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dicea, var. *parviflora*; and of *Glumaceæ*, *Carex gynocrates*, *C. stylosa*, *C. podocarpa*, *C. Gmelini*, and *C. cryptocarpa*, with *Eriophorum polystachyum*, *Alopecurus alpinus*, *Phleum alpinum*, *Festuca rubra*, *Poa glumaris*, *P. caesia*, and *Hierochloa borealis*.

The higher Cryptogams are few: *Lycopodium annotinum*, *Botrychium lunaria*, *Aspidium Lonchitis*, *A. aculeatum*, too young for certain determination, *Phegopteris polypodioides* in the same condition, *Equisetum hyemale*, and *E. arvense*.

The Mosses collected it is not in our way to name.

B. ADDITIONAL NOTES ON THE PLANTS OF THE COMMANDER ISLANDS.

By LEONHARD STEJNEGER.

A few remarks concerning the vegetation of the Commander Islands will be found in the letter to Professor Baird, forming "No. 1" of these "Contributions" (Pr. U. S. Nat. Mus. VI, 1883, p. 63-69). Unfortunately for my botanical collection, my time was too much occupied by other studies and occupations during the short flowering season. Many more plants, however, than those named in the preceding and the following notes were actually collected, but I had to deplore the total ruin of a large portion on account of the humidity of the climate. My collection would have been still smaller had it not been for the kind zeal of Mr. Nicolai Björkquist, *cand. philos.*, to whom I am greatly indebted for valuable additions to my herbarium from Copper Island.

The names and the sequence of the species adopted in the following list are very nearly those of Dr. J. T. Rothrock's "Sketch of the Flora of Alaska" (Smithsonian Institution Annual Report 1867, p. 433-463), in order to facilitate comparison with the flora of the American islands of the Aleutian chain. The figures following the names refer to the volume and page of Ledebour's "Flora Rossica," the nomenclature of which has been given in parentheses whenever differing from the one here employed.

A few species which were not brought home have been included. They are distinguished by an asterisk in front of the name.

Finally, I wish to express my obligations to our venerable botanical Nestor, Prof. Asa Gray, for his kindness in identifying the specimens and commenting upon them.

·RANUNCULACEÆ.

Anemone Richardsonii HOOKER.—I, 16. Copper Island, Karabelnij, July 11, 1883. On the mountains, about 400 feet above sea-level. Not common.

- Anemone narcissiflora* LINN.—I, 18. Common on both islands, in the valleys, and at the foot of the hills. Very luxuriant and conspicuous. In 1883 the first flowers were out on Bering Island on June 11.
- Ranunculus Eschscholtzii* SCHLECHT.—I, 37. Only found at the Southern Seal Rookery, on Bering Island, on the 21st of August, 1882, a few feet above sea-level and hardly 100 yards from the beach, close to a cold spring and a few patches of snow yet remaining not far off.
- Ranunculus auricomus* LINN.—I, 38. Bering Island, among the sand-dunes at the mouth of Kamenej River. Not common. First flowers June 11, 1883.
- ? *Ranunculus repens* LINN.—I, 43. Bering Island. *R. repens* is recorded from Kamtschatka.
- Caltha palustris* LINN.—I, 48. Bering Island. Along the borders of the rivulets, especially in the lower part of Kamenej valley, in peculiar subarctic forms. Not common. First flowers 1883, on June 6.
- Coptis trifolia* SALISB.—I, 53. Both islands. Not common. Was found on Bering Island by Steller (Pall., Nene Nord. Beitr. II, p. 300).
- Trollius patulus* SALISB.—I, 50. A conspicuous and common plant of both islands, especially common and luxuriant in the lower parts of Bering Island. Known from Kamtschatka.
- Delphinium elatum* LINN.—I, 63. Only observed at the Southern Seal Rookery on Bering Island, August 21, 1882.
- * *Aconitum delphinifolium*, DE C.?—Specimens were collected but were afterwards spoiled by moisture. Rather common near the village on Bering Island. Flowers light bluish.

