moss collections gives some idea of the diversity in the bryophyte flora of the region. In glancing through the list one gains an insight into the relative frequency of a few of the commoner species: *Ptilidium ciliare* (L.) Nees, *Sphenolobus minutus* (Crantz) Steph., *Polytrichum juniperinum* Hedw. var. *alpestre* Bry. Eur., *Dicranum fuscescens* Turn., *Aulacomnium turgidum* (Wahlenb.) Schwaegr., *Pohlia nutans* (Hedw.) Lindb., *Calliergon sarmentosum* (Wahlenb.) Kindb., *Calliergonella Schreberi* (Bry. Eur.) Grout, and *Drepanocladus uncinatus* (Hedw.) Warnst. var. *typicus* Wynne especially, were, perhaps as one has reasonably come to expect, detected oftenest in the material examined.

Since the area lies close to the questionably arbitrary boundary established by N. Polunin (1940) as the southern limit of the Canadian Eastern Arctic, comparison with Prof. W. C. Steere's (1947) moss flora for the same territory is inviting. Of all the species found in the present list only *Hypnum patientiae* Lindb. and H. *crista-castrensis* Hedw., both more meridional in affinity, do not appear in the latest and most important contribution to the arctic bryogeography of the Western Hemisphere. Of those common to both lists, Dr. Steere logically does not consider *Sphagnum recurvum* Beauv., of which only one collection authorizes its inclusion in his treatise, and *Polytrichum commune* Hedw., known from every continent but likewise seldom collected heretofore in the Canadian Eastern Arctic,

as truly or typically arctic species. Three of the mosses considered of most common occurrence in this sector of the arctic, *Tortula ruralis* (Hedw.) Smith, *Rhacomitrium lanuginosum* (Hedw.) Brid. and *Aulacomnium turgidum* (Wahlenb.) Schwaegr., figure in the enumeration below.

In scanning through the author's list, note will likewise be made of the presence of a few extremely widespread and cosmopolitan species, almost weedlike in behavior: *Ptilidium ciliare* (L.) Nees, *Polytrichum piliferum* Hedw., *Ceratodon purpureus* (Hedw.) Brid., *Aulacomnium palustre* (Web. & Mohr) Schwaegr., *Bryum argenteum* Hedw., *Pohlia nutans* (Hedw.) Lindb., *Calliergonella Schreberi* (Bry. Eur.) Grout and the remarkably ubiquitous, here as elsewhere, *Drepanocladus uncinatus* (Hedw.) Warnst. var. *typicus* Wynne. Moreover, it is interesting to observe that the equally universally-distributed *Bryum argenteum* Hedw., collected on trampled soil near the George River post of the Hudson's Bay Company, on August 12 bore an abundance of almost mature sporophytes, a phenological condition usually attained only towards the end of October or early in November in the region of Montreal, some thirteen degrees south in latitude.

As observed above, the rock formation through which the George has worn its way is the Precambrian Shield which in the interior tends to be of a markedly acid nature. Twenty-eight rock samples from outcrops collected by Dr. Rousseau along the route seem to indicate an overwhelming predominance of igneous rock in the terrain covered. *Tortula ruralis* (Hedw.) Smith, the only species in the list oftener calciphilous than not, was collected at Naujats Island, in Ungava Bay, a coastal station which though lying in the neighborhood of the mouth of the George belongs to a different geological formation.

Of the mosses enumerated, two species which may arouse some interest in Quebec are *Cinclidium subrotundum* Lindb. and *Andreaea obovata* Thed. Record of the former constitutes a southeastern extension in the Quebec range of the species. With a circumboreal general distribution embracing Siberia, Novaya Zemblaya, arctic Europe and Green-

