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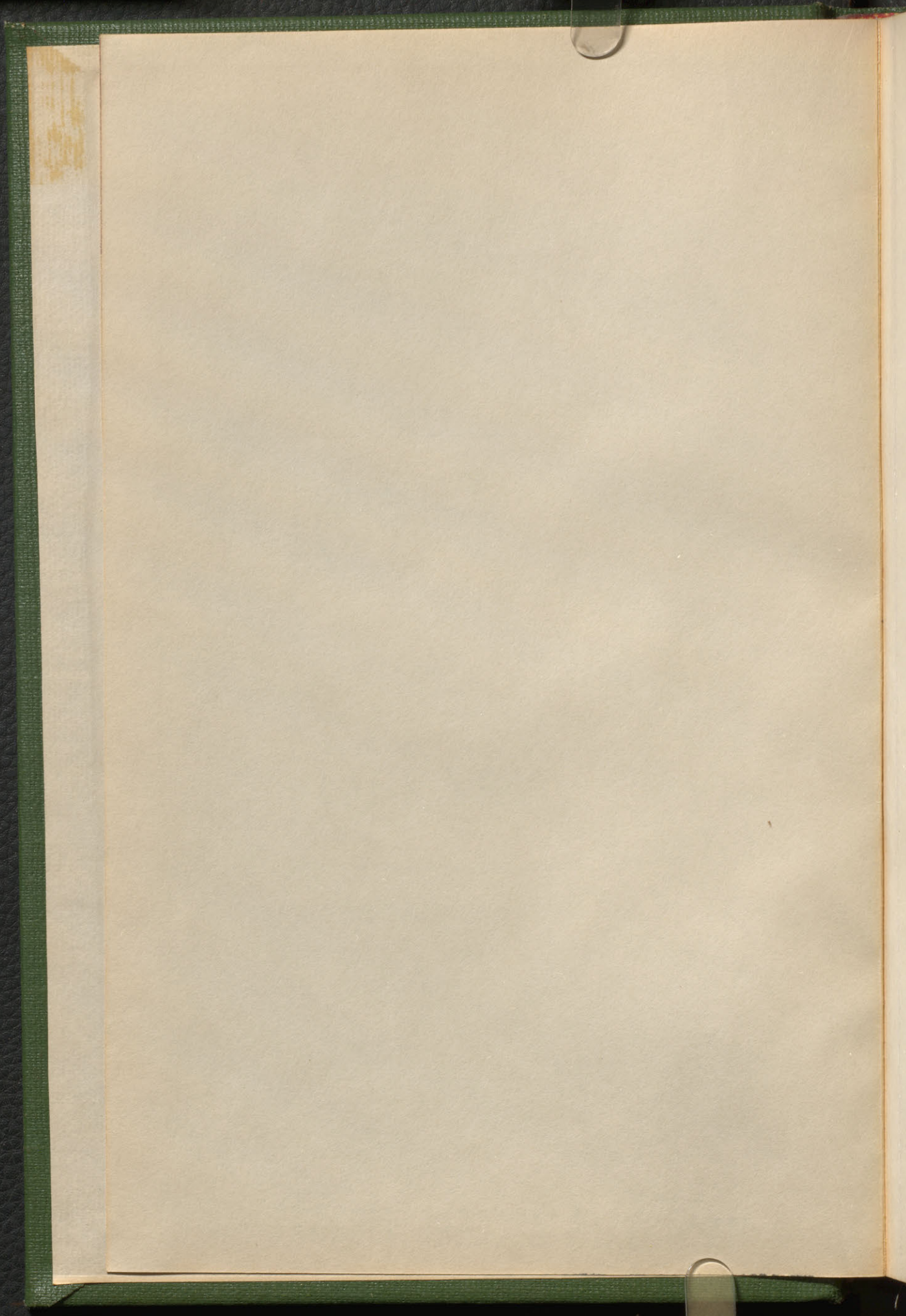
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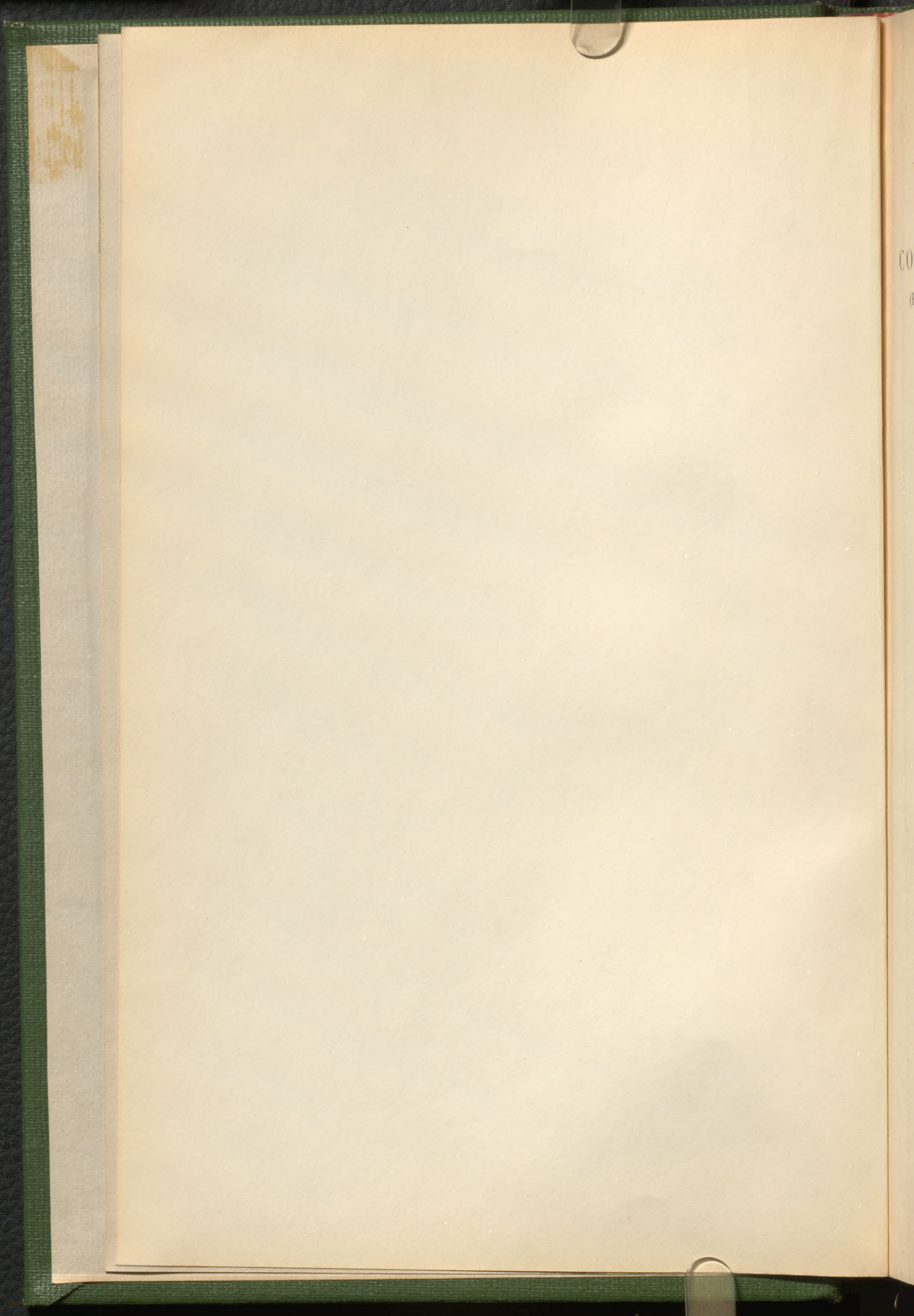
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# VASCULAR PLANTS

COLLECTED IN ARCTIC NORTH AMERICA

(KING WILLIAM LAND, KING POINT AND HERSCHELL ISL.)

BY THE GJÖA EXPEDITION

UNDER CAPTAIN ROALD AMUNDSEN

1904—1906

DETERMINED BY

C. H. OSTENFELD

WITH THREE PLATES

DUPLICATE



(VIDENSKABS-SELSKABETS SKRIFTER. I. MATHEM.-NATURV. KLASSE. 1909. No. 8)

UDGIVET FOR FRIDTJOF NANSENS FOND

CHRISTIANIA

IN COMMISSION BY JACOB DYBWAD

1910

Fremlagt i Fællesmøde 8de Oktober 1909 ved Prof. Wille.

A. W. BRØGGERS BOGTRYKKERI.

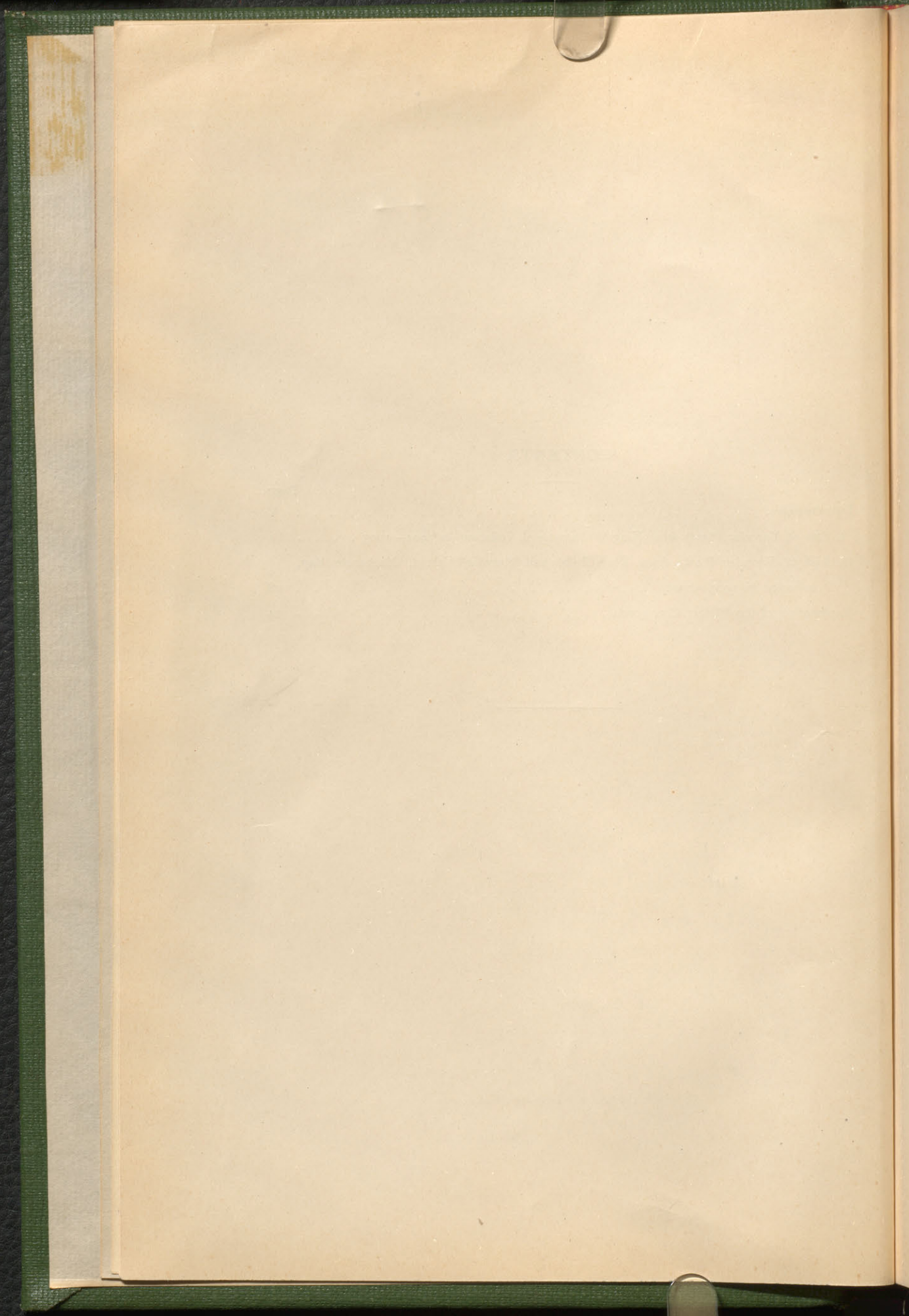


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## INTRODUCTION.

The Gjøa Expedition under Captain ROALD AMUNDSEN has brought home a rather large collection of dried plants collected 1) at Gjøa Harbour, King William Land, and 2) at King Point and Herschell Island near the shore of the Beaufort Sea, a little to the west of the delta of the Mackenzie River, Canadian part of Alaska<sup>1</sup>. Most of the plants were collected by the steward Mr. A. H. LINDSTRÖM, and a small collection was made by Mr. GODFRED HANSEN of the Royal Danish Navy, the second officer of the expedition. Neither of the collectors having any botanical training, the plants do not give any complete idea of the floras of the countries in question; nevertheless the large material of well-chosen plants Mr. LINDSTRÖM especially has brought together is quite excellent. I think we may go so far as to say that all the more conspicuous flowering herbs which were in full development at the time of the stay of the expedition, have been taken, and a good many of species are represented by numerous specimens. The shortcoming of the collection is mainly the scarceness of grasses and grass-like plants. To a certain extent this gap has been reduced by a careful examination of the tufts of the larger plants and mosses, during which I have detected fragments of many grass-like monocotyledons. I think therefore that the list from King William Land is rather representative, but on the other hand that from King Point and Herschell Island is far from being so, the flora of this region being much richer.

The collection of Mr. LINDSTRÖM belongs to the University of Christiania, and I owe to the kindness of Professor Dr. N. WILLE, Director of the Botanical Garden and Museum, Christiania, the permission to work it out; the small collection made by Lieutenant GODFRED HANSEN has been presented to the Botanical Museum of the University of Copenhagen by the collector himself. The first duplicate set of the collections are given to the Museums of Copenhagen and Christiania respectively. — I take this opportunity to offer my sincere thanks to my friend Professor WILLE for his placing the material at my disposal and for his trouble with the arrangement of the printing of this paper.

<sup>1</sup> A single species *Ammodenia peploides* (L.) RUPR. var. *diffusa* HORNEM., was gathered on Douglas Island on the south coast of Victoria Land (Aug. 20th, 1905).

Further, I should like to express the thanks of botanists to the two collectors, especially to Mr. LINDSTRÖM, for the great service they have done to botanical geography in taking the trouble to collect a considerable material from countries hitherto very little known with regard to their flora. I hope the paper here published will show them that they have not worked in vain.

As the two regions from which the collections originate are far from each others, I think it more convenient to give the lists for each of them separately.

The species enumerated have been arranged in genera and families almost to the same order as that used in BRITTON & BROWN, An Illustrated Flora of the northern United States, Canada, etc., vol. I—III, New York 1896—98.

I have myself identified all the plants and am responsible for their names with exception of the two new species of *Taraxacum*, the determination and description of which are due to Dr. H. DAHLSTEDT of Stockholm. I am much indebted to him for his kind help in this matter.

The Botanical Museum, Copenhagen.

September 1909.

C. H. Ostenfeld.

## I. List of Vascular Plants from King William Land, collected in 1904—1905.

As far as I know the flora of King Williams Land has been quite unknown hitherto. At least I have not succeeded in finding any publication about it. Many plant lists exist from the more northern islands of the Arctic American Archipelago, based mainly upon collections brought home by the Franklin research expeditions. Among them I may mention, as belonging to countries in the neighbourhood of King William Land, 1) a list of plants collected at Port Kennedy (the northern part of the Boothian Peninsula, ca.  $72^{\circ}$  Lat. N.) by Dr. WALKER<sup>1</sup>, 2) a list of plants collected on the southern shores of Prince Albert's Land (Wollaston Land and Victoria Land,  $66-69^{\circ}$  Lat. N.,  $112-117^{\circ}$  Long. W.) by Mr. RAE<sup>2</sup>. These two lists will be quoted in the following enumeration, as »WALKER, Boothia Felix« and »RAE, Wollaston-Victoria Land«.

As the present collection does not claim to represent the whole flora of King William Land, but is only a list of the species (63 in number) collected on this island during the stay of the Gjøa Expedition, I think it allowable to restrict my quotations of the numerous scattered lists concerning the flora of the Arctic American Archipelago to the two lists just mentioned and further to quote the larger works: W. J. HOOKER, *Flora Boreali-Americana*, 1829—1840, and JOHN MACOUN, *Catalogue of Canadian Plants*, parts I—V, 1883—1890<sup>3</sup>, the last of which contains a careful compilation

<sup>1</sup> J. D. HOOKER: An Account of the Plants collected by Dr. Walker in Greenland and Arctic America during the Expedition of Sir Francis M'Clintock, R. N., in the Yacht Fox. — Proc. Linn. Soc., Bot. Vol. V, 1861, p. 79—89.

<sup>2</sup> J. D. HOOKER: On some Collections of Arctic Plants, etc. — Ibidem, vol. I, 1857, p. 114—124.

<sup>3</sup> In a series of papers, "Contributions from the Herbarium of the Geological Survey of Canada" (from 1894 onward) Mr. JAMES M. MACOUN gives numerous additions to the records in "Catalogue of Canadian Plants", but very few of them are from the Arctic islands.

of all data accessible on the distribution of the plants of the Dominion of Canada. Besides these treatises the following enumeration only quotes other papers when the synonymy and the conception of the species in question require it.

All the plants have been collected in the summers of 1904 and 1905 in the neighbourhood of the wintering place, Gjõa Harbour, Lat. N.  $68^{\circ} 37' 38''$ , Long. W.  $96^{\circ} 23' 40''$ , which is in the south-eastern corner of the island. Most specimens do not have any more detailed indication as to the finding places, but a few are recorded from "Framnæs", a projecting point at the harbour, where several coast species were growing. In the enumeration the locality has therefore been omitted, as there is always meant Gjõa Harbour. On the other hand, the dates of the collecting are mentioned, as they give some information as to the flowering time.

The collector has mostly been Mr. LINDSTRÖM, and if no name is given it means that the species has been collected by him or by both collectors; if the species does not occur in Lindström's collection, then the name of Lieutenant GODFRED HANSEN is given.

**Pteridophyta.***Equisetaceae.**Equisetum* L.

1. *Equisetum variegatum* SCHLEICH., Cat. pl. Helvet., 1807, p. 27; HOOKER, Fl. Bor. Am., II, 1840, p. 270<sup>1</sup>; MACOUN, Catalogue V, 1890, p. 252; OSTENFELD, Fl. Arct. I, 1902, p. 9.

A small fragment was found hidden in plants of *Epilobium latifolium* L. (collected on Aug. 5th, 1905).

**Monocotyledones.***Juncaceae.**Juncus* L.

2. *Juncus biglumis* L., Sp. pl. 1753, p. 328; HOOKER, Fl. Bor. Am., II, 1839, p. 192; MACOUN, Catalogue IV, 1890, p. 58; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 25.

WALKER, Boothia Felix.

A single culm from the year before was discovered among tufts of mosses (Aug. 6th, 1904).

*Luzula* D. C.

3. *Luzula nivalis* (LÆSTAD.) BEURLIN, Botan Notis., Lund, 1853, p. 55; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 30; *L. hyperborea*,  $\beta$ , *minor* HOOKER, Fl. Bor. Am., II, 1839, p. 189; MACOUN, Catalogue IV, 1890, p. 69; *L. arctica* BLYTT, Norges Flora, I, 1861, p. 299.

Two small sterile shoots which undoubtedly belong to this species, have been collected among mosses (July 31st, 1904).

<sup>1</sup> The dates of the publication of the different parts of HOOKER'S Flora have been taken from "The Journal of Botany", 1909, p. 106, viz.:

Part I	Pages 1-48	1829	Part II	Pages 1-48	1834
	- 49-144	1830		- 49-144	1838
	- 145-end	1834		- 145-240	1839
				- 241-end	1840.

*Cyperaceae.**Eriophorum* L.

4. *Eriophorum polystachion* L., Sp. pl., 1753, p. 52; OSTENFELD, Fl. Arct., I, 1902, p. 40; MACOUN, Catalogue IV, 1890, p. 105 (incl. var. *angustifolium*); *E. polystachyum* et *E. angustifolium*, HOOKER, Fl. Bor. Am. II, 1839, p. 231.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Rather small and slender specimens (f. *elegans* BABINGTON, cfr. M. L. FERNALD, Rhodora, VII, 1905, p. 89) just in the beginning of fruiting were collected on July 31st 1904 and Aug. 7th 1905.

5. *Eriophorum Scheuchzeri* HOPPE, Bot. Taschenbuch, 1800, p. 104, App. t. 7; OSTENFELD, Fl. Arct., I, 1902, p. 41; *Er. capitatum* HOST, HOOKER, Fl. Bor. Am. II, 1839, p. 231; MACOUN, Catalogue IV, 1890, p. 104. Cfr. M. L. FERNALD, Rhodora, vol. VII, 1905, p. 82.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

A rich material of flowering (July 31st) and fruiting (Aug. 6th) specimens was collected in 1904.

*Carex* L.

6. *Carex rupestris* ALL., Fl. Pedemont., vol. 2, 1785, p. 264, pl. 92, fig. 1; HOOKER, Fl. Bor. Am., II, 1839, p. 209; MACOUN, Catalogue IV, 1890, p. 113; OSTENFELD, Fl. Arct., I, 1902, p. 86; KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 86.

A few sterile shoots were found hidden in tufts of mosses and lichens (collected in Aug. 1905).

7. *Carex incurva* LIGHTF., Fl. Scot., II, 1777, p. 544, pl. 24, fig. 1; HOOKER, Fl. Bor. Am., II, 1839, p. 211; MACOUN, Catalogue IV, 1890, p. 119; OSTENFELD, Fl. Arct., I, 1902, p. 49; KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 113.

A few flowering specimens were collected in July 1904 (GODFRED HANSEN).

8. *Carex aquatilis* WAHLENB., var. *stans* (DREJER) BOOTT, Illustr. Car. IV, 1867, tab. 544, 545, fig. 2; OSTENFELD, Fl. Arct., I, 1902, p. 70; KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 311; *C. stans* DREJER, Krøyers Naturh. Tidsskrift, Kiøbenhavn, 3, 1841, p. 458; *C. aquatilis*, var. *epigeios*, MACOUN, Catalogue IV, 1890, p. 144.

RAE, Wollaston-Victoria Land.

Large and well developed specimens with few flowering culms were collected in Aug. 1904 in tufts of mosses growing in wet places.



9. *Carex salina* WHBG. var. *subspathacea* (WORMSKJ.) TUCKERM., Enum. method., 1843, p. 12; OSTENFELD, Fl. Arct. I, 1902, p. 75; *C. subspathacea* WORMSKJOLD, Fl. Dan. IX, 4. 1816; MACOUN, Catalogue IV, 1890, p. 148; KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 361; *C. Hoppneri* BOOTT, HOOKER, Fl. Bor. Am., II, 1839, p. 219, tab. 220.

A single flowering specimen of minute size was collected on Aug. 6th, 1904, some others somewhat larger (6 cm. high) erect — corresponding to f. *reducta* (DREJ. pr. sp.) — on Aug. 10th 1904.

10. *Carex misandra* R. BR., Chloris Melvill., 1823, p. 25; MACOUN, Catalogue IV, 1890, p. 138; OSTENFELD, Fl. Arct., I, 1902, p. 88; *C. fuliginosa*, HOOKER, Fl. Bor. Am. II, 1839, p. 224 (non *C. fuliginosa* STERNB. & HOPPE); *C. fuliginosa*,  $\beta$ , *misandra*, KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 557.

WALKER, Boothia Felix.

A single specimen with immature fruits was collected on Aug. 7th 1905, some specimens without culms of the year on July 31st 1904.

11. *Carex membranopacta* BAILEY, Bull. Torr. Bot. Club, 20, 1893, p. 428; SIMMONS, Rep. Sec. Arct. Exp. Fram 1898—1902, No. 2, Christiania, 1906, p. 136 (extensive synonymy); *C. membranacea* HOOKER, Bot. Appendix, PARRY'S 2nd Voy., 1825, p. 406; Fl. Bor. Am., II, 1839, p. 220; *C. compacta* R. BR., in Ross, Voy. App., 1823, p. 143; MACOUN, Catalogue IV, 1890, p. 170; *C. vesicaria* L., subsp. *saxatilis*,  $\gamma$ , *compacta*, KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 728.

Specimens with immature fruits were collected on Aug. 7th 1905.

I agree with H. G. SIMMONS in taking *C. membranopacta* BAIL. as a separate species, the Arctic-American representative of *C. pulla* GOOD. and *C. rotundata* WHBG. When I wrote up the *Carices* for my *Flora arctica* I only had insufficient material of this species at my disposal and therefore united it with the nearest allied species: *C. rotundata*. It differs — as pointed out by SIMMONS — from this and from *C. pulla* in its inflated, membranaceous, on drying collapsed utricles with very short beak.

### Gramineae.

#### *Hierochloë* GMEL.

12. *Hierochloë pauciflora* R. BR., Chloris Melvill., London, 1823, p. 35; HOOKER, App. to Parry's 2nd Voy., 1825, p. 410, tab. II; Fl. Bor. Am., II, 1839, p. 234; MACOUN, Catalogue IV, 1890, p. 188; GELERT, in Ostenfeld, Fl. Arct., I, 1902, p. 98.

Flowering specimens were found in large tufts of mosses collected in Aug. (6th and 10th) 1904 in brooks and ponds.

*Alopecurus* L.

13. *Alopecurus alpinus* SM., Engl. Bot., 1802, tab. 1126; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 99; HOOKER, Fl. Bor. Am. II, 1839, p. 234; MACOUN, Catalogue IV, 1890, p. 188.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

A few specimens of the main form with awns projecting beyond the glumes were found (Aug. 4th 1905), and a single specimen of f. *mutica* SOMMERF. also occurs in the collection (Aug. 1905).

*Arctagrostis* GRISEB.

14. *Arctagrostis latifolia* (R. BR.) GRISEB., in Ledebour, Fl. Ross. IV, 1853, p. 434; MACOUN, Catalogue IV, 1890, p. 201; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 107; *Colpodium latifolium* R. BR., Chloris Melvill., 1823, p. 28; HOOKER, App. to Parry's 2nd Voy., 1825, p. 408, tab. II; Fl. Bor. Am., II, 1839, p. 238.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Numerous, 20—30 cm. high specimens in full flowering were collected on Aug. 4th and 7th 1905; they were growing in wet places among mosses.

*Dupontia* R. BR.

15. *Dupontia Fisheri* R. BR., Chloris Melvill., 1823, p. 33; HOOKER, Fl. Bor. Am. II, 1840, p. 242; MACOUN, Catalogue IV, 1890, p. 228; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 114.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Flowering specimens growing in wet places among mosses were collected on Aug. 6th and 10th 1904, and Aug. 5th 1905.

*Arctophila* RUPRECHT.

