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Flora of the Island of Paramushir.

By

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Foreword.

In the work incidental to the preparation of this Flora of Paramushir Island, it has been my good fortune to meet with much kind assistance from all those with whom it has brought me into contact, and the publication of this article affords me a welcome opportunity for recording my appreciation of these favours. In particular I would express my sincere thanks to Professor K. Miyabe for his encouragement and advice, to Professor J. Matsumura for his courtesy in allowing me the use of the Library and Herbarium of the Botanical Institute at the Tokyo Imperial University, to Mr. F. C. Greatrex, British Vice-Consul at Hakodate, for kindly undertaking the revision of my Introduction, to Marquis Tokugawa and Mr. Yemoto for placing at my disposal their herbarium of plants collected in the Northern Kuriles in 1919, also to Professor B. Hayata, Dr. T. Nakai and Dr. H. Takeda for their valuable assistance in the work of compilation. Finally I owe a deep debt of gratitude to Mr. Fujita, Director of the Wireless Station at Otsuishi, and Mr. Hatanaka, Managing Director of the Nihon Fishery Company in the Northern Kuriles, for their collaboration in the collecting of specimens and for their never-failing kindness during my stay in Paramushir Island.

Introduction.

History of the botanical exploration of Paramushir Island.

According to Professor K. Miyabe¹⁾, the first naturalists who collected plants on the island of Paramushir were G. W. Steller and S. P.

1) Miyabe — "Fl. Kuril. p. 204."

[Jour. of the College of Agric., Hokkaido Imp. Univ., Sapporo, Vol. XI. Pt. 2. May, 1922.]

Krascheninnikof, who came over from Kamtschatka about 1740, and in his "Flora of the Kurile Islands" eight species¹⁾ are attributed to Paramushir on evidence supplied from the collections of Russian naturalists and naval officers by Professor Maximowicz, who has kept a record of every specimen from the Kuriles that he has seen in the herbaria of Petrograd.

So far as I am aware, the first Japanese to collect plants in this island was Churo Tarao, who visited it in 1892 as a member of the party of Baron Kataoka, Court Chamberlain, and brought back about sixty-two species. The results of the study of this collection were announced by Miyabe in Tarao's pamphlet entitled "Chishima-Tanken-Jikki"²⁾, published in 1893.

In the following year Mr. S. Yokoyama, who went to make a geological survey, collected forty-seven species of plants in various parts of Paramushir Island, and published a list of them in his geological report³⁾.

Other collections have been made at various times by travellers⁴⁾ who had occasion to visit the island, and the specimens which they obtained are preserved in the herbarium of the Agricultural College of the Hokkaido Imperial University. Mr. M. Aizawa, in particular, collected about thirty-four species⁵⁾, some of which are of considerable interest.

In 1915 Mr. Y. Kajiyama, who visited the island for the purpose of investigating its marine products, did some collecting work, and in the same year Mr. Taro Matsubara, who explored the island as a forestry expert, gathered botanical specimens in various localities.

Lastly Marquis Tokugawa and Mr. Y. Yemoto paid a visit to Paramushir in August of 1919, and made a collection of plants, most of which, through the kindness of Mr. Yemoto, I have had the opportunity of examining.

1) *Saxifraga Merckii* Fisch. in Miyabe, Fl. Kuril. p. 233; *Cnicus kamtschaticus* Maxim. Miyabe, l. c. p. 244; *Lactuca sibirica* Benth. Miyabe, l. c. p. 245; *Bryanthus taxifolius* A. Gray, Miyabe, l. c. p. 247; *Primula cuneifolia* Ledeb. Miyabe, l. c. p. 249; *Trientalis europaea* L. Miyabe, l. c. p. 250; *Menyanthes trifoliata* L. Miyabe, l. c. p. 251; *Pedicularis Chamissonis* Stev. Miyabe, l. c. p. 254.

2) Tarao, C. — "Chishima-Tanken-Jikki" (1893) (Japanese), pp. 105-115, with Plate.

3) Ishikawa, T., & Yokoyama, S. — "Report on the Geological and Mineralogical Surveys of Hokkaido" (1894) (Japanese), pp. 311-350.

4) Ihachi Kodama (1893); Motojiro Aizawa (1900); Yo Kato (1904); Naoya Hashimoto (1908); Tsutomu Sakurai (1910); Daikichi Hoshi (1912).

5) Takaoka, N. — "Kita-Chishima Chosa-Hobun" (1911) (Japanese), pp. 71-88.

My own visit was paid in the summer of last year (1920). I first arrived at Chitose-wan by the steamer "Chifu-maru" in the evening of June 25th, spent the next day exploring that neighbourhood, and then went on to Noda-wan, where I got a motor-boat to take me to Suri-bachi on the 27th June. On the following day I walked to Okuyotsu-iwa, where I spent five days botanizing. On July 3rd a small steamer, the "Hiro-maru", took me to Murakami-wan, which is situated almost at the northern extremity of Paramushir, and has the best harbour in the whole island. Here I made a prolonged stay, my explorations taking me now through the bog-lands, now over alpine meadows, now on the rocky cliffs, now along the sandy beach. One of my excursions was to Kashiwabara-wan, a fishing cove about four miles to the south, where I obtained about fifty specimens. On another occasion a good opportunity presented itself for visiting a section of the west coast which yielded a number of interesting species, including some which I met nowhere else. On July 10th I went by motor-boat to Arakawa, a large fishing cove on the west coast, and on the following day explored in a northerly direction, round Shikata-no-ma and Nagaiwa-zaki. Then I started on a four days expedition along the west coast from Arakawa to Atenkeshi and Nishikawa,—a trip on which one passes through a wonderful variety of scenery, crossing a wide river with beautifully wooded banks, and rising from rocky or sandy beaches to lovely alpine meadows on terraces overlooking the sea. After my return to Murakami-wan on the 16th July, I had a chance of going by boat to the cape called Hirata-zaki, where I found a few interesting plants. I also took advantage of an unexpected opportunity for visiting Shirakawa on the west coast, and several valuable additions to my collection were made here. Later I made a second trip to Kashiwabara-wan, and obtained some further specimens in that neighbourhood. I finally left Murakami-wan on August 5th, proceeding by motor-boat to Ruesan, where I spent the last ten days of my stay in the island exploring forest and stream, sea-shore and cliffs.

Thus I had ample opportunities for studying the flora of Paramushir, and in the course of my explorations I procured more than one thousand specimens of 284 species of Phanerogams and Pteridophytes, all of which are now preserved in the herbarium of the College of Agriculture of the Hokkaido Imperial University. I spared no exertion in my anxiety to obtain a wide range of specimens, and I have the happiest recollections of the strenuous days I spent on Paramushir Island.

Physical Geography of Paramushir Island.

Paramushir is one of the largest islands in the Kuriles, lying about 21 miles off Cape Lobatka in the extreme south of Kamtschatka. It extends from $49^{\circ} 48'$ to $50^{\circ} 46'$ North Latitude, and from $155^{\circ} 12'$ to $156^{\circ} 10'$ Longitude East of Greenwich. It is linear-oblong in shape, about 57 miles in length by 10 miles in average width, and covers an area of some 562 square miles¹. The east coast is watered by the Pacific Ocean, and the west by the Sea of Okhotsk. It is separated from Shimushu (Pervi Island) on the north-east by the Strait of Paramushir or Little Kurile, which is the narrowest channel in the archipelago, having a minimum breadth of one mile. To the south is the small island of Onnekotan, separated by the Amphitrite Strait 28 miles in width. And on the north-west is the small island of Alaid, 15 miles distant across the strait of that name. Alaid is the loftiest island of the whole Kurile Chain, its peak attaining a height of 7,460 feet, and it is also the northernmost outpost of the Japanese Empire.

Paramushir is mountainous throughout, and has many noble volcanoes, some of which are still active with steam issuing near the summit. The mountain chain, which extends roughly from north to

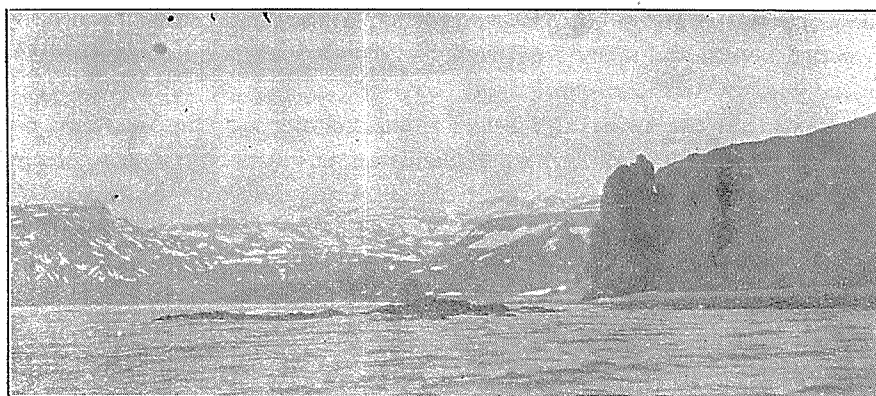


Fig. 1. A view of the northern mountain range, taken from Paramushir Strait, on July 2, 1920.

south throughout the length of the island, may be said to be divided in two by the River Todoroki. In the northern section the higher ground is towards the northern extremity, the principal peaks, reading from north to south, being Ichimonji-dake (1087.9 metres¹, Iwo-zan

1) Captain H. J. Snow — "Notes on the Kuril Islands" (1897), p. 76.

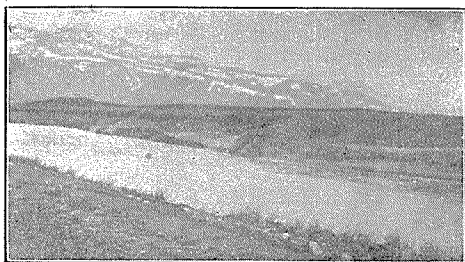


Fig. 2. A view of the southern mountain range, taken from Shiebettofu, on June 26, 1920.

tion is loftier throughout: from the cone of Chikura-dake, 1815 metres, the highest point on the island, overlooking Kujira Bay, the range runs southwards in a series of high peaks, among which the most prominent are Dai-iwo-zan (1493 m.), Neko-yama (1471 m.), Naka-dake (1227 m.), Murakami-dake (1414 m.), Kammuri-dake (1680 m.),

(1136 m.), Fujigatayama (1064 m.), Hakamagoshi-yama (1152.3 m.), Uraoka-yama (1054 m.), Byobu-dake (1161 m.), Kuroiwa-dake (1147 m.), Akaishi-dake (1106 m.), Taisho-zan (1184 m.), Yudai-zan (972 m.), Kirifuri-dake (904.5 m.), Hayanke-dake (827 m.), Takahira-dake (894.5 m.), Araki-dake (703 m.), Koma-ga-take (818.5 m.). The southern sec-

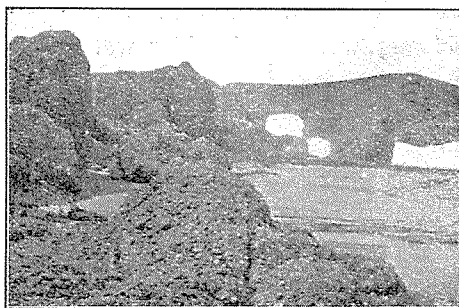


Fig. 3. A beach, near Watanabe-zaki, taken on June 28, 1920.



Fig. 4. A view along the sea-coast, north of Tomari-zaki, taken on Aug. 8, 1920.

Shaka-dake (1447 m.), Aka-dake (1463 m.), Yake-dake (1263 m.), Haku-en-zan (1344.6 m.), Unmu-zan (1313.5 m.), Umanose-yama (1067 m.). There is also an isolated mountain, Shiryajiri-dake (1772 m.), which stands on the little peninsula of Shiryajiri on the west coast of the island, a magnificent solitary cone with its graceful slopes terminating abruptly at the steep cliffs of the sea-shore.

The rivers on the western side of the island are the Arakawa, Kamo-gawa, Magari-gawa, Kakuma-betsu and Nishi-kawa; on the eastern side the Iai-gawa, Asahi-gawa, Hayanke-gawa, Masu-kawa, Kuma-gawa, Todoroki-gawa, Naka-gawa and Shiebettofu. Their gradient is mostly pronounced, and on account of

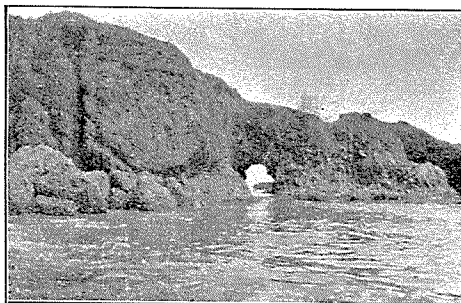


Fig. 5. Cape Watanabe-zaki, taken on June 27, 1923.

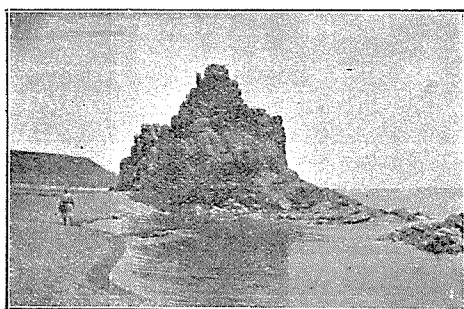


Fig. 6. A beach, in the vicinity of Kokumagawa, taken on June 27, 1920.

south-eastern shore, which is less steep. The south-eastern corner, ending in Cape Henry, is low. There are no good harbours affording complete shelter.

Scattered along the coast are numerous fishing stations operated by Japanese, few of whom remain on the island during the winter, the majority

the rapidity of the current even the narrowest streams are unfordable when in spate.

The sea-coast is boldest and steepest on the north-west or Okhotsk Sea side, where the land falls away in high cliffs with bouldery beaches at their base. There is a scarcity of rocks on this side, but they are abundant on the Pacific or

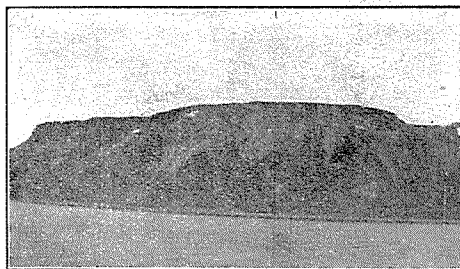


Fig. 7. A view of the sea-coast, in the vicinity of Kashiwabara-wan, taken on July 2, 1923.

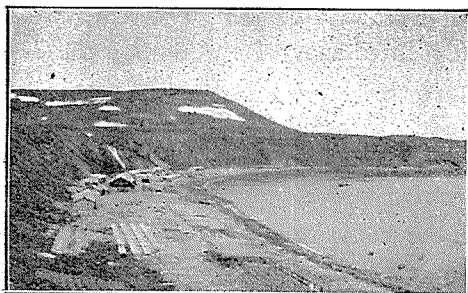


Fig. 8. A fishing station at Oku-yotsuiwa, taken on July 28, 1920.

Bears and foxes are plentiful in the island, shore birds are met with along the coast, and the streams and lagoons are frequented by water-fowl.

General climatic features of Paramushir Island.