land, and reputedly of more northern occurrence than the frequently collected *C. stygium* Sw., *C. subrotundum* is, according to Steere (1947), "Widespread through the Canadian Eastern Arctic, and possibly not lacking in any part." The first record of the species for Quebec (Macoun, 1902) is a Fort Chimo collection made by A. P. Low in 1896. Wynne and Steere (1943) list a collection by M. K. Doutt from Manitounuck Sound, N.W.T. Though published earlier, the specimen is antedated by Steere's (1947) determination of material of the species from Wakeham Bay. In the Rousseau collection, *C. subrotundum* appears in two consecutive numbers, 819 and 820. In both instances, the collector lists a treeless plateau in the neighborhood of Mt. Pyramid, 57°30′ Lat. N., as its habitat. The plant forms part of an association of bryophytes consisting of *Polytrichum juniperinum* Hedw. var. *alpestre* Bry. Eur., *Ceratodon purpureus* (Hedw.) Brid., *Aulacomnium turgidum* (Wahlenb.) Schwaegr., *Pohlia nutans* (Hedw.) Lindb., *Calliergon sarmentosum* (Wahlenb.) Kindb., and *Drepanocladus uncinatus* (Hedw.) Warnst. var. *typicus* Wynne.

Andreaea obovata Thed., the other species and a more interesting find, belongs to the ecostate group of *Andreaea* species. It was first reported for continental North America by Dr. Steere (1941) who determined a collection made by A. Dutilly, in Wolstenholme, Northern Quebec. Macroscopically, one easily sets *A. obovata* aside from any of the multiple forms of *A. rupestris* Hedw. by its more robust size. However, its typically panduriform leaves principally serve to distinguish it from the four other species listed by A. J. Sharp (1936) for North America north of Mexico. Rousseau gives an alpine brook on the slope of Mt. Pyramid as the habitat in which a generous supply of the species was collected.

Presence of bryophytes such as *Anthelia julacea* (L.) Dumort., *Gymnocolea inflata* (Huds.) Dumort., *Andreaea obovata* Thed., *Blindia acuta* (Hedw.) Bry. Eur., *Conostomum boreale* Sw., *Cinclidium subrotundum* Lindb. and *Calliergon sarmentosum* (Wahlenb.) Kindb. indicate the existence of particularly favorable habitats and climatic con-

ditions for circumboreal bryophytes in the George River basin. More intensive exploration in the area will eventually yield other species worthy of note which are already known to grow in association with those just mentioned. One, for instance, hastily brings to mind the bryophytes usually found in the immediate vicinity of late-snow areas, or other habitats which help to foster late snows or are dependent upon them, such as shadowing cliffs, alpine brooks on elevated slopes, etc. A category of such habitats normally harbors a host of elements which regrettably were not detected in the collections examined.

Drs. Margaret Fulford, Winona H. Welch, A. LeRoy Andrews, A. W. Evans and W. C. Steere have generously assisted the author in naming critical specimens. Miss Rita Dubé, Dr. Jacques Rousseau and Mr. Marcel Raymond, of the Montreal Botanical Garden, have wholeheartedly given of their time and advice. May all find here an earnest expression of the author's indebtedness to them.

The nomenclature and systematic arrangement of species followed in the list below are those prepared by A. J. Grout (1940), A. LeRoy Andrews (1940), and A. W. Evans (1940).

HEPATICAE

PTILIDIACEAE

ANTHELIA JULACEA (L.) Dumort. Mountain about 4 miles west of Lake Indian House, at 56°20′ Lat. N. & 64°48′ Long. W.: *Eriophorum* depressions on summit; 28 July 1947; *508*.—Mountain about 5 miles west of Lake Indian House, at 56°20′ Lat. N. & 64°49′ Long. W.: in a moist depression; 28 July 1947; *516a*.—Mt. Pyramid, at 57°29′ Lat. N.: alpine pool near summit; 5 Aug. 1947; *864*.

PTILIDIUM CILIARE (L.) Nees. On mountain east of George River, near 55°09′ Lat. N.: on rock summit; 19 July 1947; *184* (with *Sphenolobus minutus* & *Polytrichum piliferum*)—Lake Indian House, at 56°03′ Lat. N.: denuded hillside; 27 July 1947; *465*.—Naujats Island, Ungava Bay, near George River, near 58°48′ Lat. N. & 66°33′ Long. W.: moist zone on almost bare rock with no shrubby vegetation; 17 Aug. 1947; *1158* (with *Dicranum fuscescens, Rhacomitrium lanuginosum* and *Drepanocladus uncinatus* var. *typicus*).