CRUCIFERÆ.

- Nasturtium palustre* DE C.—I, 112. At Comandore, Bering Island, near the place where Steller wintered and Bering died, August 29, 1882.
- Barbarea vulgaris* R. PR.—I, 114. Common on Bering Island.
- Arabis Gerardi* var. *borealis* REGEL.—Bering Island, near the village. First flowers in 1883, on June 11.
- Cardamine pratensis* LINN.—I, 125. On both islands. Rather rare on Bering Island, more numerous on Copper Island.
- Cardamine hirsuta* LINN.—I, 127. Copper Island, Karabelnij.
- ? *Draba alpina* LINN.—I, 146. Small round knots of this plant were found sparingly on the mountains round Karabelnij, Copper Island, at an elevation of about 500 feet.
- Draba incana* LINN.—I, 152. Common on both islands.

VIOLACEÆ.

- Viola mirabilis* var. *Langsdorffii* (FISCH.).—I, 250. Rather common on both islands. One of the first spring flowers, the first of which, in 1883, were observed at the "Reef," near the village, Bering Island, on June 4.

Viola biflora LINN.—I, 254. Only seen on Copper Island, where rather common both at the village and at Karabelnij. They were flowering during the latter part of June and beginning of July.—*Viola* sp. Stejneger, Pr. U. S. Nat. Mus., 1883, p. 63.

CARYOPHYLLACEÆ.

Silene acaulis LINN.—I, 303.—On the mountains of Copper Island, especially on the western side.

Lychnis apetala LINN.—(*Melandryum*) I, 326. Only a few specimens were found on Copper Island in the valley behind the village, at an elevation of about 200 feet, July 26, 1883.

Arenaria macrocarpa PURSH.—I, 353. Copper Island, Karabelnij Mountains, 3–500 feet altitude. Found flowering during the first half of July.

Arenaria peploides LINN.—(*Honkeneja*) I, 358. Common around the beaches of both islands.

Arenaria lateriflora LINN.—(*Mæhringia*) I, 371. Bering Island. Rather common.

Stellaria radicans LINN.—I, 378. Bering Island. Rather common.

Stellaria media VILL.—I, 377. Bering Island. Common.

Stellaria humifusa var. *oblongifolia* LEDEB.—I, 384. Bering Island. Common.

Cerastium alpinum LINN.—I, 411. Karabelnij, Copper Island.

Cerastium alpinum var. *Fischerianum* (REGEL).—Bering Island. Common.

GERANIACEÆ.

Geranium erianthum DE C.—I, 464. Rather common on both islands.

LEGUMINOSÆ.

Lathyrus maritimus (LINN.) REGEL.—(*Pisum*) I, 661. Common on both islands near the beach.

ROSACEÆ.

Spiræa kamtschatica PALL.—II, 19. Bering Island. In some places very numerous and very exuberant—for instance, at Schipitzina, near the southwestern extremity, and in the valley of Stare-Gavan.—Recorded already by Steller, Neue Nord. Beitr. II, p. 301.

Geum calthifolium SMITH.—Common on both islands; a few specimens even ascending an elevation of 1,200 feet.

Geum calthifolium var. *rotundifolium* (BONG.).—(*Sieversia rotundifolia*) II, p. 24. Copper Island.

Geum Rossii (R. BR.) DE C.—(*Sieversia*) II, 25. Found at the new graveyard, Bering Island, and at Karabelnij, Copper Island, but nowhere numerous. The first flowers were seen in the former locality on June 5, 1883.