16. *Arctophila fulva* (TRIN.) RUPR., Fl. Samoied. cisural., 1846, p. 62; GELERT in OSTENFELD, Fl. Arct., I, 1902, p. 118; MACOUN, Catalogue IV, 1890, p. 229 (incl. *A. Læstadii* RUPR. et *A. mucronata* HACK.); *Poa fulva* TRIN., Acta Petropol., VI, vol. I, 1831, p. 378; HOOKER, Fl. Bor. Am., II, 1840, p. 247; *Arctophila effusa* LANGE, Adnot. Fl. Dan. Suppl. 126; Consp. Fl. Groenl., 1880, p. 167.

The specimens which were collected on Aug. 3rd 1905 are just beginning to flower, the panicle has not entirely come out of the leaves and

consequently the branches are not recurved; but this is the only distinction, which I am able to find between our specimens and the Greenland specimens upon which the late JOH. LANGE based his species *A. effusa*. The form is characterised by its coarse low growth, broad leaves, and 2-3-flowered spikelets (cfr. GELERT in Fl. Arct. p. 120) and ought to be named *A. fulva* (TRIN.) RUPR., var. *effusa* (LGE) GELERT.

### *Poa* L.

17. *Poa cenisia* ALL., Auct. Fl. Pedem, 1789, p. 40; MACOUN, Catalogue IV, 1890, p. 224; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 122; *P. flexuosa* HOST et *P. arctica* R. BR., HOOKER, Fl. Bor. Am., II, 1840, p. 245 et p. 246.

? *P. laxa*; RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Seems to be very common in the surroundings of Gjøa harbour; collected several times in flower in Aug. of 1904 and 1905.

### *Glyceria* R. BR.

18. *Glyceria Vahliana* (LIEBM.) TH. FRIES, Öfv. Vet. Akad. Förh., Stockholm, 1869, p. 140; GELERT, in OSTENFELD, Fl. Arct., I, 1902, p. 126.

In the collection I have found a single small specimen of *Glyceria* with flat leaves, compact growth and contracted panicles. As only panicles from the foregoing year are present and the spikelets therefore are in a very incomplete stage, I have given it the name above after much hesitation; nevertheless the comparatively large, nearly equal, nerved glumes hardly allow another identification. (Collected July 31st, 1904).

19. *Glyceria maritima* (HUDS.) WAHLENB. f. *reptans* (HARTM.) SIMMONS, Rep. Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 159; *G. mar.*, f. *vilfoidea* (ANDERS.) GELERT in OSTENFELD, Fl. Arct., I, 1902, p. 126.

Sterile shoots have been found among other plants collected in Aug. of 1904 and 1905 at Framnæs, Gjøa Harbour.

### *Festuca* L.

20. *Festuca ovina* L., subsp. *brevifolia* (R. BR.) HACKEL, Botan. Centralbl., 1881, p. 406; Monogr. Festuc. europ., 1882, p. 118; GELERT in OSTENFELD, Fl. Arct., I, 1902, p. 130; MACOUN, Catalogue IV, 1890, p. 235; *F. brevifolia* R. BR., Chloris Melvill., 1823, p. 31; HOOKER, Fl. Bor. Am., II, 1840, p. 250.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Flowering specimens were collected on Aug. 5th 1905; in buds in July 1904 (GODFRED HANSEN).

*Elymus* L.

21. *Elymus mollis* TRIN., in SPRENGEL, Neue Entdeck., II, 1821, p. 72; HOOKER, Fl. Bor. Am., II, 1840, p. 255; MACOUN, Catalogue IV, 1890, p. 246; GELERT, in OSTENFELD, Fl. Arct., II, 1902, p. 133.

Flowering specimens were collected on Aug. 6th, 1904 at Framnæs, Gjøa Harbour.

**Dicotyledones.**

*Salicaceae.*

*Salix* L.

22. *Salix reticulata* L., Sp. pl. 2, 1753, p. 1018; COVILLE, Proc. Washington, Acad. Sc., III, 1901, p. 340, pl. 42; HOOKER, Fl. Bor. Am. II, 1839, p. 151; MACOUN, Catalogue III, 1886, p. 454; *S. orbicularis*, ANDERSSON, in De Candolle, Prodröm, XVI, 2, 1868, p. 300.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

A few small specimens have been brought home; they bear young female catkins with dark scales (Aug. 3rd 1905).

The leaves vary from broad-elliptic to rotundate-elliptic, not orbicular. I quite agree with COVILLE (l. c.) who unites *S. reticulata* and *S. orbicularis* ANDERS.

23. *Salix arctica* PALLAS, Flora Rossica II, 1790, p. 86; R. BROWN, Chloris Melvill., 1823, p. 24; HOOKER, Fl. Bor. Am. II, 1839, p. 152; MACOUN, Catalogue, III, 1886, p. 444; A. N. LUNDSTRÖM, Weiden Nowaja Semljas, Upsala, 1877, p. 31, fig. I; COVILLE, Proc. Washington Acad. Sc., III, 1901, p. 326, pl. 40; H. G. SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 130.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Several specimens with immature catkins have been collected in the first half of August (July 31st—Aug. 10th) 1904 and 1905. Most of the specimens belong to the relatively narrow-leaved var. *Brownii* (ANDERS.) LUNDSTR. l. c. p. 37 (leaves broad-elliptic or obovate), which, however, passes gradually over into the main form with rotundate or rotundate-obovate leaves.

*Polygonaceae.**Oxyria* HILL.

24. *Oxyria digyna* (L.) HILL, Hort. Kew., 1768; MACOUN, Catalogue III, 1886, p. 414; *O. reniformis* HOOKER, Fl. Bor. Am. II, 1838, p. 129. RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.  
In flower and with unripe fruits on July 31st 1904 and Aug. 3rd 1905.

*Polygonum* L.

25. *Polygonum viviparum* L., Sp. pl. 1753, p. 360; HOOKER, Fl. Bor. Am. II, 1838, p. 130; MACOUN, Catalogue III, 1886, p. 412.  
WALKER, Boothia Felix. — RAE, Wollaston-Victoria Land.  
Specimens with bulbils only (no flower developed) in the spikes were collected on July 31st 1904 and Aug. 5th 1905; leaves hairy on the under side.

*Caryophyllaceae.**Melandrium* RÖHL.

26. *Melandrium apetalum* (L.) FENZL, in LEDEB., Fl. Ross., I, p. 326, 1842; *Lychnis apetala* L., Sp. pl., 1753, p. 626; HOOKER, Fl. Bor. Am. I, p. 91, 1830 (a); MACOUN, Catalogue I, 1883, p. 68.  
WALKER, Boothia Felix.

The specimens have petals projecting above the calyx and may thus be identified with f. *arctica* TH. FRIES (Öfv. K. Sv. Vet. Akad., 1869, p. 133). They were near the end of flowering on Aug. 2nd, 1905.

*Silene* L.

27. *Silene acaulis* L., Sp. pl., ed. 2, 1762, p. 603; HOOKER, Fl. Bor. Am., I, 1830, p. 87; MACOUN, Catalogue I, 1883, p. 68.  
WALKER, Boothia Felix.

Flowering specimens were collected in July (17th—31st) of 1904 and of 1905. The white-flowered form was also found.

F. VIERHAPPER has shown that *Silene acaulis* L. in the Central-European mountains occurs in several geographical races and points out (Verhandl. zool. bot. Ges. Wien, vol. 50, 1901, p. 564) that even within its northern circumpolar area it can possibly be splitted into several races, but I do not lay much stress upon trying this, as I feel convinced that the so-called races will be very difficult to separate from each other.

*Alsine* WAHLENB.

28. *Alsine verna* (L.) WAHLENB., Fl. Lapon., 1812, p. 128; *Arenaria verna* L.; HOOKER, Fl. Bor. Am., I, 1830, p. 99 (incl. *A. rubella* (WAHLENB.) HOOK., *A. propinqua* RICHARDS. et *A. hirta* WORMSKJ.); MACOUN, Catalogue I, 1883, p. 71.

WALKER, Boothia Felix.

A few specimens — only in buds, but with old capsules — of f. *rubella* (WAHLENB.) have been collected in July 1904 (GODFRED HANSEN).

*Stellaria* L.

29. *Stellaria longipes* GOLDIE, Edinb. Phil. Journ., 6, 1822, p. 327; *S. longipes* et *S. Edwardsii*, HOOKER, Fl. Bor. Am., I, p. 95—96, 1830; MACOUN, Catalogue I, 1883, p. 75.

Seems to be common at Framnæs, Gjøa harbour. Flowered richly in the first days of August of 1904 and 1905.

Most of the specimens are so few-flowered and contracted that the flowers appear supported by normal leaves, not by bracts, and each shoot bears only 1—2 flowers. Such forms are much like *S. humifusa* ROTTB., from which they differ in the acute ovate leaves (with the greatest diameter below the middle, and long and evenly narrowed, acute tips) and the erect-tufted growth. The sepals are oftenest somewhat pubescent. The form is an extreme of f. *humilis* FENZL. Perhaps some of the specimens may be hybrids between *S. longipes* und *S. humifusa*.

*Cerastium* L.

30. *Cerastium alpinum* L., Sp. pl., 1753, p. 628; HOOKER, Fl. Bor., Am., I, 1830, p. 104; MACOUN, Catalogue I, 1883, p. 78.

WALKER, Boothia Felix.

Flowering specimens of the main form and with very hairy leaves were collected in Aug. 1905 (3rd & 10th).

Length of sepals ca. 6.5—7.0 mm.

31. *Cerastium Regelii* nov. nom.; *C. alpinum*,  $\gamma$ , *cæspitosum* MALMGREN, Spetsbergens Fanerogam-Flora, in Öfv. af K. Vet. Akad. Förh., Stockholm 1862, p. 242; *C. Edmondstonii*, var. *cæspitosum* G. ANDERSSON & HESSELMAN, Bih. till K. Vet. Akad. Handl., Bd. 26, III, No. 1, Stockholm, 1900, p. 61, fig. 28 et tab. 4; *C. serpyllifolium* M. BIEB. ex STEVEN, in DC., Prodrromus I, 1824, p. 417 (*non* WILLD., Enum. Suppl., p. 26); *C. alpinum*,  $\delta$ , *serpyllifolium* E. REGEL, Plantæ Raddeanæ, Bd. I, Heft II, 1862, p. 444; *C. vulgatum*,  $\vartheta$ , *grandiflorum*, lus. 2, FENZL in LEDEBOUR, Fl. Ross. I, 1842.

Flowering specimens were collected on July 31st 1904 and Aug. 4th 1905; no fruits developed.

The name of this form of *Cerastium* which is closely related to *C. alpinum* L. and *C. Edmondstonii* (WATS.) MURB. & OSTF. (= *C. arcticum* LANGE, ex parte) has caused me much trouble.

The characters separating our species (see Fig. 11) from the two others are the following: leaves small and short, mostly broadly elliptic or broadly ovate (rarely elliptic or elliptic- or ovate-lanceolate), in the sterile shoots close together, often imbricate, obtuse; in the flowering shoots few and separated, pair from pair, by long internodes, sometimes more or less acute; lower parts of the plant mostly glabrous, upper parts pubescent and glandular; bracts with  $\pm$  membranous margins; flowering shoots in the more reduced forms one-flowered, in the better developed forms rather richly dichotomously branched, but only at the top; flower-stalks 1—2 times as long as the flower, capillary; sepals 4.5—5.5(—6) mm. long, broadly ovate, obtuse, with membranous margins and mostly tinged with reddish-violet on the outer side; petals about twice as long as the sepals, emarginate. The specimens have often an extremely densely tufted and compact growth, and in such specimens the flowers are but few in numbers or quite wanting (f. *cæspitosa* MALMGR. sub *C. alpino*).

In 1862 A. J. MALMGREN (l. c.) drew attention to a peculiar *Cerastium* growing commonly in Spitsbergen in bare places; he named it *C. alpinum*,  $\gamma$ , *cæspitosum* and said that he should have taken it for a good species, if a most obvious series of transitions to *C. alpinum* did not occur. Later (in 1900) GUNNAR ANDERSSON and H. HESSELMAN in their list of the flowering plants of Spitsbergen also report that there is a complete transition from the main species — here *C. Edmondstonii* — to MALMGREN'S form, which they take as the glabrous form of *C. Edmondstonii* (l. c. p. 58), but they add, that they cannot say, if the transition forms are the relicts of an evenly and slowly working variation or if they are due to hybridisation (l. c., p. 61). I have seen much material of this Spitsbergen-plant — also specimens collected by MALMGREN himself — and further many specimens of just the same form from other countries, viz. Novaya Zemlia, Arctic Siberia, and now from King-William-Land (the specimens collected by the Gjöa-Expedition agree fully with specimens from the eastern arctic hemisphere), but I have never seen any transition to *C. alpinum* or to *C. Edmondstonii*. Formerly I myself believed that MALMGREN'S plant was a variety of *C. Edmondstonii*, but it differs from the latter mainly in the smaller sepals (4.5—5.5 mm. against 6.5—8 mm.), its inflorescence branched at the top, capillary flower-stalks, small, obtuse and

broad leaves, which are densely placed on the sterile shoots and very remote on the erect flowering shoots. I think it is a good species; its wide distribution in the arctic countries also speaks for this opinion. Undoubtedly it is derived from *C. alpinum*, as *C. Edmondstonii* also is, but I think our species is still older than *C. Edmondstonii*, the range of which is much more restricted (Great Britain, Shetland, Færøes, East Iceland, Scandinavia and Spitsbergen).

Taking it as a species, we cannot use MALMGREN'S name, as we have the older name *C. cæspitosum* GILIB. There is another name which has been used for our species, but which cannot be maintained either, namely *C. serpyllifolium*. In DE CANDOLLE'S Prodr. I, p. 417 SERINGE records as Nr. 25 »*C. serpyllifolium*, WILLD. Enum. suppl. p. 26?, LINK. Enum. I, p. 433\*?«, which is placed in the sub-section of *Orthodon* with »petalis calycem æquantibus vel minoribus« and which consequently is not our species; but he quotes »*C. serpyllifolium* Bieb. ex Stev. in litt., 1817«. What STEVEN has meant with *C. serpyllifolium*, we learn from LEDEBOUR'S Flora Rossica I, p. 411, where we find under *C. vulgatum*, ♀, *grandiflorum*, *lusus 2*, the following citation. »*C. serpyllifolium* M. a Bieb. ex Steven in Dec. Prodr. I, p. 417 sub Nr. 25 (nec Willd.) fide specim. Steven!« From this it is evident, that FENZL, who worked out the *Caryophyllaceæ* in LEDEBOUR'S Flora, has seen STEVEN'S specimens and then placed the plant in question under his *C. vulgatum*; which embraces both our *C. cæspitosum* GILIB. and a great deal of *C. alpinum*. The diagnosis of »*Lusus 2*« is as follows: cauliculi gracillimi; folia parvula, lanceolata, 3—6 lin. longa; flores minores [»*Lusus 1*« has »flores magni« and means *C. alpinum*, subsp. *Fischerianum*]; inferiorum calycibus  $2\frac{1}{2}$ — $2\frac{2}{3}$  lin. (= c. 5,5—6 mm.) longis«; the characters here given coincide very well, except the shape of the leaves, with the description given above of our form. The identity appears even better from E. REGEL'S treatment of the *Cerastia* in »Plantæ Raddeanæ«, I, II, 1862; he has there a variety of *C. alpinum*, viz.: ♂, *serpyllifolium* M. B., with the following characters: »cæspitosum, foliis cauliculorum sterilium parvis confertis obverse-ellipticis v. elliptico-lanceolatis, cauliculis remote foliatis cyma trichotoma divaricata 5-pluriflora terminatis. — Laxe hirsutum, apicem versus glanduloso-pubescent. Cauliculi adscendentes spithamaei et ultra, paucifolii. Petala calycem duplo superantia«. Of this variety he has seen specimens from East Siberia, Chûckes Land, Kotzebou Sound and Novaya Zemlia. I think there can be no doubt, that REGEL has meant just our species; the description fully agrees with ours, on taking into consideration that he has had well developed specimens at his disposal.



It appears from the history of the name »*C. serpyllifolium*«, that it cannot stand for our form, and I am therefore obliged to give a new name. I propose the name *C. Regelii* in honour of the botanist who has had the best idea of our species in its ordinary form.

I have seen specimens in the Copenhagen herbarium from Spitsbergen (A. J. MALMGREN, E. JØRGENSEN, RESVOLL-DIESET, THORILD WULFF), Franz Joseph Archipelago (H. FISHER), both North- and South-islands of Novaya Zemlia (H. W. FEILDEN, TH. HOLM), Waigats and Dolgoi islands (H. W. FEILDEN, F. R. KJELLMAN & A. N. LUNDSTRÖM), Yugor Schar (TH. HOLM), Mouths of the river Ob at Obdorsk (HAGE) and of the river Yenissei (A. N. LUNDSTRÖM) and the Arctic Sea coast at 85° 8 Long. E. (F. R. KJELLMAN). If to these we add the distribution given by E. REGEL and its occurrence in King William Land, we get a circumpolar distribution with large gaps. It seems mainly at home in Eurasia, where the principal region ranges from Spitsbergen to the mouth of Yenissei river; the next region is East Siberian and Beringian, and lastly the strange record of its occurrence in the central part of Arctic America, viz. King William Land. In Greenland and Ellesmere Land it is absent (cfr. H. G. SIMMONS, Rep. Sec. Norv. Arct. Exp. in the Fram 1898—1902, No. 2, 1906, pp. 120—123). ANDERSSON & HESSELMAN records our species — as *C. Edmondstonii*, var. *cæspitosum* — from Dovre in Norway according to specimens collected by J. E. & P. L. ZETTERSTEDT on July 24th 1854 and now in the Riksmuseum of Stockholm; we have also specimens in the Copenhagen herbarium from the same collectors and same date, but they belong to the true *C. Edmondstonii*, so that I still doubt if *C. Regelii* occurs in Scandinavia.

## *Papaveraceae.*

### *Papaver* L.

32. *Papaver radicum* ROTTBÖLL, Skr. Kiöbenh., Selsk. Lærd. & Vidensk., vol. 10, 1770, p. 455, tab. 8, fig. 24; MURBECK, Acta Horti Bergiani, Bd. 2, 5, 1894, p. 7; *P. nudicaule*, HOOKER, Fl. Bor. Am., I, 1829, p. 34; MACOUN, Catalogue I, 1883, p. 34.

WALKER, Boothia Felix.

Numerous specimens in full flower were collected, many of them with empty capsules from the year before. They were taken as early as July 17th (1904) and as late as Aug. 6th (1904) still only in flower. The specimens vary very much with regard to the shape, segmentation and hairiness of the leaves.

The colour of the petals is in most specimens sulphureous, as far as can be seen from dried material, but in many more or less pure white (f. *albiflora* JOH. LANGE, Consp. Fl. Groenl., 1880, p. 52).

### Cruciferae.

#### *Cochlearia* L.

33. *Cochlearia officinalis* L., var. *groenlandica* (L.) GELERT, apud ANDERSSON & HESSELMAN, Bih. Sv. Vet. Akad. Handl., 26, III, No. 1, 1900, p. 37; *C. danica*, *C. fenestrata* et *C. officinalis*, HOOKER, Fl. Bor. Am., I, 1830, p. 57; *C. danica* et *C. officinalis*, MACOUN, Catalogue I, 1883, p. 53.

Small fruiting specimens were collected on Aug. 6th 1904 (Framnæs); fruits nearly ripe, ovoid, evenly attenuated towards the acute apex, i. e. true var. *groenlandica* (L.) GEL.

#### *Eutrema* R. BR.

34. *Eutrema Edwardsii* R. BR., Chloris Melvill., 1823, p. 9, tab. A; HOOKER, Fl. Bor. Am. I, 1830, p. 67; MACOUN, Catalogue I, 1883, p. 55. WALKER, Boothia Felix.

Flowering in July (31st) 1904 and fruiting (pods unripe) in Aug. (2nd) 1905. Fruiting specimens up to 18 cm. high.

#### *Cardamine* L.

35. *Cardamine pratensis* L., Sp. pl., 1753, p. 656; O. E. SCHULZ, Monogr. Cardamine, in ENGLER, Bot. Jahrb., 32, 1903, p. 524; HOOKER, Fl. Bor. Am., I, 1829, p. 45; MACOUN, Catalogue I, 1883, p. 41.

Flowering specimens were collected in Aug. (3rd 1904 and 7th 1905).

I can not distinguish var. *angustifolia* HOOKER (l. c., p. 45; O. E. SCHULZ, l. c. p. 529) from the type.

#### *Draba* L.

36. *Draba hirta* L., f. *rupestris* (R. BR.) GELERT, in Bot. Tids., Kjöbenhavn, 21, 1898, p. 305; *D. rupestris* R. BR., HOOKER, Fl. Bor. Am., I, 1830, p. 53; MACOUN, Catalogue I, 1883, p. 51. WALKER, Boothia Felix.

Small flowering specimens with densely placed stellate hairs on the leaves were collected on July 7th 1904.

37. *Draba fladnizensis* WULF. in JACQ. Misc., I, 1778, p. 147; GELERT, in Bot. Tids., Kjöbenhavn, 21, 1898, p. 302; ? *D. lapponica*, HOOKER, Fl. Bor. Am., I, p. 53, 1830; ? *D. androsacea*, MACOUN, Catalogue I, 1883, p. 51. Specimens with flowers and young pods were collected on July 31st 1904.

38. *Draba alpina* L., Sp. pl., 1753, p. 642; HOOKER, Fl. Bor. Am., I, 1830, p. 50 (ex pte); MACOUN, Catalogue, I, 1883, p. 49 (excl. var.).

WALKER, Boothia Felix.

Typical, well-developed specimens were collected in full flower on Aug. 1st 1905 and Aug. 3rd 1904.

The leaves are oblong-lanceolate, the prominent middle vein on the under side does not reach the acute apex, the hair-covering consists of 1°, long, ciliate, simple or forked hairs at the margins, 2°, stellate hairs on the upper half of the surface of the under side. The stems are sparingly hairy with coarse, stellate hairs. Our specimens agree fully with the fig. 11 of GELERT, Botan. Tidsskr., 21, 1898, p. 300.

38 a. *Draba alpina* L., var. *glacialis* (ADAMS) DICKIE, Journ. Linn. Soc., XI, 1871, p. 33; KJELLMAN, Vega Exp. Vet. Iakt., I, 1882, p. 266; SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 82; *D. glacialis* ADAMS, Mem. Soc. Natur. Moscou, V, 1817, p. 106; DE CANDOLLE, Prodrumus, I, 1824, p. 124; ex parte: *D. glacialis* HOOKER, Fl. Bor. Am. I, p. 51, 1830; LEDEBOUR, Fl. Ross. I, 1842, p. 147; GELERT, Botan. Tidsskr., Kjöbenhavn, 21, 1898, p. 294; non: *D. glacialis* WATSON, Proc. Amer. Acad. Arts & Sciences, 23, 1888, p. 260; nec auctt cet. Americ.

WALKER, Boothia Felix.

Well developed flowering specimens of various forms were collected in the last days of July 1904.

The explanation of what *Draba glacialis* ADAMS really is has caused much confusion among the botanists. I think that this is due mainly to the circumstance that later authors have not had occasion to examine ADAMS's type. I myself have not seen it, nor I have had the original description at my disposal, but I think that the description in DE CANDOLLE's Prodrumus (l. c.) is correct, as he has seen the specimens. Where these are kept is not known to me, but hardly in St. Petersburg, as LEDEBOUR (l. c.) only quotes American specimens sent him by HOOKER.

HOOKER (l. c.) has placed different forms under his *D. glacialis* and from him dates the confusion, as some of his forms belong to the form which I think is the true *D. glacialis*, others are the species which HOOKER himself on the same page describes as *D. oligosperma* Hook. supposing that it has white flowers. Later American authors, e. g. S. WATSON (l. c.) have taken *D. oligosperma* as synonym of *D. glacialis* and have moved *D. glacialis* from the section *Drabaea* (*Chrysodraba*) to *Aizopsis* to which section *D. oligosperma* undoubtedly belongs. All this may be correct, if *D. glacialis* was rightly understood in this way — and my late friend

Mr. O. GELERT has also had this belief —, but I fully agree with H. G. SIMMONS (l. c., p. 82) that this interpretation of ADAMS's species is not allowable.

I think therefore that nearly all records of the American authors of *D. glacialis* from Rocky Mountains and adjacent regions must be transferred to *D. oligosperma* HOOK.

If we take DE CANDOLLE's description as base for *D. glacialis* ADAMS, we learn that it belongs to *Chrysodraba* (not to *Aizopsis*) i. e. »folia non rigida nec carinata«. The description itself is as follows: »scapo nudo stellato-pubescente, foliis lineari-lanceolatis, integris, pube stellata hispida, siliculis ovatis glabris, stigmatibus subsessilibus. Differt a *D. algida* foliis angustioribus, silicula ovata, calyce constanter magisque villosa«. *D. algida* ADAMS is merely a form of *D. alpina* L. with ciliate hairs alone (cfr. O. GELERT, l. c., p. 300), and DE CANDOLLE's description thus shows that *D. glacialis* is near to *D. alpina*, from which it differs only in the narrower leaves and the denser hairiness.

This agrees with HOOKER's remarks (l. c.) »closely allied to the two preceding species [*D. algida* and *D. alpina*]; differing from both in its longer, narrower, and more rigid leaves, which are clothed with short, and generally dense, stellate pubescence, and furnished, on the under-side especially, with a strong and prominent midrib«. As he has included forms of *D. oligosperma*, he has laid too much strength on the shortness of the pubescence and on the rigidity.

After examining some of the specimens of HOOKER's *D. glacialis* collected during the Franklin Expedition and sent from HOOKER himself to HORNEMANN in Copenhagen I find that two specimens corresponding to the descriptions and named  $\beta$  and  $\epsilon$  by HOOKER belong to what I call *D. oligosperma* HOOK., emend., while a specimen named  $\gamma$  belongs to *D. glacialis* ADAMS.

I have long been hesitating whether I should place the true *D. glacialis* as a variety of *D. alpina* or retain it as a separate species — for the rest, a rather unimportant question, — and I have at last decided to follow SIMMONS and a still earlier list of my own (Medd. Grönl. XXXIII, 1905, p. 67), in spite of the fact that *D. glacialis* seems to have a rather independent distribution. Observations on fresh material are, however, necessary before deciding the question.

*D. alpina*, var. *glacialis* (ADAMS) DICKIE differs from the true *D. alpina* in the following: 1° leaves narrower, linear or linear-lanceolate; middle vein very prominent, reaching, or nearly so, the obtuse or subacute tip of the leaf; 2° the covering of the leaves consists a) of rigid, ciliate,

simple or forked hairs at the margins and on the upper part of the upper side, and b) of large, very irregularly branched stellate hairs on the under side, sometimes also at the margins; 3° scape often tall, slender, not strong and stiff, densely hairy as regards both long undivided hairs and shorter stellate hairs; 4° sepals hairy in the same manner as the scape.