Climate. The climate of Paramushir Island in spring, summer and autumn is, generally speaking, a moist one on account of the prevalence of fogs, though the rainfall is comparatively scanty.

From November to March the island is ice-bound, and navigation impossible.

May is cold and boisterous, with variable winds, north-westerly and north-easterly predominating, and frequent gales. During this month there is but little fog, and occasional falls of snow are recorded even during the latter half.

June has eleven to sixteen foggy days, and rain occurs during the month. Winds are very variable and light, mostly from the south-east and south-west. The temperature is 3° to $3\frac{1}{2}^{\circ}$ Centigrade in the first half of the month, rising to 7° towards the end.

July is the worst month of the year for fog, which occurs on more than twenty days. Rain is frequent, and sometimes heavy. Absolute calms or very light winds are recorded during the greater part of the month. The temperature is 7° at first, rising gradually to 10° .

August has fourteen to twenty days of fog, and some rain. Calms

coming over for the season only. Of these stations the most important are Chitose-wan, Shigiwan, Noda-wan, Suribachi, Umekiya, Yotsuiwa, Ruesan, Kashiwabara-wan, Shirakawa, Dobeoi, Arakawa, Kamogawa, Atenkeshi, Nishikawa and Kujira-wan.

Roads are conspicuous by their absence in Paramushir.

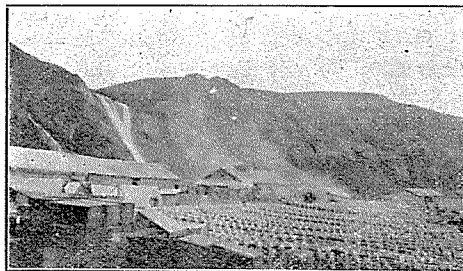


Fig. 9. A fishing station at Oku-yotsuiwa, taken on Aug. 14, 1920.

or light or north-easterly or north-westerly airs prevail. The temperature rises from 10° at the beginning to a maximum of 13° during the last ten days of the month.

In September fogs are few, and the wind blows chiefly from the north-west. Early in the month temperatures of 10° are recorded, but the weather soon becomes cold and boisterous.

Fogs. According to Snow,¹⁾ the constant fogs round Paramushir Island are caused by southerly winds passing over the warm 'Kuro-shiwo' current. These fogs are often so dense as to shut out the view completely beyond a radius of a few metres. They are usually saturated with moisture, and frequently accompanied by a cloudy sky. As a general rule they extend to a great altitude, but sometimes they occur in comparatively shallow belts above which the sun is shining from a clear sky. Their distribution varies considerably according to the direction of the wind, and the island is seldom so completely enveloped that no part of it is clear: with southerly or south-easterly breezes the north-western district is free; with a south-westerly wind the fog will lie along both sides of the island, but the extreme north-east will remain clear; with westerly, north-westerly and north-easterly breezes the fog strikes the north-west coast, and the fogless area is on the south-east side.

Currents. The Pacific coast of Paramushir is constantly washed by the strong cold current 'Oya-shiwo', which comes from the Arctic through the Behring Sea, and flows along the eastern coasts of Kamtschatka, the Kuriles and Yezo to Inuboga-saki in Honshu, where it meets the warm current 'Kuro-shiwo' coming from the opposite direction. According to Snow²⁾, coldest waters of Oya-shiwo are normally at a great depth, but are brought to the surface by the obstruction of the Kurile Islands, so that its coldest surface water in summer is met with off this archipelago.

The Okhotsk coast of Paramushir, on the other hand, is washed by the weak end of the warm current 'Tsushima-kairyu', a small branch of the Kuro-shiwo, which flows through the Strait of La Pérouse along the Okhotsk coast of Kitami Province and the Kuriles, and appears to meet a cold current coming out of the Okhotsk Sea somewhere off the east coast of Shimushu Island. It is this current (the Tsushima-kairyu)

1) Captain H. J. Snow — "Notes on the Kuril Islands" (1897), p. 47.

2) Captain H. J. Snow — "Notes on the Kuril Islands" (1897), p. 51.

that drifts to the coast of this island the large logs and timbers of Hokkaido trees, which are used on the west coast for building ships and houses and for interior woodwork.

Tides The strength of the tides is visible at all times in Paramushir Strait. On both shores of the strait the sea remains perfectly smooth, while the centre is thrown into a boiling foaming ferment of broken water, especially at the edges of the rip. The flow is to the northward and the ebb to the southward, with a speed of five to six miles per hour, causing such strong tide-races off the ends of the islands that no boat can live in them. A case is reported of a boat which was caught in the tide-rip in these straits, and capsized with the loss of all hands.

The Vegetation of Paramushir Island.

The Climax Forest. From a distance many of the hills and lower slopes of the mountains of Paramushir Island appear to be well wooded, and closer inspection reveals a most remarkable type of 'association' which, resembling the 'Krummholz' Association of Europe, must be classed as 'Forest' on account of the height of some of the woody species, which may be as much as 20 feet. The forests sometimes consist of a combination of deciduous and evergreen species, but more usually they are wholly deciduous or wholly evergreen, so that they may be divided into these two classes. The woody species forming the deciduous forest are *Alnus Maximowiczii* Call., *Sorbus sambucifolia* Roem., and *Salix paramushirensis* Kudo, while the sole constituent of the evergreen or coniferous forest is *Pinus pumila* Rgl. It is an interesting fact that in these forests we never find any representative of the genus *Sasa*, which is the commonest undergrowth in the forests of the Hokkaido mainland and even the Southern Kuriles.

The Alnus Association. In the island of Paramushir the deciduous forest is represented by a single association, that of the *Alnus*, which as a general rule develops on the slopes and exposed plateaux of the mountains, on the lowlands, and along the streams. The species forming the main feature of this association is *Alnus Maximowiczii* Call., associated in some places with *Sorbus sambucifolia* Roem., occasionally with *Salix paramushirensis* Kudo, very rarely with *Pinus pumila* Rgl. In making the ascent of a hill, an unbroken expanse of this association,

with its characteristic shiny greenish tones, will often be seen stretching away into the distance as far as the eye can reach. *Alnus Maximowiczii*

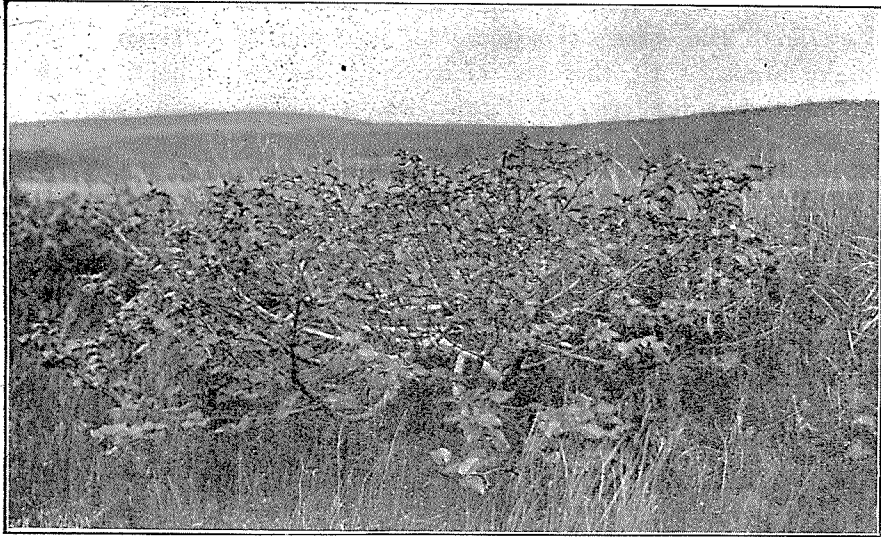


Fig. 17. *Alnus Maximowiczii* Call. in the vicinity of Murakami-wan, taken on July 7, 1925.

Call. grows mostly in the drier localities, and, though extending into more or less moist situations, is never found in boggy places. The height of the tree varies according to surroundings, and no special measurements of its stature were taken on my trip, but it may be said to range from 5 to 20 feet. The crown of this species is generally irregular in form and size, but in open situations its shape is a flattened oval. The trunk, usually 1 to 2 inches, rarely as much as 3.8 inches, in diameter, is much branched from the base, the branches and branch-lets being exceedingly irregular and so intricately tangled in their growth that it is almost impossible to force a way through them. In spite of this, sufficient sunlight filters to the floor of the forest to foster the formation of an undergrowth. A list of the herbaceous vascular plants seen in the undergrowth of the *Alnus* Association is appended:—

- Dryopteris dilatata A. Gray, var. oblonga Tak.
- Dryopteris Phegopteris C. Chr.
- Athyrium Filix-femina Roth.
- Botrychium Lunaria Sw.
- Botrychium Matricariae Spr.
- Lycopodium Selago L. var. chinense Kudo.

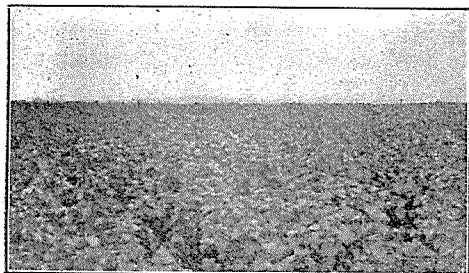


Fig. 11. An *Alnus* Association, north of Shikata-no-ma, taken on July 11, 1927.

Lycopodium annotinum L.
Lycopodium alpinum L.
Luzula plumosa E. Mey.
Majanthemum canadense Desf.
 var. *kamtschaticum* Kudo.
Streptopus amplexifolius DC.
Trillium kamtschaticum Pall.
Listera cordata A. Br.
Stellaria sachalinensis Takeda.
Corydalis ambigua Cham. et Schl.

Aruncus sylvester Kostel, var. *kamtschaticus* Maxim.
Viola Selkirkii Pursh.
Viola sylvestris Kit.
Circaea alpina L.
Trientalis europaea L. var. *arctica* Ledeb.
Veronica Stelleri Pall.
Veronica aphylla L. var. *grandiflora* Benth.
Galium kamtschaticum Steller.
Cacalia auriculata DC. var. *kamtschatica* Matsum.

The *Pumila* Association. Thousands of acres are covered by this association, which is a pure impenetrable thicket of *Pinus pumila* Rgl. It differs from the *Alnus* Association in the following important respects: (1) the predominance of *Pinus pumila* Rgl. unassociated with any other woody species, and the even denser growth; (2) the total absence or poor development of undergrowth; (3) the shorter stature of the pine, and its characteristic 'pumila' form of growth. This pine creeps along the ground, and has



Fig. 12. *Pinus pumila* Rgl. at Merakumi-wan, taken on July 8, 1927.

no trunk. The main branches, which may attain and even exceed a length of 10 metres, are prostrate and creeping, and emit roots; the lateral branches, ascending or ascending-spreading, commonly 3 to 5 feet high, produce a dense tangle through which it is exceedingly difficult to force a way. The impenetrableness of the thicket makes

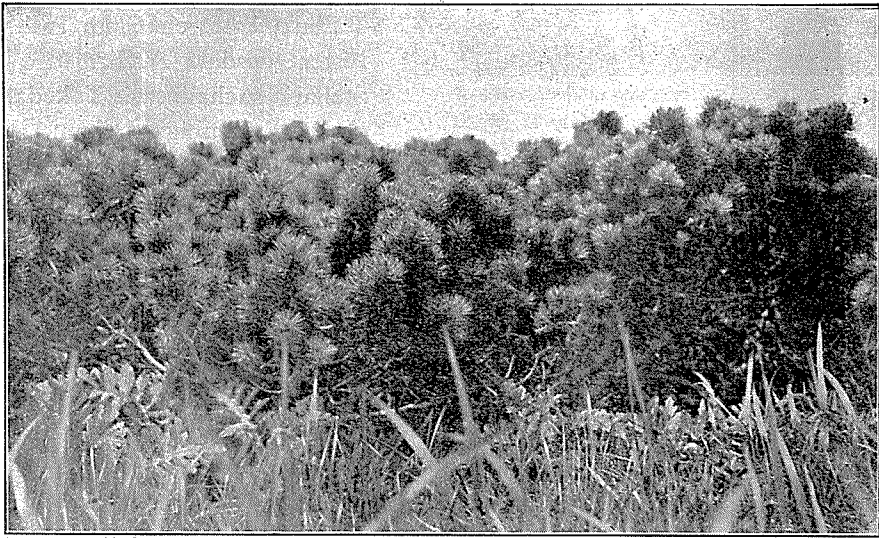


Fig. 13. *Pinus pumila* Rgl. at Murakami-wan, taken on July 8, 1920.

an accurate investigation of the manner of its growth almost impossible under natural conditions, but the charred remains on a patch of ground near Ruesan which had been burnt two or three years previously afforded excellent opportunities for studying it. These thickets form so dense a shade that only a few shade-loving plants exist under it,



Fig. 14. A *Pumila* Association, in the vicinity of Murakami-wan, taken on July 3, 1920.

viz., *Circaea alpina* L., *Linnaea borealis* L. form. *arctica* Wittrock, *Dryopteris dilatata* A. Gr. var. *oblonga* Tak., *Lycopodium alpinum* L. The Pumila Association extends all over the island, from the bay of Chitose-wan northwards to the plateaux round Murakami-wan, and it abounds on the terraces and slopes near the sea as well as on the mountains.

Factors responsible for failure in the development of trees on Paramushir Island. True alpine conditions are prevalent throughout the island, as is evidenced by the presence of an arctic-alpine flora, many species originating from arctic or sub-arctic regions being found even on the lower levels. The causes to which the presence of such an arctic-alpine flora are attributable would appear to be edaphic and climatic. The age of the formation of the island is recent. In summer the temperature is low and dense fogs prevail; during the winter the snow lies deep and the wind is strong. These alpine conditions are the factors mainly, if not wholly, responsible for the failure of trees to develop.

The Sandy-beach Association. The immediate proximity of the sea usually creates condition conducive to the maintenance of a strip of vegetation comprising a limited number of very characteristic species, and the Sandy-beach Association is a noteworthy feature along the

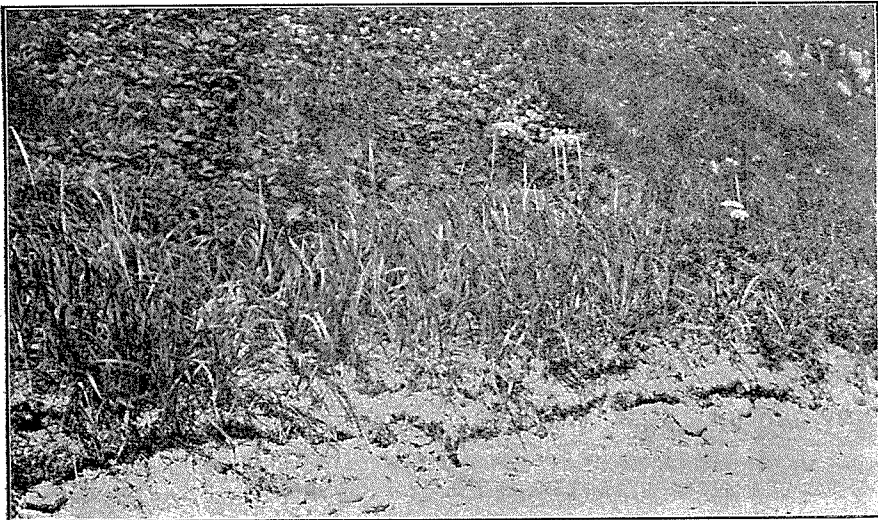


Fig. 15. *Filipendula kamtschatica* Maxim. and *Elymus mollis* Trin. at Tomari-zaki, taken on Aug. 7, 1920.

coast of Paramushir, although sandy beaches are by no means common and few of them have reached an advanced stage of development. One of the finest displays is seen at Kashiwabara-wan on the north-east coast, and another at Magari-gawa on the west. The lower beach, near the water's edge, is usually devoid of vegetation. The middle beach is populated by a typical growth of herbaceous plants maintaining a precarious foothold on the shifting sand, and here the most important sand-loving plants to be met are :—

Poa glumaris Trin. var. *kurilensis* Kudo.