- Geum macrophyllum* WILLD.—II, 22. Both islands, but not numerous.
- Sibbaldia procumbens* LINN.—II, 32. Found only in a single locality on Copper Island, viz., in the Bobrovaja valley, at an elevation of about 300 feet, August 2, 1883.
- Potentilla Anserina* LINN.—II, 44. Common on both islands. From the beach up to 7-800 feet on the mountains.
- Potentilla fragiformis* var. *villosa* REG.—II, 58. Common on both islands.
- Potentilla palustris* (LINN.) SCOP.—(*Comarum*) II, 62. Common in swampy places on both islands.
- Rubus stellatus* SMITH.—II, 71. Common on both islands, up to 500 feet. The first flowering plants were noted on July 7, 1883, at Karabelnij, Copper Island. Delicious, ripe berries were found at Bujan, eastern shore of Bering Island, August 30, 1882. The *Rubus arcticus* reported by Steller from Bering Island is probably this species (N. Nord. Beitr. II, p. 300).
- Rubus Chamæmorus* LINN.—II, 71. On both islands, but only on Bering Island in any number. "Maroschka" of the natives.—Steller: "gelbe Brombeeren (*Chamæmorus*)" (*l. c.*).
- * *Rosa cinnamomea* LINN.—II, 76. Sparingly on Bering Island. It is found on the road between Stare-Gavan and the village.—"Wilde Rosen," Steller, *l. c.*
- Pyrus sambucifolia* CHAM. & SCHLECHT. var. ?—II, 99. On both islands; rather common. Very dwarfed, hardly ever over 3-4 feet high. First flowers July 11, 1883, on Copper Island.—*Sorbus aucuparia* Steller, N. Nord. Beitr. II, p. 300.

ONAGARIÆ.

- Epilobium latifolium* LINN.—II, 106. Collected at Bujan, Bering Island, August 30, 1882.
- Epilobium roseum* SCHREB.—II, 110. Bering Island. Common.
- ? *Epilobium affine* BONGARD.—II, 110. Bering Island. Originally described from Sitka; apparently not known from elsewhere.

PORTULACEÆ.

- Claytonia sibirica* LINN.—II, 149. Common in all low and swampy places on both islands.
- Claytonia arctica* ADAMS.—II, 148. Copper Island, mountainous slopes at Karabelnij. Originally described from the mouth of Lena, and has since been found on St. Paul's Island, Kiska, &c. Color of corolla white, with beautiful orange-yellow at the base of the petals.

SAXIFRAGACEÆ.

- Saxifraga Hirculus* LINN. ("running to *chrysantha*, GRAY").—II, 210. Copper Island, Karabelnij.

- Saxifraga chrysantha* GRAY.—Copper Island. Collected in the valley behind the village, at an altitude of about 700 feet.
- Saxifraga bronchialis* LINN.—II, 207. Copper Island. Same locality as foregoing.
- Saxifraga unalascensis* STERNB. (*S. flabellifolia*, R. BROWN).—II, 213. Copper Island, steep slopes of Karabelnij Mountains, 300 feet and higher; not numerous. Flowering during first part of July.
- Saxifraga bracteata* DON.—II, 219. Collected on both islands; at Bering Island near the village; on Copper Island at Glinka; in both cases not far from the beach. First flowers noted on the former place June 17, 1883.
- Saxifraga punctata* LINN.—II, 215. Common on both islands. The form "nearly var. *nana* GRAY" (Proc. Am. Acad., xx, 12) was also collected on both islands, at Schipitzina, Bering Island, and at the village, Copper Island.
- Chrysosplenium alternifolium* LINN.—II, 226. Copper Island, near the village. Several small specimens are marked with a query.
- Parnassia palustris* LINN.—I, 262. Common on both islands.

DROSERACEÆ.

- Drosera rotundifolia* LINN.—I, 261. Only seen in the low valley between Bobrovaja and Pestschanij, Copper Island, where I found it rather abundant August 2, 1883.

UMBELLIFERÆ.

- Ligusticum scoticum* LINN.—II, 286. Bering Island. Common.
- Selinum Benthami* WATS.—INDEX, 432. Bering Island. Common.
- * *Archangelica officinalis* HOFFM.—II, 297. Both islands.

CORNEÆ.

- Cornus suecica* LINN.—II, 377. Both islands, but not particularly common. The first flowers in 1883 were found at "Reef," near the village, Bering Island, on June 17. *Cornus herbacea* Steller, N. Nord. Beitr. II, p. 300.