I have seen specimens from several places in Arctic America and Arctic Asia, but none from Arctic Europe (Amer.: Melville Isl.; ex itinere Frankl. (ded. HOOKER); Isl. of Neerto Nakto; Barrow River; NW-Greenland and W-Greenland at c. 70° 30' Lat. N.; NE-Greenland; Asia: Cape Chelyuskin; Taimyr Peninsula).

*D. oligosperma* Hook. seems to be a Rocky Mountain plant. I have seen specimens from: Ex itinere Frankl. (ded. HOOKER, var.  $\beta$  &  $\epsilon$ ); Alberta, near Banff (leg. MACOUN, 1891, sub nom. *D. glacialis*, *D. alpina* et *D. alpina*, var. *hebecarpa*); Elbow River (leg. MACOUN, 1897, No. 18 125, 18 129); Crow Nest Pass (leg. MACOUN, 1897, No. 18 127); Bridger Mts. (by J. W. BLANKINSHIP, Fl. Montanæ, No. 50, 53 a). It is characterized by its narrow, rigid and thick, linear, carinate leaves with reflexed margins and the middle vein prolonged nearly to the tip of the leaf.

#### *Braya* STERNB. & HOPPE.

39. *Braya purpurascens* (R. BR.) BUNGE in LEDEB., Fl. Ross. I, 1842, p. 195; *Platypetalum purpurascens* R. BR., Chloris Melvill., 1823, p. 9; HOOKER, Fl. Bor. Am. I, 1830, p. 66, tab. 23; *B. glabella* auctt., non Richardson.

*B. alpina*, and var. *glabella*, WALKER, Boothia Felix.

Two small flowering specimens were collected on July 31st 1904.

There is much confusion concerning the arctic species of *Braya*, the main cause of which seems to be the misunderstanding of *Braya glabella* RICHARDSON (in App. VII to Frankl. 1st Journ., ed. I, 1823, p. 743). Some authors have taken it as a mere synonym to *Braya purpurascens* (R. BR.) BUNGE, but this is very far from correct. Others, as my late friend O. GELERT (in Botan. Tidsskr., vol. 21, 1898, p. 292), consider it as identical with *B. alpina* STERNB. & HOPPE, and this is more natural and coincides more with RICHARDSON'S description (l. c.). But I think it is an independent species, which has been described again by G. ROUY, who has given it the new name *B. linearis* ROUY (Illustrationes pl. Europ. rar., fasc. XII, 1899, p. 84, pl. 254, et Revue de Bot. Systemat., tome I, 1903, p. 76).

Mr. ROUY<sup>1</sup> has namely given this name to the Scandinavian species of *Braya*, which elsewhere has been called *B. alpina* STERNB. & HOPPE.

<sup>1</sup> ROUY considers *B. glabella* RICHARDS. related to, but distinct from *B. purpurascens*, and far remote from his *B. linearis* and *B. alpina*.

I fully agree with him in keeping the Scandinavian form apart from the alpine one, the true *B. alpina*, but it has not been necessary to create a new name, as GELERT (l. c.) has shown, that RICHARDSON'S original specimens in British Museum and Kew belong to the same species as the Scandinavian ones, which also appears from several things in RICHARDSON'S original description (l. c.), e. g. »racemo fructifero laxo elongato«; consequently we must use RICHARDSON'S name also for the Scandinavian *Braya*, hitherto named *B. alpina* auctt. scand. or *B. linearis* ROUY.

This species is characterized by its slender erect stems, its thin, remote-dentate, linear-lanceolate radical leaves, its linear stem-leaves, its long linear pods (5—6 times longer than the sepals), more slender growth and in fruit elongated inflorescence; it has been found at a few places in Arctic Norway and Sweden, in East Greenland (Scoresby Sound), in western Arctic America, and seems to be a rare species. Its synonymy is: *B. glabella* RICHARDS., l. c.; HOOKER, Fl. Bor. Am., I, 1830, p. 65; *B. alpina* auctt. scand., non STERNB. & HOPPE; *B. linearis* ROUY, l. c.

*Braya purpurascens* (R. BR.) BUNGE on the other hand is not rare in Arctic countries. I know it from Spitsbergen, Novaya Zemlia, Waygats, Chabarowa, East and West Greenland, and »Arctic America«. Its distribution seems in America to be more eastern, while that of *B. glabella* is more western.

#### *Parrya* R. BR.

40. *Parrya arctica* R. BROWN, Chloris Melvill., 1823, p. 11, tab. B; HOOKER, Fl. Bor. Am., I, 1829, p. 47; MACOUN, Catalogue, I, 1883, p. 49.

In flower from the beginning of July (7th, 1904) until the beginning of August (4th, 1905); no pods developed, but remains of ripe pods from the year before present.

This species seems to be rare; its area of distribution is restricted to Arctic America east of ca. 120° Long. W and west of Greenland and Ellesmere-Baffin Land.

#### *Rosaceae.*

##### *Potentilla* L.

41. *Potentilla Vahlia* LEHMANN, Monogr. Potentill., 1820, p. 172; HOOKER, Fl. Bor. Am., I, 1834, p. 194; TH. WOLF, Monogr. Potentill., 1908, p. 247; RYDBERG, North American Flora, vol. 22, 4, 1908, p. 333; *P. nivea*, var. *Vahlia*, MACOUN, Catalogue I, 1883, p. 139.

In bloom in July 1904 (7th—31st) and the beginning of Aug. 1905 (2nd—5th).

The expedition has brought home a fairly good material of this beautiful species of *Potentilla*. As pointed out by SIMMONS (Sec. Arct. Exped. Fram, 1898—1902, No. 2, 1906, p. 55) it forms large, densely-packed tufts.

42. *Potentilla rubricaulis* LEHMANN, Nov. et minus cogni. Stirp. Pugillus II, Hamburg, 1830, p. 11; Revisio Potent., Bonn 1856, p. 68, tab. 30; H. G. SIMMONS, Sec. Arct. Exped. Fram, 1898—1902, No. 2, 1906, p. 50, tab. 5; TH. WOLF, Monogr. d. Gatt. Potentilla, 1908, p. 170; RYDBERG, North Am. Flora, vol. 22, 4, 1908, p. 337; non RYDBERG, Monograph N. Am. Potentillæ, 1898, p. 101.

In full bloom in the beginning of August (3rd—5th) 1905.

For this interesting species the reader may refer to H. G. SIMMONS's detailed account. I do not find it necessary to give varietal rank (var. *arctica* SIMMONS, l. c., p. 51) to the arctic specimens of it.

### *Dryas* L.

43. *Dryas integrifolia* M. VAHL, Skrifter udg. af Naturhist. Selsk. i Kjøbenhavn, vol. 4, 1798, p. 171; H. G. SIMMONS, Sec. Arct. Exped. Fram, 1898—1902, No. 2, 1906, pp. 43—46; HOOKER, Fl. Bor. Am. I, 1834, p. 174; *D. octopetala*, var. *integrifolia* CHAMISSE & SCHLECHTENDAL, Linnaea, II, 1827, p. 3; MACOUN, Catalogue I, 1883, p. 132.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Flowering in July (7th—31st 1904), and with old fruits from the foregoing year.

I am of the same opinion as H. G. SIMMONS (l. c.) in maintaining that *D. integrifolia* M. VAHL must stand as a species, in spite of transitions to *D. octopetala* L. having been found at places where the two species meet.

The rather rich material from King William Land — collected on several occasions both in 1904 and 1905 — shows no specimens verging into *D. octopetala*, but varies in many other respects, e. g. outline of the leaf-blades, etc.

### *Papilionaceae.*

#### *Oxytropis* D. C.

44. *Oxytropis arctobia* BUNGE, Mém. Acad. Sc. St. Pétersbourg, VIII ser., tome XXII, No. 1, 1874, p. 114; *O. arctica*,  $\beta$ , *minor* HOOKER, Fl. Bor. Am., I, 1834, p. 146; *O. arctica*,  $\beta$ , *uniflora* HOOKER in App. to Parry's 2nd Voy., 1825, p. 396; *O. nigrescens*, var. *arctobia* A. GRAY,

Proc. Amer. Acad. Ar. & Sc., 20, 1885, p. 3; MACOUN, Catalogue III, 1886, p. 509; *O. uralensis*, var. *pumila*, MACOUN, Catalogue I, 1883, p. 115, ex pte.

RAE, Wollaston-Victoria Land.

Large dense tufts with numerous flowers in full bloom have been collected on July 7th, 1904 (see Fig. 14).

A. BUNGE has given an excellent description of this interesting plant, pointing out that it is very near to *O. nigrescens* (PALL.) FISCHER, and remote from *O. arctica* R. BR., as a variety of which it was first taken by R. BROWN (Chloris Melvill, 1823, p. 20), and named by HOOKER  $\beta$  *uniflora* and  $\beta$  *minor*. In fact it may be right to consider it as a variety of *O. nigrescens*, as ASA GRAY has done, but I prefer to follow A. BUNGE. I may note some few distinctive marks (from *O. nigrescens*): the covering is dense and beautifully silky, the free parts of the stipules are short, ovate-triangular, once to twice as long as broad; flowers usually solitary; scapes short, about as long as the leaves; calyx teeth half as long as the tube.

The plant forms large and dense tufts resembling the tufts of *Potentilla Vahliana* and *Silene acaulis*; it has a strong and long, branched tap-root; the densely placed shoots are covered by the stipules and rhachis of the old leaves. There is a striking contrast between the white-silky hairs of the leaves, the black pubescence of the calyx and the purplish blue corollas.

45. *Oxytropis campestris* (L.) D. C., var. *melanocephala* HOOKER, Fl. Bor. Am. I, 1834, p. 147; *O. Maydelliana* TRAUTVETTER, in Acta Horti Petropol., VI, 1879, p. 16; KJELLMAN, Vega Exp. Vetensk. Arb., I, 1882, p. 523; *O. leucantha* A. GRAY, Proc. Amer. Acad. Ar. & Sc., 20, 1885, p. 5, saltem ex parte; J. MACOUN, Catalogue of Canad. Pl. III, 1886, p. 510; A. EASTWOOD, Botan. Gazette, March 1902, p. 206; and A. BUNGE, l. c., p. 111?; non *Astragalus leucanthus* PALLAS, Spec. Astragalorum, 1800, p. 59, tab. 47.

RAE, Wollaston-Victoria Land.

In full flower in July (7th—31st) and the beginning of Aug. (5th 1905).

The plant named as above by HOOKER (l. c.) is a very remarkable form of *O. campestris* and merits perhaps to be reckoned as a separate species, but I am unable to decide the question, as my material has no developed fruits, nor have I seen any fruits in older specimens (from HOOKER) in our herbarium in Copenhagen.

It differs from *O. campestris* mainly in the following points (see Fig. 12): old stipules »chestnut coloured and conspicuous« (MACOUN, 1886, l. c.) — this



is a very distinct character —; leaflets in 6—7 pairs, lanceolate to ovate, under side with hairs mostly on the midvein, upper side more uniformly hairy, hairs white, rather long and loosely appressed; scape with more or less spreading long, villous, white hairs, especially densely in its upper part; calyx densely villous-pubescent of black hairs and often also with longer white villous hairs.

The plants have yellow flowers and form rather large tufts. It seems to be an Arctic American and Beringian form substituting the var. *sordida* of Arctic Europe.

It is according to descriptions the same plant which J. MACOUN (1886 l. c.) and Miss A. EASTWOOD have named *O. leucantha*, and part of the forms so named by A. GRAY (l. c.) and A. BUNGE belong also here, but it is certainly not the true *O. leucantha* (PALL.) PERS. (= *Astragalus leucanthus* PALLAS), which has »foliola glauco-subargentata« (PALLAS l. c.) or »foliolis pilis arcte adpressis subincanis« (LEDEBOUR, Fl. Ross. I, 1842, p. 597).

Besides in Arctic America our plant occurs in Chukckes Land, as *O. Maydelliana* TRAUTVETTER (Acta Horti Petropolitani, VI, 1879, p. 16) is without doubt this form. The author lays much stress on the general habitus, the kind of hairiness and the colour of the stipules (»fusca«) as distinguishing marks from related species, viz. *O. campestris* and *O. sordida*, and all these characters are the same as in *O. campestris*. var. *melanocephala*. I have not had access to TRAUTVETTER's own specimens, but specimens collected by F. KJELLMAN, who records it from Konyambay (Long. W. 172° 53') are in the Riksmuseum of Stockholm, and they agree exactly both with the description of *O. Maydelliana* TRAUTV. (they have been so named by KJELLMAN, Vega Exp. Vetensk. Arb., 1883, I, p. 523) and with the authentic specimens of *O. campestris*, var. *melanocephala* HOOK., and I feel sure therefore that the two names are merely synonyms.

#### *Astragalus* L.

46. *Astragalus alpinus* L., Sp. pl., 1753, p. 1070; MACOUN, Catalogue I, 1883, p. 112; *Phaca astragalina* D. C.; HOOKER, Fl. Bor. Am., I, 1834, p. 145.

RAE, Wollaston-Victoria Land.

In full flowering on July 31st 1904, also on Aug. 5th 1905.

A rather small and rather hairy form like specimens from Melville Island.

*Saxifragaceae.**Saxifraga* L.

47. *Saxifraga oppositifolia* L., Sp. pl., 1753, p. 402; HOOKER, Fl. Bor. Am., I, 1834, p. 242; MACOUN, Catalogue I, 1883, p. 149; *Antiphylla oppositifolia* (L.) FOURR; SMALL, N. Am. Flora, vol. 1905, p. 157.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In bloom from the beginning of July (7th, 1904); the specimens bear numerous empty capsules from the foregoing year.

48. *Saxifraga cernua* L., Sp. pl., 1753, p. 403; HOOKER, Fl. Bor. Am., I, 1834, p. 245; MACOUN, Catalogue I, 1883, p. 151; SMALL, N. Am. Flora, 1905, p. 128.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In 1905 (Aug. 2nd—11th) the specimens collected have a single well-developed apex-flower, while the specimens from 1904 (July 31st, Aug. 3rd) have more or less aborted apex-flower. Bulbils numerous in both cases.

49. *Saxifraga rivularis* L., Sp. pl., 1753, p. 404; HOOKER, Fl. Bor. Am., I, 1834, p. 246; MACOUN, Catalogue I, 1883, p. 151; SMALL, N. Am. Flora, 1905, p. 127.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Only a small fragment has been collected accidentally among mosses (Aug. 3rd, 1905).

50. *Saxifraga groenlandica* L., Sp. pl., 1753, p. 404; SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 70; *S. caespitosa* L., Sp. pl., 1753, p. 404; HOOKER, Fl. Bor. Am., I, 1834, p. 244 (incl. *S. exarata* Hook.); MACOUN, Catalogue I, 1883, p. 150; *Muscaria caespitosa* (L.) HAW.; SMALL, N. Am. Flora, 1905, p. 130.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In bloom in the beginning of August (6th in 1904, 3rd in 1905).

The specimens collected agree with var. *uniflora* (R. BR.) SIMM., l. c. p. 71 (*S. uniflora* R. BROWN, Chloris Melvill., 1823, p. 16).

51. *Saxifraga nivalis* L., Sp. pl., 1753, p. 401; HOOKER, Fl. Bor. Am., I, 1834, p. 248; MACOUN, Catalogue I, 1883, p. 152; *Micranthes nivalis* (L.) SMALL, N. Am. Flora, 1905, p. 136.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In bloom in the beginning of August (3rd in 1904 and 2nd in 1905).

52. *Saxifraga stellaris* L., Sp. pl., 1753, p. 400; *S. stellaris* v. *comosa* POIR.; MACOUN, Catalogue I, 1883, p. 153; *S. foliolosa* R. BR.; HOOKER, Fl. Bor. Am., I, 1834, p. 251; *Spatularia foliolosa* (R. BR.) SMALL, N. Am. Flora, 1905, p. 149.

A single specimen of the bulbiferous flower-less form (var. *comosa* RETZ., Fl. Scand. Prodr. 1779, p. 79) has been collected on Aug. 1st, 1904.

53. *Saxifraga hirculus* L., Sp. pl., 1753, p. 402; HOOKER, Fl. Bor. Am., I, 1834, p. 252; MACOUN, Catalogue I, 1883, p. 154; *Leptasea hirculus* (L.) SMALL, N. Am. Flora, 1905, p. 152.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In full bloom in the beginning of August (1st—10th in 1904, 3rd in 1905) and with empty capsules from the foregoing year.

The numerous specimens collected coincide fully with the description of var. *propinqua* (R. BR.) SIMMONS, Sec. Arct. Exp. Fram, 1898—1902, No. 2, 1906, p. 65. I follow H. G. SIMMONS (l. c.) in upholding the Arctic American *S. hirculus* as a special variety, and I think he is quite right in using the name *S. propinqua* R. BR. (cf. *S. hirculus*,  $\beta$ , R. BROWN, Chloris Melvill., 1823, p. 15) instead of var. *alpina* ENGLER (Monogr. Saxifraga, 1872, p. 124) which is an alpine Himalayan variety.

54. *Saxifraga tricuspidata* ROTTBÖLL, Skr. Kiöbenh., Selsk. Lærd. & Vidensk., vol. 10, Kiöbenhavn, 1770, p. 446, tab. 6, fig. 21; HOOKER, Fl. Bor. Am., I, 1834, p. 254; MACOUN, Catalogue I, 1883, p. 154; *Leptasea tricuspidata* (RETZ.) HAW.; SMALL, N. Am. Flora, 1905, p. 154.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In full flower in the last days of July (31st) and the beginning of August 1904 (1st—6th).

The specimens collected show a tendency to reduce the lateral teeth, thus forming a transition to f. *subintegrifolia* ABROMEIT, Bibl. botan., Heft 42, 1899, p. 36.

It is remarkable that the American authors again and again (e. g., BRITTON & BROWN, Ill. Fl. U. S., II, p. 172 and SMALL l. c.) quote RETZIUS, Prodr. Fl. Scand., ed. 2, 1795, p. 104 for this exclusively American species described by ROTTBÖLL (l. c.) in 1770.

## Onagrariaceae.

### *Epilobium* L.

55. *Epilobium latifolium* L., Sp. pl., 1753, p. 347; HOOKER, Fl. Bor. Am., I, 1834, p. 205; MACOUN, Catalogue I, 1883, p. 169.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

This species was in full flower in the beginning of August 1904 and 1905 (31st July—10th Aug.). The specimens are low, ca. 6—10 cm. high, broad-leaved and with 1—4 large flowers on each stem.

### *Ericaceae.*

#### *Cassiope* D. DON.

56. *Cassiope tetragona* (L.) DON, Edinb. New Phil. Journ., vol. 17, 1834, p. 158; MACOUN, Catalogue II, 1884, p. 297; *Andromeda tetragona* L., HOOKER, Fl. Bor. Am., II, 1834, p. 38.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

Was in bloom on July 31st 1904; well developed specimens collected with empty capsules from the foregoing year.

### *Plumbaginaceae.*

#### *Statice* L.

57. *Statice armeria* L., var. *sibirica* (TURCZ.) ROSENINGE, Medd. Grönland, vol. 3, part 3, 1892, p. 683 (sub »*Armeria vulgari* WILLD.«); *S. maritima* MILL., var. *sibirica* (TURCZ.) SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 34; *S. armeria* L.; HOOK., Fl. Bor. Am., II, 1838, p. 123; *Armeria vulgaris* WILLD.; MACOUN, Catalogue II, 1884, p. 308.

In flower and with year-old faded inflorescences about the first of August (July 31st, 1904; Aug. 3rd, 1905).

### *Scrophulariaceae.*

#### *Pedicularis* L.

58. *Pedicularis capitata* ADAMS, Mém. Soc. imp. Natural., Moscou, vol. 5, 1817, p. 100; STEVEN, ibidem, vol. 6, 1823, p. 19, tab. 3, fig. 2; HOOKER, Fl. Bor. Am., II, 1838, p. 106; MACOUN, Catalogue II, 1884, p. 371; SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, 1906, p. 26; *P. Nelsoni* R. BR., in RICHARDSON, App. to Frankl. 1st Journ., 1823, p. 743 (nomen solum); HOOKER, App. to Parry's 2nd voy., 1825, p. 402, tab. 1, figs. 1—5.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In full bloom about the beginning of August (July 31st 1904; Aug. 4th 1905).

59. *Pedicularis sudetica* WILLD., Spec. Plant., III, 1800, p. 209; STEVEN, Mém. Soc. imp. Natural., Moscou, vol. 6, 1823, p. 44, tab. 15, fig. 2;

RICHARDSON, in HOOKER, App. to Parry's 2nd voy., 1825, p. 401; HOOKER, Fl. Bor. Am., II, 1838, p. 109; MACOUN, Catalogue II, 1884, p. 370.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In full bloom in the first days of August (Aug. 3rd 1904; 2nd 1905).

The King William Land plant belongs to var. *lanata* WALPERS (Repertor. botan. System., III, 1844—45, p. 422), which seems to be widely distributed in Arctic regions.

60. *Pedicularis lanata* CHAMISSE et SCHLECHTENDAL, in Linnaea, II, 1827, p. 583; SIMMONS, Sec. Arct. Exped. Fram 1898—1902, No. 2, 1906, p. 29 (full synonymy!), tab. 2, figs. 1—3; *P. Langsdorfii*, HOOKER, Fl. Bor. Am., II, 1838, p. 109, ex pte; MACOUN, Catalogue II, 1884, p. 320, ex pte.

*P. hirsuta* L. (*lanata* WILLD.), WALKER, Boothia Felix.

In bloom in July (7th—31st July 1904; Aug. 1st 1905); flowers rosy.

It has very long and thick roots and a thick stem-base covered with numerous scales and old leaf-remains, from which one or several flowering stems arise.

The King William Land plant is f. *lejantha* TRAUTVETTER (Acta Horti Petropolitani, vol. I, 1871, p. 76).

## Compositae.

### *Chrysanthemum* L.

61. *Chrysanthemum integrifolium* RICHARDSON, in FRANKLIN, 1st Journ., App. VII, 1823, p. 749; HOOKER, Fl. Bor. Am., I, 1834, p. 319, pl. 109; MACOUN, Catalogue II, 1884, p. 252.

RAE, Wollaston-Victoria Land. — WALKER, Boothia Felix.

In full bloom in the first days of August (July 31st 1904, Aug. 2nd 1905, Aug. 6th 1904).

This pretty little plant forms dense tufts nearly like those of *Statice armeria*, but more flattened.

### *Matricaria* L.

62. *Matricaria inodora* L., var. *grandiflora* (HOOK.) OSTF., nov. comb.; *Chrysanthemum grandiflorum* HOOKER, in Parry's 2nd Voy. App., 1825, p. 398; *Pyrethrum inodorum*,  $\beta$ , *nanum* HOOKER & ARNOTT, Bot. of Beechey Voy., vol. I, p. 126; HOOKER, Fl. Bor. Am., I, 1834, p. 320; *Matricaria grandiflora* BRITTON, Mem. Torr. Club. 5, 1894, p. 340; BRITTON & BROWN, Ill. Fl. N. Am., 3, 1898, p. 459; *M. inodora* var. *nana*, MACOUN, Catalogue II, 1884, p. 254; *M. inodora*, var. *phaeocephala* RUPRECHT, Fl.

Samojed. cisural., 1846, p. 42; J. LANGE, Consp. Fl. Groenl., 1880, p. 103; an *Pyrethrum ambiguum* LEDEB.?

*Pyrethrum inodorum*, var. *pumilum*, RAE, Wollaston-Victoria Land.

In full bloom in the beginning of August (Aug. 6th 1904, Aug. 1st—10th in 1905) and with scapes from the foregoing year.

The synonymy above shows the identity of HOOKER'S *Chrysanthemum grandiflorum* with RUPRECHT'S *Matricaria inodora* var. *phæcephala*. From this it follows, that this arctic variety (or subspecies) of *Matricaria inodora* has a circumpolar distribution.

I have seen specimens from Fern Bay and Neerto Nakto (collected by PARRY) in the Copenhagen Herbarium: upon these plants HOOKER (l. c., 1825) based his new species of which he says that it is distinguished from *Chrysanthemum inodorum* »by its diminutive stature, simple stem, . . . and the broad black scariose margin to the scales of the involucre« (l. c., p. 398). His diagnosis of the var.  $\beta$ , *nanum* in Fl. Bor. Am. is much more meagre, viz.: »caule unifloro«. — RUPRECHT (l. c., pp. 42—43) in his *Flores Samojedorum cisuralensium* says about his new variety: »Licet nostra quod staturam et diramificationem valde variabilis est, . . . . ., tamen in pluribus specc. e 12 diversis locis maris glacialis reportatis et alibi etiam a me examinatis numquam squamas anthodii margine scarioso pallescente ut in communi planta ruderali, sed fusco-nigricante et plerumque latissimo ornatas video«. It will be evident from these quotations that RUPRECHT and HOOKER were both aware of the most important character separating our form from the typical *M. inodora*, viz. the broad, black or at least dark scariose margin of the involucral scales; but RUPRECHT has much better understood the variability in the other characters of the form in question. Nevertheless it is necessary to use the oldest, Hookerian name.

Perhaps the variety is the same as *Pyrethrum ambiguum* LEDEBOUR, Fl. altaica, IV, 1833 p. 118; at least it is identical with the plant of this name from Kola Peninsula distributed from the R. Botanical Garden of St. Petersburg, a plant which I have had in cultivation here in Copenhagen. Further it is most likely that *Matricaria inodora*, var. *borealis* HARTMAN, Handb. Skandinav. Fl., ed. 5, 1849 belongs here.

Lastly it may be that our form is the more northern representative of the coast-plant which has been named *M. maritima* L., sp. pl., 1753, p. 1256, and which nowadays is taken as a perennial variety of *M. inodora*.

#### *Taraxacum* HALL.

63. *Taraxacum hyperboreum* DAHLSTEDT, n. sp., Fig. 18.  
Planta humilis vulgo 1—1,5 cm. alta.

Folia tenuia glabra, læte viridia nervo mediano petiolisque  $\pm$  alatis pallidis, lingulata — linearia v. anguste lineari-lanceolata lobulis brevibus — mediocribus acutis sat remotis triangularibus marginibus concavis v. deltoideis margine superiore integris v. dente uno alterove instructis apicibus patentibus v. unguatim curvatis, interlobiis  $\pm$  latis margine concavo vulgo integro, lobo terminali hastato brevi — mediocri acuto.

Pedunculi folia æquantes vel iis paullo longiores præsertim apicem versus  $\pm$  araneosi.

Calathium sat planum valde radians 45—50 mm. latum.

Ligulæ amoene luteæ, interiores obscuriores, marginales latæ planæ extus concolores v. stria inferne latiuscula superne vulgo ad nervos solum limitata olivacea notatæ.

Antheræ sat obscure luteæ polline carentes.

Stylus luteus, stigmatibus longis obscuris.