Elymus mollis Trin.

Luzula spadicea DC. var. *Wahlenbergii* Buch.

Atriplex patula L.

Ammodenia major Kudo.

Lathyrus maritimus Bigel.

Ligusticum scoticum L.

Mertensia maritima G. Don, subsp. *asiatica* Takeda.

Senecio Pseudo-Arnica Less.

In the next zone, or upper beach, we usually find a strip of tall herbaceous plants or occasionally shrubs forming dense thickets. Below

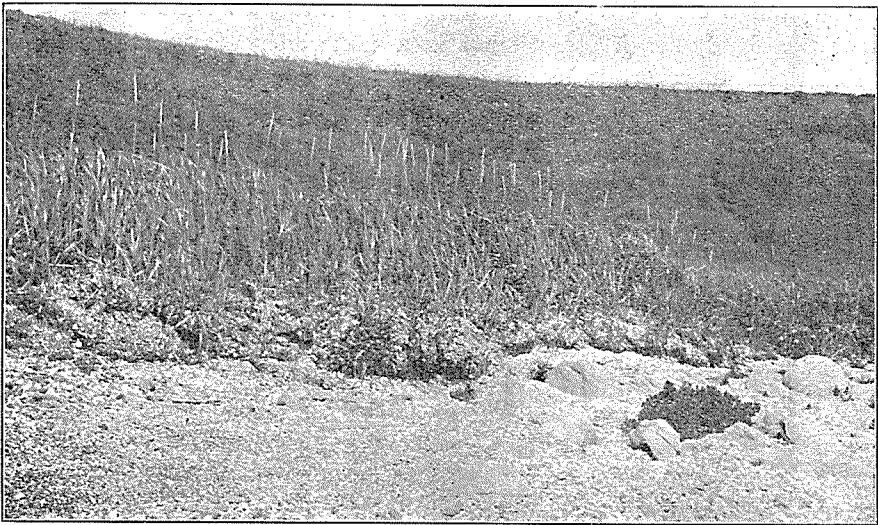


Fig. 16. *Elymus mollis* Trin. and *Ammodenia major* Kudo on the Sandy-beach Association, at Toma-i-zaki, taken on Aug. 7, 1920.

is given a list of the vascular plants that occur more or less abundantly in these open tracts :—

Equisetum hyemale L.
Alopecurus alpinus Sm. var. *borealis* Ledeb.
Trisetum flavescens P. Beauv. var. *purpurascens* Arcg.
Iris setosa Pall.
Urtica platyphylla Wedd.
Aconitum kamtschaticum Willd.
Arabis japonica A. Gr.
Filipendula kamtschatica Maxim.
Rosa rugosa Thunb.
Thermopsis fabacea DC.
Geranium erianthum DC.
Empetrum nigrum L.
Epilobium angustifolium L.
Anthriscus sylvestris Hoffm.
Pedicularis Chamissonis Stev.
Anaphalis margaritacea Benth. et Hook.
Artemisia Stelleriana
 Bess.
Artemisia vulgaris L.
 var. *kamtschatica*
 Bess.
Artemisia norvegica
 Fries, f. *pedunculata*
 Kudo.
Matricaria matricari-
 oides Porter.

On sandy beaches developed



Fig. 17. A Sandy-beach Association at Kashiwabara-wan, taken on July 8, 1920.

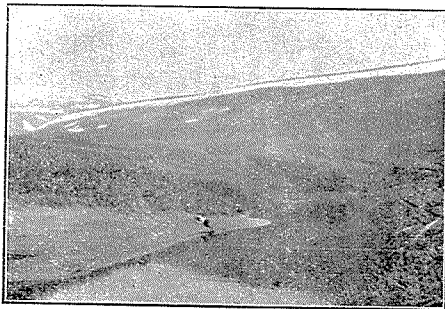


Fig. 18. A Sandy-beach Association in the vicinity of Kashiwabara-wan, taken on July 8, 1920.

near river-mouths, the following interesting species are occasionally observed :—

Carex hakkodensis
 Franch.
Luzula spadicea DC.
 var. *Wahlenbergii*
 Buch.
Epilobium latifolium L.
Chrysanthemum arc-
 ticum L. var. *Gmelini*
 Kudo.

The Rock Association. The first forms of life to grow on a surface of bare rock are commonly the Lichens, and other plants may be entirely absent owing to their inability to secure a foothold on the

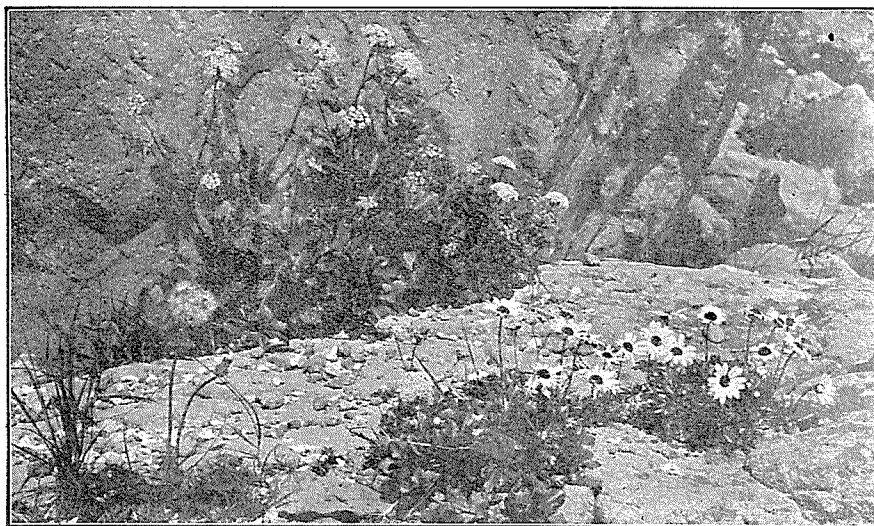


Fig. 19. A Rock Association at Tomari-zaki, showing *Chrysanthemum arcticum* L., *Ligusticum scoticum* L. and *Taraxacum ceratophorum* DC., taken on Aug. 5, 1920.

bare surface. Where, however, a certain amount of soil is present in crevices or hollows, this enables other plants to establish themselves. Of the seed-plants inhabiting such surfaces, the most important are:—

Herbaceous —

- Saxifraga bronchialis*
- L. var. *cherlerioides*
- Engler.
- Potentilla megalantha*
- Tak.
- Chrysanthemum arcticum* L.
- Stellaria ruscifolia*
- Willd.
- Sedum roseum* Scop.
- Sagina saginoides*
- Dalla Torre, var.
- micrantha* Kudo.

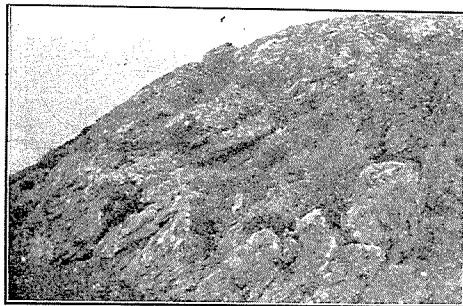


Fig. 20. A Rock Association at Shikata-no-ma, taken on July 11, 1920.

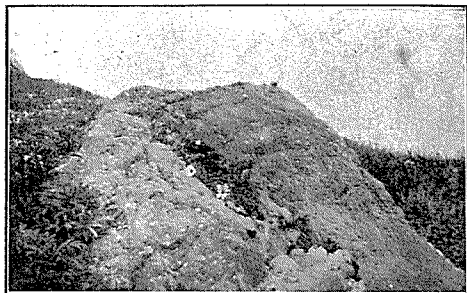


Fig. 21. A Rock Association at Nagaiwa-saki, taken on July 11, 1920.

Cornus suecica L.
Saxifraga rivularis L. var.
Laurentiana Engl.
Cochlearia oblongifolia DC.
Allium strictum Schrad.
Tofieldia nutans Willd.
Lloydia serotina Reich.
Draba borealis DC.
Ligusticum scoticum L.

Shrubby or semi-shrubby —

Rhododendron kamtscha-

ticum Pall.

Diapensia lapponica L. var. *obovata* Fr. Schm.

Cassiope lycopodioides Don ;

and occasionally —

Sorbus sambucifolia Roem.

Alnus Maximowiczii Call.

Besides the above, the following are also found :—

Calamagrostis villosa Mutel.

Elymus mollis Trin.

Juncus balticus Willd. var. *Haenkei* Buch.

Empetrum nigrum L.

Angelica refracta Fr. Schm.

Androsace Chamaejasme Host. var. *paramushirensis* Kudo.

The Dwarf-shrubby Heath Association. This is one of the most distinctive types of vegetation on the island, and is characteristically developed on exposed hill-tops and gentle slopes. In such situations the ground is sparsely covered with a matted growth of low shrubs. Among those which are peculiar to such habitats, the most conspicuous is *Empetrum nigrum* L., forming low spreading tufts, and particularly characteristic are also the four Ericaceous plants : *Loiseleuria procumbens* Desv. which straggles over the ground, *Vaccinium Vitis-idaea* L. which is intricately interwoven in the tufts, *Vaccinium uliginosum* L. occurring separately as well as among the tufts, and *Arctous alpina* Niedz. entangled in the tufts and only two or three inches high. Besides these, there is usually a sprinkling of other plants of markedly impoverished growth, such as :—

Lycopodium alpinum L.

Trisetum spicatum Richt.
Poa arctica R. Br.
Lloydia serotina Reich.
Majanthemum canadense Desf. var. *kamtschaticum* Kudo.
Tofieldia nutans Willd.

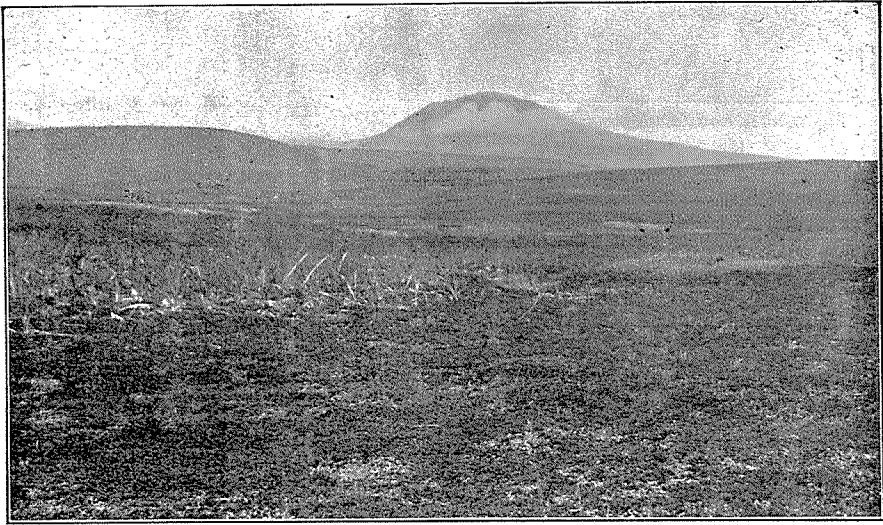


Fig. 22. A Heath Association at Tomari-zaki, taken on Aug. 5, 1925.

Orchis Beeringiana Kudo.
Salix arctica Pall. var. *kurilensis* Kudo.
Polygonum viviparum L.
Anemone narcissiflora L.
Thalictrum alpinum L.
Parrya macrocarpa R. Br.
Geum calthifolium Sm. var. *dilatatum* Torr. et Gr.
Astragalus secundus DC.
Oxytropis Pumilio Ledeb.
Oxytropis retusa Matsum.
Hedysarum obscurum L.
Cnidium ajanense Drude.
Cornus suecica L.
Bryanthus Gmelini Don.
Cassiope lycopodioides Don.
Cassiope Stelleriana DC.
Trientalis europaea L. var. *arctica* Ledeb.

Pedicularis Chamissonis Stev. var. *Maximowiczii* Kudo.

Pedicularis euphrasioides Steph.

Pinguicula vulgaris L. var. *macroceras* Herder.

Campanula dasyantha Bieb.

Campanula lasiocarpa Cham.

Antennaria dioica Gaertn.

Chrysanthemum arcticum L. var. *kurilense* Kudo.

Chrysanthemum arcticum L. var. *palmatifidum* Kudo.

Artemisia glomerata

Ledeb.

Artemisia trifurcata

Steph. var. *heterophylla* Kudo.

This typical association occurs locally throughout the greater part of the island, but is nowhere extensively developed. Although in exposed situations it may constitute an edaphic climax, *i. e.*, a per-

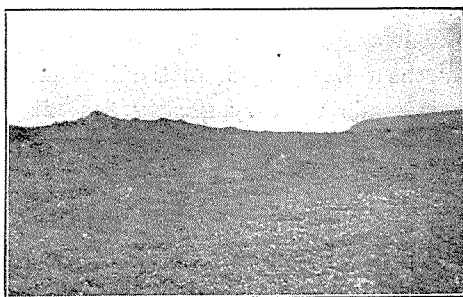


Fig. 23. A Heath Association at Nagaiwa-saki, taken on July 11, 1920.

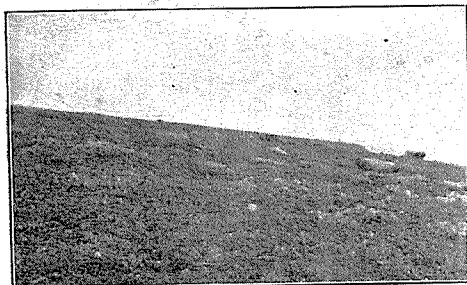


Fig. 24. A Heath Association at Nagaiwa-saki, taken on July 11, 1920.

manent association, in other places it seems to represent a temporary stage destined to be superseded by other associations, such as the *Alnus* Association, the *Pumila* Association, the Dwarf *Rhododendron* Association, or the Wet-bog Association, into one or other of which it generally all but merges.