CAPRIFOLIACEÆ.

- Linnæa borealis* LINN.—II, 392. On the tundra between the *Empetrum*. Bering Island. Rather common.

COMPOSITÆ.

- Aster peregrinus* PURSH.—II, 473. Rather common on both islands. First flowers noted at Karabelnij, Copper Island, 1883, on August 2.
- Achillea multiflora* HOOK.—The only place where this species was collected was at Bujan, on the eastern shore of Bering Island, August 30, 1882.

Chrysanthemum arcticum LINN.—II, 541. Common on the rocks of the coast of both islands.

Matricaria discoidea DEC.—II, 544. A very common weed in the streets of the village on Bering Island.

Artemisia Richardsoniana HOOK. var.—Only collected at Saranna, Bering Island, on August 31, 1882.

Artemisia norvegica FRIES.—Bering Island.

Artemisia vulgaris var. *Tilesii* LEDEB.—II, 586. Bering Island. In certain localities very luxuriant.

Arnica unalascheensis LESS.—II, 623. Both islands. Rather common in certain localities near the shore.

Saussurca alpina DEC.—II, 669. Both islands; rather common.

Pieris hieracioides var. *japonica* (THUNB.)—II, 800. Collected at Schipitzina, Bering Island, August 25, 1882, where it obtained a height of 3-4 feet.

Hieracium triste WILD.—II, 853. Bering Island.

Taraxacum officinale var. *lividum* KOCH.—Copper Island; not common.

CAMPANULACEÆ.

Campanula lasiocarpa CHAM.—II, 890. Both islands, but not common. First flowers noted at the village, Copper Island, on August 8, 1883.

ERICACEÆ.

Vaccinium oxycoccos LINN.—(*Oxycoccos vulgaris*) II, 905. Only collected in the Bobrovaja valley, northern part of Copper Island, where it was by no means common, but occurs also on Bering Island.

Vaccinium ovalifolium var. *Chamissonis* (BONG.)—II, 903. Mountain slopes of both islands up to 150 feet altitude. Average height about 18 inches.

Arctostaphylos alpina (LINN.) SPRENG.—II, 908. Bering Island, common. First flowers noted on June 7, 1883.

Cassiope lycopodioides (PALL.) DON.—II, 912. Common on both islands up to 500 feet altitude and more.

Cassiope oxycoccoides ASA GRAY, n. sp.*

This new species was found in a single specimen on the same spot where the rare *Bryanthus Gmelini* was collected, and at the same date.

Loiseleuria procumbens (LINN.) DESV.—II, 917. Common on both islands.

On Bering Island the first flowers in 1883 were found on May 19.

* "Species to be associated with *C. Stelleriana* with the habit of *Loiseleuria* or of a depauperate *Vaccinium vitis Idæa*; leaves (2 or 3 lines long) elliptical, short-petioled, coriaceous, with margins revolute and the costa prominent underneath; peduncle terminal, short, 4-bracteate, and 3-flowered at the apex; pedicels very short; flowers 5-merous; corolla about twice the length of the calyx, somewhat urceolate-campanulate, the orifice barely 5-lobed."—A. GRAY, MSS.

Bryanthus (Phyllodoce) taxifolius (PALL.) GRAY.—II, 916. Copper Island. Mountain slopes 200 feet and above. Common: Corolla light rose or deep reddish purple.

Bryanthus (Phyllodoce) aleuticus (SPRENG.) GRAY.—Karabelnij, Copper Island. Same localities as foregoing, but seems to go higher up on the sides of the mountains. Corolla yellowish.

Bryanthus Gmelini DON.—II, 916. "Planta rarissima!" I found this interesting species only in a single place on Bering Island, although it probably is distributed over the island. The spot where I collected it is a rounded hill, about 300 feet high, just behind the fishing settlement of Saranna, at the northern shore of the island. The hill rises up from the shore of Lake Saranna, and is the first one when following the track of the dog sledges to the main village. It was by no means uncommon in that locality, and was flowering on the date I found it, the 22d of August, 1882.