Involucrum humile, sat crassum, atroviride, squamis exterioribus latiusculis v. sat latis ovato-lanceolatis sub apice mediocriter — longiuscule cornutis atroviridibus sæpe paullulum purpurascens  $\pm$  conspicue albomarginatis erectis subadpressis paullum supra medium interiorum adtingentibus, intimis sub apice cornu minore instructis.

Achenium haud visum.

In full flower about the beginning of August (July 31st 1904; Aug. 3rd—5th 1905).

The well-known authority in *Hieracium* and *Taraxacum*, Dr. H. DAHLSTEDT of Stockholm has been kind enough to examine the *Taraxaca* brought home by the Gjøa Expedition and has sent me the above description of this new species and further the description of another new species from King Point (compare later). As to *T. hyperboreum* DAHLST. he adds the following notes: it resembles small specimens of *T. groenlandicum* DAHLST. (Arkiv f. botanik, Stockholm, Bd. 5, no. 9, 1906, p. 23), but is distinguished from them by the thin leaves with distant, acute and often claw-like lobes, by the darker and shorter involucre, by the broader and more appressed outer involucral scales, the appendages of which are shorter, by the even more radiating flowers, and by the absence of pollen. It has also some resemblance to *T. arctogenum* DAHLST. (ibid., p. 26) from which it is easily known by the shape of the leaves and the absence of pollen.

## II. List of Vascular Plants from King Point and Herschell Island, Mackenzie Bay, collected in 1905—1906.

In the autumn of 1905 the »Gjöa« anchored west of the mouth of the Mackenzie River at King Point, Lat. N.  $69^{\circ} 6' 40''$ , Long. W.  $137^{\circ} 40'$  and remained there until July 1906, when it went westward and after some few day's delay at Herschell Island, Lat. N.  $69^{\circ} 35'$ , Long. W.  $138^{\circ} 50'$  succeeded in finding a way out of the Beaufort Sea along the Alaskan north coast. During the long stay at King Point a considerable collection of plants was made, most of them in June and July 1906, and when waiting for better ice-conditions a number of plants was collected on Herschell Island.

As the two collecting places are not far distant from each other, King Point on the mainland of Alaska and Herschell Island a little to the west of it, I enumerate the plants together in one list. Politically both places belong to the Yukon District of the Dominion of Canada, but the flora is the same as in the arctic part of Alaska, U. S. A.

Our previous knowledge of the flora of the delta of the Mackenzie River and the surrounding tracts is very poor. In W. J. HOOKER'S *Flora Boreali-Americana* (1829—1840) the few older data are compiled. Later a number of scattered botanical papers dealing with different parts of the arctic and subarctic Alaska have been published, but, as far as I know, none of them gives anything specially about the flora of the places from which the Gjöa collection comes. I may perhaps have overlooked papers, as it seems to me strange that no collection from the often-visited Herschell Island, nor from the not rarely traversed Mackenzie delta, has reached scientific people and been made the basis of a publication. In »Comm. Geol. Canada IX 1896, A, p. 147« I find a note in which Mr. JOHN MACOUN states, that the Geological Survey of Canada has received: »une belle collection de plantes faites à l'embouchure de la rivière Mackenzie et dans l'île Herschel, dans la mer Arctique (par le Rév. J. D. STRINGER)«, but no list of these plants has appeared, to my knowledge.



Among the lists on the Alaska flora I shall only quote those which deal with the Arctic part, laying special stress on the Arctic coast east of Point Barrow,  $156^{\circ} 15'$  Long. W.

The whole of Alaska has a very varied and rich flora and the list by J. T. ROTHROCK, *Flora of Alaska* (Rep. Smithson. Inst. 1867) is now of but very little value.

From the western, Beringian Coast several plant lists have been given, e. g.:

SEEMAN, B.: *Flora of Western Eskimaux-Land*, in: *The Botany of the Voy. of H. M. S. Herald 1845—1851*. London, 1852—1857.

KJELLMAN, F. R.: *Fanerogamer från vest-eskimâernas land*, in: *Vega-Exped. vetensk. arb.*, II, Stockholm 1883.

EASTWOOD, ALICE: *A descriptive list of the plants collected by dr. F. E. BLAISDELL at Nome City, Alaska*. — *Botan. Gazette* 1902.

A list of plants collected at Point Barrow has been published in »*Rep. Internat. Polar Exped. to Point Barrow, Alaska, Washington 1885*«. The plants were identified by Professor ASA GRAY, but the list is a very poor one (only 54 species enumerated).

Further I may mention a paper by N. L. BRITTON and P. A. RYDBERG, *An Enumeration of the Flowering Plants collected by R. S. WILLIAMS and by J. B. TARLETON*, in: *Contributions to the Botany of the Yukon Territory* (Bull. New York Botan. Garden, vol. 2, no. 6, 1901). The list given there, which includes many new species, does not include any record from the coast itself, most of the plants having been collected in the woody parts of the country.

I have not succeeded in finding other publications which are of interest as giving lists of plants from Alaskan tracts touching on the Mackenzie delta, or bearing a similiar flora, but some scattered single records occur which will be quoted in the enumeration below.

Lastly I have to mention that in SEEMAN'S paper on the *Flora of Western Eskimaux-Land* an appendix is given containing lists of plants collected during land expeditions in the Arctic America by British investigators in search for the late Sir JOHN FRANKLIN. Among the lists one is of special interest for us, namely an enumeration of plants gathered by Captain W. J. S. PULLEN on his journey from Point Barrow to the Mackenzie River and further eastwards. This list is, as far as I have been able to find out, the only plant list of the tracts in question, and in the following enumeration I quote it as far as the records go: »Point Barrow to Mackenzie«, »Arctic Coast«, Pelly Isl., Garry Isl., Richard's Isl. (all in the Mackenzie Delta), »Coast west of Cape Bathurst«,

Hutchinson's Bay. The more southern records have no special interest for us.

The plants collected during the Gjøa Expedition at King Point and on Herschell Island do not give any complete view of the flora of these tracts, as I have already pointed out in the introduction. Taking together both places the list reaches to 119 species.

The monocotyledons are very poorly (only 15 species) represented in the collection which may be taken as a collection of the more conspicuous flowering plants of the country. It has been much felt that the collectors had no botanical education, and more here than with regard to the collection from the poor King William Land.

Most of the plants collected have been found in Alaska before, but some few newly found inhabitants of this flora also occur, among these I will especially mention: *Ranunculus gelidus* KAR. & KIR., *Anemone Drummondii* S. WATS., *Arabis arenicola* (RICHARDS.) GEL., *Douglasia arctica* HOOK. Other rare plants are e. g. *Erigeron grandiflorus* HOOK., *Selinum cnidiifolium* TURCZ., *Androsaces septentrionalis* L. var. *Gormanni* (GREENE).

Some few species or varieties have been described by me as new, as I have not succeeded in identifying them with previously described forms. They are: *Lupinus nootkatensis* DON, var. *Kjellmanii*; *Oxytropis Roaldi*; *Senecio integrifolius* (L.) CLAIRV., var. *Lindstroemii*, and, lastly, Dr. DAHLSTEDT has described *Taraxacum eurylepium*.

Under each species name I have quoted only the place of the original description, and then papers where notes of systematic value or geographical records of interest in relation to the Mackenzie Delta flora have been given; further PULLEN'S list if the name occurs there. I have not felt it necessary to quote the other above mentioned papers throughout, but only if they come under the just given categories. Nor I have quoted HOOKER'S Flora Bor. Am. or MACOUN'S Catalogue, as I have done with regard to the list from King William Land, because I think that the present contribution is much too incomplete and insufficient to give an picture of the flora of the Mackenzie Delta.

**Pteridophyta.**

*Equisetaceae.*

*Equisetum* L.

1. *Equisetum arvense* L., Sp. pl., 1753, p. 1061.  
Herschell Isl. Sterile shoot.

**Monocotyledones.**

*Juncaceae.*

*Luzula* D. C.

2. *Luzula* sp.  
King Point. A sterile shoot was found among other plants  
(July 1906).

*Cyperaceae.*

*Eriophorum* L.

3. *Eriophorum vaginatum* L., Sp. pl., 1753, p. 52.

The specimens agree with the European *E. vaginatum* (anthers ca. 2,5 mm. long, cauline sheaths conspicuously inflated) and do not belong to the *Eriophorum* which M. L. FERNALD (Rhodora, vol. 7, 1905, p. 85) calls »*E. callitrix* CHAMISSEO«, and which is the common North American form of the *vaginatum* group. FERNALD (l. c., p. 84) records with some doubt *E. vaginatum* from Mackenzie district, Artillery lake, which is in good accord with our specimens.

King Point. Flowering spec. (ab. July 1st 1906, GODFRED HANSEN),  
immature fruiting spec. (July 7th, 1906).

*Cobresia* WILLD.

4. *Cobresia Bellardii* (ALL.) DEGLAND., in Loisel. Fl. Gall. II, 1807,  
p. 626; KÜKENTHAL, Caricoideae, in Das Pflanzenreich, 1909, p. 37; *Elyna*  
*Bellardii* (ALL.) KOCH, Linnæa, 1848, p. 616.

*Elyna spicata*, PULLEN's list, Arctic coast.

King Point. A single tuft with young fruits (June 28th, 1906).

*Carex*<sup>1</sup> L.

5. *Carex rupestris* ALL., Fl. pedemont., II, 1785, p. 264, tab. 92, fig. 1. King Point. Flowering specimens (June 16th, 1906). Herschell Isl. Fragmentary old plants.

*Gramineae.**Hierochloë* GMEL.

6. *Hierochloë alpina* (LILJEBL.) ROEM. & SCH., System. Veget., II, 1817, p. 515. King Point. Flowering specimens (July 1906, GODFRED HANSEN).

*Arctagrostis* GRISEB.

7. *Arctagrostis latifolia* (R. BR.) GRISEB. in LEDEBOUR, Fl. Ross., IV, 1853, p. 434.

*Colpodium latifolium*, PULLEN's list, Arctic coast.

Herschell Isl. Flowers not yet opened (July 18th, 1906). It differs a little from the typical species in the glumes being unequal, the lower pale acute and to a small degree longer than the upper one. In one specimen the upper pales and the flowers proper were transformed into galls (through nematode worms).

King Point. Specimens with panicles still enclosed in the sheaths; panicles, when removed from the sheaths, laxe; sterile shoots long-leaved, high; the form agrees with var. *arundinacea* (TRIN.) LEDEB. (July 4th, 1906).

Some American authors have splitted *A. latifolia* into several species and e. g. take *A. arundinacea* (TRIN.) BEAL as a separate species. In BRITTON's and RYDBERG's list (Bull. New York Bot. Garden, 1901) Mr. NASH describes three new species from the Yukon territory, some of which (*A. macrophylla* NASH?) may be what I have here retained under the old collective name.

*Trisetum* PERS.

8. *Trisetum flavescens* (L.) ROEM. & SCH., System. Veget., II, 1817, p. 663.

King Point. Among other grasses collected near the river on July 4th, 1906, I found a tuft of a species which with some doubt I refer to *Trisetum flavescens*, although its panicle is so young that it is quite included in the sheath. KJELLMAN (1883) mentions the species from Port Clarence and states, that it differs in some respects from the type form

<sup>1</sup> A sterile shoot of a coarse *Carex* probably of the *rigida*-group, has been collected at King Point.

and TRAUTVETTER (Pl. sib. bor., Acta Horti Petrop. V, 1877) has also shown the same.

Our young specimens have quite glabrous sheaths (also the lower ones), but the blades are hairy on the upper side.

9. *Trisetum spicatum* (L.) RICHTER, Pl. Europ. I, 1890, p. 59; *T. subspicatum* (L.) P. BEAUV., Agrost., 1812, p. 180.

PULLEN'S list, Point Barrow to Mackenzie River.

King Point. Low flowering specimens (July 1906, GODFRED HANSEN).

### *Poa* L.

10. *Poa pratensis* L., Sp. pl., 1753, p. 67.

Herschell Isl. Low plants with young panicles (July 13th, 1906).

11. *Poa cenisia* ALL., Auct. Fl. Pedemont., 1789, p. 40.

King Point. A single specimen with panicle just before flowering was collected in July, 1906 (GODFRED HANSEN).

12. *Poa glauca* M. VAHL, Fl. Dan., 1790, p. 3, tab. 964; *P. caesia* SM., Fl. Brit., I, 1800, p. 103; Engl. Bot., 24, tab. 1719.

King Point. Large tufts in beginning of flowering have been collected in July 1906. One of the forms met with may be called f. *elator* (ANDERS.) LANGE, Consp. Fl. Groenl., 1880, p. 173; it has flat, 2 mm. broad culm-leaves. A single small specimen from June 28th may perhaps be identified as f. *atroviolacea* LANGE, l. c.

### *Glyceria* R. BR.

13. *Glyceria distans* (L.) WAHLENB., f. *arctica* (HOOK.) GELERT, in ÖSTENFELD, Fl. Arct., I, 1902, p. 127.

Herschell Isl. Well-developed flowering specimens (July 17th).

### *Festuca* L.

14. *Festuca rubra* L. var. *arenaria* (OSBECK) FR., Fl. Hall., 1818, p. 28; *F. rubra lanuginosa* MERT. & KOCH.; PIPER, N. Am. Festuca. Contrib. U. S. Nat. Herb. X, 1, 1906, p. 23.

*F. Richardsonii* HOOK., PULLEN'S list, Hutchisons's Bay.

King Point. Fragmentary specimens with old panicles were collected at June 28th, 1906.

Herschell Isl. Fragments (July 13th 1906).

15. *Festuca ovina* L., var. *brevifolia* (R. BR.) HACK., Botan. Centrabl., 1881, p. 406; *F. ovina brachyphylla* (SCHULTES) PIPER, N. Am. Festuca, Contr. U. S. Nat. Herb., X 1, 1906, p. 27.

King Point. July 7th (with young panicles).

16. *Festuca altaica* TRIN. in LEDEB., Fl. Alt., I, 1829, p. 109; KJELLMAN, Vega Exp. Vetensk. Arb. II, Stockholm 1883, p. 54; PIPER, N. Am. Festuca, Contr. U. S. Nat. Herb., X, 1, 1906, p. 31; *F. scabrella* TORR.; HOOKER, Fl. Bor. Am., II, p. 252, 1840, tab. 233.

King Point. Flowering specimens collected in July 1906 (GODFRED HANSEN).

### *Dicotyledones.*

#### *Salicaceae.*

##### *Salix* L.

17. *Salix reticulata* L., Sp. pl., 2, 1753, p. 1018; *S. orbicularis* ANDERSSON, in D. C. Prodr., XVI, 2, 1868, p. 300; cfr. COVILLE, Proc. Washington Acad. Sc., III, 1901, p. 340, pl. 42.

PULLEN's list, Pelly Isl.

King Point. In bloom June 21th, 1906.

The specimens collected have large obovate-orbicular leaves and correspond well with ANDERSSON's description of his *S. orbicularis* and with COVILLE's drawing of the Alaskan *S. reticulata*.

18. *Salix arctica* PALL., Fl. Ross., II, 1790, p. 86; COVILLE, Proc. Washington Acad. Sc. III, 1901, p. 326, pl. 40.

PULLEN's list, Pelly Isl.

King Point. Male plant in bloom on June 21th 1906. Female plant with immature catkins on July 7th, 1906.

Herschell Isl. Sterile plant (? , probably of this species).

The collection contains the true *S. arctica* PALL., as well as large-leaved specimens which in habit are somewhat different, but as I do not find any character of value separating them from the typical plant, I have placed them here.

A gathering from July 7th is perhaps the hybrid *S. arctica* PALL.  $\times$  *S. glauca* L. (var. *Seemanii*).

19. *Salix glauca* L., var. *Seemanii* (RYDB.) m.; *S. glauca* COVILLE, Proc. Washington Acad. Sc., III, 1901, p. 321, pl. 39; *S. Seemanii* RYDBERG, Bull. New York Bot. Garden, 2, No. 6, 1901, p. (164).

King Point. Flowering female twigs were collected July 4th, 1906.

The plant which I take as a variety of *S. glauca* L., has been described and figured by COVILLE (l. c.); he considers it as the true *S. glauca* L., but from the European *S. glauca* it differs a. o. in its nearly uncleft style and uncleft inner nectaries (cfr. S. J. ENANDER, Studies öfver Salices i Linnés Herbarium, Inbjud. t. Teolog. Dokt. Promot., Upsala 1907, pp. 113—115), otherwise its habit comes near to it; another distinctive character is that the leaves are glabrous on the upper surface and more adpressed-hairy below. It agrees well with the description given by P. A. RYDBERG (l. c.) of *S. Seemanii* nov. sp. from Dawson, Alaska. COVILLE takes this as an unimportant form of *S. glauca*, but I think it may be of some systematic value, if not a separate species as proposed by RYDBERG.

20. *Salix pulchra* CHAMISSE, Linnæa, VI, 1831, p. 543; COVILLE, Proc. Washington Acad. Sc., III, 1901, p. 319, pl. 38; *S. phyllicoides* ANDERSSON, Proc. Amer. Acad. Arts & Sc., IV, 1858, p. 18; Kgl. Vetensk. Acad. Handl., Bd. 6, 1, 1865, p. 140; *S. fulcrata* ANDERSSON, Kgl. Vetensk. Acad. Handl., Bd. 6, 1, 1865, p. 139.

King Point. With young catkins (July 4th) and nearly ripe catkins (July 7th, 1906).

COVILLE (l. c.) has given an exhaustive description and excellent drawings of this bushy or prostrate willow, which leave no doubt as to the identification of my material. The shape of the leaves especially is characteristic: »diamond-shaped« as COVILLE says.

In the Copenhagen herbarium there is just the same plant taken by F. KJELLMAN during the Vega Expedition at Pitlekaj (Long. W. 173° 24') on the north coast of Chuckhes Land, and in the Riksmuseum of Stockholm another specimen from Port Clarence; both specimens have been named by KJELLMAN: *S. boganidensis* TRAUTV., var. *latifolia* TRAUTV. KJELLMAN (Vega Exped. vetensk. Arbeten, II, 1883, p. 51) says about this plant: »planta nostra in tota regione freti Beringii e. gr. in terra Tschuktschorum, insula St. Laurentii et ad Port Clarence Amer. arcticæ occid. sat frequens formam Trautvetterianam supra allatam certe sistit«. From that we may perhaps be permitted to draw the conclusion that *S. boganidensis*, var. *latifolia* TRAUTVETTER (Acta Horti Petropol., vol. VI, 1879, p. 34) is merely a synonym of *S. pulchra* CHAM.

21. *Salix Richardsonii* HOOKER, Fl. Bor. Am., II, 1839, p. 147, tab. 182; COVILLE, Proc. Washington Acad. Sc., III, 1901, p. 315, fig. 19.

King Point. With young leaves, July 4th, 1906.

Herschell Isl. With young leaves, July 17th.

Although I have no flower-bearing twigs in my material I have no doubt as to the correctness of my identification. This bushy willow is so characteristic and has been so well described and figured by the authors quoted that it is easily recognised; the most prominent marks are: the stout and hairy young twigs, the large persistent glandular-serrate stipules and the smooth leaves with at the base sparingly glandular-denticulate margins.

22. *Salix alaxensis* (ANDERS.) COVILLE, Proc. Washington Acad. Sc., II, 1900, p. 280; III, 1901, p. 311, pl. 34; *S. speciosa* var. *alaxensis* ANDERSSON, in DE CANDOLLE, Prodróm., 16, 2, 1868, p. 275.

King Point. With immature catkins, July 4th, 1906.

This remarkable willow is an erect bush. It is characterized by its leaves which on the under side are covered with a dense white felt, and by its felty young twigs.

### *Betulaceae.*

#### *Betula* L.

23. *Betula glandulosa* MICHX., Flor. Bor. Amer., II, 1803, p. 180.

PULLEN'S list, Arctic coast west of Cape Bathurst.

King Point. Specimens with young leaves and male catkins in flower were collected on June 21th 1906; another specimen with fully developed leaves on July 10th, 1906.

The specimens seem to have been decumbent.

### *Polygonaceae.*

#### *Rumex* L.

24. *Rumex arcticus* TRAUTVETTER, in MIDDENDORF, Sibir. Reise, I, 2, 1856, p. 29; KJELLMAN, Vega Exped. vetensk. arbeten, II, 1883, p. 50; *R. domesticus*,  $\beta$ , *nanus* HOOKER, Fl. Bor. Am., II, 1838, p. 129; *R. occidentalis*, var. *nanus* TRELEASE, Missouri Bot. Gard., III, 1892, p. 82.

King Point. In flower on July 4th, 1906.

#### *Polygonum* L.

25. *Polygonum bistorta* L., Sp. pl., 1753, p. 360; *P. plumosum* SMALL, Bull. New York Bot. Garden, Vol. 2, No. 6, 1901, p. (166).

PULLEN'S list, Point Barrow to Mackenzie River, Garry Isl.



King Point. In flower on July 4th 1906 (flowers rose); specimens with old flowers, but without developed fruits were collected on Sept. 3rd, 1905.

Herschell Isl. In flower on July 17th, 1906.

I fully agree with KJELLMAN (Vega Exp. vetensk. arbeten, II, 1883, p. 50) in taking the specimens from arctic N. W. America as *P. bistorta*; they closely resemble the arctic-asiatic plant, which again is not different from the true *P. bistorta* of Europe. As far as I can judge from the description, the new species described by J. K. SMALL. (l. c.) is just our plant.

Specimens of true *P. bistortoides* PURSH from Colorado, Wyoming and Chilliwack Valley (Lat. N. 49°), seen by me, differ in many respects from the present plant and show that *P. bistortoides* is a well marked species.

### *Caryophyllaceae.*

#### *Melandrium* RÖHL.

26. *Melandrium affine* J. VAHL, Fl. Dan., fasc. 40, 1843, p. 5; *M. involucratum* (CHAM. & SCHLECHT.),  $\beta$ , *affine* ROHRBACH.

King Point. In full flower in the last days of June and in July (June 29th, July 4th—9th, 1906).

#### *Silene* L.

27. *Silene acaulis* L., Sp. pl., ed. 2, 1762, p. 603.

PULLEN'S list, Point Barrow to Mackenzie River.

King Point. Flowering in July 1906 (GODFRED HANSEN).

#### *Alsine* WAHLENB.

28. *Alsine verna* (L.) WAHLENB., Fl. Lappon., 1812, p. 129.

King Point. Flowering specimens were collected as early as June 20th, 1906 (further June 29th, July 7th). They may be referred to f. *rubella* (WAHLENB.), but stalks, stems and partly also leaves are glandular. Other specimens from July are higher, with more diffuse growth and the stems bear 1—3 flowers; they may be called f. *hirta* (WORMSKJ.) (collected by GODFRED HANSEN).

29. *Alsine macrocarpa* (PURSH) FENZL, Verbr. d. Alsineen, in tab. ad p. 18, 1833; *Arenaria macrocarpa* PURSH, Fl. Americ. Septentr., I, 1814, p. 318. (See pl. I, fig. 1.)

King Point. This beautiful little plant was in full flower on June 30th, 1906.

The numerous specimens collected are very large flowered: petals 2—3 times as long as the obtuse, oblong sepals. Leaves are short, broadly linear, obtuse and with faintly ciliated margins; capsules (from the year before) about three times as long as the sepals; seeds flattened, with long, densely situated spinules, which are most developed on the margin opposite to the funicle (as REGEL says: semina discoidea, fimbriato-cristata). The whole plant low, caespitose, flowers solitary on short, densely glandular-pubescent stalks.

*A. macrocarpa* has a closely allied species in *A. arctica* (STEV.) FENZL. E. REGEL (Pl. Raddeanæ, I, 2, 1862) has given an exhaustive treatment of all the East Siberian forms of *Alsine*. He says that the seeds form the main distinctive character between the two species in question, but that this character is very unpractical, as the specimens in the herbaria mostly have no ripe seeds. I quite agree with him in this: I have not seen any herbarium specimens of the two species in question with ripe seeds, with the one exception of the specimens from King Point, where I happened to find some few ripe seeds in the capsules from the year before the collecting. As described above these seeds of *A. macrocarpa* agree with REGEL's description and also with his rough figure (Tab. VIII, fig. 17). The seeds in *A. arctica* are wingless and rough.

Besides the seed character and other floral characters I distinguish *A. arctica* and *A. macrocarpa* from the following vegetative marks:

*A. arctica*, leaves long-linear, subterete, only at the base with few and small ciliate hairs, otherwise glabrous or glandular.

*A. macrocarpa*, leaves short- and broad-linear, flat, obtuse, along the margins with shorter or longer ciliate setæ; but sometimes the setæ are very short and inconspicuous.

Our specimens agree in all respects with REGEL's var. *Riederiana*, as the ciliate setæ of the leaves are very short and oftenest wanting in the upper parts of the leaves; but the original description by PURSH (l. c.) says only »marginè ciliatis«, so that probably PURSH's type is the same as REGEL's var. *Riederiana* and not as his var. *typica* about which he says »folia ciliato-setosa«.

As to *A. arctica* and *A. macrocarpa* in HOOKER, Fl. Bor. Am., I, pp. 100—101, tab. 34, I believe that *A. arctica*,  $\beta$ , *grandiflora* (tab. 34, B) is a form of *A. macrocarpa*, as the leaves are strongly ciliate along the whole margin; a definite decision is nevertheless only possible if ripe seeds were present.

30. *Alsine arctica* (STEVEN) FENZL, l. c.; *Arenaria arctica* STEVEN in D. C. Prodr. I, 1824, p. 404; HOOKER, Fl. Bor. Am., I, 1830, p. 100, excl. varr.  $\beta$  et  $\gamma$ , tab. 34, A (vix B). (See pl. I, fig. 2.)

King Point. Flowering specimen, collected in the beginning of July, 1906 (GODFRED HANSEN).

As to the distinguishing marks between this species and *A. macrocarpa* from which it is fairly distinct, see above. The specimens collected belong to REGEL's var. *scapigera* (Pl. Raddeanæ, I, 2, p. 347) and are glandular-pubescent both on flower stalks and leaves; the ripe capsules from the year before are ca.  $1\frac{1}{2}$  times as long as the sepals, petals nearly twice as long. Seeds brown, rough.

### *Stellaria* L.

31. *Stellaria longipes* GOLDIE, Edinb. Phil. Journ., 6, 1822, p. 327; *S. longipes* and *S. Edwardsii* HOOK., Fl. Bor. Am., I, p. 95—96, 1830.

PULLEN's list, Point Barrow to Mackenzie River, Richard's Isl.

King Point. Flowering in the first days of July (6th—18th), 1906. The specimens differ from the typical form in the flowers being always solitary on the top of the branches, like the drawings of *St. Edwardsii* in HOOK., Fl. Bor. Am., I, tab. 31, which exactly represent our plant; otherwise they agree with f. *humilis* FENZL.