The Dwarf *Rhododendron* Association. This form of vegetation commonly occupies the slopes of hills. An area occupied by this association has the appearance of an irregular bushy labyrinth constructed of *Rhododendron chrysanthum* Pall. The structure of this *Rhododendron* is extremely interesting: its height is scarcely two feet, but the branches spread laterally to a radius of two to three feet or more; the leaves are thick, rugose and shiny on the upper surface; the branchlets terminate in a dense panicle of large yellow flowers. The

ground is usually covered by a luxuriant growth of undershrubs, principally Ericaceous, with which the beautiful yellow bell-shaped flowers of *Phyllodoce aleutica* Makino are often intermingled. In addition to these, the plants characteristic of the Dwarf-shrubby Heath Association are well represented, but scattered and somewhat inconspicuous. The association, like the preceding one, seems to be nowhere extensively developed.

The Lowland Association. There are considerable tracts of this association, but it often passes into the Wet-bog or Dwarf-shrubby Heath associations, from both of which, however, it is easily distinguished by the taller growth of the herbaceous plants. The species of which it is made up vary greatly according to locality. The blue flowers of *Aconitum kamtschaticum* Willd., the large blue flowers of *Iris setosa* Pall., the nodding heads of *Cirsium kamtschaticum* Ledeb., the pale purple of *Geranium erianthum* DC., the orange-red of *Lilium medeoloides* A. Gray. f. *kurilense* Kudo, the rose-colour of *Rosa rugosa* Thunb.,



Fig. 25. A Lowland Association at Tomari-zaki, taken on Aug. 7, 1920.

the yellows of *Taraxacum ceratophorum* DC. and *Viola biflora* L. and the white *Trillium kamtschaticum* Pall. are all of common occurrence. Plants such as *Pleurospermum austriacum* Hoffm., *Senecio palmatus* Pall., *Angelica refracta* Fr. Schm. and *Cælopleurum Gmelini* Ledeb., which in Hokkaido attain an enormous size and grow densely, are here comparatively low in stature with a looser habit. Only one species,

namely *Filipendula kamtschatica* Maxim., attains to conspicuous size and density of growth under favourable conditions, and even in this case the same degree of development as in Hokkaido is not reached. Besides the above, the following species are found :—

- Athyrium Filix-femina Roth.
- Phleum alpinum L.
- Agrostis flaccida Hack.
- Agrostis perennans Tuck.
- Calamagrostis urelytra Hack.
- Deschampsia caespitosa P. Beauv. var. setifolia Ledeb.
- Trisetum flavescens P. Beauv. var. purpurascens Arcg.
- Cobresia Bellardii Degland.
- Carex pyrenaica Wahlb.
- Carex caryophyllea Latour.
- Luzula Kjellmanniana Miyabe et Kudo.
- Veratrum album L. var. oxysepalum Miyabe et Kudo.
- Allium strictum Schrad.
- Allium Victorialis L.
- Lilium medeoloides A. Gray, f. kurilense Kudo.
- Urtica platyphylla Wedd.
- Thalictrum minus L. var. nanum Lecoy.
- Barbarea orthoceras Ledeb.
- Arabis lyrata L. var. kamtschatica Fisch.
- Sanguisorba tenuifolia Fisch. var. kurilensis Kudo.
- Aruncus sylvester Kostel, var. kamtschaticus Maxim.
- Rubus arcticus L.
- Anthriscus sylvestris Hoffm.
- Pleurospermum austriacum Hoffm.
- Cœlopleurum Gmelini Ledeb.
- Heracleum lanatum Michx.
- Gentiana auriculata Pall.
- Swertia tetrapetala Pall.
- Halenia sibirica Borkh.
- Euphrasia mollis Wettst.
- Pedicularis resupinata L.
- Galium boreale L. var. kamtschaticum Maxim.
- Solidago Virgaurea L.
- Erigeron acre L.

Erigeron kamtschaticum DC. var. *hirsutum* Fr. Schm.

Achillea Ptarmica L. var. *speciosa* Herd.

Achillea sibirica Ledeb.

Artemisia vulgaris L. var. *kamtschatica* Bess.

Arnica unalaschcensis Less.

Senecio palmatus Pall.

Cirsium kamtschaticum Ledeb.

Saussurea Riederi Herd.

Picris japonica Thunb.

Taraxacum ceratophorum DC.

The Wet-bog Association. Wet bogs are quite common on the island of Paramushir. They vary in size and shape, but frequently cover an area of many acres, and are sometimes upwards of a mile in unbroken expanse. Viewed in its entirety the surface of one of these bogs may appear to be level, but viewed in detail it is seen to be more or less uneven. Various shrubby as well as herbaceous plants are scattered over these areas. Among the woody ones Ericads predominate, viz., *Oxycoccus palustris* Pers. and *Andromeda polifolia* L. Three non-Ericaceous species are also usually well represented, namely two creeping willows (*Salix phleobophylla* Anders., and *Salix arctica* Pall. var.



Fig. 26. A Wet-bog Association at Murakami-wan, taken on July 3, 1920.

kurilensis Kudo) and a dwarf Birch (*Betula glandulosa* Michx. var. *sibirica* C. K. Schn.). To these should be added the semi-shrubby *Geum pentapetalum* Mak. and *Empetrum nigrum* L., the latter growing abundantly in the somewhat drier parts. Two orchids are found, of which one (*Orchis Beeringiana* Kudo) is common while the other (*Platanthera tipuloides* Link.) is only occasional. *Cardamine pratensis* L. var. *kurilensis* Kudo is very conspicuous when in bloom, and other interesting species are *Drosera rotundifolia* L. and *Triglochin palustre* L., but the predominating bog herbs are those belonging to Cyperaceae and Juncaceae, *e. g.*,

Eriophorum angustifolium Roth.
Eriophorum angustifolium Roth, var. *majus* Schultz.
Scirpus caespitosus L.
Carex circinata C. A. Mey.
Carex hakkodensis Franch.
Carex stellulata Good.
Carex Middendorffii Fr. Schm.
Carex Lyngbyei Hornem.
Carex flaccidior Miyabe et Kudo.
Carex Buxbaumii Wahlb.
Carex rariflora Sm.
Carex Fujitae Kudo.
Carex rusesanensis Kudo.
Carex capillaris L.
Carex vesicaria L.
Carex saxatilis L.
Juncus beringensis Buch.
Juncus effusus L. var. *decipiens* Buch.
Juncus balticus Willd. var. *Haenkei* Buch.
Juncus kamschatcensis Kudo.
Juncus triglumis L.
Juncus castaneus Smith.
Juncus prominens Miyabe et Kudo.

It will be seen from the above list that nearly half the vascular herbs are Sedges and Rushes, which thus occupy a prominent position in the flora of most of the bog-lands. The following additional species may be mentioned as characteristic of wet bogs, although they also occur to some extent in other situations :—

Equisetum arvense L.
Equisetum palustre L.
Equisetum sylvaticum L.
Selaginella Selaginoides Link.
Iris setosa Pall.

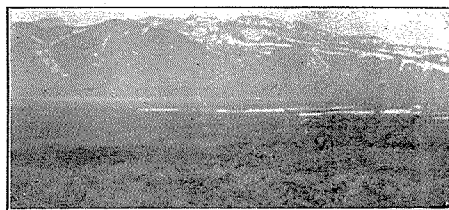


Fig. 27. A Wet-bog Association at Shiebettofu, taken on June 26, 1920.

Polygonum viviparum L.
 Rumex arcticus Trautv.
 Caltha palustris L. var. parvifolia Kudo.
 Coptis trifolia Salisb.
 Ranunculus reptans L.
 Anemone narcissiflora L.
 Thalictrum alpinum L.
 Trollius patulus Salisb. var. Riederianus Kudo.
 Parnassia palustris L.
 Rubus Chamaemorus L.
 Comarum palustre L.
 Lathyrus palustris L.
 Viola blanda Willd.
 Viola palustris L.
 Viola Langsdorffii Fisch.
 Pyrola minor L.
 Pedicularis Oederi Vahl.
 Pedicularis sudetica Willd.
 Saussurea Tilesii Ledeb.

In the pools and small ponds occurring here and there, the following aquatic or semi-aquatic species may be met with:—

Potamogeton alpinus Balb.
 Eleocharis palustris R. Br.
 Hippuris vulgaris L.
 Menyanthes trifoliata L.
 Utricularia intermedia Hayne.

Where the ground is somewhat drier, one may come across the Dwarf Pine, which seems anomalous, as this species is so essentially a denizen of the Climax Forest. A case in point is near Ruesan on the east coast.

The Brook Association. In the small ravines the banks of the streams are usually overhung with the foliage of *Alnus Maximowiczii* Call., *Pinus pumila* Rgl., *Filipendula kamtschatica* Maxim., etc., and the dense shade and still air are factors conducive to coolness and humidity. Thus the outstanding feature of such localities is the intense mesophytism, verging even on hydrophytism, of the vegetation, and the flora includes some of the most pronounced types of shade- and moisture-loving mesophytes. Among the representative species are the following:—

Equisetum arvense L.
Equisetum sylvaticum L.
Montia rivularis C. C. Gmel.
Oxyria digyna Hill.
Koenigia islandica L.
Ranunculus pygmaeus Wahlenb.
Ranunculus hyperboreus Rottb.
Cardamine umbellata Greene.
Chrysosplenium kamtschaticum Fisch.
Saxifraga punctata L.
Potentilla Anserina L.
Epilobium palustre L.
Primula eximia Greene.
Primula cuneifolia Ledeb.
Mertensia rivularis DC.
Veronica americana Schwerin.
Veronica Stelleri Pall.
Pinguicula vulgaris L. var. *macroceras* Herder.

The Wet-cliff Association. Many of the steep cliffs and outcrops of rock are kept wet by dripping water, and their vegetation consequently differs materially from that of the drier cliffs described under the Rock Association. At the same time the presence of various intermediate stages obviously prevents the drawing of a hard and fast line of demarcation, and a number of herbs of the Rock Association belong equally to the present group, while some from the Brook Association are likewise represented here. Wet cliffs are frequent on Paramushir Island, and an excellent example is to be seen at Kamogawa-zaki on the west coast, where various species of mesophytes grow on the steep face of a magnificent outcrop of rock near the sea. Some of the more or less hydrophytic types also occur there, notably mosses and liverworts, together with a few moisture-loving vascular plants.

Character of the Flora.

1. Families, genera and species of Spermatophytes
and Pteridophytes.

It will be noted from the following table that the number of families of the vascular plants of the island of Paramushir is fifty-four,

the genera included in these families numbering 159, and the species totalling 284.

	Families.	Genera.	Species.
Metachlamydeæ.	16	52	78
Archichlamydeæ.	24	67	109
Dicotyledones.	40	119	187
Monocotyledones.	8	33	80
Angiospermæ.	48	152	267
Gymnospermæ.	1	1	1
Phanerogamæ.	49	153	268
Pteridophyta.	5	6	16
Total.	54	159	284

We note the entire absence of such families as Hymenophyllaceæ, Osmundaceæ, Isoëtaceæ, Taxaceæ, Typhaceæ, Sparganiaceæ, Najadaceæ, Alismataceæ, Hydrocharitaceæ, Lemnaceæ, Eriocaulaceæ, Commelinaceæ, Pontederiaceæ, Dioscoreaceæ, Saururaceæ, Chloranthaceæ, Myricaceæ, Juglandaceæ, Moraceæ, Santalaceæ, Loranthaceæ, Aristolochiaceæ, Amarantaceæ, Phytolaccaceæ, Nymphaeaceæ, Ceratophyllaceæ, Cercidiphyllaceæ, Lardizabalaceæ, Berberidaceæ, Menispermaceæ, Magnoliaceæ, Lauraceæ, Hamamelidaceæ, Oxalidaceæ, Linaceæ, Simarubaceæ, Polygalaceæ, Euphorbiaceæ, Callitrichaceæ, Buxaceæ, Coriariaceæ, Anacardiaceæ, Aquifoliaceæ, Celastraceæ, Staphylaeaceæ, Aceraceæ, Hippocastanaceæ, Balsaminaceæ, Rhamnaceæ, Vitaceæ, Tiliaceæ, Theaceæ, Stachyuraceæ, Thymelaeaceæ, Elaeagnaceæ, Lythraceæ, Alangiaceæ, Halorrhagaceæ, Araliaceæ, Clethraceæ, Myrsinaceæ, Symplocaceæ, Styracaceæ, Oleaceæ, Apocynaceæ, Asclepiadaceæ, Convolvulaceæ, Verbenaceæ, Solanaceæ, Phrymaceæ, Plantaginaceæ, Adoxaceæ, Valerianaceæ, Dipsaceæ, Cucurbitaceæ. These families are found in Yezo, where indeed most of them are common, and some are represented even in the Southern Kuriles. Among these families are included those (such as Magnoliaceæ, Lauraceæ, Anacardiaceæ, etc.) which give to the flora of Yezo that conspicuous admixture of elements from warmer regions which has been commented on by Engler¹⁾.

On the other hand, the families which we do find on Paramushir are characteristic of the cold regions, with the single exception of

1) Engler, Vers. Entwickl.-Gesch. Pfl.-welt. I. p. 18.

Rutaceæ, the occurrence of which is perhaps the most anomalous feature in the flora of the Island. This family originates in the warmer region, and is represented in Yezo by three genera, each having a single species, but in Paramushir Island it is represented only by a single genus with one species, which has berry-like fruits of a red colour. It has been discovered in only one locality, and it is very probable that the fruits of this species have been transported by birds from the Southern Kuriles.

Of the fifty-four families, the following comprise three or more genera.

Compositæ		with 16 genera.
Gramineæ	}	with 11 genera.
Ericaceæ		
Rosaceæ		with 10 genera.
Liliaceæ		with 9 genera.
Ranunculaceæ		with 8 genera.
Cruciferae	}	with 7 genera.
Umbelliferae		
Cyperaceæ	}	with 5 genera.
Leguminosæ		
Scrophulariaceæ		
Caryophyllaceæ	}	with 4 genera.
Gentianaceæ		
Orchidaceæ	}	with 3 genera.
Saxifragaceæ		
Primulaceæ		

The families that are comparatively rich in species are shown in the following table, with a percentage to indicate their relative importance in the flora of Paramushir.

Cyperaceæ	with 29 species (10.21 %)
Compositæ	„ 26 „ (9.15 %)
Gramineæ	„ 23 „ (8.01 %)
Rosaceæ	„ 16 „ (5.63 %)
Ericaceæ	„ 15 „ (5.28 %)
Ranunculaceæ	„ 13 „ (4.58 %)
Scrophulariaceæ	„ 12 „ (4.23 %)
Juncaceæ	„ 11 „ (3.87 %)

Liliaceæ	}	with 10 species	(3.52 %)
Cruciferae			
Oenotheraceæ			
Caryophyllaceæ	}	" 7 "	(2.46 %)
Leguminosæ			
Umbelliferae			
Saxifragaceæ	}	" 6 "	(2.11 %)
Violaceæ			
Lycopodiaceæ	}	" 5 "	(1.76 %)
Polygonaceæ			
Polypodiaceæ	}	" 4 "	(1.41 %)
Equisetaceæ			
Orchidaceæ			
Salicaceæ			
Primulaceæ			
Gentianaceæ			

The genera represented by three or more species are:

with 25 species: Carex.

with 9 species: Epilobium.

with 7 species: Poa, Juncus.

with 6 species: Viola, Pedicularis.

with 5 species: Lycopodium, Ranunculus, Artemisia.

with 4 species: Equisetum, Luzula, Salix, Stellaria, Saxifraga, Potentilla.

with 3 species: Dryopteris, Calamagrostis, Deschampsia, Cardamine, Geum, Vaccinium, Mertensia, Veronica, Galium, Erigeron.