Rhododendron chrysanthum PALL.—II, 920. Common on both islands. In 1883 the first flowers were noted on June 5; last ones were observed on August 2.—*Chamaerodendros laurifolio, flore flavo*, Steller, *l. c.*—Stejneger, Pr. U. S. Nat. Mus., 1883, p. 63.

Rhododendron kamtschaticum PALL.—II, 922. On both islands above 100 feet altitude, but not so common as the foregoing. In 1883 the first flowers were noted on July 31.—Stejneger, Pr. U. S. Nat. Mus., 1883, p. 63.

Kalmia glauca AIT.—II, 922. Both islands.

Ledum palustre LINN.—II, 923. Both islands.

Pyrola minor LINN.—II, 930. Both islands, rather sparingly.

DIAPENSIACEÆ.

Diapensia lapponica var. *asiatica* MAXIM.—Latter part of June and beginning of July at Karabelnij, Copper Island; dry mountain slopes 200 feet and above.

PRIMULACEÆ.

Trientalis europæa var. *arctica* (FISH.).—III, 24. Both islands.

Primula cuneifolia LEDEB.—III, 15. Very common on both islands, the white flowers rather rare. Up to 1,000 feet altitude. First flowers in 1883 noted on June 5.

GENTIANACEÆ.

Gentiana glauca PALL.—III, 66. Bering Island, near the shore, at the village. Corolla light violet blue, seldom white, with a yellowish tinge.

Gentiana auriculata PALL.—III, 55. Bering Island. rather common. On the mountain plateaus up to 400 feet.

POLEMONIACEÆ.

Polemonium cœruleum LINN.—Common on both islands and luxuriant in certain low and sheltered places.

Polemonium cœruleum var. *acutiflorum* WILLD.—III, 84. Copper Island.

BORRAGINACEÆ.

Mertensia maritima (LINN.) DON.—Common on both islands. In some places extremely luxuriant, a single plant covering a large area. First flowers noted, 1883, Copper Island, July 9.

SCROPHULARIACEÆ.

Veronica kamtschatica LINN. *fil.*—(*V. aphylla*) III, 245. Copper Island, near the village. Low and moist places. Corolla purplish deep blue. June 28, 1883.

Veronica Stelleri PALL.—III, 247. Copper Island. Rather common on the mountain slopes, between 100 to 800 feet; at the latter elevation greatly reduced in size. Collected both at Karabelnij and at the village. July 1–August 6, 1883. Corolla deep purplish blue.

Veronica serpyllifolia LINN.—III, 248. Copper Island, borders of Pest-schanij Lake. August 2, 1883.

Veronica americana SCHW.—Bering Island, Sukhaja Reschka, not far from its mouth, into Gavanskij Oser, a few miles east of the village.

Pedicularis Chamissonis STEV.—III, 275. Common on both islands.

SELAGINACEÆ.

Gymnandra Gmelini CHAM. and SCHL.—III, 332. Common on both islands. Noted from Bering Island by Steller.

PLANTAGINACEÆ.

Plantago major var. *asiatica* (LINN.).—III, 479. Bering Island. Not common.

POLYGONACEÆ.

Polygonum viviparum LINN.—III, 519. Common on both islands. Noted by Steller.

Rumex arcticus TRAUTV. ?—III, 506. Bering Island, sparingly on the swampy tundra.

Oxyria digyna CAMPD.—Bering Island, near the Southern Seal Rookery. Also found at Karabelnij, Copper Island.

BETULACEÆ.

Betula nana LINN.—III, 653. Common on both islands.

**Betula Ermani* CHAM.—III, 653. Bering Island, where it grows in the interior of the valleys in dwarfed thickets; the stems often having a length of 8–10 feet, but then bent along the ground, and a diameter at the root of 2–3 inches.

URTICACEÆ.