### *Cerastium* L.

32. *Cerastium alpinum* L., var. vel subsp. *Fischerianum* (SERINGE) TORR. & GRAY, Fl. N. Am., I, 1838, p. 188; A. EASTWOOD, Botan. Gazette, 33, 1902, p. 139; E. REGEL, Plantæ Raddeanæ, I, 2, 1862, p. 438; *C. Fischerianum* SERINGE in D. C. Prodr. I, 1824, p. 419; CHAMISSE & SCHLECHTENDAL, Linnæa I, 1826, p. 60; HOOK., Fl. Bor. Am., I, 1830, p. 103.

PULLEN's list, Arctic coast.

King Point. Flowering specimens were collected in the last days of June 1906 (28th).

The *Cerastium*-species here in question (see pl. III, fig. 22) differs considerably from the typical *C. alpinum* L., and I should think that future investigations will result in taking it as a separate species.

It has been described by SERINGE in DE CANDOLLE's Prodr. This description is short and insufficient, but shortly afterwards A. DE CHAMISSE (in Linnæa, 1826) added many useful distinctive characters. He says that in habit it resembles *C. cæspitosum* GILIB. (*C. vulgatum* Auctt., *C. vulgare* HARTM.) much more than *C. alpinum* L.; nevertheless it is more nearly allied to the latter, from which it differs (l. c. p. 61):

»Calycibus duplo fere brevioribus . . . Pedunculi haud ita elongati, medius s. alaris ramos florigeros laterales superat aut æquat in statu juniore, deinde elongatur rami laterales, pedunculo alari deflexo, nunc uniflori bibracteati nunc multiflori, pedunculis omnibus semper brevibus fructiferis refractis; nec fere solus elongatus adstat uno superveniente ramo laterali bibracteato unifloro, pedunculo elongato.« The characters given here are 1) the shorter sepals and 2) the subumbellate inflorescence which is very like the inflorescence of *C. cæspitosum*. I have examined a number of *C. alpinum* from Iceland, Scandinavia, Spitsbergen, Novaya-Zemlia and Arctic America and have found the length of the sepals ranging from 6 to 9 mm., mostly 7—8 mm., and the ripe capsules 11—14 mm.; only in a very peculiar form from Arctic Siberia (Cape Cheljuchin, leg. KJELLMAN) the figures were resp. 5 mm. and 8 mm.; but this form differed considerably from the true *C. alpinum*. Measurements of *C. Fischerianum* from »Hort. Pawl., 1831« in the Copenhagen herbarium gave c. 5 mm. as length of the sepals, and the same result was obtained on a specimen labelled »ex Amer. exped. Franklin ded. Hook.« also in the Copenhagen herbarium. In both specimens the short sepals form a more campanulate calyx than the cylindrical-campanulate calyx of *C. alpinum*. The specimens from King Point agree in all essentials with the two here mentioned specimens and also with the exhaustive remarks by A. DE CHAMISSO. I have therefore no doubt as to the identity of our specimens with *C. Fischerianum* SER. The sepals are 4.5—6 mm. long and the ripe capsules (a year old) 9—11 mm.

CHAMISSO states that the species (or geographical race) is common in all the countries round the Bering Sea, and he thinks that some of the records of *C. alpinum* from Arctic North America should rather be referred to *C. Fischerianum*. It may be so, but all the specimens from Arctic America which I have seen (4 localities collected by PARRY, further 2 localities in Hudson Bay and Strait) as also specimens from Gaspé County in Canada are true *C. alpinum* and do not belong to this form, which is certainly restricted to the more western parts of Arctic America; the specimens from King Williams Land collected by the Gjøa Expedition are also, as mentioned above (p. 10), *C. alpinum*. The true *C. alpinum* occurs also in Alaska, as the specimens collected by KJELLMAN at Port Clarence belong to it (now kept in the Riksmuseum, Stockholm).

33. *Cerastium maximum* L., Sp. pl., 1753, p. 439.

PULLEN'S list, Arctic Coast, between Point Barrow and Mackenzie River.

King Point. Numerous flowering specimens have been collected on July 7th and 10th, 1906.

*Ranunculaceae.**Caltha* L.

34. *Caltha palustris* L., var. *asarifolia* (D. C.) HUTH, Monogr. d. Gatt. *Caltha*, in Abh. u. Vortr. a. d. Gesamtgeb. d. Naturwiss., Bd. 4, I, 1891, p. 19; *C. asarifolia* DE CANDOLLE, Syst. nat., I, 1818, p. 309; C. V. PIPER, Contrib. U. S. National Herb., XI, 1906, p. 277; *C. palustris*, var. *aleutensis* HUTH, *ibid.*, p. 24 et p. 27. (See pl. II, fig. 8).

? *Caltha arctica* R. BR., PULLEN'S list, Richard's Isle.

King Point. Flowering on June 26th and July 6th, 1906.

Herschell Island. Flowering on July 17th, 1906.

The specimens from King Point and Herschell Island are all alike and agree in most points with the description of *C. asarifolia* D. C. (l. c.), viz.: »caule suberecto, 1-floro, foliis cordato-reniformibus crenatis sinu obtusis, sepalis 6-7 ovalibus. In insula Unalaschka, una ex ins. Aleutanis. Folia radicalia petiolata, petiolo limbo duplo longiore basi in vaginam membranaceam amplam dilatato, C. palustri similia sed paulo minorâ.« Almost the same words are given in HUTH's monograph (l. c.). C. V. PIPER who records it from the State of Washington (l. c.), gives in the key to the genus the following statement: »stems decumbent«, a statement, which differs from DE CANDOLLE's; and adds: »this seems fairly distinct from the eastern *C. palustris* L.« I agree with the latter author that the form in question differs from the true *C. palustris*, but I prefer — at least at present — to retain it as a variety.

HUTH's variety var. *aleutensis* (l. c.) has been based upon fruiting specimens from the same place as *C. asarifolia*; it is characterized by the creeping stems with roots from the nodes and by the not-recurvate fruits. No doubt it is identical with *C. asarifolia*, as the author himself suggests with some hesitation. His new name must therefore be dropped.

Our specimens unite the different statements as to the direction of the stems, some being ascending, others decumbent and others again creeping and rooting. DE CANDOLLE's words »caule suberecto« must be seen in relation to *C. palustris* of which he gives the stem as »erecto«, and he means only that the stem is less erect in *C. asarifolia* than in *C. palustris*.

Our variety which seems to be a geographical race of *C. palustris* occurring in the north-western part of N. America, i. e. a Beringian race, is characterized by the following: stem slender, more or less decumbent, often rooting, leaves cordate-reniform crenate, flowers mostly solitary on

the stem, smaller than in *C. palustris*, sepals obovate, follicles erect, not or slightly curved outward.

KJELLMAN'S specimens from St. Lawrence Island agree with ours.

#### *Aconitum* L.

35. *Aconitum delphinifolium* D. C. Syst. Nat. I, 1818, p. 380; R. RAPAICS, Systema Aconiti generis, in Növénnyani közlemények, VI, 1907, p. 164; *A. napellus*,  $\beta$ , *delphinifolium* HOOKER, Fl. Bor. Am., I, 1829, p. 26; KJELLMAN, Vega exped. vetensk. arbeten, II, 1883, p. 48.

PULLEN'S list, Point Barrow to Mackenzie River.

Herschell Island. Many specimens in full flower; flowers dark-blue or white (f. *albiflora*); raceme very laxe, 1—6-flowered. (July 13th—19th, 1906).

#### *Anemone* L.

36. *Anemone Richardsonii* HOOKER, in Franklin, 1st Journ., ed. 2, 1824, App., p. 21; Fl. Bor. Am., I, 1829, p. 6, Tab. 4 A.

King Point. Well developed flowering specimens of this pretty yellow *Anemone* were collected in June 1906.

Herschell Isl. Leaves only (July 1906).

37. *Anemone parviflora* MICHX., Fl. Bor. Am., I, 1803, p. 319; HOOKER, Fl. Bor. Am., I, 1829, p. 5; *A. borealis* RICHARDSON, in Franklin, 1st Journ., ed. 1, 1823, App., p. 740. (See pl. I, fig. 3.)

King Point. In full flower on June 21th, 1906.

Herschell Island. In flower on July 13th.

The specimens are rather large-flowered (sepals 13—16 mm. long) and belong consequently to var. *grandiflora* ULBRICH (in ENGLER, Botan. Jahrb., 37, 1905, p. 251).

KJELLMAN'S specimens of this name from Port Clarence, now in the Riksmuseum at Stockholm, are *A. Richardsonii* HOOK.

38. *Anemone Drummondii* S. WATSON, Botan. of California, II, Cambridge, Mass., 1880, p. 424; C. V. PIPER, Contr. U. S. National Herb., XI, 1906, p. 267; *A. baldensis* HOOKER, Fl. Bor. Am., I, 1829, p. 5, non LINNÆUS. (See pl. I, fig. 4.)

? *A. multifida*, PULLEN'S list, Point Barrow to Mackenzie River.

King Point. Numerous flowering specimens were collected in the later half of June (16th—30th) 1906.

The geographical range of *A. Drummondii* WATS. is given by C. V. PIPER as being from British Columbia and Alberta to California; it is thus

somewhat unexpected to find it again on the arctic sea-coast, but I feel sure that the identification is correct.

S. WATSON describes (l. c.) the species as resembling *A. multifida* POIR. and quotes *A. baldensis* by HOOKER (l. c.) as a synonym. Yet we find in HOOKER a description which suits our specimens, but he adds that the American plant is »in every particular the same« as the German and Piedmontese one; »or if there be any difference worthy of notice, it is that the leaves are not so fully expanded at the time of the perfection of the flower as in those of the old world«. Upon this statement E. ULBRICH (ENGLER, Botan, Jahrb., 37, 1905, p. 244) places *A. Drummondii* of North America as a synonym of the alpine *A. baldensis*; but I think this is hardly correct.

The plant in question much resembles with regard to the leaves *A. multifida*, as is also mentioned by WATSON, but it is not so hairy as this. As to the flowers it is more like *A. baldensis* to which it is much more nearly related.

It has a long style (sectio *Eriocephalus*, subsectio *Longistylæ* by ULBRICH, l. c.) and the sepals are ca. 14—18 mm. long, white and tinged with blue outwards (as already pointed out by HOOKER). The radical leaves have more or less cuneate (not linear) lobes, and their blades are nearly glabrous or with few spreading long, woolly hairs on the under side. Petioles, involucral leaves and stems are hairy with the same long hairs; flower-stalks densely woolly.

I have seen a specimen of this species from FRANKLIN'S Journey named *A. baldensis* by HOOKER. Also specimens from the Rocky Mountains of *A. Drummondii* have been examined by me. And in both cases I have found agreement and also agreement with our specimens from King Point.

39. *Anemone hirsutissima* (PURSH) MAC MILLAN, Metasperm. Minnesota, 1892, p. 239; A. v. HAYEK, in Festschrift für ASCHERSON, Berlin 1904, p. 459; *Anemone Nuttalliana* DE CANDOLLE, System., I, 1818, p. 193; *A. patens* L. var. *Nuttalliana* GRAY, Manual, ed. 5, 1867, p. 36; *A. patens*, var. *Wolfgangiana* ROBINSON & FERNALD, in GRAY, Manual, ed. 7, 1908, p. 401 (non *A. Wolfgangiana* BESSER); *A. patens* HOOKER, Fl. Bor. Am., I, 1829, p. 4 (non LINNÆUS); *Pulsatilla hirsutissima* BRITTON, Ann. New York Acad. Sci., 6, 1891, p. 217.

King Point. Numerous flowering specimens have been collected in the first half of June 1906 (4th—16th); young fruits from the beginning of July.

*Ranunculus* L.

40. *Ranunculus nivalis* L., Sp. pl., 1753, p. 553.  
King Point. In flower on July 10th, 1906.

41. *Ranunculus gelidus* KARELIN & KIRILOV, in Bull. Soc. Nat. Moscou, XV, 1842, p. 133; LEDEBOUR, Fl. Ross. I, 1842, p. 733 (non *R. gelidus* SCHUR = *R. montanus* WILLD.; nec *R. gelidus* HOFFMANSEGG (1830—32) = *R. glacialis* L. vel *R. alpestris* × *glacialis*); *R. pedatifidus* HOOKER, Fl. Bor. Am., I, 1833, p. 18, tab. VIII B (non *R. pedatifidus* SMITH in REES, Cyclop. 29, nec. auctt. rec. Amer.); *R. Hookeri* REGEL, in Bull. Soc. Nat. Moscou, XXXIV, 1861, pars 2, p. 47 (non *R. Hookeri* SCHLECHTENDAL, in Linnæa, 1834 = ? *R. repens*). (See pl. III, fig. 15.)

King Point. A single large tuft in bloom, June 16th, 1906, has been collected.

The expedition has brought home flowering specimens (without fruit!) of a plant which quite agrees with the plant named *R. pedatifidus* by HOOKER. Both the description, the drawing and a small specimen in the Copenhagen herbarium sent by HOOKER himself show that our plant undoubtedly is what HOOKER called *R. pedatifidus*. As shown by different authors (e. g. H. G. SIMMONS, 1906) HOOKER'S plant is not the true *R. pedatifidus* of SMITH which is very near to *R. affinis*, while HOOKER (l. c. p. 18) says about his plant that it »is allied on the one hand to *R. nivalis*, *Eschscholtzii* etc., but differing in the constantly pedatifid leaves; and, on the other hand, I possess some single-flowered specimens of *R. affinis*, which show a great affinity with it«.

E. REGEL (l. c.) who takes *R. pedatifidus* as a form of *R. affinis*, says that HOOKER'S species is »eine andere gut unterschiedene Art«, which he names *R. Hookeri*.

We learn in the description by SCHLECHTENDAL (Animadv. bot. in Ranunc., sect. post., 1820, p. 18) of »*R. pedatifidus* D. C.« the origin of the wrong identification by HOOKER, as SCHLECHTENDAL'S description of his *R. pedatifidus* is based upon specimens from St. Lawrence Bay collected by A. DE CHAMISSO, which specimens have nothing to do with SMITH'S *R. pedatifidus* (but probably belong to *R. Hookeri* REGEL). SCHLECHTENDAL also states that his plant is »affinis *R. nivali*«.

It is thus seen the plant must bear the name *R. Hookeri* REGEL; but I think it is the same species which has earlier been described as *R. gelidus* by KARELIN & KIRILOV from Alatau Mountains in Central Asia. Their description runs as follows (l. c. pp. 133—134): »*R.* (Hecatonia § 4. D. C. prodr.). Caule humili 1—3-floro, foliis glabris, radicalibus ternatim sectis,



partitionibus petiolulatis subbiternatifidis, laciniis ovatis subrotundisve obtusissimis; caulinis biternatisectis, calycibus adpresse pilosis; carpophoro carpellisque stylo uncinato rostratis glabris. — Radix perennis, e fibris numerosis longissimis constans. Caulis 3—4-pollicaris, tenuiter pubescens; inferior pars ejus unacum petiolis foliorum inter lapidum fragmina abscondita. Flores magnitudine *R. acris*, aurei. — Hab. in summis alpinis Alatau ad fontes fluvii Lepsa in glareosis ad scaturigines nivibus formatas deliquescentibus. Fl. sub finem Junii.

Of this plant I have seen specimens in the Copenhagen herbarium 1<sup>o</sup> from »Arassan, Nordabhang des Alexander Gebirges, 9—11000 feet, 5/VI, 1880, leg. Fetissow«, and 2<sup>o</sup> from »Alatau transiliensis, in trajectu Mundschika ad fontes fl. Talgar, reg. alp. sup., 1896, 7/VII, leg. V. F. Brotherus«. These specimens are on all points in agreement with the King Point plant and with the Hookerian fragment of his *R. pedatifidus*. The description by KARELIN & KIRILOV differs in some respects from HOOKER'S, e. g. they say that their plant has »foliis glabris«, while HOOKER says »folia subciliata et parce pilosa, præcipue sub lente«, and HOOKER is right, as also both the Arassan and the Talgar plants have somewhat hairy leaves, at least the young ones. But apart from such smaller points the two descriptions cover one another in a fairly sufficient manner; and as the alpine central-asiatic specimens differ in no points of any importance from the arctic American ones, I feel it necessary to unite them to one species. Its geographical range, viz: Alatau Mountains in Central Asia, St. Lawrence Bay (probably), Mackenzie River mouth, Rocky Mountains (52°—53° Lat. N.), is very peculiar and much broken, but we must remember how small our knowledge is of the flora of the regions in question.

Although its habit bring *R. gelidus* near to the *nivalis*-group, it without doubt belongs to the *auricomus*-group, as also *R. affinis* and *R. pedatifidus*.

To the descriptions given by SCHLECHTENDAL, HOOKER and KARELIN & KIRILOV I may add a few notes: The shape of the leaf-blades is very characteristic and is rather well given in HOOKER'S figure: the radical leaves are tripartite, the middle lobe is trilobate and the lobes again are oftenest more or less lobed or sinuated, the lateral lobes of first order are at least twice cleft; in this way the blade is built up by a rather large number of short, obtuse, rather broad lobes. The sheaths, petioles and blades are covered with sparsely placed, whitish sub-adpressed hairs. Stem leaves — at least the lower — are like the radical ones, but the lobes are longer and narrower, their sheaths large and whitish. Stem lax, often more or less flexible, one- or few-flowered, flowers on long, adpressed-hairy, faintly canaliculate stalks; sepals on the outer side with whitish hairs,

more or less membranous and tinged with reddish-violet; petals yellow about as large as in *R. acer*; young fruit with recurvate styles.

The plant forms tufts with very many long, richly branched roots, many old leaf-sheaths and numerous new shoots with leaves with large, white-membranous sheaths; stems ca. twice as long as the radical leaves, stem-leaves inserted on the stem in such a manner that they hardly surpass the radical leaves.

42. *Ranunculus affinis* R. BROWN, Chloris Melvilleana, 1823, p. 7; HOOKER, Fl. Bor. Am., I, 1829, p. 12,  $\alpha$  (non  $\beta$  nec  $\gamma$ ), tab. 6 A,  $\alpha$ ; SIMMONS, Sec. Arct. Exp. Fram 1898—1902, No. 2, Kristiania, 1906, p. 101; *R. verticillatus* EASTWOOD, Botan. Gazette, 33, 1902, p. 144.

King Point. Two flowering specimens were collected on July 7th, 1906.

I agree with the useful and detailed unravelling of the troublesome matter concerning *R. affinis* and related species given by H. G. SIMMONS in his Ellesmere Land Flora (l. c.). Our two specimens are just like his material.

I think that Miss A. EASTWOOD has described specimens of *R. affinis* without radical leaves under the new name *R. verticillatus*, as her description and figure agree quite well with *R. affinis*.

43. *Ranunculus occidentalis* NUTT., var. *robustus* A. GRAY, Proc. Amer. Acad. Arts & Sciences, vol. 21, 1886, p. 373; DAVIS, in Minnesota Bot. Stud., 1900, p. 481; *R. Schlechtendalii* HOOKER, Fl. Bor. Am., I, 1829, p. 21 (as to the plant). (See pl. II, fig. 9.)

King Point. In bloom July 4th, 1900.

Herschell Isl. In bloom July 13th—17th, 1906.

I am not quite certain with regard to the naming of this species. It is as a robust species of the *acer*-group, which has large, bright-yellow flowers, more or less reflexed sepals and flattened, hooked styles (as far as can be seen in bloom, no fruits being present in the rich material). It agrees well with the description of A. GRAY'S variety of *R. occidentalis*, as also with the description given by K. C. DAVIS, but I think it is not merely a form of *R. occidentalis*, more probably it is a species intermediate between the latter and *R. acer*. Further observations on fruiting material must decide the question.

In the Copenhagen herbarium we have the same form sent from HOOKER »ex itinere Franklini« under the name *R. Schlechtendalii*.

The species *R. Turneri* GREENE (Pittonia, vol. 2, 1892, p. 296) from Porcupine Prives, Alaska is probably near to the present form, but I have not seen any specimens, so that I dare not unite them.

*Papaveraceae.*

*Papaver* L.

44. *Papaver radicum* ROTTBÖLL, Skr. Kiöbenhavn Selsk. Lærd. & Vidensk., 10, 1770, p. 455, tab. 8, fig. 24; *P. nudicaule* HOOKER, Fl. Bor. Am., I, p. 34, 1829.

*P. nudicaule*, PULLEN's list, Point Barrow to Mackenzie River.

King Point. In full flower on July 3rd, 1906.

The specimens collected are slender, with much divided leaves whose segments are narrow; the slender scape has more or less adpressed hairs; petals saffron; capsule short and broad.

Herschell Isl. In full flower on July 13th, 1906.

Differs much from the plant from King Point, but has more resemblance to the form common in Arctic Europe, Iceland and Greenland. The specimens are coarse, leaves much divided with broader segments; scape ca. 20 cm. high and stout with more distant and more numerous hairs; petals yellow; capsule short and broad.

None of the forms has anything to do with *P. Macounii* GREENE (Pittonia, III, p. 247) from the Pribiloff Islands; but H. G. SIMMONS (l. c.) is certainly right in saying that there may be several species at present named *P. radicum*. On the other hand this question has been much more troublesome just now after the publishing of the many new forms created by F. FÉDDE (Papaveraceæ, Das Pflanzenreich, 1910).

*Cruciferae.*

*Thlaspi* L.

45. *Thlaspi alpestre* L., var. *purpurascens* (RYDB.) m.; *T. purpurascens* RYDBERG, Bull. Torr. Botan. Club., 28, 1901, p. 281. (See pl. III, fig. 17.)

King Point. Flowering specimens in the last week of June 1906 (20th—28th).

Herschell Isl. Flowering on July 18th, 1906, and with year-old pods.

The North American forms of the polymorphous *T. alpestre* differ in some respects from the European one<sup>1</sup> and should perhaps bear special names, as P. A. RYDBERG (l. c.) has suggested; but at present it seems to me better to treat them as varieties until further researches have decided the question on the specific range.

Our specimens agree in the main with RYDBERG's *T. purpurascens* described from Arizona and Colorado.

<sup>1</sup> RYDBERG (l. c. p. 280) says: "*T. alpestre* which is not found in America".

*Cochlearia* L.

46. *Cochlearia officinalis* L., var. *groenlandica* (L.) GELERT, apud ANDERSSON & HESSELMAN, Bih. Sv. Vet. Akad. Handl., 26, III, No. 1, 1900, p. 37.

? *C. oblongifolia*, PULLEN's list, Point Barrow to Mackenzie River.

Herschell Isl. Two different forms have been collected. The first one (July 13th, 1906) is in full flower and with very young pods; it is erect with sub-adpressed ascending branches, ca. 15 cm. high, and approaches much to the typical *C. officinalis* from which it mainly differs in the nerveless pods. The second form (coll. July 17th, 1906) is much lower with spreading or arcuate-ascending branches; it was with unripe pods and approaches to var. *arctica* (SCHLECHT.) GELERT (l. c.), but has not so narrow pods nor its erect growth.

*Eutrema* R. BR.

47. *Eutrema Edwardsii* R. BR., Chloris Melvill., 1823, p. 9, tab. A. King Point. A single flowering specimen was collected in July, 1906 (GODFRED HANSEN).

*Sisymbrium* L.

48. *Sisymbrium sophioides* FISCHER apud HOOKER, Fl. Bor. Am., I, 1830, p. 61, tab. 20.

PULLEN's list, Point Barrow to Mackenzie River.

King Point. Not flowering June 12th, 1906; flowering and with very young pods June 24th and July 3rd, 1906.

*Cardamine* L.

49. *Cardamine hyperborea* O. E. SCHULZ, Monographie d. Gatt. Cardamine, in ENGLER's Botan. Jahrb., 32, 1903, p. 550; *C. digitata* RICHARDSON, in Franklin, 1st Journ., ed. 1, App., 1823, p. 743; HOOKER, Fl. Bor. Am., I, 1829, p. 45; *C. digitata*, var. *oxyphylla* (ANDRZ.) TRAUTVETTER, Acta Horti Petropol., VI, 1879, p. 11; KJELLMAN, Vega Exp. Vetensk. Arb., II, Stockholm, 1883, p. 44; *C. hyperborea*, var. *oxyphylla* O. E. SCHULZ, l. c. p. 551.

*C. digitata*, PULLEN's list, Point Barrow to Mackenzie River.

King Point. Flowering on July 9th, 1906.

Herschell Isl. Flowering on July 17th, 1906.

It is correct to alter RICHARDSON's name *C. digitata*, when the genus *Dentaria* is taken up in *Cardamine*, as we then have the older name *C. digitata* (LAM.) O. E. SCHULZ.

The description given in O. E. SCHULZ's monograph of the genus is detailed and excellent, but I do not understand why he maintains the variety *oxyphylla* TRAUTV., the less so as he himself quotes RICHARDSON's own specimens as belonging to this form. If we look for the description of the variety by TRAUTVETTER (l. c.), we find that the main distinction from the type is given in the words: »foliis . . . distincte pinnatisectis«. TRAUTVETTER here refers to the term: »folia digitatim pinnata« used by RICHARDSON (l. c.) when describing his species. Now this term is undoubtedly incorrect, as the leaves are pinnate and not digitate, but the leaflets stand rather near to each other, and that is what RICHARDSON has meant by »digitatim pinnata« (TRAUTVETTER incorrectly writes: »digitatopinnata«). O. E. SCHULZ uses other characters as distinctions between the type and the variety, but I think he is not right in fixing in such a manner the varietal name of TRAUTVETTER which is based upon a misunderstanding.

We have a specimen collected by RICHARDSON during the Franklin voyage in the Copenhagen herbarium, and this agrees in all respects with the plants from the Gjøa Expedition, as well as with the other Arctic American specimens. I do not find any reason therefore for maintaining the var. *oxyphylla*, not even as a mere form.

J. MACOUN (Catalogue, 1883, I, p. 41) gives "*C. digitata* (?) RICHARDS." as a mere synonym to *C. pratensis* L., which is evidently quite wrong. As pointed out by O. E. SCHULZ our species belongs to a section of the genus remote from *C. pratensis* L.

Later JAMES M. MACOUN (Canadian Record of Science, Jan. 1897, p. 268) records *C. digitata* RICH. from near the mouth of the Mackenzie River and the country between Lake Athabasca and Chesterfield Inlet and points out, that it has been referred to *C. pratensis* by American botanists, but is easily distinguished by its creeping rhizome and the scape of the leaves.

50. *Cardamine bellidifolia* L., Sp. pl., 1753, p. 654; O. E. SCHULZ, l. c., p. 553.

King Point. Only one flowering specimen of usually large size has been collected in July 1906 (by GODFRED HANSEN).

#### *Draba* L.

51. *Draba hirta* L., Sp. pl., ed. 2, II, 1763, p. 897.

King Point. Flowering on June 20th—July 3th, 1906.

Herschell Isl. With young pods, July 17th, 1906.

Most of the specimens of *D. hirta* are tall and large-flowered, with large lanceolate-obovate radical leaves and 1—5 well-developed, ovate, somewhat amplexicaule stem-leaves — thus agreeing with the form collected by F. KJELLMAN at Port Clarence and named f. *subamplexicaulis* (C. A. MEY.) KJELLM. (Vega-Exp. Vetensk. Arb., Stockholm, 1883, II, p. 46).