There are thirty families which are each represented by a single genus, and 19 of these are represented by a single species, namely Selaginellaceæ, Pinaceæ, Potamogetonaceæ, Scheuchzeriaceæ, Iridaceæ, Urticaceæ, Portulacaceæ, Droseraceæ, Crassulaceæ, Geraniaceæ, Rutaceæ, Empetraceæ, Hippuridaceæ, Pyrolaceæ, Diapensiaceæ, Plumbaginaceæ, Polemoniaceæ, Labiatae, Orobanchaceæ.

2. Floristic Relationship between Paramushir and neighbouring regions.

Kamtschatka. On account of the geographical position of Paramushir, a very natural conclusion would be that the flora of Paramushir

Island is most closely related to that of the southern part of Kamtschatka. This is actually the case. The number of species common to both region is 201, or 70.77 % of the whole number found in Paramushir, but it should be borne in mind that, owing to the scantiness of floristic data for Kamtschatka, this number cannot be more than an approximation, and it is very probable that the number of species common to Paramushir and Kamtschatka will be added to when the flora of Kamtschatka has been fully investigated. The following species found in Paramushir are known to occur in Kamtschatka, though not in Yezo, nor in Saghalien.

- Alopecurus alpinus* Sm. var. *borealis* Ledeb.
- Poa arctica* R. Br.
- Cobresia Bellardii* Degland.
- Carex circinata* C. A. Mey.
 - „ *macloviana* D'urv.
 - „ *lagopina* Wahlenb.
 - „ *ambrolepis* Trautv. et Mey.
 - „ *caryophyllea* Latour.
 - „ *saxatilis* L.
- Juncus kamschatcensis* Kudo.
- Salix arctica* Pall. (var. *kurilensis* Kudo.)
 - „ *anglorum* Cham.
 - „ *phlebophylla* Anders.
- Ranunculus nivalis* L.
 - „ *hyperboreus* Rottb.
- Cardamine umbellata* Greene.
 - „ *pratensis* L. (var. *kurilensis* Kudo.)
- Saxifraga rivularis* L. (var. *Laurentiana* Engl.)
- Viola palustris* L.
- Epilobium latifolium* L. (var. *arcticum* Haussk.)
 - „ *lactiflorum* Hausskn.
 - „ *Behringianum* Hausskn.
- Androsace Chamæjasme* Host. (var. *capitata* R. Knuth and var. *paramushirensis* Kudo.)
- Mertensia paniculata* Don. (var. *pubescens* Kudo.)
- Veronica aphylla* L. var. *grandiflora* Benth.
- Pedicularis euphrasioides* Steph.
 - „ *sudetica* Willd.
 - „ *lanata* Willd.

Artemisia trituncata Steph. var. *heterophylla* Kudo.

The closeness of the floristic relationship between Paramushir and Kamtschatka is not only to be measured by the number of common species, but the associations of vegetation of the two regions must also be taken into account. So far as is known to us, the associations of Paramushir are approximately the same as those of Southern Kamtschatka.

A study of those plants which are found in Yezo as well as in Kamtschatka and Paramushir shows conclusively that the species of northern origin are well developed in Kamtschatka and Paramushir but poorly developed in Yezo, while those of southern origin are more highly developed in Yezo than in Paramushir or Kamtschatka.

Thus we are forced to the conclusion that the flora of Paramushir bears the most striking affinity to that of Kamtschatka, not only in the number of common species but also in the plant-associations,—the comparison of which plays so important a part in the study of phytogeography.

Yezo. The species common to Paramushir and Yezo are as many as 229, or 80.63 % of the whole number of Paramushir species. They should be considered in two groups, which are quite different in the mode of their distribution. One group contains a number of southern species or plants from warmer regions, which have come from the south through Yezo and the Southern Kuriles to Paramushir, for example: *Poa acroleuca* Steud., *Carex hakkodensis* Franch., *Carex stenantha* Fr. et Sav., *Lilium medeoloides* A. Gray, *Platanthera Makinoi* Yabe, *Arabis japonica* A. Gray, *Skimmia japonica* Thunb., *Gaultheria Miqueliana* Takeda, etc. The other group contains a number of northern species, most of which are of an arctic type and are related to the Behring-Sea region as well as to arctic or sub-arctic Siberia, the Okhotsk region and Kamtschatka. Their distribution along the coast of Yezo corresponds closely with the course of the cold current Oya-shiwo, and is partly due to the favourable climatic conditions (*i. e.*, a cool and moist summer) which prevail where it flows. Thus it is interesting to note that some of these plants occur even in the southern parts of Yezo, such as Cape Erimo and Cape Yesan, where the cold current runs along the coast.

The vegetation of Yezo bears a close affinity to that of the Southern Kuriles, which will be referred to again later, and the relation between them is similar to that between Paramushir and Southern Kamtschatka. The vegetation of Yezo as well as of the Southern Kuriles is

essentially different from that of the Northern Kuriles including Paramushir; the difference becomes more obvious when we compare the plant-associations of the two regions.

The floristic relationship between the islands of Yezo and Paramushir is therefore not primary, but of a secondary nature, and would hardly seem to date back beyond comparatively recent times. The relatively large number of Yezo species which none-the-less occur on Paramushir Island may be accounted for partly by the exchange of floral elements through the agency of wind and birds, and partly by the fact that our more thorough knowledge of the flora of Yezo gives us more comparative data than have been obtained for other neighbouring regions.

Saghalien. The proportion of Saghalien species found in Paramushir is 61.27 % of the total for the latter island, and they number as many as 174. There are no species confined exclusively to Saghalien and Paramushir, but it is very interesting to note that there are some species coming down from the north which reach only as far as Paramushir and Saghalien, for instance: *Carex macrochæta* C. A. Mey (var. *paramushirensis* Kudo), *Carex rariflora* Sm., *Betula glandulosa* Michx., var. *sibirica* C. K. Schn. The remainder of the species common to Paramushir and Saghalien are distributed either in Yezo, or in Honshu, or in the Amur-Manchuria region. However, it must be borne in mind that our knowledge of the flora of Northern Saghalien is quite imperfect although that of Southern Saghalien has been exhaustively described by Miyabe and Miyake¹⁾.

As far as is known to us, the vegetation of Southern Saghalien is essentially connected, through the islands of Rebun and Rishiri, with that of the northern and north-eastern parts of Yezo, as proved by the presence of a number of conspecific plants, such as *Quercus mongolica* Fisch., *Picea Glehni* Mast., *Abies sachalinensis* Fr. Schm., etc. Also the occurrence in the Southern Kuriles and Saghalien of *Larix dahurica* Turcz. var. *japonica* Maxim., and certain other species, is a further proof of the relationship of these islands.

The proportional data given above for plants common to Paramushir and Saghalien refer only to the flora of Southern Saghalien. And, as the vegetation of Southern Saghalien has a strong affinity to that of Yezo and the Southern Kuriles, its relation to that of Paramushir is therefore of a secondary nature, as in the case of Yezo. I cannot help

1) Miyabe, K. and Miyake, T.—Flora of Saghalien (1915).

thinking that the flora of Northern Saghalien would be found to bear a closer affinity to that of Paramushir than does that of Southern Saghalien, but no materials for a detailed discussion on this point are at present available.

Okhotsk-region (including Ajan). This is one of the best represented classes in the flora of Paramushir, comprising as many as 148 species or 52.11% of the whole range of Paramushir plants. The comparative strength of the floristic relationship is not to be measured by the number of common species alone, but their characters must also be taken into account. It is very interesting to find that the following species occur in both regions:— *Lycopodium alpinum* L., *Pinus pumila* Rgl., *Potamogeton alpinus* Balb., *Descampsia caespitosa* P. Beauv., *Trisetum spicatum* Richt., *Poa cenisia* All., *Carex ambrolepis* Trautv. et Mey., *Luzula spadicea* DC. var. *Wahlenbergii* Buch., *Luzula Kjellmanniana* Miyabe et Kudo, *Juncus triglumis* L., *Tofieldia nutans* Willd., *Allium strictum* Schrad., *Salix arctica* Pall. (var. *kurilensis* Kudo), *Oxyria digyna* Hill., *Polygonum viviparum* L., *Stellaria ruscifolia* Willd., *Anemone narcissiflora* L., *Ranunculus hyperboreus* Rottb., *Thalictrum alpinum* L., *Papaver nudicaule* L. (var. *Fauriei* Kudo), *Parrya macrocarpa* R. Br., *Draba borealis* DC., *Saxifraga punctata* L., *Saxifraga bronchialis* L., *Rubus arcticus* L., *Potentilla fruticosa* L., *Geum pentapetalum* Makino, *Epilobium latifolium* L. var. *arcticum* Haussk., *Epilobium Hornemannii* Rchb., *Cnidium ajanense* Drude, *Androsace chamaejasme* Host., *Pedicularis euphrasiioides* Steph., *Pedicularis Oederi* Vahl., *Pedicularis lanata* Willd., *Pedicularis sudetica* Willd., *Linnaea borealis* L. form. *arctica* Wittrock., *Campanula dasyantha* Bieb., *Antennaria dioica* Gartn., *Chrysanthemum arcticum* L., *Artemisia glomerata* Ledeb., *Artemisia trifurcata* Steph., *Saussurea Tilesii* Ledeb., *Taraxacum ceratophorum* DC.

As far as these species are concerned, it appears that the most striking affinity of the two regions is shown by the presence of many arctic-alpine plants. The reason for this, I venture to think, is as follows: In the event of a southward migration of arctic plants in the north-eastern part of Asia, the arctic flora might be carried in two directions: (1) along the coast of Okhotsk, and (2) through the peninsula of Kamtschatka to the Northern Kuriles. On this hypothesis the presence of common species of arctic type in these regions is easily accounted for. Of course the distance between the two regions is considerable, but very little value can be attached to the distance between the

regions when considering their floral affinity. For example, it is really surprising that the mountain flora of Formosa is more closely related to that of Japan¹⁾ and of Central and Southern China²⁾ than to that of the east coast of China, from which it was not separated until the Tertiary Period. Or again, to take another instance, we know that the flora of Quelpart Island is specifically more closely related to that of Japan than to that of the Korean Peninsula³⁾.

It would be of great interest and might lead to important results if we could make a detailed comparison of the flora of the Okhotsk region and that of the Northern Kuriles, but data are lacking for a discussion on this point. However, so far as I am able to judge, an intimate floristic relation between Paramushir and the Okhotsk region is indicated by the presence of common elements of an arctic character.

Honshu. The floral elements of Honshu are well represented in the flora of Paramushir, comprising in all 175 species or 61.62 % of the whole number of Paramushir species, two in excess of the number of species shared by Saghalien and Paramushir. Most of these common species are found also in the island of Yezo. It is very interesting to notice that the alpine flora of Honshu includes a considerable number of plants that are found in Paramushir. Three species occurring in Paramushir are found on the high mountains of Honshu, although not recorded from Yezo nor even from the Southern Kuriles or Saghalien, namely, *Cobresia Bellardii* Degland, *Ranunculus pygmaeus* Wahlb. and *Thalictrum alpinum* L. *Pinguicula vulgaris* L. var. *macroceras* Herd. and *Oxytropis Pumilio* Ledeb. were formerly regarded as further examples of this peculiar distribution, but both have recently been discovered in Yezo, the former on the top of Yubari-mountain and the latter on the top of Mount Taisetsu. *Ranunculus reptans* L. has been discovered on the mountains of Honshu, Saghalien and Paramushir, but so far not in Yezo. The mysterious significance of the distribution of these species is beyond comprehension. It must however be admitted that these plants are very possibly to be found on some of the hitherto unexplored mountains of Yezo, and the presence of these arctic-alpine plants on the high mountains of Honshu is mainly of interest as affording a good example of the wide distribution of alpine species.

1) Hayata, B.—Flora Montana Formosae, in Journ. Coll. Sc. Tokyo Imp. Univ. XXV. 19, pp. 30-33.

2) Wilson, E. H.—Phytogeogr. Sket. Formosa, in Journ. Arnold Arb. II. pp. 39-41.

3) Takeda et Nakai, Bot. Mag. Tokyo, XXIII. pp. 46-58; Takeda, Fl. Shikotan p. 449.

Endemic species. Endemic species are comparatively few, as might be expected on an island of some 562 square miles. They are only five in number, or 1.76% of the total, and are named as follows:—*Bromus paramushirensis* Kudo, *Carex Fujitæ* Kudo, *Carex ruesanensis* Kudo, *Salix paramushirensis* Kudo, *Hypericum paramushirens* Kudo. This paucity of endemic species indicates that the flora of Paramushir is continental in origin, and also seems to denote that the formation of Paramushir Island is comparatively recent.

3. Conclusion.

In 1879 Engler¹⁾ announced his opinion that the Kuriles were an important migratory route for plants in early Tertiary times, and also in the Glacial Period from Kamtschatka to Yezo and even Honshu. In 1888, Milne²⁾ advanced the opinion, from the geological point of view, that "the Kuriles were colonized from Japan, rather than Japan colonized from the Kuriles," and that "the route by which Japan could have received its fauna is the island of Saghalin".

In 1890, Miyabe³⁾ agreed with Milne's opinion from the floristic view-point, stating that "at the time of the last great southerly migration of the rich arctic flora, Japan received her portion mostly through the island of Saghalien, and but little, if any, through the then uncompleted chain of the Kurile Islands". In 1914, as the result of a study of the flora of Shikotan — one of the Southern Kuriles—Takeda⁴⁾ arrived at the conclusion that plants which are distributed in the Southern Kuriles, Yezo and Honshu and are not found in Saghalien "must have come through the Kuriles." This is almost the same view as Engler, although he did not express it in that way. Takeda also insisted on the importance of La Pérouse Strait, which divides the islands of Saghalien and Yezo "as a primary line of demarcation". As a proof of his hypothesis, he cited a number of species which were not yet recorded from Saghalien, but were known in the Kuriles, Yezo, or Honshu. However, the subsequent study of the flora of Saghalien has revealed the existence in that island of one-third of these species. This is not

1) Engler—Vers. Entwicklungs. Pfl.-Welt. I. pp. 37-38, Karte I.

2) Milne, J.—Evidence of the Glacial Period in Japan, in Trans. Asiat. Soc. Jap. IX. 1. p. 75, and also see pp. 53-86.

3) Miyabe, K.—Fl. Kuril. Isl. in Mem. Bost. Soc. Nat. Hist. IV. 7, p. 12.

4) Takeda, Fl. Shikotan, in Journ. Linn. Soc. Bot. XLII. p. 445.

the place for a general comparative survey of the abundant data collected in Yezo and Saghalien, and more especially in their adjacent islands, but I am positive that the flora of Southern Saghalien is essentially the same as that of the northern part of Yezo. Therefore I cannot help thinking that La Pérouse Strait is not so important as Takeda considered it.