- **Urtica dioica* LINN.—III, 637. Bering Island. Only seen in a single spot a little behind the village, just below the poles on which the large salmon nets are hung up to be dried.

EMPETRACEÆ.

- **Empetrum nigrum* LINN.—III, 555. Very common on both islands. Steller, N. Nord. Beitr, II, p. 300.

SALICACEÆ.

- Salix speciosa* HOOK and AM.—III, 625.
Salix Pallasii, ANDERS.—Bering Island, common.

LILIACEÆ.

- Fritillaria Camtschaticensis* (LINN.) GAULER.—IV, 147. The saranna-lily is common on both islands, the bulbs being gathered by the natives for food.—“Kamtschatkische braune Lilie,” Steller, N. Nord. Beitr., II, p. 301.—*Fritillaria saranna* Stejneger, Naturen, 1882, and Pr. U. S. Nat. Mus., VI, 1883, p. 63.

- Veratrum album* LINN.—IV, 208. Both islands, especially on Bering Island, where it is common and very luxuriant in damp, sheltered places, not higher than 50 feet above sea-level.

- Tojeldia calyculata* (LINN.) WAHLENB.—Mountains of both islands, between 200–500 feet altitude, but not very common. Flowering during August.

SMILACEÆ.

- Majanthemum bifolium* var. *Kamtschaticum* (GMEL.).—(*Smilacina bifolia* β *Kamtschatica*) IV, 127. Both islands, but not common.

IRIDEÆ.

- Iris setosa* PALL.—IV, 96. Common on both islands. In 1883, on Copper Island, the first flowers were noted July 25th. *Iris sibirica* Stejneger, Naturen, 1882 (*nec* LINN.).

ORCHIDACEÆ.

- Orchis aristata* FISCH.—(*O. latifolia*, γ *beeringiana*) IV, 54. Both islands, up to 200 feet altitude. In 1883, on Bering Island the first flowers were noted June 18th.

- Habenaria borealis* CHAM.—Common in damp places on both islands. The two forms *albiflora* and *viridiflora* both occur.

JUNCACEÆ.

- Luzula campestris* (LINN.) DEC.—IV, 219. Bering Island.
Luzula spadicea var. *parviflora* (DESV.)—IV, 217. Bering Island.

CYPERACEÆ.

- Carex gynocrates* WORMSK. Karabelnij, Copper Island, at an elevation of about 500 feet.
Carex stylosa MEY.—IV, 305. Bering Island.
Carex podocarpa R. BR.—Bering Island.
Carex Gmelini HOOK.—IV, 288. Bering Island.
Carex cryptocarpa MEY.—IV, 313. Bering Island.
Eriophorum polystachyum LINN.—Both islands.

GRAMINEÆ.

- Alopecurus alpinus* SM.—IV, 461. Both islands.
Phleum alpinum LINN.—IV, 458. Bering Island.
Festuca rubra LINN.—IV, 352. Bering Island.
Poa glumaris TRIN.—(*Glyceria g.*) IV, 392. Bering Island.
Poa casia SM.—IV, 374. Bering Island.
Hierochloa borealis R. and SCHULT.—IV, 407. Bering Island.

EQUISETACEÆ.

- Equisetum hyemale* LINN.—IV, 490. Copper Island, Karabelnij.
Equisetum arvense LINN.—IV, 486. Bering Island.

LYCOPODIACEÆ.

- Lycopodium annotinum* LINN.—IV, 497. Copper Island, Karabelnij. 300 feet altitude.

FILICES.

- Botrychium lunaria* (LINN.) SWARTZ.—IV, 504. Bering Island. Only seen in one single place just behind the village, where the salmon nets are hung up for drying.
Aspidium Lonchitis (LINN.) SWARTZ.—IV, 512. Copper Island, Karabelnij.
Aspidium aculeatum (LINN.) SWARTZ.—IV, 512. Copper Island. Abundant, 50–200 feet altitude.
Phegopteris polypodioides FÉE.—Copper Island. Mountain slopes of the interior, about 200 feet altitude.

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