On the other hand, they bear some resemblance to *D. præalta* GREENE of which I have seen specimens from Alberta collected by J. MACOUN, but the description of which (Pittonia, vol. 4, 1900) has not been accessible to me. *D. præalta* seems to have stellate-hairy pods, while our form has glabrous pods; also the shape of the pod is not quite the same. I consider our form therefore as *D. hirta*. The specific value of *D. præalta* is another question upon which I shall not enter.

Besides this form of *D. hirta* another much smaller form has been collected in the last part of June of 1906 at King Point (by GODFRED HANSEN); it agrees well with var. *arctica* (J. VAHL) WATSON.

52. *Draba nivalis* LILJEBL., N. Acta Reg. Soc. Scient. Upsaliensis, V. 6, 1799.

King Point. A single small plant in flower (June 16th, 1906).

53. *Draba fladnizensis* WULF. in JACQUIN, Misc., I, 1778, p. 147; cfr. GELERT, in Botan. Tidsskrift, Köbenhavn, vol. 21, 1898, p. 302.

King Point. A number of various forms have been collected in June—July, 1906.

There are forms with only ciliated leaves (f. *lactea* (ADAMS)), forms with stellate-pubescent leaves with long ciliate hairs (f. *lapponica* (WHLBG.)), and a form with linear-lanceolate pods (f. *tenusiliqua* LANGE).

54. *Draba alpina* L., var. *glacialis* (ADAMS) DICKIE, Journ. Linn. Soc., XI, 1871, p. 33.

*D. glacialis*, PULLEN's list, Garry Isle.

King Point. In full flower on June 29th, 1906.

The specimens from King Point differ from those from King William Land by the less development of stellate hairs on the leaf-surfaces, and by more numerous stiff ciliate hairs; besides the leaves are more rigid with somewhat revolute margins.

#### *Erysimum* L.

55. *Erysimum inconspicuum* (S. WATS.) MACMILLAN, Metasperm. Minnesota, p. 268, 1892; *E. asperum*, var. *inconspicuum* S. WATSON, Bot. King's Exped., p. 24, 1871; *E. parviflorum* NUTT. (non PERS.); *E. lanceolatum* HOOK, Fl. Bor. Am., I, 1830, p. 64 (non R. BR., 1812). (See pl. I, fig. 5).

*E. lanceolatum*, PULLEN's list, Arctic Coast.

King Point. Numerous flowering specimens have been collected on June 20th, 1906.

*Hesperis* L.

56. *Hesperis Pallasii* (PURSH) TORR. & GRAY, Fl. N. Am., I Suppl., 1840, p. 667; *Hesperis pygmaea* (ADAMS) HOOKER, Fl. Bor. Am., I, 1830, p. 60, tab. 19.

King Point. Numerous flowering specimens have been collected in June (4th—24th) 1906; few specimens with young pods in the beginning of July.

*Parrya* R. BR.

57. *Parrya nudicaulis* (L.) REGEL, Pl. Raddeanæ, Moskau, 1861, p. 176; *P. macrocarpa* R. BR., Chloris Melvill., 1823, p. 12.

*P. macrocarpa*, var. *aspera*, PULLEN'S list, Point Barrow to Mackenzie River.

King Point. Young flowering specimens were collected in June (21th, 1906), also flowering in July (4th, 1906).

Herschell Isl. Flowering and with very young pods (July 1906).

A. EASTWOOD (Botan. Gazette, 33, 1902, p. 148) records the plant under the name *P. macrocarpa* R. BR. and gives as type locality "Melville island"; this is evidently an error as *P. macrocarpa* named by R. BROWN in his "Chloris Melvilleana" is based upon *Cardamine nudicaulis* L., Spec. plant., 1753, p. 654, the type locality of which is "Sibiria. D. Gmelin".

In Melville island *P. macrocarpa* does not occur, nor has it been recorded by R. BROWN who described *P. arctica* from this island.

*Rosaceae.*

*Dryas* L.

58. *Dryas octopetala* L., Sp. pl., 1753, p. 501.

King Point. In bloom in the later half of June (20th—29th) and the beginning of July (7th), 1906.

The material is rather rich and shows that *D. octopetala* occurs both in the typical form ( $\alpha$ , *genuina* REGEL) and in a form with leaves hairy also on the upper side (f. *hirsuta* N. HARTZ, Medd. Grönland, 18, 1895, p. 319).

59. *Dryas integrifolia* M. VAHL, Skrifter Naturhist. Selsk. Kiöbenhavn, 4, 1798, p. 171.

PULLEN'S list, Point Barrow to Mackenzie River; Pelly Isl.

King Point. Flowering July 1906.

In the collection there is only fragments of this species, viz. some sterile shoots of the typical form, and a specimen in flower with more,

crenate leaves corresponding to f. *intermedia* NATHORST (Öfv. K. Sv. Vetensk. Akad. Förh., 1884, No. 1, p. 24 sub *D. octopetala*).

SEEMAN (Fl. West Eskimaux Land; Voy. Herald, 1852, p. 29) says very correctly on this species: "the leaves are always smooth on the upper surface, never rugose, as those of *D. octopetala*; this character seems to be the best mark of distinction between the two species, all the others assigned to them are subject to variation".

### *Potentilla* L.

60. *Potentilla nivea* L., Sp. pl., 1753, p. 499; TH. WOLF, Monogr. Potent., 1908, p. 233.

PULLEN'S list, Coast west of C. Bathurst.

King Point. In bloom and with young fruits, June 21th and July 3rd, 1906.

The specimens collected belong to the arctic group of *nivea* forms which have deep-cleft (»pinnatifid«) leaflets: var. *pinnatifida* LEHM., Pugill. IX, 1851, p. 67, in which the monographer TH. WOLF (l. c. p. 239) includes *P. altaica* BUNGE and *P. nivea*,  $\varepsilon$ , *subquinata* LANGE (= *P. subquinata* RYDBERG).

61. *Potentilla Vahliana* LEHM., Monogr. Potent., 1820, p. 172; TH. WOLF, Monogr. Potent., 1908, p. 247.

*P. nivea*, var. *Vahliana*, PULLEN'S list, Coast west of C. Bathurst.

King Point. In bloom in June (21th—23th) 1906.

### *Rubus* L.

62. *Rubus chamæmorus* L., Sp. pl., 1753, p. 494.

PULLEN'S list, Point Barrow to Mackenzie River.

King Point. In bloom, June 29th and July 4th, 1906.

Both male and female plants are in the collection.

## *Papilionaceae.*

### *Lupinus* L.

63. *Lupinus nootkatensis* DONN, var. *Kjellmanii* nov. var.; *L. nootkatensis* KJELLMAN, Vega-Exp. Vetensk. arb., Stockholm, II, 1883, p. 39. (See pl. I, fig. 6.)

Differt a forma primaria: planta multiceps, caules 10—25 ctm. altæ; inflorescentia curta, 5—10 cm. longa, foliola oblanceolata, versus apicem attenuata, acuta, subtus pilis longis subadpressis instructa, petiola dimidium vel bis quam foliola longiora, stipula petiolum adnata, partes liberæ lineari-lanceolatae; flores verticillatae, bracteis caducis, lineari-lanceolatis instructæ,



calycis labium inferius anguste lanceolatum, 8—10 mm. longum, integrum; caulis præcipue superne, petiola, bracteæ, pedunculi, calyx pilis albis longis villosis; legumen juvene cum 8—9 ovis, sparsissime pilosum.

King Point. In full flower in June (21th—24th, 1906).

Herschell Isl. In flower on July 17th, 1906.

The Expedition has brought home a very large material of this beautiful blue lupin. It is just the same plant which FR. KJELLMAN collected at Port Clarence on the Vega Expedition and which he (l. c.) referred to *L. nootkatensis* J. DONN (Catal. hort. Cantab. 1812, p. 205), adding some remarks on the differences from the type. It seems to me that these differences are so great that the form merits at least a varietal name. The form of the leaflets, the form and hairiness of the calyx, etc., show that it cannot be the true *L. nootkatensis* DONN.

PULLEN'S list (in SEEMAN, Fl. W. Eskimaux Land, Voy. Herald, 1852) has »*L. perennis* DC.« from the Arctic Coast; this is probably the plant here described.

To *L. arcticus* WATSON (Proc. Amer. Acad. Arts & Sc., VIII, 1873, p. 526) our form has no relation.

#### *Astragalus* L.

64. *Astragalus alpinus* L., Sp. pl., 1753, p. 760; *Phaca astragalina* DC. Astrag. 1803, p. 64; HOOKER, Fl. Bor. Am., I, 1834, p. 145; *Tium alpinum* RYDBERG, Bull. Torr. Bot. Club, 1905, p. 659.

*Phaca astragalina*, PULLEN'S list, Point Barrow to Pelly Isl.

King Point. A small form like the plant from King William Land in full flower on June 29th 1906, a larger form in flower on July 18th, 1906.

65. *Astragalus eucosmus* B. L. ROBINSON, Rhodora, vol. 10, 1909, p. 33; *A. elegans* (HOOK.) BRITTON in BRITTON & BROWN, Illust. Flora, II, 1897, p. 303 (non BUNGE, 1869); *A. oroboides* var. *americana* A. GRAY, Proc. Am. Acad. Arts & Sciences, VI, 1864, p. 205; *Phaca elegans* HOOKER, Fl. Bor. Am., I, 1830, p. 144; *Atelophragma elegans* RYDBERG, Bull. Torr. Bot. Club, 1905, p. 660.

King Point. In buds on June 29th, 1906.

Herschell Isl. In flower on July 13th, 1906.

The specimens have somewhat broader leaflets than specimens from the Selkirk Mts. and Fort Fairfield (Maine) in the Copenhagen herbarium, but agree otherwise well with the species.

66. *Astragalus frigidus* (L.) BUNGE, Mem. Acad. imp. Sc. St. Pétersbourg, VII Ser., t. XV, No. 1, 1869, p. 28; *Phaca frigida* L., System. Nat., ed. 10, 1758.

King Point. In full flower on June 24th—27th, 1906.

Herschell Isl. In flower and with young fruits in July.

All the specimens collected belong to var. *littoralis* HOOK., Fl. Bor. Am., I, 1830, p. 140, sub *Phaca frigida* (*Ph. littoralis* (HOOK.) RYDBERG, Bull. New. York Bot. Garden, II, 6, 1901, p. 176).

#### *Oxytropis* D. C.

67. *Oxytropis nigrescens* (PALL.) FISCHER in DE CANDOLLE, Prodrum II, 1825, p. 278; BUNGE, Mém. Acad. Sc. St. Pétersbourg, VII Ser., t. XXII, No. 1, 1874, p. 113; A. GRAY, Proc. Amer. Acad. A. & S., 20, 1885, p. 3. (See pl. II, fig. 13.)

? *O. arctica*, PULLEN'S list, Arctic Coast west of C. Bathurst.

Herschell Isl. One single tuft with young fruits (July 13th, 1906).

Our specimen agrees with the plant collected by F. R. KJELLMAN (Vega Expedition) on St. Lawrence Island. The covering consists of white, but not truly silky hairs and the free parts of the stipules are lanceolate-triangular, about 3 times longer than broad; the flowers stand usually two together and the teeth of the calyx are about as long as its tube. In these characters it is different from *O. arctobia* BUNGE.

68. *Oxytropis campestris* (L.) D. C., var. *melanocephala* HOOK., Fl. Bor. Am., I, 1834, p. 147; cfr. above p. 20. (See pl. II, fig. 12.)

*O. campestris*, PULLEN'S list, Point Barrow to Mackenzie River; Garry Isl; Pelly Isl.

King Point. Flowering June 29th and July 6th, 1906.

The few specimens from King Point differ from the King William Land plant in the covering of the scape and of the calyx being to a less degree dark-pubescent and to a higher degree white-villous; they are higher and better developed, but agree in all other characters with the other specimens of var. *melanocephala*, which I have seen.

69. *Oxytropis Roaldi* n. sp. (See pl. III, fig. 16.)

Ex aff. *O. Lamberti* PURSH et *O. monticola* GRAY.

Scapigera, usque ad 20 ctm. alta, multiceps; stipulæ alte petiolares, albæ, membranacæ, longe-ciliatæ, pars libera uninervis, e basi dilatata linearis; foliola 7—8-juga, lanceolato-ovata, adpresso niveo-pilosa; scapi foliis longiores pilis subadpressis vel subpatulis instructi; inflorescentia subcapitata, 5—10-flora; bractæ lineari-lanceolatæ, calycem subæquilon-gæ; calyx tubuloso-campanulata, dentibus triangularibus tubo triplo brevioribus, pube nigra pilisque longioribus albis instructa; corolla calyci dimidio

longior, violaceo-purpurea; legumen (altum) ovato-oblongum, recte, acuminatum, membranaceo-chartaceum, ca. 12 mm. longum, uniloculare vel partim semibiloculare, pube breve griseo, calycem subduplo superans.

Herschell Isl. In full flower on July 13th, 1906 (and with year-old pods).

I have been much in doubt as to the identification of this pretty *Oxytropis*. It belongs to the relationship of *O. Lamberti* PURSH and *O. monticola* GRAY (cf. A. GRAY, in Proc. Americ. Acad. Arts & Sciences, vol. 20, 1885, p. 6); but is rather different from both. The smaller flowers and the dark pubescence of the calyx distinguish it from the true *O. Lamberti* of Colorado and Montana, and the same characters as well as the subcapitate inflorescence and the longer pod from the *O. monticola* of Wyoming, Montana and Nebraska, as far as I can judge from GRAY'S description and from examination of specimens from South Sybille (Albany Co.) and from Pipestone Creek, N. W. T.

J. MACOUN points out (Catalogue Canad. Pl. III, 1886, p. 509—510) that his former *O. Lamberti* also includes *O. monticola*, but as he at the same time (p. 509) quotes specimens from Kicking Horse Lake (Rocky Mts.) under *O. Lamberti*, I think he means that they belong to the true *O. Lamberti*, not to *O. monticola* (which in his opinion »is the true prairie form«). These specimens of which we have a set in the Copenhagen herbarium, are not like *O. Lamberti* from Colorado and Montana, but come very near my new species, from which they only differ in having yellow flowers. I think they are a southern representative of our species.

To our species also the record of *O. Lamberti* from Klondike, Alaska (JAMES MACOUN, Ottawa Naturalist, Dec. 1899, p. 211) may be referred. And probably we must place here *O. Lamberti*,  $\beta$ , *foliolis brevioribus, floribus minoribus congestis erectis* by HOOKER, Fl. Bor. Am., I, 1834, p. 147.

### *Hedysarum* L.

70. *Hedysarum alpinum* L., var. *americanum* MICHX., Fl. Bor. Am., II, 1803, p. 74; B. A. FEDTSCHENKO, Obsor vidof roda Hedysarum, St. Petersburg, 1902, p. 75; *H. americanum* BRITTON, Mem. Torrey Bot. Club, vol. 5, 1894, p. 201; *H. boreale* NUTT., Gen. Amer. II, p. 110, 1818; HOOK., Fl. Bor. Am., I, 1834, p. 155; MACOUN, Catal. Canad. Pl., 1883—1886, p. 117 & 510; KJELLMAN, Vega Exped. Vetensk. Arbeten, II, 1883, p. 39; *H. occidentale* GREENE, Pittonia, III, 1896, p. 19; ? *H. auriculatum* and *H. truncatum* EASTWOOD, Botan. Gazette, 33, 1902, p. 205.

King Point. In beginning of flowering on June 28th—July 7th, 1906.

Herschell Isl. In full flower on July 20th, 1906.

I do not find any difference of specific importance between our plant and the Siberian *H. alpinum* L.

71. *Hedysarum Mackenzii* RICHARDSON, in App. VII to FRANKLIN, 1st Journ., ed. I, 1823, p. 745; HOOK., Fl. Bor. Am., I, 1834, p. 155; B. A. FEDTSCHENKO, Obsor vidof roda Hedysarum, St. Petersburg, 1902, p. 91 (*H. »Macquenzii«*).

Herschell Isl. In full flower on July 17th, 1906.

### *Saxifragaceae.*

#### *Saxifraga* L.

72. *Saxifraga radiata* SMALL, North Am. Flora, vol. 22, 2, 1905, p. 128; *S. exilis* STEPHAN, in STERNBERG, Suppl. Revis. Saxifr., I, 1822, p. 8, pl. 3, fig. 1 (non *S. exilis* POLL., 1816); *S. elegans* STERNB., Suppl. Revis. Saxifr., II, 1831, p. 34, pl. 14 (non *S. elegans* ZEYH. 1824); *S. sibirica* HOOK., Fl. Bor. Am, I, 1834, p. 246 (non LINNÆUS).

? *S. cernua*, PULLEN's list, Point Barrow to Mackenzie River.

King Point. In full bloom on July 10th, 1906 (a single specimen collected Sept. 3rd, 1905).

Herschell Isl. In full bloom on July 13th, 1906.

The specimens from Herschell Island differ from the typical form in having (very) small bulbils in the axes of all the cauline leaves, besides developed flowers in the upper ones, and they approach in this way *S. cernua* L. very much; in fact it is open to doubt if the species is to be maintained or if it would be better to reduce it to a variety of *S. cernua* L.

KJELLMAN has collected typical *S. cernua* L. at Port Clarence; the specimens are now in the Riksmuseum, Stockholm.

73. *Saxifraga hieraciifolia* WALDST. & KIT., Pl. rar. Hung., I, p. 17, tab. 18, 1802; *Micranthes hieraciifolia* HAW., Saxifr. Enum., 1821, p. 45; SMALL, N. Am. Flora, 22, 2, 1905, p. 134.

King Point. In beginning bloom on June 30th, 1906.

Herschell Isl. In full bloom on July 17th, 1906.

74. *Saxifraga reflexa* HOOK., Fl. Bor. Am., I, 1834, p. 249, pl. 85; *Micranthes reflexa* SMALL, N. Am. Fl., 22, 2, 1905, p. 146.

King Point. In bloom in June of 1906 (June 21th to July 4th).

We have no specimens of this species in the Copenhagen herbarium, but the material of the Gjøa Expedition is on all points like the drawing by HOOKER (l. c.) and agrees exactly with his description.

75. *Saxifraga Nelsoniana* D. DON, Trans. Linn. Soc., 13, 1822, p. 355; PIPER, Contr. U. S. Nat. Herb. XI, 1906, p. 314; *Micranthes Nelsoniana* SMALL, N. Am. Fl. 22, 2, 1905, p. 146; *S. punctata* KJELLMAN, Vega Exp. vetensk. Arb., II, 1883, p. 42; ? EASTWOOD, Bot. Gaz., 33, 1902, p. 201 (n o n LINNÆUS); ? *S. tuberosa* STERNB., Suppl. Revis. Saxifr., II, 1831, p. 8, pl. 12. (See pl. I, fig. 7.)

King Point. In bloom in the last days of June (20th—28th) and the first days of July (3rd—4th) of 1906.

Herschell Isl. In bloom on July 17th, 1906.

The species of the *punctata*-group are rather difficult to separate, and many mistakes probably have been made. The present plant agrees in all points with the description of *S. Nelsoniana* by J. K. SMALL, and I think the naming is quite correct.

76. *Saxifraga hirculus* L., Sp. pl., 1753, p. 402; *Leptasea hirculus* SMALL, N. Am. Fl., 22, 2, 1905, p. 152.

PULLEN'S list, Point Barrow to Mackenzie River.

Herschell Isl. In bloom July 17th, 1906 and with emptied capsules from 1905.

The specimens belong to var. *propinqua* (R. BR.) SIMM. (cfr. above p. 23), but have unusually large petals (ab. 9 mm.).

In North Am. Flora, Vol. 22, 2, 1905 J. K. SMALL describes (p. 152) a *Leptasea alaskana* n. sp. from Pt. Barrow, which comes near to *S. hirculus*, var. *propinqua*, but is said to have smaller petals (5.5—6.5 mm.) with a claw-like base. I think this may be considered a mere variety of *S. hirculus*.

77. *Saxifraga tricuspidata* ROTTB., Skr. Kiöbenhavn Selsk. Lærd. & Vidensk., vol. 10, 1770, p. 446, tab. 6, fig. 21; *Leptasea tricuspidata* HAW.; SMALL, N. Am. Fl., 22, 2, 1905, p. 154.

King Point. In bloom at the beginning of July (7th, 1906).

### *Empetraceae.*

#### *Empetrum* L.

78. *Empetrum nigrum* L., Sp. pl., 1753, p. 1022.

PULLEN'S list, Richard's Isl.

King Point. Only a single branch without flowers and fruits has been collected (July 1906).

*Onagrariaceae.**Epilobium* L.

79. *Epilobium angustifolium* L., Sp. pl., 1753, p. 347; *Chamaenerion angustifolium* (L.) Scop. Fl. Carn., Ed. 2, I, 1772, p. 271.

PULLEN'S list, Point Barrow to Bear Lake River.

King Point. Tall shoots, but not yet flowering were collected on July 4th, 1906.

80. *Epilobium latifolium* L., Sp. pl., 1753, p. 347; *Chamaerion latifolium* SWEET, Hort. Brit., ed. 2, 1830, p. 198.

King Point. Specimens in bud were collected at July 7th, 1906. Both large, broad-leaved specimens and small, rather narrow-leaved ones were gathered; the short pubescence is comparatively less developed than usually.

*Umbelliferae.**Selinum* L.

81. *Selinum cnidiifolium* TURCZ., Bull. Soc. Natur. de Moscou, 1840, p. 72; LEDEBOUR, Fl. Ross., II, 1844, p. 293; KJELLMAN, Vega Exp. vetensk. Arbeten, II, 1883, p. 43; ? *Selinum Dawsoni* COULTER & ROSE, Botan. Gazette, 13, 1888, p. 144; *Conioselinum Dawsoni* COULTER & ROSE, Contr. Nat. Herb., vol. VII, 1900, p. 152.

King Points. Plants in buds only (July 7th, 1906).

Herschell Isl. Plants in full bloom (July 14th, 1906).

I am not quite sure as to the determination of the umbelliferous plant in question, as I have no authentic material for comparison at hand. Nevertheless my plants agree so well with the description in LEDEBOUR (l. c.) of *Selinum cnidiifolium* TURCZ. and with a specimen labelled: »Sibir. or. ad fl. Janam, leg Dr. A. BUNGE, 1885«, that I do not think my determination can be wrong. On the other hand COULTER & ROSE's description of *Conioselinum Dawsoni* also agree so exactly with my plants, that I feel no doubt that it is the same species. I cannot find any difference of importance between the descriptions of these two plants, and probably they are identical. COULTER & ROSE (1900) do not at all mention *Selinum cnidiifolium* as North American, although it has been recorded from Port Clarence by KJELLMAN in 1883.

I think that it is more correct to leave the species in *Selinum*, as it has — as also stated by COULTER & ROSE — oil tubes solitary in the intervals of the fruits and two oil tubes on the commissural side; further

all the fruit wings are almost alike, the lateral not being considerably broader than the dorsal. The fruit — at least the immature one — is not dorsally flattened as in *Conioselinum*. The petals are broadly obovate or obcordate, emarginate and with infolded tips. The linear-oblong or ovate-oblong membranous involucrel leaves with long, abruptly limited attenuation are very characteristic for the species and are laid stress upon both by TURCZANINOW and by COULTER & ROSE.

*Bupleurum* L.

82. *Bupleurum americanum* COULTER & ROSE, Revis. N. Am. Umbellif., Indiana, 1888, p. 115, fig. 17; Contr. Nat. Herb., VII, 1900, p. 85; *B. ranunculoides* HOOKER, Fl. Bor. Am., I, 1834, p. 277; KJELLMAN, Vega Exp. Vetensk. Arbeten, II, 1883, p. 43.

Herschell Isl. A small fragment of a flowering plant (July 17th, 1906).

*Pirolaceae.*

*Pirola* L.

83. *Pirola rotundifolia* L., var. *grandiflora* (RADIUS) D. C., Prodrumus, VII, 1840, p. 773; cfr. OSTENFELD, in Medd. om Grönland, XXXIII, 1905, p. 65.

? *P. rotundifolia*, PULLEN'S list, Point Barrow to Great Slave Lake; Richard's Isl.

King Point. In full bloom on July 4th, 1906, in young buds on June 17th, 1906.

*Ericaceae.*

*Ledum* L.

84. *Ledum palustre* L., var. *decumbens* AIT., Hort. Kew., vol. 2, 1789, p. 65.

*L. palustre*, PULLEN'S list, Point Barrow to Mackenzie River; Richard's Isl.

King Point. Begins to flower about on 1st July (in buds on June 28th, in bloom on July 7th, 1906).

The King Point specimens are quite like the Greenland ones.

Empty ripe fruits from the foregoing year are present on the flowering specimens.

*Cassiope* D. DON.

85. *Cassiope tetragona* (L.) DON, Edinb. New Phil. Journ., vol. 17, 1834, p. 158.

PULLEN'S list, Point Barrow to Mackenzie River; Garry Isl.

King Point. In full bloom about July 1st, 1906.

*Arctostaphylos* ADAMS.

86. *Arctostaphylos alpina* (L.) SPRENG., Syst., II, 1825, p. 287.

King Point. In full bloom on June 16th, 1906; with full-grown leaves on June 20th—29th, 1906, and with old fruits from the foregoing year. Specimens from September 3rd, 1905, show that the leaves also at King Point become purple-red in the autumn.

*Vacciniaceae.**Vaccinium* L.

87. *Vaccinium uliginosum* L., f. *microphylla* LANGE, Consp. Fl. Groenl., 1880, p. 91 (pro subspecie).

PULLEN'S list, Arctic Coast.

King Point. Only sterile fragments collected (June 1906, GODFRED HANSEN).

88. *Vaccinium vitis-idaea* L., Sp. pl., 1753, p. 351; *Vitis-idaea vitis-idaea* (L.) BRITTON, in Bull. New York Bot. Garden, vol. 2, No. 6, 1901, p. 179.

King Point. Specimens with young flower-buds were collected on June 16th, 1906.

*Primulaceae.**Primula* L.

89. *Primula borealis* DUBY, Mém. Soc. phys. et d'hist. nat., Genève, X, 1843, tab. 2, fig. 2; DE CANDOLLE, Prodr. VIII, 1844, p. 43; PAX, Primulaceæ, in Das Pflanzenreich, 1905, p. 80; *P. mistassinica* CHAM. & SCHLECHTEND., Linnæa I, 1826, p. 213 (non MICHX. 1803).

Herschell Isl. In full bloom in the middle of July 1906 (13th).

The specimens collected are tall and large (8--15 cm.) and belong partly to var. *Loczii* (KANITZ) PAX (l. c. p. 81), which has even transitions to the main form.

*Douglasia* LINDL.