HARPANTHACEAE

MYLIA ANOMALA (Hook.) S. F. Gray. Lake Hubbard: taïga with undergrowth partly boggy and partly *Cladonia*-covered; July 14, 1947; *23* (with *Orthocaulis atlanticus, Polytrichum juniperinum* var. *alpestre* and *Calliergonella Schreberi*).

JUNGERMANNIACEAE

LOPHOZIA VENTRICOSA (Dicks.) Dumort. George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *783.*

SPHENOLOBUS MINUTUS (Crantz) Steph. On mountain east of George River, near 55°09′ Lat. N.: on rock summit; 19 July 1947; *184* (with *Ptilidium ciliare* & *Polytrichum piliferum*), *185B* (with *Dicranum fuscescens*).—Mountain about 7 miles west of Lake Indian House, about 56°20′ Lat. N. & 64°54′ Long. W.: in dried out depression; 28 July 1947; *521* (with *Rhacomitrium lanuginosum* & *Diapensia lapponica*).

GYMNOCOLEA INFLATA (Huds.) Dumort. On mountain east of George River, near 55°09′ Lat. N.: in a pond on the summit; 19 July 1947; *201.*

ORTHOCAULIS ATLANTICUS (Kaal.) Buch. Lake Hubbard: Taïga with undergrowth partly boggy and partly *Cladonia*-covered; 14 July 1947; *23* (with *Mylia anomala, Polytrichum juniperinum* var. *alpestre* & *Calliergonella Schreberi*).—West shore of George River, near 55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *433* (with *Polytrichum juniperinum* var. *alpestre*).

BARBILOPHOZIA HATCHERI (Evans) Loeske. George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *780* (with *Polytrichum commune* & *Drepanocladus uncinatus* var. *typicus*), *781* (with *Dicranum fuscescens*), *782, 784* (with *Drepanocladus uncinatus* var. *typicus*).

PLECTOCOLEA HYALINA (Lyell) Mitt. George River, towards 55°05′ Lat. N.: on humid, moss-covered shore; 18 July 1947; *127.*

SCAPANIACEAE

SCAPANIA NEMOROSA (L.) Dumort. On mountain east of

George River, near 55°09′ Lat. N.: rock summit; 19 July 1947; *185 Ba.*

MUSCI

SPHAGNACEAE

SPHAGNUM CAPILLICEUM (Weiss) Schrank var. TENELLUM (Schimp.) Andrews. Esker est of George River, near 55°09′ Lat. N.: thicket at foot of esker; 19 July 1947; *206.*

SPHAGNUM GIRGENSOHNII Russ. Near Wedge Hill, near 57°09′ Lat. N.: moist granitic shore; 3 Aug. 1947; *751* (with *Calliergon sarmentosum*).—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: thinly-wooded, high plateau, at the foot of a "tissekau"; 5 Aug. 1947; *828* (with *Polytrichum juniperinum* var. *alpestre*), *829* (with *Polytrichum juniperinum* var. *alpestre, Pohlia nutans* & *Calliergonella Schreberi*).

SPHAGNUM RECURVUM Beauv. Near Hades Hills, near 56°58′ Lat. N.: soggy bog in black spruce wood; 3 Aug. 1947; *712.*—West shore of George River, near 55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *424* (with *Calliergon stramineum*).

SPHAGNUM ROBUSTUM (Russ.) Röll. West shore of George River near 55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *429.*

ANDREAEACEAE

ANDREAEA OBOVATA Thed. Mt. Pyramid, at 57°29′ Lat. N.: alpine brook down mountain slope; 5 Aug. 1947; *866.*

POLYTRICHACEAE

POGONATUM ALPINUM (Hedw.) Röhl. Near Wedge Hill, near 57°09′ Lat. N.: moist granitic shore; 3 Aug. 1947; *752.*

POGONATUM CAPILLARE (Rich.) Brid. Comis Brook, near 55°45′ Lat. N.: sandy beach; 22 July 1947; *322.*

POLYTRICHUM COMMUNE Hedw. George River, near 57° 21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *780* (with *Barbilophozia Hatcheri* & *Drepanocladus uncinatus* var. *typicus*).