All previous authors have discussed the whole Kurile Archipelago as a single unit. To this I cannot agree. From the phytogeographical point of view, the Kuriles must be divided into at least two groups, the northern and the southern.

The southern group comprises Kunashiri, Shikotan, Etorofu and their adjacent small islands, and is generally known as the Southern Kuriles. The northern group contains the islands of Paramushir, Shimushu and Alaid, and is generally known as the Northern Kuriles. However, it is uncertain to my mind whether a number of small islands that lie between these two groups are to be considered as forming a distinct group, or whether they belong to one or other of the two before mentioned. I leave this interesting problem for future study.

The vegetation of the Southern Kuriles is composed of elements which are present also in that of the Kushiro-Nemuro district of Yezo. In the Southern Kuriles, for instance, we have such plants as the following, which are also found in the Kushiro-Nemuro district:—*Abies sachalinensis* Fr. Schm., *Picea jezoensis* Carr., *Populus Sieboldii* Miq., *Quercus mongolica* Fisch., *Quercus grosseserrata* Bl., *Ulmus japonica* Sarg., *Sorbus commixta* Hedl., *Micromeles alnifolia* Hedl., *Prunus Maximowiczii* Rupr., *Prunus serrulata* Lindl. var. *sachalinensis* Makino, *Prunus Ssiori* Fr. Schm., *Maackia amurensis* Rupr. et Maxim. var. *Buergeri* C. K. Schn., *Phellodendron amurense* Rupr. var. *sachalinense* Fr. Schm., *Acer pictum* Thunb., *Kalopanax ricinifolium* Miq., *Fraxinus longicuspis* Sieb. et Zucc., *Syringa japonica* Decne. It is a significant fact that all these species do not appear in the Northern Kuriles.

It is further to be noted that a number of species from warmer climates grow in the Southern Kuriles, such as:—*Magnolia obovata* Thunb., *Rhus orientalis* C. K. Schn., *Hydrangea petiolaris* Sieb. et Zucc., *Hydrangea paniculata* Sieb., *Ilex crenata* Thunb., *Vitis Coignetiae* Pulliat, *Actinidia Kolomikta* Maxim., *Sambucus racemosa* L., *Viburnum Opulus* L., var. *Sargentii* Takeda.

It is true that a number of species from the cold regions, which are very common in the Northern Kuriles, are also found in the

Southern, and this may seem to indicate a close relationship between the floras of the Northern and Southern Kuriles, but the associations formed by these species in the Southern Kuriles are quite different from those of the Northern, and this peculiarity of distribution seems to be attributable to the cold and moist summer produced by the cold current Oya-shiwo.

As far as I can say with certainty from the phytogeographical point of view, the Southern Kuriles belong to Engler's Temperate-East-Asiatic Region¹⁾ and should form the northern limit of his "Provinz des mittleren und nördlichen Japans"¹⁾.

As to the flora of the Northern Kuriles, the vegetation of Paramushir Island is a good example. All the statements already made as to the vegetation of Paramushir apply equally to the flora of the other Northern Kuriles. The families appertaining to warmer regions which are distributed in the Southern Kuriles are almost disappearing in the Northern, giving place to a number of species of arctic origin which are not found in the Southern group. For instance, there are no species of the *Sasa* in the Northern Kuriles, while this genus is exceedingly common in the Southern Kuriles as well as in Yezo. These facts should suffice to illustrate my contention that the vegetation of the Northern Kuriles is essentially different from that of the Southern. Therefore, as far as the botanical evidence shows, the line which divides the Northern Kuriles from the Southern is more important than that of La Pérouse Strait or Tsugaru Strait. At the same time, it should be borne in mind that broadly speaking it is extremely difficult to draw definite dividing lines between the floral districts of these regions.

Engler sets up a province¹⁾ "Provinz des südwestlichen Kamtschatka mit Kurilen und Aleuten", and places it under the Region "Temperiertes Ostasien", in which I want to understand the word "Kurilen" as the Northern Kuriles. This Province is characterised by the predominance of arctic-alpine elements, and on this account, I am strongly of opinion that it would be better to place it under Engler's "Sub-arctic Region" next to the Sub-province of "Nordostsibirien mit Kamtschatka".

1) Engler-Gilg, Syll. der Pfl. fam. Siebente Aufl. p. 352.

Tabular review of the families represented in the Flora of Paramushir.

Name of Family.	Number of Genera.	Number of Species.	Number of Varieties.	Number of Forms.	Number of Species shared with each region.																						
					Yezo.	Saghalien.	Honshu.	Shikoku and Kiushiu.	Korea.	Manchuria, Amur and Ussuri region.	China.	Himalaya.	Kamtschatka.	Okhotsk to Ajan.	Siberia.	Alaska incl. the Aleutian Isles.	North America.	Europe.	Central Asia.	Western Asia.	Liukiu and Formosa.	Indo-China.	Malay Archipelago.	India.	Africa.	Oceania.	South America.
Polypodiaceæ.....	2	4	3	..	4	3	3	..	2	3	2	1	2	..	3	..	4	4	..	2	..	..	..	..	1	..	1
Ophioglossaceæ.....	1	2	..	..	2	2	2	..	..	..	..	..	2	..	2	..	2	2	..	..	..	..	..	..	1	1	1
Equisetaceæ.....	1	4	..	..	4	4	3	1	4	4	1	..	3	2	4	4	4	4	..	1	..	..	..	..	1	..	..
Lycopodiaceæ.....	1	5	3	..	5	4	4	2	3	4	4	1	3	3	5	5	5	5	..	3	2	..	..	..	2	2	..
Selaginellaceæ.....	1	1	..	..	1	..	1	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..
Pinaceæ.....	1	1	..	..	1	1	1	..	1	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Potamogetonaceæ.....	1	1	..	..	1	1	..	..	1	..	1	..	1	1	1	1	1	1	..	1	..	..	..	..	1	..	..
Scheuchzeriaceæ.....	1	1	..	..	1	1	1	..	1	1	1	1	1	..	1	..	..	1	..	..	..	..	..	..	..	..	1
Gramineæ.....	11	23	6	..	16	13	14	4	6	9	8	8	11	8	13	5	16	15	2	8	6	..	..	..	3	1	1
Cyperaceæ.....	5	29	4	1	16	10	11	3	5	9	4	3	13	10	13	9	17	16	1	9	..	1	..	1	2	6	..
Juncaceæ.....	2	11	5	..	8	3	6	3	2	2	2	4	4	5	5	6	6	6	1	2	1	..	..	..	2	2	2
Liliaceæ.....	9	10	2	1	10	10	9	..	4	7	6	1	7	6	5	3	6	5	..	4	..	..	..	..	2	2	..
Iridaceæ.....	1	1	..	..	1	1	1	..	1	1	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Orchidaceæ.....	3	4	..	..	4	3	4	..	..	2	1	..	2	1	..	2	1	1	..	1	..	..	..	..	1	..	..
Salicaceæ.....	1	4	1	..	..	..	..	..	..	..	..	..	3	1	2	3	2	1	..	..	..	..	..	..	1	..	..
Betulaceæ.....	2	2	1	..	1	2	1	..	..	..	..	..	2	1	..	1	1	..	..	..	..	..	..	..	..	..	..
Urticaceæ.....	1	1	..	..	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Polygonaceæ.....	4	5	..	..	3	2	3	..	2	2	2	3	2	3	5	2	4	4	..	3	..	1	..	..	1	1	1
Chenopodiaceæ.....	1	2	1	..	2	2	1	1	1	1	1	..	..	..	2	..	1	2	1	1	..	..	..	..	1	..	..
Portulacaceæ.....	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Caryophyllaceæ.....	4	7	1	..	7	5	7	3	3	6	4	1	5	3	4	2	5	4	1	2	3	..	..	..	1	..	..
Ranunculaceæ.....	8	13	2	..	7	6	8	1	5	5	4	4	10	6	10	6	8	10	2	5	..	..	..	..	1	..	..
Papaveraceæ.....	2	2	1	..	2	1	..	..	1	2	1	1	2	2	1	2	1	1	1	1	1	..	..	..	1	..	..
Cruciferae.....	7	10	2	..	7	6	4	3	4	4	2	2	8	4	5	3	6	2	..	2	1	1	..	1	1	1	1
Droseraceæ.....	1	1	..	..	1	1	1	1	1	1	1	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..
Crassulaceæ.....	1	1	..	..	1	1	1	..	..	1	..	1	1	1	1	1	1	1	..	..	..	..	..	..	..	..	..
Saxifragaceæ.....	3	6	2	..	4	3	3	1	1	3	1	1	5	3	5	5	3	2	..	1	1	..	..	..	..	..	..
Rosaceæ.....	10	16	5	..	15	15	12	1	7	12	6	4	15	8	9	5	11	7	1	5	1	..	..	..	..	1	1
Leguminosæ.....	5	7	..	..	7	4	5	2	2	4	3	..	4	3	4	..	2	2	..	1	1	..	..	..	..	..	..
Geraniaceæ.....	1	1	..	..	1	1	1	..	..	1	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Rutaceæ.....	1	1	..	..	1	1	1	1	..	..	1	1	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Empetraceæ.....	1	1	..	..	1	1	1	..	1	1	..	..	1	1	1	1	1	1	..	1	..	..	..	..	..	..	1
Guttiferae.....	1	2	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Violaceæ.....	1	6	..	..	5	4	4	2	3	3	3	1	6	3	5	..	6	3	..	2	1	..	..	..	..	..	..
Oenotheraceæ.....	2	10	1	..	7	4	5	1	3	4	3	4	9	5	4	5	9	6	2	3	..	..	..	..	1	..	..
Hippuridaceæ.....	1	1	..	..	1	1	1	..	..	1	1	1	1	1	1	..	1	1	..	1	..	..	..	..	..	..	1
Umbelliferae.....	7	7	..	..	7	7	6	2	2	5	3	..	7	4	3	1	3	3	1	1	..	..	..	..	1	..	..
Cornaceæ.....	1	2	..	..	2	2	1	..	1	2	..	..	1	2	1	..	2	1	..	..	..	..	..	..	1	..	..
Pyrolaceæ.....	1	1	..	..	1	1	1	..	..	..	..	..	1	1	1	..	1	1	1	1	..	..	..	..	..	..	..
Ericaceæ.....	11	15	1	..	15	11	15	..	6	8	1	..	14	12	7	8	12	7	..	..	..	..	..	..	..	..	..
Diapensiaceæ.....	1	1	..	..	1	1	1	..	..	..	..	..	1	1	..	1	..	1	..	..	..	..	..	..	..	..	..
Primulaceæ.....	3	4	..	..	2	1	1	..	1	..	1	1	1	3	2	3	4	2	1	..	..	..	..	..	..	..	..
Plumbaginaceæ.....	1	1	..	1	..	1	..	..	..	1	..	..	..	1	..	1	1	1	..	..	..	..	..	..	..	..	..
Gentianaceæ.....	4	4	..	..	4	2	2	..	..	4	..	1	4	4	2	1	1	1	..	1	..	..	..	..	..	..	..
Polemoniaceæ.....	1	1	..	..	1	..	..	..	1	..	..	..	1	..	1	1	1	1	..	1	..	..	..	..	..	..	..
Borraginaceæ.....	1	3	2	..	2	1	1	..	1	2	..	..	3	2	..	2	2	1	..	..	..	..	..	..	..	..	..
Labiatae.....	1	1	1	..	1	..	1	1	1	1	1	1	1	1	1	1	1	1	..	..	1	..	..	..	1	1	1
Scrophulariaceæ.....	5	12	2	..	8	4	5	1	1	2	3	2	11	7	10	8	10	4	..	..	..	..	..	..	1	1	1
Orobanchaceæ.....	1	1	..	..	1	1	1	..	1	..	..	..	1	1	1	1	1	1	..	..	..	..	..	..	..	..	..
Lentibulariaceæ.....	2	2	1	..	2	..	2	..	1	..	..	..	1	1	2	..	2	2	..	1	..	..	..	..	..	..	..
Rubiaceæ.....	1	3	2	..	3	3	2	2	2	2	..	1	2	2	2	..	3	2	..	1	..	..	..	..	..	..	..
Caprifoliaceæ.....	2	2	..	1	2	2	2	..	2	2	1	1	2	2	1	1	2	2	..	1	..	..	..	..	..	..	..
Campanulaceæ.....	1	2	..	..	2	..	2	..	..	..	..	..	2	1	..	2	2	..	..	..	..	..	..	..	..	..	..
Compositæ.....	16	25	8	6	23	19	11	7	7	16	8	2	23	18	11	10	16	10	4	3	4	1	1	1	1	..	..
Total.....	159	284	57	10	229	174	175	43	88	141	80	53	201	148	157	112	193	148	19	68	23	4	2	3	19	17	11

ENUMERATION OF THE PLANTS.

Polypodiaceæ.

*1. **Dryopteris oreopteris** Maxion, Proc. U. S. Nat. Mus. XXIII. p. 368; C. Chr. Ind. Fil. p. 281.

var. **Fauriei** Miyabe et Kudo, Mat. Fl. Hokkaido n. 61, in Trans. Sapporo Nat. Hist. Soc. VI. p. 119.

Nephrodium montanum Bak. var. *Fauriei* H. Chr. Bull. Herb. Boiss. IV. p. 671; Matsum. Ind. Pl. Jap. I. p. 322.

HAB. In decliviis litoralibus, prope Urafutoyama (Ipse! n. 5819, Aug. 8, 1920).—In silvis deciduis, prope Ruesan (Ipse! n. 5632, Aug. 5, 1920).

DISTRIB. var. Kuriles, Hokkaido et Honshu; sp. Europa, Madeira, America borealis.

In distributione varietatis, insula hæc finis septentrionalis est.

2. **Dryopteris dilatata** A. Gr. Man. (1848) p. 631; H. Chr. Bull. Acad. Geogr. Bot. (1909) p. 164 et *ibidem* (1910) p. 7; Nakai, Fl. Korea. II. p. 392.

Polypodium dilatatum Hoffm. Deutsch. Fl. II. p. 7.

Polystichum spinosum DC. δ . *dilatatum* Rupr. Distr. Crypt. p. 37; Maxim. Prim. Fl. Amur. p. 339; Fr. Schm. Fl. Sachal. p. 206.

Aspidium dilatatum Willd; Miq. Prol. Fl. Jap. p. 342.

Aspidium spinulosum Sw. β . *dilatatum* Rgl. Tent. Fl. Ussuri. p. 177.

Nephrodium spinulosum Desv. Prodr. p. 261; Diels, in Engl. u. Prantl, Nat. Pfl.-fam. I. 4. p. 174; Kom. Fl. Mansh. I. p. 123; Matsum. Ind. Pl. Jap. I. p. 317.

Nephrodium dilatatum Desv. β . *dilatatum* Hook. Spec. Fil. IV. p. 123; Hook. et Bak. Syn. Fil. p. 275; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 17.

Dryopteris spinulosa OK. var. *dilatata* Underw. Nat. Ferns ed 4, p. 166; Britt. and Br. Ill. Fl. I. p. 18.

var. **oblonga** Takeda, Bot. Mag. Tokyo, XXIV. p. 179; Miyabe and Miyake, Fl. Saghal. p. 628.