90. *Douglasia arctica* HOOKER, Fl. Bor. Am., II, p. 120, 1838; PAX u. KNUTH, Primulaceæ, in Das Pflanzenreich, 1905, p. 169.

King Point. Flowering in the later half of June (16th—21th, 1906).

The Expedition has brought home a rather rich material of this rare species, which was described on specimens collected between Mackenzie



River and the mouth of Coppermine River by RICHARDSON, and which, as far as I know, has not been mentioned since. It has red or pink flowers and seems to grow in gravelly wet places.

*Androsaces* L.

91. *Androsaces chamæjasme* Host, Syn. pl. Austr., 1797, p. 95; EASTWOOD, Botan. Gazette, 1902, p. 211; *A. villosa*, v. *latifolia* LEDEB.; KJELLMAN, Vega-Exp. vetensk. Arb., II, 1883, p. 36.

PULLEN'S list, Pelly's Isl.

Herschell Isl. In full bloom on July 13th, 1906 and with empty capsules from the foregoing year.

The specimen collected belongs to the more hairy form of this species (the so-called *A. villosa*, var. *latifolia* LEDEB.) and must be named var. *arctica* R. KNUTH (Primulaceæ, in Das Pflanzenreich, 1905, p. 190).

92. *Androsaces septentrionalis* L., var. *Gormannii* (GREENE) OSTF., nov. comb.; *A. Gormannii* GREENE, Pittonia IV (1899—1901), p. 149; PAX u. KNUTH, Primulaceæ, in Das Pflanzenreich, 1905, p. 218; ? BRITTON & RYDBERG, in Bull. New York Bot. Garden, vol. 2, No. 6, 1901, p. 179. (See pl. III, fig. 21.)

King Point. In bloom in the later half of June 1906 (17th—28th).

I have not had access to the original description of *A. Gormannii* GREENE in »Pittonia«, but PAX and KNUTH quote the description, and the rich material collected by Mr. LINDSTRÖM agrees exactly with it, so that I feel convinced that my specimens are what GREENE has named *A. Gormannii*. The type is from Fort Selkirk, Alaska, and has been collected on May 24th, thus in the spring. It is evident that the plants must have been in bloom only — and GREENE does not describe the fruits — and this is of importance with regard to the conception of the value of the species. The only essential point in which *A. Gormannii* differs from *A. septentrionalis* is that the umbel is densely flowered, i. e. that the flower-stalks are short. Now *A. Gormannii* is only known in bloom, and we do not know therefore, if the stalks become longer at fruiting time, which they most probably do. But if so, there is no cause to uphold the species as distinct from *A. septentrionalis*. When I nevertheless maintain it as a variety, it is because I do not find flowering specimens of *A. septentrionalis* with such short flower-stalks. At least provisionally the Alaska plant may bear the name *A. septentrionalis*, var. *Gormannii* (GREENE), and is characterized by the flower-stalks being shorter than or as long as the calyx at flowering time, while in the true *A. septentrionalis* they are longer — oftenest much longer — than the calyx.

At Port Clarence F. KJELLMAN has collected *A. septentrionalis* which agree with European specimens having long flower-stalks; the specimens, having been taken on July 22th—26th, bear young fruits (Vega Exp.; now in the Riksmuseum, Stockholm).

#### *Dodecatheon* L.

93. *Dodecatheon frigidum* CHAM. & SCHLECHT., in Linnæa I, 1826, p. 217; HOOK., Fl. Bor. Am., II, 1838, p. 119; PAX u. KNUTH, Primulaceæ, in Das Pflanzenreich, 1905, p. 239; SEEMAN, Bot. Voy. Herald, 1852, p. 38, Pl. IX.

Herschell Isl. In full bloom in July (13th—17th, 1906).

#### *Polemoniaceae.*

##### *Polemonium* L.

94. *Polemonium boreale* ADAMS, in Mém. Soc. natur. de Moscou, V, 1817, p. 92; *P. lanatum*, subsp. *A. boreale* BRAND, Polemoniaceæ, in Das Pflanzenreich, 1907, p. 40; *P. lanatum* PALLAS, Reise, III, 1776, p. 33, nomen nudum; *P. humile* WILLD. in ROEMER & SCHULTES, System., IV, 1819; *P. pulchellum* Auctt., vix BUNGE in LEDEBOUR, Fl. Altaic. I, p. 233.

? *P. coeruleum*, PULLEN'S list, Point Barrow to Mackenzie River ("several forms of this species were gathered").

King Point. In bloom in the later part of June (from 20th to July 4th) 1906.

Herschell Isl. In full bloom on July 13th, 1906.

A. BRAND (l. c.) uses the name *P. lanatum* PALLAS for this species, but this is a »nomen nudum« and the plate quoted by BRAND is — as he himself also suggests — »inedita«. The next oldest name is *P. boreale* ADAMS (l. c.).

95. *Polemonium coeruleum* L., var. *villosum* (RUD.) BRAND, Polemoniaceæ, in Das Pflanzenreich, 1907, p. 38; *P. villosum* RUDOLPHI, in GEORGI, Beschreib. Russ. Reich. III, 4, 1800, p. 771; *P. acutiflorum* WILLD., in ROEMER & SCHULTES, System., IV, 1819, p. 792; *P. campanulatum* TH. FRIES, Botan. Notiser, 1858, p. 183; *P. coeruleum*,  $\beta$ , *acutiflorum* et  $\gamma$ , *ovatum* LEDEBOUR, Fl. Ross., III, 1847, p. 84; ? *P. occidentale* BRITTON & RYDBERG, Bull. New York Bot. Gard., vol. 2, No. 6, 1901, p. 180, non GREENE, Pittonia II, 1890, p. 75.

? *P. coeruleum*, PULLEN'S list, Point Barrow to Mackenzie River ("several forms of this species were gathered").

King Point. A single flowering specimen has been collected on Sept. 3rd, 1905.

Herschell Isl. In beginning of flowering on July 13th, 1906.

The specimens of *P. coeruleum* L. collected belong to the var. *villosum* (RUD.) as limited by A. BRAND (l. c.); the corolla lobes are »acustiusculi« (subobtusely-triangular) and the calyx is  $\pm$  villose-glandulose.

### *Borraginaceae.*

#### *Mertensia* ROTH.

96. *Mertensia maritima* (L.) S. F. GRAY, Nat. Arr. Brit. Pl., 1821, p. 354; *Pneumaria maritima* HILL; *Stenhammaria maritima* RCHB.

PULLEN'S list, Cape Bathurst.

King Point. In fruits in the autumn of 1905 (most fruits not developed) and in full bloom July 7th, 1906.

97. *Mertensia pilosa* (CHAM.) G. DON, Gen. syst., 4, 1838, p. 320; DE CANDOLLE, Prodr., X, 1846, p. 90; *Pulmonaria pilosa* A. CHAMISSE, in Linnæa, 4, 1829, p. 449; *Lithospermum corymbosum* LEHMANN, PUGILLUS 2, Hamburg 1830, p. 27; HOOKER, Fl. Bor. Am., II, p. 87, 1838; *Stenhammaria paniculata* KJELLMAN, Vega Exped. vetensk. arbeten, II, 1883, p. 35. (See pl. II, fig. 10.)

King Point. In full bloom in the last week of June (24th—27th) and the first days of July (4th) 1906.

The species of *Mertensia* belonging to the group of which *M. paniculata* (AIT.) G. DON is the first described, are very difficult to identify and require a thorough study. The older botanists, e. g. LEHMANN and G. DON, have given names to several forms of which we know very little, but before creating new species it will be necessary to try and clear up these older ones. At present we have no idea, if the new names *M. alaskana* BRITTON (Bull. New York Bot. Garden, vol. 2, No. 6, 1901, p. 181) and *M. alaskana* EASTWOOD (Botan. Gazette, vol. 33, 1902, p. 287) are to be maintained or are to be taken as synonyms of old names.

There is no doubt that the *Mertensia* of north-western North America consist of several nearly related species, and F. v. HERDER (Plantæ Raddeanæ, in RADDE, Reisen in den Süden von Ostsibirien, Bd. IV, Heft 1, 18 p. 229) is wrong in reducing *Pulmonaria pilosa* CHAM., *P. lanceolata* PURSH, etc., to synonyms of *Mertensia paniculata* (AIT.) DON.

The rich material collected by the Gjøa Expedition agrees well with the detailed description of *Pulmonaria pilosa* by A. DE CHAMISSE (l. c.), with the exception that the corolla is not »circiter sesqui pollicaris«; but this is decidedly a *lapsus calami* by CHAMISSE, the corolla being only three quarters of an inch long. The same species — probably — has

been described by J. G. C. LEHMANN (l. c.) as *Lithospermum corymbosum*, and HOOKER (l. c.) has it under this name in his flora.

Our specimens are scarcely so hairy as A. DE CHAMISSO's original material, but the hairiness of the stem seems to be somewhat variable. The specimens collected by FR. KJELLMAN at Port Clarence and published as *Stenhammaria paniculata* (AIT.) DON coincide in this respect better with CHAMISSO's description.

From *M. alaskana* BRITTON and *M. alaskana* EASTWOOD (are they distinct?) our species differs among other characters by its greater hairiness, especially by the sepals being hairy also on the outer surface. Nevertheless they come very near to our form, but as I have not seen the types, I cannot express any definite opinion.

### *Myosotis* L.

98. *Myosotis silvatica* HOFFM., Deutschl. Flora, ed. 2, 1791, p. 85.

PULLEN's list, Point Barrow to Mackenzie River.

King Point. In bloom in June (15th—20th) of 1906; in bloom and with fruits (nearly all abortive) Sept. 3rd, 1905.

Herschell Isl. In bloom July 17th, 1906.

The specimens collected are rather large (autumn specimens reaching 35 ctm. in height). Collected also with white flowers at King Point.

### *Scrophulariaceae.*

#### *Castilleja* MUTIS; L. f.

99. *Castilleja pallida* (L.) H. B. K., Nov. Gen. & Spec., vol. 2, 1817, p. 331; KUNTH, Synops. Plant. Æquin., vol. 2, 1823, p. 100; *Bartsia pallida* L., Spec. Pl., 1753, p. 602; *Castilleja pallida* CHAMISSO, in Linnæa, vol. 2, 1827, p. 580; HOOKER, Fl. Bor. Am., II, 1838, p. 105; *C. septentrionalis* LINDLEY, Botan. Register, 1825, tab. 925; *C. sibirica* LINDLEY, *ibid.*

*C. septentrionalis*, PULLEN's list, Point Barrow to Mackenzie River; Pelly Isl.

King Point. In bloom the first days of July (3rd—10th, 1906).

Our plants agree well with the Siberian specimens of *C. pallida* in all essential characters, but the upper part of the stems, the bracts and the calyx are somewhat villous, thus representing a transitional stage to the following variety:

99 a. *C. pallida* (L.) H. B. K., var. *unalaschcensis* CHAMISSO & SCHLECHTENDAHL, Linnæa, vol. 2, 1827, p. 581.

Herschell Isl. In full bloom in July (13th—17th) 1906.

This variety may perhaps be a distinct species. It is larger and the leaves are much broader; the upper part of the stems with bracts and calyx is villous of long whitish hairs. The bracts are only very little paler than the leaves, the calyx and especially the corolla are dull-purple.

We have a specimen in the Copenhagen Herbarium collected by ESCHSCHOLTZ in Unalashka and named *C. acuminata* (PURSH) SPRENG., but which is undoubtedly CHAMISSO's variety of *C. pallida*. *C. acuminata* is quite another species, if we follow PURSH's original description (Flor. Am. sept., 2, 1814, p. 429), from which it appears that this species is very narrow-leaved.

Perhaps our variety has been reported from Alaska by BRITTON & RYDBERG (Bull. New York Bot. Garden, vol. 2, no. 6, 1901, p. 181) who say about specimens from Fort Selkirk and Five-finger Rapids that they differ from the others in being villous to the base and may represent another species.

### *Pedicularis* L.

100. *Pedicularis capitata* ADAMS, Mém. Soc. Imp. Nat., Moscou, 5, 1817, p. 100; cfr. above p. 24.

PULLEN'S list, Garry Isl.

King Point. In full bloom on June 28th and July 7th, 1906.

101. *Pedicularis verticillata* L., Sp. pl., 1753, p. 608.

PULLEN'S list, Garry Isl.

King Point. In bloom on July 6th, 1906.

Herschell Isl. In full bloom, July 13th—17th, 1906.

The specimens from both localities differ from the type in having a very small and short calyx (ca. 4 mm. long), round-ovate in shape; they deserve perhaps a special name.

102. *Pedicularis sudetica* WILLD., Spec. Plant, III, 1800, p. 209.

PULLEN'S list, Point Barrow to Mackenzie River.

King Point. In flower on July 9th, 1906.

Herschell Isl. In full bloom on July 13th, 1906.

While the specimens from King Point agree with the typical *P. sudetica*, the specimens from Herschell Island are to be named var. *lanata* WALPERS.

103. *Pedicularis lanata* CHAM. & SCHLECHT., Linnæa, II, 1827, p. 583.

? *P. hirsuta*, PULLEN'S list, Garry Isl.

King Point. In flower in the later half of June 1906 (in buds on June 12th; beginning flowering June 17th; full bloom June 21st); flowers rosy. — The specimens belong to f. *lejantha* TRAUTVETTER.

104. *Pedicularis arctica* R. BR., Chloris Melvill., 1823, p. 22; SIMMONS, Rep. Sec. Norw. Arct. Exped. in the Fram 1898—1902, No. 2, 1906, p. 31; *P. Langsdorffii* FISCHER in STEVEN, Mém. Soc. imp. Natural., Moscou, vol. 6, 1823, ex pte; CHAMISSE & SCHLECHTENDAL, in Linnæa, II, 1827, p. 584, et auct. alii; *P. hirsuta* KJELLMAN, Vega Exp. vetensk. arbet., II, 1883, p. 34 (vidi spec. in Herb., Riksmuseum, Stockholm), non LINNÆUS; ? *P. hians* EASTWOOD, Botan. Gazette, 33, 1902, p. 289.

King Point. In bloom on June 25th and July 4th, 1906.

Herschell Isl. Two large flowering specimens were collected on July 13th, 1906.

Flowers are pale rose (CHAMISSE says: pallide purpurascens, while SIMMONS has »purple«).

My friend Dr. H. G. SIMMONS has (l. c.) shown that the name *P. arctica* R. BROWN is more correct than the more commonly used *P. Langsdorffii* FISCHER in STEVEN (l. c.), as the later authors have confused the species with *P. lanata* CHAM. & SCHLECHT., and it was not until CHAMISSE & SCHLECHTENDAL that we got a clear definition of the name *P. Langsdorffii*.

Many later authors have made mistakes in this direction. One of the latest is Miss A. EASTWOOD who in Botan. Gazette, vol. 33, 1902, pp. 289—292 described several *Pedicularis* species collected in the neighbourhood of Nome City, Alaska. As far as I am able to explain the descriptions (I have not seen the specimens upon which they were made), her *P. hians* nov. sp. is *P. arctica*, and her *P. Langsdorffii* is *P. lanata*, in spite of that she has also the later name separately; but I think that the two names represent only two forms of one and the same species, viz. *P. lanata* CHAMISSE & SCHLECHTENDAL.

## *Selaginaceae.*

### *Lagotis* GÄRTN.

105. *Lagotis glauca* GÄRTN., Nov. Comment. Petropol., XIV, 1770, p. 534, tab. 18, fig. 2; EASTWOOD, Botan. Gazette, vol. 33, 1902, p. 293; *Gymnandra Stelleri* CHAM. & SCHLECHTD., Linnæa, II, 1827, p. 561; *G. Gmelini* CHAM. & SCHLECHTD., ibidem, p. 559; Hook., Flor. Bor. Am., II, 1838, p. 102.

King Point. In full flower in the last days of June (24th—30th) and the beginning of July (4th) 1906.

Herschell Isl. In bloom in July (13th and 17th) 1906.

All the specimens collected at both places belong to var. *Stelleri* (CHAM. & SCHLECHTD.) TRAUTV., Acta Horti Petrop., V, 1877, p. 95, with relatively narrow basal leaves.

### Valerianaceae.

#### *Valeriana* L.

106. *Valeriana capitata* PALLAS, in LINK, Jahrb. d. Gew., I, 3, 1829—33, p. 66.

PULLEN'S list, Point Barrow to Mackenzie River.

King Point. With late flowers on Sept. 3rd, 1905; in buds and with the first flowers opened on July 4th—10th, 1906.

Herschell Isl. In full bloom in July (13th—17th), 1906.

### Compositae.

#### *Erigeron* L.

107. *Erigeron grandiflorus* HOOK., Fl. Bor. Am., II, 1834, p. 18, tab. 123; BRITTON & RYDBERG, in BULL. New York Bot. Gard., vol. 2, no. 6, 1901, p. 185.

Herschell Isl. In full flower on July 14th, 1906; numerous specimens of this pretty herb.

#### *Antennaria* GÄRTN.

108. *Antennaria* sp.; ? *A. pulcherrima* (HOOKER) GREENE, in Pittonia, III, 1897, p. 176; BRITTON & RYDBERG, Bull. New York Bot. Garden, vol. 2, no. 6, 1901, p. 185; *A. carpathica*,  $\gamma$ , *pulcherrima* HOOKER, Fl. Bor. Am., I, 1834, p. 329.

King Point. A fragment of a plant with two sterile leaf-shoots (July 7th, 1906).

Owing to the very insufficient material a closer identification has been impossible, but it is most probable that the plant is *A. pulcherrima* (HOOKER) GREENE, as it has no stolons and 4—5 ctm. long, floccose-woolly leaves, and consequently belongs to the *carpathica*-group.

#### *Achillea* L.

109. *Achillea millefolium* L., var. *lanulosa* (NUTT.) PIPER, Fl. Palouse Reg., 1901, p. 196; Contr. U. S. Nat. Herb., XI, 1906, p. 584; ? *A. borealis* BONGARD; ? *A. millefolium*,  $\beta$ , *occidentalis* D. C.

King Point. In beginning bloom July 10th, 1906; with flowers and unripe fruits Sept. 5th, 1905.

Herschell Isl. In full flower July 17th, 1906.

I have referred the material at hand to *A. lanulosa* NUTTALL (Journ. Acad. Philadelphia, 7, 1834, p. 36) which is merely a form of *A. millefolium*. Our specimens are villose-tomentose in the upper parts and the involucreal scales have a rather large dark-brown membranous margin.

#### *Matricaria* L.

110. *Matricaria inodora* L., var. *grandiflora* (HOOK.) OSTF.; cfr. above p. 25.

*Pyrethrum inodorum*, var. *pumilum*, PULLEN'S list, Richard's Isl.

King Point. In bloom and with unripe fruits (Sept. 3rd, 1905).

Herschell Isl. In full bloom July 13th, 1906.

The specimens from Herschell Island are 10—15 cm. high and with nearly erect, one-headed stems; those from King Point have more decumbent or ascending stems.

#### *Artemisia* L.

111. *Artemisia vulgaris* var. *Tilesii* LEDEB., Fl. Ross., II, 1845—46, p. 586; *A. Tilesii* LEDEB., Mém. Acad. St. Petersb. V, p. 568.

*A. vulgaris*, PULLEN'S list, Point Barrow to Bear Lake River.

King Point. With nearly ripe fruits on Sept. 3rd, 1905; in buds, just before opening on June 28th, 1906.

Herschell Isl. In buds, July 17th, 1906.

The specimens from King Point have pale-green capitulæ, those from Herschell Island purple.

#### *Petasites* GÄRTN.

112. *Petasites frigida* (L.) FR., var. *corymbosa* (R. BR.) HERDER, Plant. Raddean. Monopet. Bd. III, 2, 1867, p. 4; *Tussilago corymbosa* R. BR., Chloris Melvill., 1823, p. 21; *Nardosmia corymbosa* HOOK., Fl. Bor. Am., I, 1834, p. 307.

PULLEN'S list, Point Barrow to Mackenzie River; Richard's Isl. (*Nardosmia corymbosa*).

King Point. In bloom in June 1906 (10th—29th), with unripe fruits in July (7th).

Herschell Isl. With unripe fruits July 17th, 1906.

The numerous specimens collected vary rather much with regard to the incisions of the leaves, but taken as a whole the leaves are more deeply lobed than in the European plant (cfr. BRITTON & RYDBERG, Bull. New York Bot. Gard., vol. 2, 1901, p. 186); this has been observed earlier by



TURCZANINOW and HERDER, l. c., pp. 3—4. A more important difference seems to me to be that the outline of the leaf-blade is broadly ovate-cordate, not triangular-cordate as in most European and Asiatic specimens.

### *Arnica* L.

113. *Arnica alpina* (L.) OLIN, Dissert. Arnica, Upsala, 1799.

King Point. In full bloom in the first week of July (4th—9th), 1906.

Herschell Isl. In full bloom July 17th, 1906.

Most of the many well-developed specimens from King Point and Herschell Island have but one flower-head and a few have three. In all characters the material agrees exactly with the numerous specimens from Greenland in the Copenhagen Herbarium.

### *Senecio* L.

114. *Senecio lugens* RICHARDSON, in Franklin 1st Journ., ed. 1, 1823, App. p. 747; HOOKER, Fl. Bor. Am., I, 1834, p. 332, pl. 114; ? *S. lugens*, var. *Blaisdellii* EASTWOOD, Botan. Gazette, 33, 1902, p. 298.

PULLEN'S list, Arctic Coast.

King Point. Two young individuals, only in buds, belong probably to this species (June 29th, 1906).

Herschell Isl. A specimen in full bloom collected on July 17th, 1906.

The specimen from Herschell Island agrees exactly with the description by RICHARDSON and HOOKER and with the drawing by HOOKER, only differing in its lower stem (15 cm. high); the achenes are glabrous.

115. *Senecio palustris* (L.) HOOK., Fl. Bor. Am., I, 1834, p. 334 (cum  $\beta$ , *congestus*); LEDEBOUR, Fl. Ross. II, 2, 1845—46, p. 648 (cum varr.  $\beta$ , *congestus* et  $\gamma$ , *laceratus* LEDEB.); *S. Kalmii* NUTTALL, Gen. North Am. plant., II, p. 65; HOOKER, l. c. p. 335. *Cineraria palustris* L., Sp. pl. 1753, p. 1243; *C. congesta* R. BROWN, Cloris Melvill., 1823, p. 21.

PULLEN'S list, Point Barrow to Mackenzie River (*S. palustris*, var. *congestus*).

King Point. With not fully ripe fruits, autumn of 1905.

Herschell Isl. In full flower in July 1906 (17th—20th).

The specimens collected vary very much with regard to the breadth and dentation of the leaves, thus showing that no distinctive character can be based upon them; there are specimens with linear, remotely sinuate leaves (*C. congesta* R. BR.) and others with pinnatifid-laciniate leaves (*S. Kalmii* NUTT.; *S. palustris*,  $\gamma$ , *laceratus* LEDEB.). Common for all specimens are the densely crowded heads and the extreme villousness on the upper part of the plant. I think therefore it may be convenient to

maintain R. BROWN's name as a varietal name of inferior rank in a wider sense, corresponding to his description (l. c., p. 21): »Anthodia in capitulum terminale subsphaericum . . . . . dense congesta, lana copiosa semi-involuta . . .«, but omitting his remarks on the leaves. HOOKER (l. c., p. 334) has done almost the same: *caule simplicissimo floribus capitatis*. The name for our form is then *Senecio palustris* (L.) HOOK., f. *congestus* (R. BR.) HOOK.

116. *Senecio frigidus* (RICHARDS.) LESSING, Linnæa, VI, 1831, p. 239; HOOK., Fl. Bor. Am., I, 1834, p. 334, tab. 112; *Cineraria frigida* RICHARDSON, Franklin 1st Journ., ed. I, App. 1823, p. 748; *C. frigida* f. *typica* KJELLMAN & f. *tomentosa* KJELLMAN, Vega Exp. vetensk. arb., II, 1883, p. 13 & p. 30.

PULLEN's list, Garry Isl.; Pelly Isl.

King Point. In full flower, June 29th—July 4th, 1900.

Herschell Isl. In full flower, July 13th, 1906.

I cannot find any distinct limit between the f. *typica* KJELLM. and the f. *tomentosa* KJELLM.; the latter is characterized according to KJELLMAN (l. c., p. 13) by being more robust and by the denser villousness on the upper part of the scape and on the involucre; but already RICHARDSON tells us: »calyx . . . villosus«. I find an even transition from the more tomentose specimens into others which have only very small and few hairs on the involucre (especially specimens from Novaya Semlja). Compare the many forms enumerated by F. v. HERDER, Plantæ Raddeanæ, Bd. III, 2, 1867, p. 125—126; using his manner of subdividing the species all our specimens belong to his var.  $\beta$ , *robusta*.

117. *Senecio integrifolius* (L.) CLAIRV., var. *Lindstroemii* var. nov.; ? *S. integrifolius* HOOKER, Fl. Bor. Am., I, 1834, p. 335; *Cineraria integrifolia* RICHARDSON, in Franklin, 1st Journ., ed. I, App., 1823, p. 748; KJELLMAN, Vega Exp. vetensk. arb., II, 1883, p. 29; an MURR.? (See pl. III, fig. 20).

King Point. Flowering in the first days of July 1906 (4th—7th).

The material at hand is not rich, and as I have only rather few comparative specimens at my disposal I dare not decide the question, if the plant from King Point is a new species or more correctly should be taken as a variety of *S. integrifolius* to which it is nearly allied; nor if it has been named before.

As far as I know, J. M. GREENMAN's monograph of the genus has not yet appeared, and from the preliminary report (ENGLER, Botan Jahrb., 32, 1902), it is not possible to find out if our plant has been named by him, as he gives no descriptions to his new species.

Specimens which exactly agree with the King Point plant have been collected by KJELLMAN at Port Clarence, and he names them *Cineraria integrifolia*. Probably also RICHARDSON'S *Cineraria integrifolia* and HOOKER'S *Senecio integrifolius* are the same plant as ours, at least with regard to the plant recorded by RICHARDSON from »woody country, in lat. 54°, to the shores of the Arctic Sea«.

It is a different matter, if the American plant is the same as the European *S. integrifolius*. TORREY and GRAY (North Am. Fl., II, 1842, p. 438) meant that it was distinct from it, and named it *S. Hookeri*. Their description has two points which show that their plant was not *S. integrifolius* (L.) CLAIRV., — but I also think that it was not *S. integrifolius* HOOKER. The first point is, that TORREY and GRAY say that their plant has *glabrous achenes*; if HOOKER'S plant has had glabrous achenes, he would have mentioned it, as the true *S. integrifolius* has pubescent achenes; but he says nothing, and therefore I think that his American plant has had *pubescent achenes*, as the true *S. integrifolius* and as our King Point plant have. I therefore believe that *S. integrifolius* HOOK. and *S. Hookeri* TORR. & GRAY are not synonyms.