POLYTRICHUM JUNIPERINUM Hedw. var. ALPESTRE Bry. Eur. Lake Hubbard: taïga with undergrowth partly boggy and partly *Cladonia*-covered; 14 July 1947; *22* (with *Cal-*

liergonella Schreberi), *22a* (with *Pohlia nutans* & *Calliergonella Schreberi*), *23* (with *Mylia anomala, Orthocaulis atlanticus* & *Calliergonella Schreberi*).—West shore of George River, near 55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *433*.—Lake Indian House, at 56°03′ Lat. N.: denuded hillside; 27 July 1947; *463* (with *Aulacomnium turgidum* & *Drepanocladus uncinatus* var. *typicus*), *464* (with *Drepanocladus uncinatus* var. *typicus*). —Neighborhood of Mt. Pyramid, towards 57°30′ Lat. N.: treeless and moist plateau, at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Ceratodon purpureus, Aulacomnium turgidum, Pohlia nutans, Cinclidium subrotundum* & *Calliergon sarmentosum*)—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: thinly-wooded, high plateau, at foot of a "tissekau"; 5 Aug. 1947; *828* (with *Sphagnum Girgensohnii*), *829* (with *Sphagnum Girgensohnii, Pohlia nutans* & *Calliergonella Schreberi*).

POLYTRICHUM PILIFERUM Hedw. On mountain east of George River, near 55°09′ Lat. N.: on rock summit; 19 July 1947; *184* (with *Ptilidium ciliare* & *Sphenolobus minutus*).

DITRICHACEAE

CERATODON PURPUREUS (Hedw.) Brid. Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Polytrichum juniperinum* var. *alpestre, Aulacomnium turgidum, Pohlia nutans, Cinclidium subrotundum* & *Calliergon sarmentosum*).

SELIGERIACEAE

BLINDIA ACUTA (Hedw.) Bry. Eur. George River, 55°47′ Lat. N.: cold spring seeping over mossy sand; 24 July 1947; *357*.

DICRANACEAE

DICRANUM FUSCESCENS Turn. On mountain east of George River, near 55°09′ Lat. N.: on rock summit; 19 July 1947; *185B* (with *Sphenolobus minutus*), *185 Bb*.—George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *781* (with *Barbilophozia barbata*). —Naujats Island, Ungava Bay, near George River, near

58°48′ Lat. N. & 66°33′ Long. W.: moist zone on almost bare rock with no shrubby vegetation; 17 Aug. 1947; *1158* (with *Ptilidium ciliare, Dicranum fuscescens, Rhacomitrium lanuginosum* and *Drepanocladus uncinatus* var. *typicus*).

POTTIACEAE

TORTULA RURALIS (Hedw.) Smith. Naujats Island, Ungava Bay near George River, near 58°48′ Lat. N. & 66°33′ Long. W.: with humid moss in an area of almost bare rock with no shrubby vegetation and covered during tidal overflow; 17 Aug. 1947; *1162*.

GRIMMIACEAE

GRIMMIA ALPICOLA Hedw. var. RIVULARIS (Brid.) Broth. f. PAPILLOSA G. N. Jones. George River, near 57°21′ Lat. N.: moist boulder-covered shore; 4 Aug. 1947; *792*.

RHACOMITRIUM FASCICULARE (Hedw.) Brid. Entrance to Lake Resolution near 55°12′ Lat. N.: stony point covered with *Potentilla tridentata, Betula glandulosa, Cornus canadensis, Alnus;* 20 July 1947; *235a*.

RHACOMITRIUM LANUGINOSUM (Hedw.) Brid. Lake Indian House at 56°03′ Lat. N.: denuded hillside; 27 July 1947; *464A*.—Mountain about 7 miles west of Lake Indian House at 56°20′ Lat. N. & 64°54′ Long. W.: in dried-out depression; 28 July 1947; *521* (with *Sphenolobus minutus* & *Diapensia lapponica*).—Mt. Pyramid, at 57°29′ Lat. N.: dry rock summit; 5 Aug. 1947; *846*.—Naujats Island, Ungava Bay near George River, near 58°48′ Lat. N. & 66°33′ Long. W.: moist zone on almost bare rock with no shrubby vegetation; 17 Aug. 1947; *1158* (with *Ptilidium ciliare, Dicranum fuscescens, Drepanocladus uncinatus* var. *typicus*).