Aspidium spinulosum Sw. subsp. *dilatatum* Röper var. *oblongum* Milde, Fil. Europ. et Atl. p. 137.

HAB. In silvis deciduis, prope Ruesan (Ipse! n. 5633, Aug. 5, 1920).—In silvis deciduis, prope Murakamiwan (Ipse! n. 5017, Jul. 7, 1920).—In silvis deciduis, prope Shirakawa (Ipse! n. 5520, Jul. 30, 1920).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. sp. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Ussuri, Amur, China, Kamtschatka, Sibiria, Asia minor, Europa et America borealis.

3. *Dryopteris Phegopteris C. Chr. Ind. Fil. p. 284; H. Chr. Bull. Acad. Intern. Geogr. Bot. 18^e anné (1909) p. 163; Nakai, Fl. Korea. II. p. 390; Takeda, Fl. Shikotan p. 500; Miyabe and Miyake, Fl. Saghal. p. 625.

Polypodium Phegopteris L. Spec. Pl. ed. 1, p. 1089; Ledeb. Fl. Ross. IV. p. 508; Hook. et Bak. Syn. Fil. p. 308; Maxim. Prim. Fl. Amur. p. 339; Rgl. et Til. Fl. Ajan. p. 128; Fr. Schm. Fl. Sachal. p. 205.

Phegopteris polypodioides Féc, Gen. Fil. p. 243; Milde, Fil. Europ. et Atl. p. 100; Korsh. Pl. Amur. p. 428; H. Chr. Fernk. d. Erde p. 275.

Nephrodium Phegopteris Prantl, Exkursionsflora v. Baiern p. 23; Diels, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 170; Kom. Fl. Mansh. I. p. 117; Matsum. Ind. Pl. Jap. I. p. 323; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 15.

HAB. In silvis deciduis, prope Shirakawa (Ipse! n. 5551, Jul. 30, 1920).—In decliviis litoralibus, prope Nagaiwasaki (Ipse! n. 5091, Jul. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Amur, Kamtschatka, Sibiria, Asia minor, Europa et America borealis.

4. *Athyrium Filix-femina Roth, Röm. Mag. ii. I. p. 106; Milde, Fil. Europ. et Atl. p. 49; Diels, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 224; H. Chr. Bull. Herb. Boiss. (1896) p. 667; Kom. Fl. Mansh. I. p. 133; C. Chr. Ind. Fil. p. 142; Matsum. Ind. Pl. Jap. I. p. 293; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 23; Levl. Bull. Acad. Geogr. Bot. (1910) p. 4; Koidz. Pl. Sachal. p. 6; Nakai, Fl. Korea. II p. 404 et Bot. Mag. Tokyo, XXVII. p. 81; Takeda, Fl. Shikotan p. 500; Miyabe and Miyake, Fl. Sachal. p. 631.

Polypodium Filix-femina L. Spec. Pl. ed. 1, p. 1090.

Asplenium filix-femina Bernh. in Schrad. Jour. Bot. I. 2. p. 26; Ledeb. Fl. Ross. IV. p. 58; Hook. et Bak. Syn. Fil. p. 227; Rgl. et Til. Fl. Ajan. p. 128; Maxim. Prim. Fl. Amur. p. 341; Rgl. Tent. Fl. Ussuri. p. 177; Fr. et Sav. Enum. Pl. Jap. II. p. 226; Korsh. Pl. Amur. p. 427; Miyabe, Fl. Kuril. p. 274; Britt. and Br. Ill. Fl. I. p. 26.

HAB. In silvis deciduis, prope Nagaiwasaki (Ipse! n. 5090, Jul. 11, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5550, Jul. 30, 1920).—In herbis, prope Arakawa (Ipse! n. 5273, Jul. 15, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, China, Himalaya, Sibiria, Europa, Africa borealis, America.

var. **sitchense** Rupr. Beitr. III. (1845) p. 41; Milde, Fil. Europ. et Atl. p. 50.

HAB. In silvis deciduis, prope Murakamiwan (Ipse! n. 5016, Jul. 7, 1920).

DISTRIB. var. Kuriles septentrionales et insula Sitcha.

Varietas nova ad floram japonicam.

Ophioglossaceæ.

*5. **Botrychium Lunaria** Sw. Schrad. Jour. (1800) 2. p. 110; Ledeb. Fl. Alt. IV. p. 324 et Fl. Ross. IV. p. 504; Rupr. Bemerk. Botryc. p. 35; Milde, Fil. Europ. et Atl. p. 192; Fr. Schm. Fl. Sachal. p. 205; Hook. et Bak. Syn. Fil. p. 447; Miyabe, Fl. Kuril. p. 273; Britt. and Br. Ill. Fl. I. p. 3; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 104; Bitter, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 470; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (172); Robinson and Fernald, in Gray's New Man. Bot. p. 48; Underw. North Am. Fl. vol. 16, pt. 1, p. 5; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 36; C. Chr. Ind. Fil. p. 162; Takeda, Fl. Shikotan p. 499; Miyabe and Miyake, Fl. Saghal. p. 616; Miyabe et Kudo, Materials Fl. Hokkaido, n. 72, in Trans. Sapporo Nat. Hist. Soc. VI. p. 123.

HAB. In pratis siccis, prope Nagaiwasaki (Ipse! n. 5092, Jul. 11, 1920).—Ad marginem silvarum deciduarum, prope Ruesan (Ipse! n. 5635, Aug. 5, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Himalaya, Unalaska, America borealis et australis, Tasmania, Nova Zealandia.

*6 **Botrychium Matricariæ** Spreng. Syst. IV. p. 23; Bitter, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 471; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 109; Hegi, Ill. Fl. Mitteleurop. I. p. 46; Underw. in North Am. Fl. vol. 16, pt. 1, p. 9; C. Chr. Ind. Fil. p. 162; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 38; Miyabe and Miyake, Fl. Saghal. p. 617; Miyabe et Kudo, Mater. Fl. Hokkaido n. 73, in Trans. Sapporo Nat. Hist. Soc. VI. p. 124.

Osmunda Matricariæ Schrank, Baier. Fl. II. p. 419.

Botrychium rutaceum Sw. Jour. Bot. (1800) 2. p. 110; Rupr. Bemerk. Botryc. p. 39.

Botrychium matricarioides Willd. Spec. Pl. V. p. 62; Ledeb. Fl. IV. Ross. p. 505.

Botrychium ternatum Milde, Fil. Europ. et Atl. p. 199, (p. p. non Thunb.); Miyabe, Fl. Kuril. p. 274; Underw. Bull. Torr. Bot. Club. XXV. pp. 5 et 525; Matsum. Ind. Pl. Jap. I. p. 298, p. p.

Botrychium rutæfolium A. Br. in Döll. Rhein. Fl. p. 24; Fr. Schm. Fl. Sachal. p. 205.

HAB. In silvis deciduis, prope Ruesan (Ipse! n. 5634, Aug. 5, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Sibiria orientalis, Europa, Unalaska, America borealis.

Equisetaceæ.

7. **Equisetum arvense** L. Spec. Pl. ed. 1, p. 1061; Ledeb. Fl. Alt. IV. p. 320 et Fl. Ross. IV. p. 486; Milde, Fil. Europ. et Atl. p.

215; Maxim. Prim. Fl. Amur. p. 333; Rgl. Tent. Fl. Ussuri. p. 173; Fr. Schm. Fl. Sachal. p. 204; Fr. et Sav. Enum. Pl. Jap. II. p. 202; Miyabe, Fl. Kuril. p. 273; Korsh. Pl. Amur. p. 426; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 482; Sadebeck, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 545; Franch. Pl. David. p. 243; Britt. and Br. Ill. Fl. I. p. 36; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 128; Robinson and Fernald, in Gray's New Man. Bot. p. 52; Diels, Fl. Centr. China, p. 209; Kom. Fl. Mansh. I. p. 152; Palib. Consp. Fl. Korea. III. p. 38; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 45; Hegi, Ill. Fl. Mitteleurop. I. p. 57; Nakai, Fl. Korea. II. 421; Takeda, Fl. Shikotan p. 499; Miyabe and Miyake, Fl. Saghal. p. 612.

HAB. In silvis paludosis, prope Ruesan (Ipse! n. 5636, Aug. 5, 1920).—In paludibus, prope Tomarizaki, (Ipse! n. 5746, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! 4967, Jul. 4, 1920); in pratis, prope Murakamiwan (Ipse! n. 5032, Jul. 8, 1920).—In pratis, prope Yotsuiwahana (Ipse! n. 5282, Jul. 14, 1920).—In rupibus, prope Shikatanoma (Ipse! n. 5069, Jul. 11, 1920).—In pratis, prope Magarikawa (Ipse! n. 5244, Jul. 13, 1920).—Ottomai (S. Yokoyama! Sept. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea, Manchuria, China, Amur, Kamtschatka, Dahuria, Sibiria (orientalis, baicalensis, uralensis, altaica et arctica), ins. Sitcha, Unalaska, America borealis, Europa, Africa borealis, Canaria, Coplandia.

*8. **Equisetum silvaticum** L. Spec. Pl. ed 1, p. 1061; Ledeb. Fl. Alt. p. 321 et Fl. Ross. IV. p. 487; Milde, Fil. Europ. et Atl. p. 222; Trautv. et Mey. Fl. Ochot. p. 106; Maxim. Prim. Fl. Amur. p. 334; Fr. Schm. Fl. Sachal. p. 204; Sadebeck, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 545; Korsh. Pl. Amur. p. 426; Makino, Bot. Mag. Tokyo, XIX. p. 137; Kom. Fl. Mansh. I. p. 154; Nakai, Fl. Korea. II. p. 422; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 121; Hegi, Ill. Fl. Mitteleurop. I. p. 54; Britt. and Br. Ill. Fl. I. p. 36; Robinson and Fernald, in Gray's New Man. Bot. p. 52; H. Chr. in Bull. Acad. Geogr. Bot. 18^e anné (1909) p. 168 (var. *serotina*); Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 43; Koidz. Pl. Sachal. p. 6; Miyabe and Miyake, Fl. Saghal. p. 613.

HAB. In paludibus, prope Suribachi (Ipse! n. 4884, Jun. 27, 1920).—In paludibus, prope Ruesan (Ipse! n. 5637, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5745, Aug. 6, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, Amur, Ussuri, Kamtschatka, Ochotsk, Dahuria, Sibiria (baicalensis, altaica et uralensis), Europa, America borealis.

*9. **Equisetum palustre** L. Spec. Pl. ed. 1, p. 1061; Ledeb. Fl. Ross. IV. p. 488; Milde, Fil. Europ. et Atl. p. 224; Miq. Prol. Fl. Jap. p. 389; Fr. et Sav. Enum. Pl. Jap. II. p. 202; Korsh. Pl. Amur. p. 426; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 132; Britt. and Br. Ill. Fl. I. p. 37; Kom. Fl. Mansh. I. p. 154; Matsum. Ind. Pl. Jap. I. p. 356; Hegi, Ill. Fl. Mitteleurop. I. p. 58; Robinson and Fernald, in Gray's New. Man. Bot. p. 52; H. Chr. in Bull. Acad.

Inetrn. Geogr. Bot. 18^e anné (1909) p. 168; Nakai, Fl. Korea. II. p. 421; Takeda, Fl. Shikotan p. 499; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 45; Miyabe and Miyake, Fl. Saghal. p. 613.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 4968, Jun. 4, 1920; n. 4986, Jul. 6, 1920; n. 5427, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China (?), Dahuria, Sibiria (baicalensis et altaica), Asia minor, Europa, America borealis.

10. *Equisetum hyemale* L. Spec. Pl. ed. 1, p. 1062; Ledeb. Fl. Alt. IV. p. 322 et Fl. Ross. IV. p. 490; Milde, Fil. Europ. et Atl. p. 243; Trautv. et Mey. Fl. Ochot. p. 106; Miq. Prol. Fl. Jap. p. 389; Maxim. Prim. Fl. Amur. p. 334; Rgl. Tent. Fl. Ussuri. p. 174; Fr. Schm. Fl. Sachal. p. 204; Miyabe, Fl. Kuril. p. 389; Korsh. Pl. Amur. p. 426; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 141; Britt. and Br. Ill. Fl. I. p. 38; Sadeb. in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 547; Kom. Fl. Mansh. I. p. 156; Matsum. Ind. Pl. Jap. I. p. 356; Robinson and Fernald, in Gray's New Man. Bot. p. 53; Hegi, Ill. Fl. Mitteleurop. I. p. 60; Koidz. Pl. Sachal. p. 7; Nakai, Fl. Korea. II. p. 421; Takeda, Fl. Shikotan p. 499; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 47; Miyabe and Miyake, Fl. Saghal. p. 615.

Equisetum hyemale L. var. *japonicum* Milde, Ann. Mus. I. p. 69; Fr. et Sav. Enum. Pl. Jap. II. p. 203.

HAB. In decliviis arenosis, prope Murakamiwan (Ipse! n. 4930, Jul. 3, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 22, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Ussuri, Ochotsk, Kamtschatka, Sibiria (baicalensis, altaica et uralensis), Europa et America borealis.

Lycopodiaceæ.

***11. *Lycopodium Selago* L.** Spec. Pl. ed. 1, p. 1102; Ledeb. Fl. Alt. IV. p. 323 et Fl. Ross. IV. p. 496; A. Gray, Bot. Jap. p. 436; Rgl. et Til. Fl. Ajan. p. 127; Miq. Prol. Fl. Jap. p. 348; Milde, Fil. Europ. et Atl. p. 251; Maxim. Mém. Biol. VII. p. 341; Fr. et Sav. Enum. Pl. Jap. II. p. 196; Britt. and Br. Ill. Fl. I. p. 40; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 151; Pritzel, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 593; Diels, Fl. Centr. China p. 210; Matsum. Ind. Pl. Jap. I. p. 359; Hegi, Ill. Fl. I. p. 65; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 50; Takeda, Bot. Mag. Tokyo, XXIII. p. 203.

var. **chinense** Kudo.

Lycopodium chinense H. Christ, in Nouv. Giorn. Bot. Ital. Nouv. Ser. IV. (1897) p. 101, t. 3, f. 4 et Bull. Herb. Boiss. VII. p. 824; Kom. Fl. Mansh. I. p. 157; Diels, Fl. Centr. China p. 210; Herter, in Engl. Bot. Jahrb. 1909 Beibl. n. 98, p. 31; Takeda, Bot. Mag. Tokyo, XXIII. pp. 204, 241 et Fl. Shikotan p. 498; H. Chr. Bull. Acad. Geogr. Bot. 18^e anné (1909) p. 168; Nakai, Fl. Korea. II. p. 423;

Miyabe and Miyake, Fl. Saghal. p. 606.

Lycopodium Miyoshianum Makino, Bot. Mag. Tokyo, XII. p. 36; Yabe, Bot. Mag. Tokyo, XVII. p. 69.

Lycopodium Selago L. var. *Miyoshianum* Makino, Bot. Mag. Tokyo, XVI. p. 199; Matsum. Ind. Pl. Jap. I. p. 359.