In another point TORREY & GRAY'S description differs from our plant, viz. they say: »rays 8—9, oblong, short«. The European *S. integrifolius* has about 15 rays, while the King Point plant has about 21, which are much longer, linear-spathulate and bright orange. In this latter point our plant differs from the true *S. integrifolius*, and in one character more: our form has the very narrow and long involucreal leaves deeply purple-coloured, at least in their upper part. I have therefore provisionally — as I have no mature fruit at my disposal — arranged it as a new variety, var. *Lindstroemii*, under the much varying *S. integrifolius*, naming it in honour of the indefatigable collector on board the Gjøa Mr. A. H. LINDSTRÖM. With regard to the shape and covering of the leaves it agrees well with the main-species, but the subumbellate inflorescence has rather few (1—5) heads.

#### *Saussurea* D. C.

118. *Saussurea alpina* (L.) D. C., var. *angustifolia* (D. C.) REGEL & TILING, Fl. Ajan., p. 107, KJELLMAN, Vega Exp. vetensk. arb., II, 1883, p. 31.

*S. monticola*, PULLEN'S list, Point Barrow to Mackenzie River.

King Point. In buds on July 7th, 1906.

Herschell Isl. In flower on July 18th, 1906.

The specimens from King Point agree well with the var. *angustifolia* (D. C.) REGEL & TILING (= *S. angustifolia* D. C. in Ann. Mus. d'hist. nat., XVI, p. 199; *S. monticola* RICHARDSON, Franklin 1st Journ., ed. 2, App.

p. 29; HOOKER, Fl. Bor. Am., I, p. 303), while that from Herschell Island has somewhat broader leaves (lanceolate), thus corresponding to *S. alpina*,  $\gamma$ , *remotifolia* HOOK., l. c. This form has nothing to do with *Saussurea nuda* LEDEB., Fl. alt., IV, p. 16 in nota, which has »involucris squamis omnibus subæquilongis«. I think therefore that BRITTON & RYDBERG (Bull. New York Bot. Gard., vol. 2, no. 6, 1901, p. 187) are not right in recording *S. nuda* from the Yukon territory. Their note on the much narrower leaves of their specimens seems to point to *S. alpina*, var. *angustifolia* (D. C.) REGEL & TILING.

### *Taraxacum* HALL.

119. *Taraxacum eurylepium* DAHLST. n. sp. (See pl. III, fig. 19.)

Planta sat humilis c. 1—2 ctm. alta.

Folia angusta sat elongata lingulata — linearia, firmula, glabra æte viridia nervo mediano petiolisque sat angustis pallidis irregulariter et sat crebre dentata — breve lobata, lobis triangularibus v. vulgo deltoideis humilibus margine superiore  $\pm$  dentatis apicibus et dentibus vulgo recurvatis, acutis, interlobiis latiusculis concavis integris brevibus, lobo terminali hastate angusto brevi — sat longo  $\pm$  acuto.

Pedunculi folia vulgo superantes, glabri, superne  $\pm$  cupreo-colorati.

Calathium sat plenum parum radians, 35—40 mm. latum.

Ligulæ sat obscure luteæ, marginales latiusculæ subplanæ, extus stria inferne latiuscula superne vulgo solum ad nervos limitata magis rubro-olivacea notatæ, dentibus  $\pm$  obscuris.

Antheræ polline carentes.

Stylus luteus, stigmatibus obscuris sat longis.

Involucrum humile, crassum basi  $\pm$  truncata atroviride, squamis exterioribus  $\pm$  adpressis latis—latissimis ovatis acuminatis acumine sæpe  $\pm$  violascente margine sæpe inæqualiter et late parci-dentatis, haud v. apice solum marginatis, infimis sub apice  $\pm$  callosis, superioribus sub apice breve et obtuse cornutis, infra medium interiorum adtingentibus, interioribus sub apice solum callosis v. breve cornutis.

Achemium haud visum.

Herschell Isl. In full bloom on July 17th, 1906.

Dr. H. DAHLSTEDT gives the following additional notes: From the other species of the group *Ceratophora* it differs by the unusually broad and short outer involucral leaves. In this character it recalls on *T. hyparticum* DAHLST. (Arkiv f. Botanik, Stockholm, Bd. 4, 8, 1905, p. 17) and its allies, from which it on the other hand differs by the rather well

developed teeth of the corolla, by the faint colouring on the underside of the outer rays and by the long stigmas. The just mentioned characters are also characteristic of the *Ceratophora*. Among the species of this group it seems nearest related to *T. arctogenum* DAHLST. (Arkiv f. Botanik, Stockholm, Bd. 5, 9, 1906, p. 26), from which it is easily distinguished by the very broad outer involucral leaves and by the absence of pollen.

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## Explanation of the Plates.

All the figures are half size ( $\frac{1}{2}$ ) reproductions of photographs taken from dried specimens. Fig. 11, 14 and 18 are from plants from King William Land, figs. 3, 9, 13, 16, 17 and 19 from Herschell Island, and figs. 1, 2, 4-8, 10-12, 14, 15, 18, 20-22 from King Point.

### Plate I.

- Fig. 1. *Alsine macrocarpa* (PURSH) FNZL.  
" 2. *Alsine arctica* (STEVEN) FNZL.  
" 3. *Anemone parviflora* MICHX., var. *grandiflora* ULBRICH.  
" 4. *Anemone Drummondii* S. WATS.  
" 5. *Erysimum inconspicuum* (S. WATS.) MAC M.  
" 6. *Lupinus nootkatensis* DONN, var. *Kjellmanii* nov. var.  
" 7. *Saxifraga Nelsoniana* D. DON.

### Plate II.

- Fig. 8. *Caltha palustris* L., var. *asarifolia* (D. C.) HUTH.  
" 9. *Ranunculus occidentalis* NUTT., var. *robustus* A. GRAY.  
" 10. *Mertensia pilosa* (CHAM.) G. DON.  
" 11. *Cerastium Regelii* nov. nom.  
" 12. *Oxytropis campestris* (L.) D. C., var. *melanocephala* HOOK.  
" 13. *Oxytropis nigrescens* (PALL.) FISCH.  
" 14. *Oxytropis arctobia* BUNGE.

### Plate III.

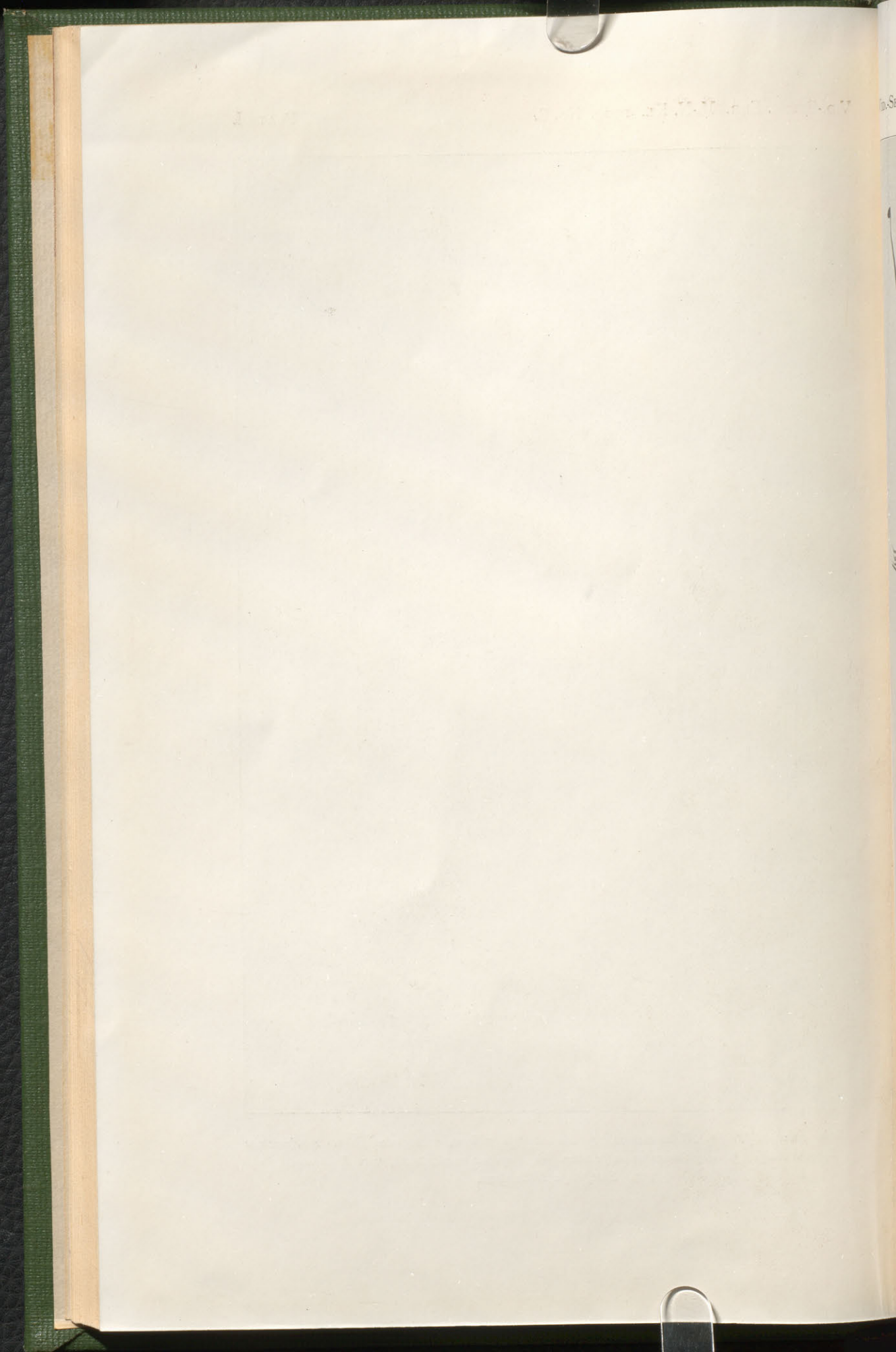
- Fig. 15. *Ranunculus gelidus* KAR. & KIR.  
" 16. *Oxytropis Roaldi* nov. sp.  
" 17. *Thlaspi alpestre* L. var. *purpurascens* (RYDB.) nov. comb.  
" 18. *Taraxacum hyperboreum* DAHLST., nov. sp.  
" 19. *Taraxacum eurylepium* DAHLST., nov. sp.  
" 20. *Senecio integrifolius* (L.) CLAIRV., var. *Lindstroemii* nov. var.  
" 21. *Androsaces septentrionalis* L., var. *Gormannii* (GREENE) nov. comb.  
" 22. *Cerastium alpinum* L., subsp. *Fischerianum* (SERINGE) TORR. & GRAY.

## Corrigenda.

- Page 10 line 2, p. 128 read p. 129.  
" 21 " 31, p. 1070 " p. 760.  
" 15 " 15, delete: "Arabis arenicola (Richards.) Gel."



1. *Alsine macrocarpa*. 2. *Alsine arctica*. 3. *Anemone parviflora*, var. *grandiflora*. 4. *Anemone Drummondii*. 5. *Erysimum inconspicuum*. 6. *Lupinus nootkatensis*, var. *Kjellmanii*. 7. *Saxifraga Nelsoniana*.







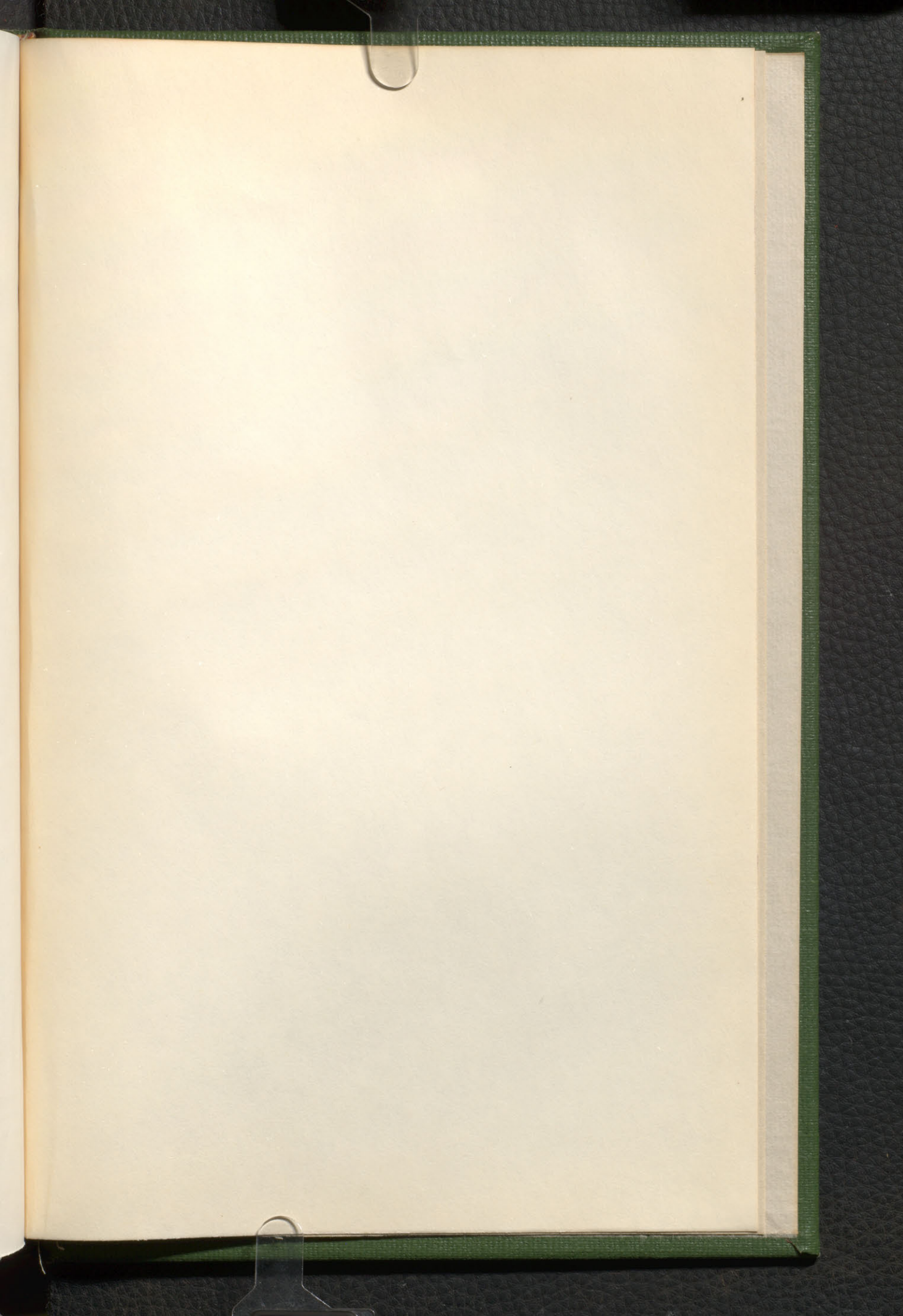
8. *Caltha palustris*, var. *asarifolia*. 9. *Ranunculus occidentalis*, var. *robustus*. 10. *Mertensia pilosa*.  
11. *Cerastium Regelii*. 12. *Oxytropis campestris*, var. *melanocephala*. 13. *Oxytropis nigrescens*.  
14. *Oxytropis arctobia*.

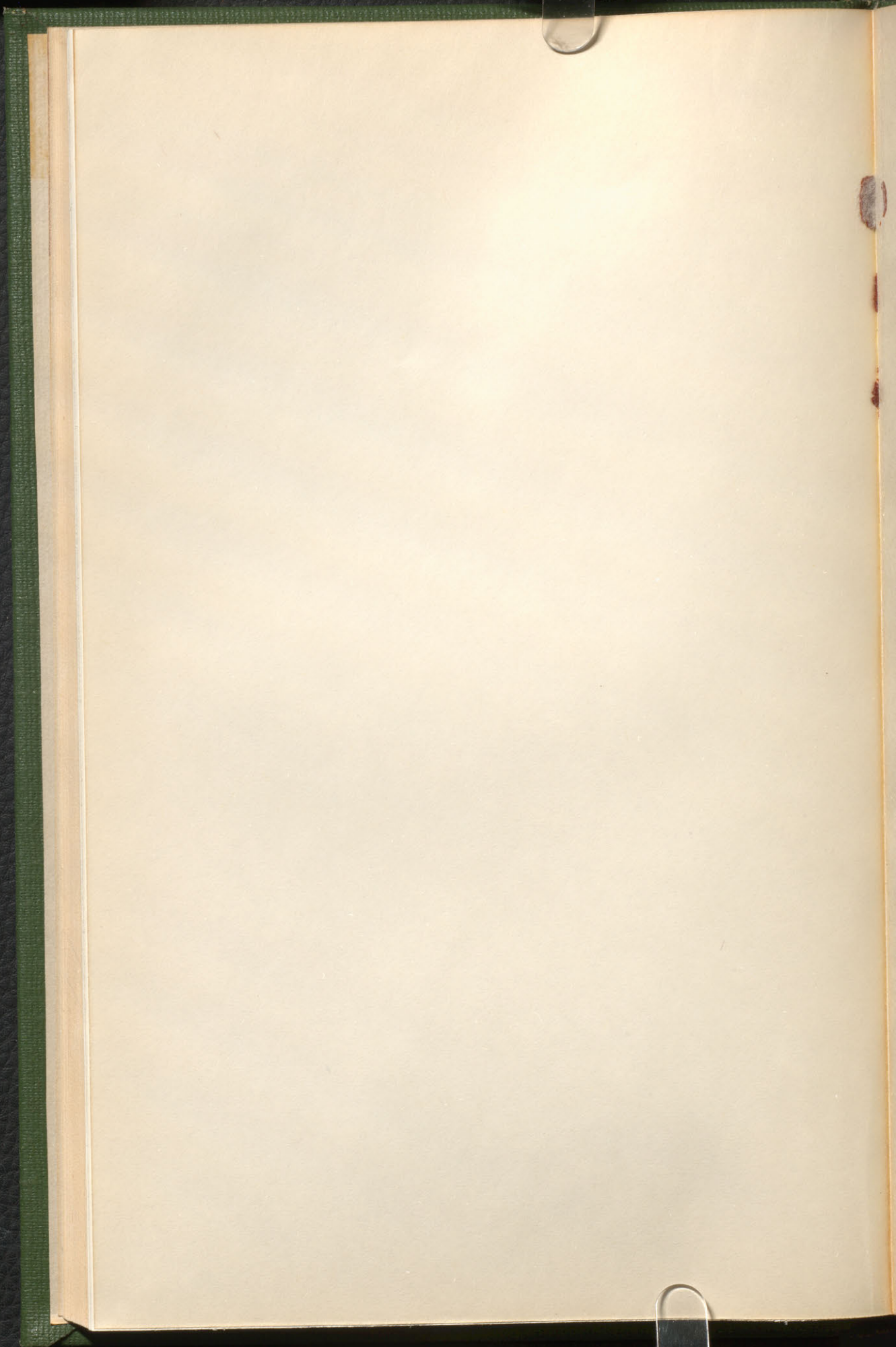


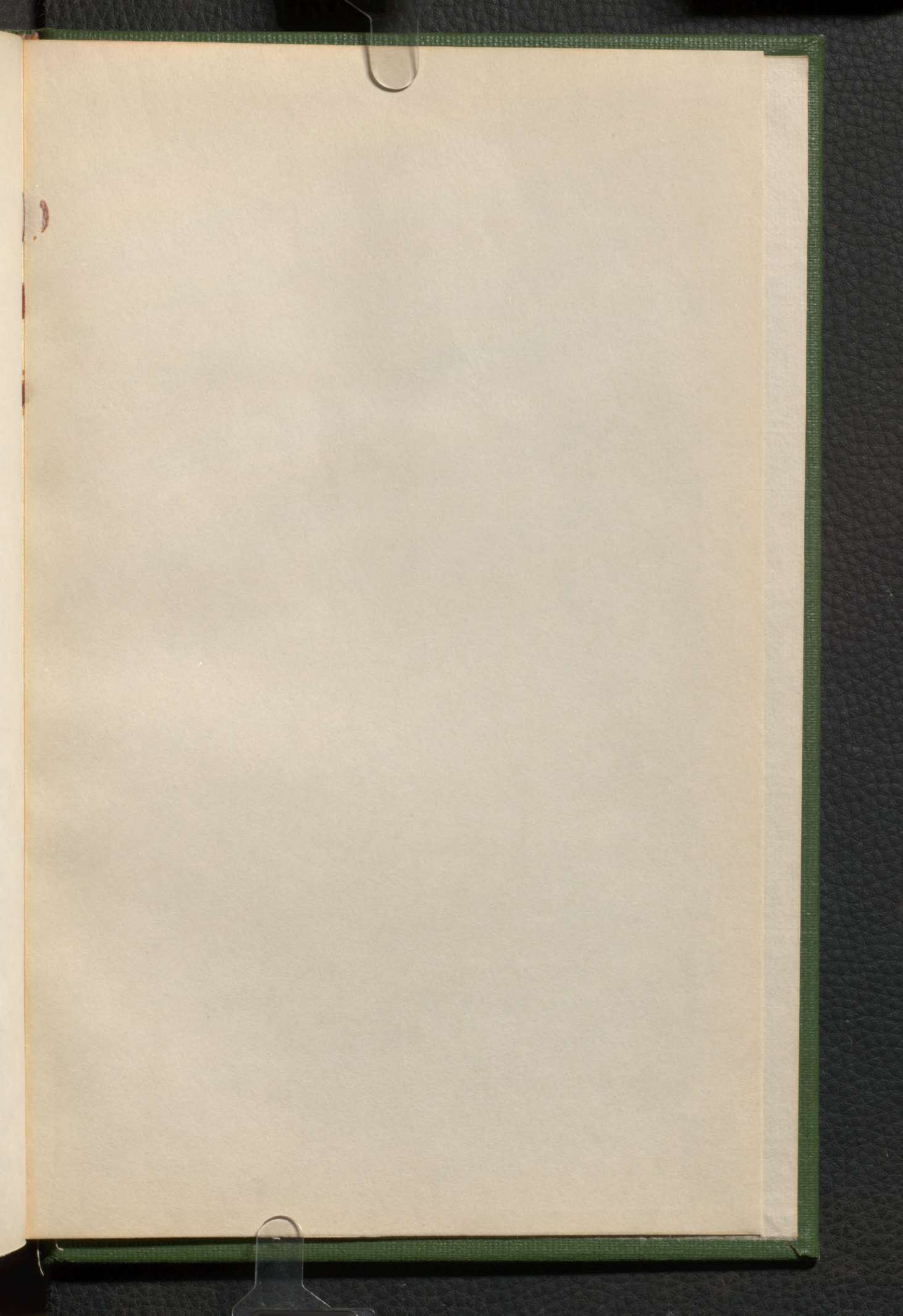


15. *Ranunculus gelidus*. 16. *Oxytropis Roaldi*. 17. *Thlaspi alpestre*, var. *purpurascens*.  
18. *Taraxacum hyperboreum*. 19. *Taraxacum eurylepium*. 20. *Senecio integrifolius*, var. *Lindstroemii*. 21. *Androsaces septentrionalis*, var. *Gormanii*. 22. *Cerastium alpinum*, subsp. *Fischerianum*.

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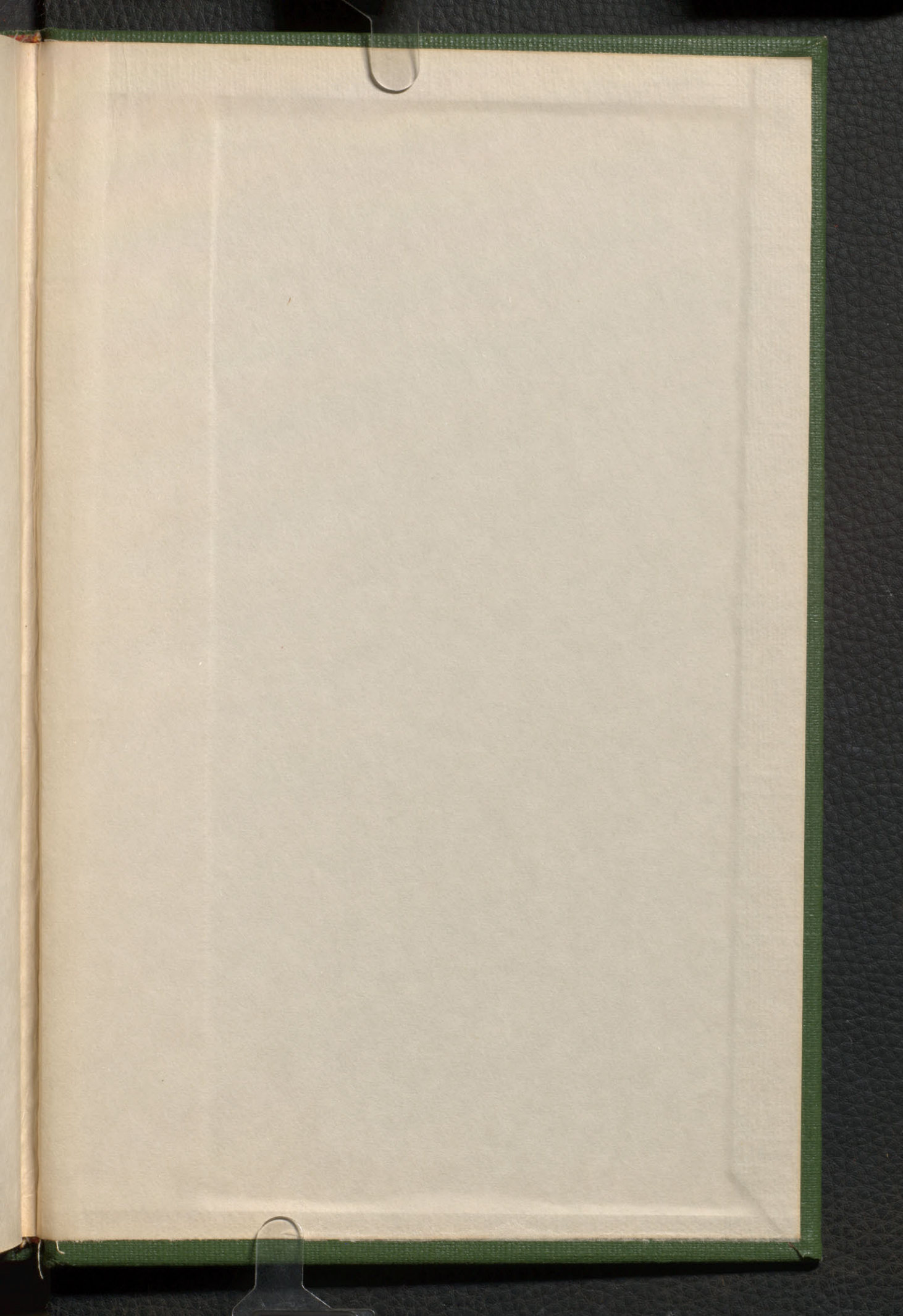
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