SPLACHNACEAE

TETRAPLODON MNIOIDES (Hedw.) Bry. Eur. Esker east of George River near 55°09′ Lat. N.: treeless and lichen-covered esker; 19 July 1947; *178*.—George River near 55° 46′ Lat. N.: on granitic shore; 23 July 1947; *345*.

AULACOMNIACEAE

AULACOMNIUM PALUSTRE (Web. & Mohr) Schwaegr. George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *787*.

AULACOMNIUM TURGIDUM (Wahlenb.) Schwaegr. Lake Indian House at 56°03′ Lat. N.: denuded hillside; 27 July 1947; *463* (with *Polytrichum juniperinum* var. *alpestre* & *Drepanocladus uncinatus* var. *typicus*).—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Polytrichum juniperinum* var. *alpestre, Ceratodon purpureus, Pohlia nutans, Cinclidium subrotundum* & *Calliergon sarmentosum*).

BARTRAMIACEAE

CONOSTOMUM BOREALE Sw. Mountain about 5 miles west of Lake Indian House at 56°20′ Lat. N. & 64°49′ Long. W.: in a moist depression; 28 July 1947; *516*.

BRYACEAE

BRYUM ARGENTEUM Hedw. Bay of the George River Post, near 58°31′ Lat. N.: trodden earth near residence; 12 Aug. 1947; *1151*.

POHLIA NUTANS (Schreb.) Lindb. Lake Hubbard: taïga partly boggy and partly *Cladonia*-covered; 14 July 1947; *22a* (with *Polytrichum juniperinum* var. *alpestre* & *Calliergonella Schreberi*)—Mountain about 7 miles west of Lake Indian House at 56°20′ Lat. N. & 64°54′ Long. W.: moist formation with *Salix uva-ursi;* 28 July 1947; *522* (with *Drepanocladus uncinatus* var. *typicus*).—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Polytrichum juniperinum* var. *alpestre, Ceratodon purpureus, Aulacomnium turgidum, Cinclidium subrotundum* & *Calliergon sarmentosum*), *829* (with *Sphagnum Girgensohnii, Polytrichum juniperinum* var. *alpestre* & *Calliergonella Schreberi*).

MNIACEAE

CINCLIDIUM SUBROTUNDUM Lindb. Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Polytrichum juniperinum* var. *alpestre, Ceratodon purpureus, Aulacomnium turgidum, Pohlia nutans* & *Calliergon sarmentosum*), *820* (with *Calliergon sarmentosum* & *Drepanocladus uncinatus* var. *typicus*).

HYPNACEAE

CALLIERGON CORDIFOLIUM (Hedw.) Kindb. Lake Indian House at 56°03′ Lat. N.: beach of muddy sand; 27 July 1947; *448* (with *Drepanocladus uncinatus* var. *typicus*).

CALLIERGON SARMENTOSUM (Wahl.) Kindb. Entrance to Lake Resolution near 55°12′ Lat. N.: stony point covered with *Potentilla tridentata, Betula glandulosa, Cornus canadensis, Alnus;* 20 July 1947; *235* (with *Drepanocladus uncinatus* var. *typicus* & *Hypnum patientiae*).—Near Wedge Hill, near 57°09′ Lat. N.: moist granitic shore; 3 Aug. 1947; *751* (with *Sphagnum Girgensohnii*).—Neighborhood of Mt. Pyramid at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *819* (with *Polytrichum juniperinum* var. *alpestre, Ceratodon purpureus, Aulacomnium turgidum, Pohlia nutans* & *Cinclidium subrotundum*), *820* (with *Cinclidium subrotundum* & *Drepanocladus uncinatus* var. *typicus*).—Kopaluk Bay, (George River estuary), near 58°31′ Lat. N.: pool inundated by river at high tide; 10 Aug. 1947; *1097* (with *Drepanocladus exannulatus* var. *typicus*).

CALLIERGON STRAMINEUM (Brid.) Kindb. West shore of George River near 55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *424* (with *Sphagnum recurvum*).

CALLIERGONELLA SCHREBERI (Brid.) Grout. Lake Hubbard: taïga partly boggy and partly *Cladonia*-covered; 14 July 1947; *22* (with *Polytrichum juniperinum* var. *alpestre*), *22a* (with *Polytrichum juniperinum* var. *alpestre* & *Pohlia nutans*), *23* (with *Mylia anomala, Orthocaulis atlanticus* & *Polytrichum juniperinum* var. *alpestre*).—George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana; 4 Aug. 1947; 785, 786* (with *Drepanocladus uncinatus* var. *typicus* & *Hypnum crista-castrensis*).—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: thinly-wooded, high plateau at foot of a "tissekau"; 5 Aug. 1947; *829* (with *Sphagnum Girgensohnii, Polytrichum juniperinum* var. *alpestre* & *Pohlia nutans*).

DREPANOCLADUS EXANNULATUS (Bry. Eur.) Warnst. var. TYPICUS (Dixon) Wynne. George River, west shore, near

55°55′ Lat. N.: moist and mossy cavity under cold spring; 26 July 1947; *425, 434*—Kopaluk Bay (George River estuary), near 58°31′ Lat. N.: pool inundated by river at high tide; 10 Aug. 1947; *1097* (with *Calliergon sarmentosum*). —Bay of the George River Post, near 58°31′ Lat. N.: denuded mountain back of the Post; 12 Aug. 1947; *1156A*.

DREPANOCLADUS UNCINATUS (Hedw.) Warnst. var. TYPICUS Wynne. Entrance to Lake Resolution, near 55°12′ Lat. N.: stony point covered with *Potentilla tridentata, Betula glandulosa, Cornus canadensis, Alnus;* 20 July 1947; *235* (with *Calliergon sarmentosum & Hypnum patientiae*).—Lake Indian House, at 56°03′ Lat. N.: beach of muddy sand; 27 July 1947; *448* (with *Calliergon cordifolium*).—Lake Indian House, at 56°03′ Lat. N.: denuded hillside; 27 July 1947; *463* (with *Polytrichum juniperinum* var. *alpestre & Aulacomnium turgidum*), *464* (with *Polytrichum juniperinum* var. *alpestre*).—Mountain about 7 miles west of Lake Indian House, at 56°20′ Lat. N. & 64°54′ Long. W.: moist formation with *Salix uva-ursi;* 28 July 1947; *522* (with *Pohlia nutans*).—George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *780* (with *Barbilophozia Hatcheri & Polytrichum commune*), *784* (with *Barbilophozia Hatcheri*), *786* (with *Calliergonella Schreberi & Hypnum crista-castrensis*).—George River, near 57°21′ Lat. N.: moist boulder-covered shore; 4 Aug. 1947; *793*.—Neighborhood of Mt. Pyramid, at 57°30′ Lat. N.: treeless and moist plateau at foot of a "tissekau"; 5 Aug. 1947; *820* (with *Cinclidium subrotundum & Calliergon sarmentosum*).—Naujats Island, Ungava Bay near George River, near 58°48′ Lat. N. & 66°33′ Long. W.: moist zone on almost bare rock with no shrubby vegetation; 17 Aug. 1947; *1158* (with *Ptilidium ciliare, Dicranum fuscescens* and *Rhacomitrium lanuginosum*).

HYPNUM CRISTA-CASTRENSIS Hedw. George River, near 57°21′ Lat. N.: wooded slope covered with *Picea mariana;* 4 Aug. 1947; *786* (with *Calliergonella Schreberi & Drepanocladus uncinatus* var. *typicus*).

HYPNUM PATIENTIAE LINDB. Entrance to Lake Resolution, near 55°12′ Lat. N.: stony point covered with *Poten-*

tilla tridentata, Betula glandulosa, Cornus canadensis, Alnus; 20 July 1947; *235* (with *Calliergon sarmentosum* & *Drepanocladus uncinatus* var. *typicus*).

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