Lycopodium Selago Fr. Schm. Fl. Sachal. p. 204; Kawakami, Bot. Mag. Tokyo, XIV. p. 106; H. Chr. in Bull. Herb. Boiss. IV. p. 675; Hanzawa, Trans. Sapporo Nat. Hist. Soc. I. p. 135.

Lycopodium Selago L. form. *chinense* Pritzel, in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 593.

HAB. In silvis deciduis, prope Tomarizaki (Ipse! n. 5824, Aug. 11, 1920).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, China: *sp. typica*. Kuriles, Honshu, China, Sibiria (orientalis, baicalensis, altaica et uralensis), terra Tschuktschorum, Asia minor, Unalaska, ins. Sitcha, Europa, America borealis, Azor, Madeira, St. Helena, Tristan d'Acunha, Peru, Brasilia, ins. Falklandia, Nova Zealandia, Tasmania.

*12. *Lycopodium annotinum* L. Spec. Pl. ed 1, p. 1103; Ledeb. Fl. Ross. IV. p. 497; Trautv. et Mey. Fl. Ochot. p. 106; Rgl. et Til. Fl. Ajan. p. 127; Maxim. Prim. Fl. Amur. p. 335; Milde, Fil. Europ. et Atl. p. 252; Fr. Schm. Fl. Sachal. p. 204 et Fl. Amg.-Burj. p. 73; Miyabe, Fl. Kuril. p. 272; H. Chr. Bull. Herb. Boiss. (1896) p. 675; Britt. and Br. Ill. Fl. I. p. 42; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 152; Kom. Fl. Mansh. I. p. 159; Pritzel, in Diels, Fl. Centr. China p. 210 et in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 604; Yabe et Yendo, in Bot. Mag. Tokyo, XVIII. p. (172); Matsum. Ind. Pl. Jap. I. p. 357; Fedtch. et Flerow, Ill. Fl. Sib. I. p. 51; H. Chr. in Bull. Intern. Geogr. Bot. 18^e anné (1909) p. 168; Hegi, Ill. Fl. Mitteleurop. I. p. 65; Koidz. Pl. Sachal. p. 7; Miyabe and Miyake, Fl. Saghal. p. 608.

var. *latifolium* Takeda, Bot. Mag. Tokyo, XXIII. p. 215.

HAB. In pratis silvaticis, prope Okuyotsuiwa (Ipse! n. 4914, Jun. 29, 1920).—In pratis siccis, prope Arahatazaki (Ipse! n. 5853, Aug. 12, 1920).—In silvis deciduis, prope Murakamiwan (Ipse! n. 5027, Jul. 8, 1920).—In silvis deciduis, prope Shirakawa (Ipse! n. 5553, Jul. 30, 1920).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Amur, Sibiria, Kamtschatka, Europa et America borealis.

13. *Lycopodium alpinum* L. Spec. Pl. ed 1, p. 1104; Ledeb. Fl. Alt. IV. p. 323 et Fl. Ross. IV. p. 498; Rgl. et Til. Fl. Ajan. p. 127; Milde, Fil. Europ. et Atl. p. 258 (excl. var.); Britt. and Br. Ill. Fl. I. p. 42; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 156; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 482; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (172); Hegi, Ill. Fl. Mitteleurop. I. p. 69, t. 11, f. 6; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 54; Matsum. Ind. Pl. Jap. I. p. 357.

Lycopodium alpinum L. var. *genuinum* Takeda, Bot. Mag. Tokyo, XXIII. p. 227.

HAB. In silvis, prope Nodawan (Ipse! n. 4856, Jun. 26, 1920).— In pratis, prope Kashiwabaran (Ipse! n. 5473, Jul. 26, 1920).— In pratis, prope Murakamiwan (Ipse! n. 5422, Jul. 22, 1920).— Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Kuriles septentrionales, Ajan, Kamtschatka, Sibiria (baicalensis, altaica et uralensis), Asia minor, Europa et America borealis.

14. *Lycopodium clavatum* L. Spec. Pl. ed. 1, p. 1101; Thunb. Fl. Jap. p. 341; Ledeb. Fl. Ross. IV. p. 499; Trautv. et Mey. Fl. Ochot. p. 107; Rgl. et Til. Fl. Ajan. p. 127; Maxim. Prim. Fl. Amur. p. 335 et Mél. Biol. VII. p. 341; Miq. Prol. Fl. Jap. p. 348; Milde, Fil. Europ. et Atl. p. 255; Fr. Schm. Fl. Sachal. p. 204; Fr. et Sav. Enum. Pl. Jap. II. p. 197; Britt. and Br. Ill. Fl. I. p. 43; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 152; Miyabe, Fl. Kuril. p. 272; Kom. Fl. Mansh. I. p. 160; Pritzel, in Diels, Fl. Centr. China p. 210 et Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 604; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (172); Matsum. Ind. Pl. Jap. I. p. 357; Hayata, Bot. Mag. Tokyo, XX. p. 20 et Fl. Mont. Formos. p. 241; Hegi, Ill. Fl. Mitteleurop. I. p. 66; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 52; Takeda et Nakai, Bot. Mag. Tokyo, XXIII. p. 48; Takeda, *ibidem* XXIII. p. 218 et Fl. Shikotan p. 499; Koidz. Pl. Sachal. p. 7; Nakai, Fl. Korea. II. p. 422; Miyabe and Miyake, Fl. Sachal. p. 610.

Lycopodium japonicum Thunb. Fl. Jap. p. 341.

HAB. In pratis siccis, prope Kashiwabaran (Ipse! n. 5475, Jul. 26, 1920).— In pratis siccis, prope Murakamiwan (Ipse! n. 4929, Jul. 3, 1920); in silvis deciduis, prope Murakamiwan (Ipse! n. 5026, Jul. 8, 1920).— In silvis, prope Hiratazaki (Ipse! n. 5421, Jul. 21, 1920).— Musashiwan (M. Aizawa! Jun. 22, 1900).— Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Formosa, Korea, Manchuria, China, Mongolia, Dahuria, Amur, Ochotsk, Sibiria (baicalensis et uralensis), Hawaii, Europa, Unalaska, ins. Sitcha, America borealis et centralis, Africa, Maria.

15. *Lycopodium complanatum L. Spec. Pl. ed. 1, p. 1104; Ledeb. Fl. Ross. IV. p. 499; Trautv. et Mey. Fl. Ochot. p. 107; Rgl. et Til. Fl. Ajan. p. 127; Maxim. Prim. Fl. Amur. p. 335 et Mél. Biol. VII. p. 341; Milde, Fil. Europ. et Atl. p. 257; Fr. Schm. Fl. Sachal. p. 204; Miyabe, Fl. Kuril. p. 272; Britt. and Br. Ill. Fl. I. p. 43; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 155; Pritzel, in Diels, Fl. Centr. China p. 210 et Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 604; Kom. Fl. Mansh. I. p. 161; H. Chr. in Bull. Acad. Intern. Geogr. Bot. 18^e anné (1909) p. 168; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 53; Hegi, Ill. Fl. Mitteleurop. I. p. 67; Nakai, Fl. Korea. II. p. 422.

var. **anceps** Milde, Sporenpl. p. 135 et Fil. Europ. et Atl. p. 257; Fedtsch. et Flerow, l. c.; Hegi, l. c.; Takeda, Bot. Mag. Tokyo, XXIII. p. 225; Miyabe and Miyake Fl. Saghal. p. 610.

Lycopodium anceps Waller, in Linnæa. XIV. p. 676.

Lycopodium complanatum L. var. *chamaecyparissus* Fr. et Sav. Enum. Pl. Jap. II. p. 198; Kawakami, Bot. Mag. Tokyo, XIV. p. 106; Matsum. Ind. Pl. Jap. I. p. 358; Hayata, Bot. Mag. Tokyo, XX. p. 21 et Fl. Mont. Formos. p. 241, (non Milde).

HAB. In pratis siccis, prope Kashiwabarawan (Ipse! n. 5474, Jul. 21, 1920).

DISTRIB. var. *anceptis*. Sachalin, Kuriles, Hokkaido, Honshu. Formosa, Korea, Manchuria, China, Amur, Ajan, Ochotsk, Dahuria, Kamtschatka, Sibiria (baicalensis, altaica et uralensis), ins. Sitcha, Europa et America borealis: var. *chamaecyparissi*. Asia minor et Europa.

Selaginellaceæ.

*16. *Selaginella Selaginoides* Link. Fil. Spec. Hort. Berol. p. 158; Britt. and Br. III. Fl. I. p. 44; Aschers. u. Graebn. Syn. Mitteleurop. Fl. p. 159; H. Chr. in Bull. Herb. Boiss. IV. p. 675; Makino, Bot. Mag. Tokyo, XVII. p. 146; Hieron. in Engl. u. Pr. Nat. Pfl.-fam. I. 4. p. 669; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (173); Matsum. Ind. Pl. Jap. I. p. 363, 396; Hegi, Ill. Fl. Mitteleurop. I. p. 70; Fedtsch. et Flerow, Ill. Fl. Sib. I. p. 55; Takeda, Bot. Mag. Tokyo, XXIII. p. 235.

Lycopodium Selaginoides L. Spec. Pl. ed 1, p. 1101.

Selaginella spinosa Beauv. Prodr. Aetheog. p. 112; Ledeb. Fl. Ross. IV. p. 501.

Selaginella spinulosa A. Br. in Dæll. Rhein. Flora p. 38; Milde, Fil. Europ. et Atl. p. 260.

HAB. In paludibus, prope Ruesan (Ipse! n. 5638, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5747, Aug. 6, 1920).—In paludibus, prope Minato (Ipse! n. 5428, Jul. 23, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Sibiria (baicalensis et uralensis), Unalaska, Europa et America borealis.

Pinaceæ.

17. *Pinus pumila* Rgl. in Ind. Sem. Hort. Peterop. (1858) p. 23; Miyabe et Kudo, Icon. Ess. For. Trees Hokkaido, p. 31, t. IX.

HAB. Prope Nodawan (Ipse! n. 4857, Jun. 26, 1920).—Prope Okuyotsuiwa (Ipse! n. 4913, Jun. 29, 1920).—Prope Kashiwabarawan (Ipse! n. 5476, Jul. 26, 1920; S. Yokoyama! Sept. 1893).—Prope Murakamiwan (Ipse! n. 4997, Jul. 6, 1920).—Prope Nagaiwasaki (Ipse! n. 5093, Jul. 11, 1920).—Ottomoshiri (S. Yokoyama! Sept. 19, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Dahuria, Sibiria orientalis, Kamtschatka, America borealis arctica.

Potamogetonaceæ.

*18. **Potamogeton alpinus** Balbis, in Act. Jurin. X. XI. p. 329, emend. Aschers. Fl. Prov. Brandenburg. p. 658; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 311 et Potamog. in Engl. Pfl.-reich. IV. 11. p. 70; Britt. and Br. III. Fl. I. p. 58; Kom. Fl. Mansh. I. p. 244; Matsum. Ind. Pl. Jap. II. 1. p. 24; Miyabe and Miyake, Fl. Saghal. p. 511.

Potamogeton rufescens Schrad. in Cham. Adnot. ad Kunth, Fl. Berol. p. 5; Kunth, Enum. Pl. III. p. 129; Ledeb. Fl. Alt. I. p. 157 et Fl. Ross. IV. p. 25; A. Benn in Journ. Bot. XXV. p. 372 et XXVIII. p. 242.

HAB. In stagnis, prope Murakamiwan (Ipse! n. 4994, Jul. 6, 1920).

DISTRIB. Sachalin, Hokkaido, Manchuria, Amur, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Tibet, Afghanistan, Europa, Africa, Unalaska, America borealis.

Scheuchzeriaceæ.

*19. **Triglochin palustre** L. Spec. Pl. ed 1, p. 338; Kunth, Enum. Pl. III. p. 143; Ledeb. Fl. Ross. IV. p. 35; Fr. Schm. Fl. Sachal. p. 179; Hook. f. Fl. Brit. Ind. VI. p. 563; Britt. and Br. III. Fl. I. p. 83; Hemsl. Fl. Tibet, in Journ. Linn. Soc. XXXV. p. 200; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 377; Kom. Fl. Mansh. I. p. 229; Buch. in Engl. Pfl.-reich. IV. 14. p. 9; Forb. and Hemsl. Ind. Fl. Sin. III. p. 192; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (173); Matsum. Ind. Pl. Jap. II. i. p. 29; Koidz. Pl. Sachal. p. 13; Miyabe and Miyake Fl. Saghal. p. 508.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5748, Aug. 6, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu borealis, Korea, Manchuria, China, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Himalaya, Tibet, Unalaska, Europa, America borealis et australis.

Gramineæ.

20. **Alopecurus alpinus** Sm. Fl. Brit. III. p. 1386 et Engl. Bot. t. 1126; Trin. Icon. IV. t. 38; Hook. et Arn. Beechey's Voy. p. 131 et Brit. Fl. p. 530; Kunth, Enum. Pl. I. p. 25; Hook. Student's Fl. Brit. Isl. (1884) p. 473; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 479; Britt. and Br. III. Fl. I. p. 149; Aschers. u. Graebn. Syn. Mitteleurop. Fl. I. p. 126; Gandoger, Consp. Fl. Europ. p. 487.

var. **borealis** Ledeb. Fl. Ross. IV. p. 461.

HAB. In arenosis, ad rivulos, prope Kamogawa (Ipse! n. 5270, Jul. 14, 1920).—In silvis, prope Yotsuiwahana (Ipse! n. 5151, Jul. 12, 1920).

DISTRIB. *var.* Kamtschatka, terra Tschutchorum, Sibiria uralensis, Rossia arctica, Alaska, Labradoria, Groenlandia : *sp. typicæ*. Scotia, ins. Melvilleana, Spitzbergen.

Species hæc ad floram japonicam nova est !

21. *Phleum alpinum L. Spec. Pl. ed 1, p. 59 ; Kunth, Enum. Pl. I. p. 29 ; Ledeb. Fl. Ross. IV. p. 458 ; Steud. Syn. Glum. I. p. 150 ; Bross. Fl. Orient. V. p. 484 ; Hook. f. Fl. Brit. Ind. VII. p. 236 ; Hack. Bull. Herb. Boiss. VII. p. 647 ; Kom. Fl. Mansh. I. p. 271 ; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 384 ; Matsum. Ind. Pl. Jap. II. i. p. 75 ; Britt. and Br. Ill. Fl. I. p. 148 ; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. p. 144 ; Hegi, Ill. Fl. Mitteleurop. I. p. 213.

HAB. In herbosis graminosis, prope Ruesan (Ipse ! n. 5640, Aug. 5, 1920).— In ruderalis, prope Kashiwabarawan (Ipse ! n. 5480, Jul. 26, 1920).— In ruderalis, prope Murakamiwan (Ipse ! n. 4998, Jul. 6, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Manchuria, China, Sibiria (altaica), Kamtschatka, Himalaya, Caucasus, Europa, America borealis et australis.

22. *Agrostis flaccida Hack. Bull. Herb. Boiss. VII. p. 649 ; Matsum. Ind. Pl. Jap. II. i. p. 34 ; Takeda, Fl. Shikotan p. 495.

Agrostis debilis Hack. apud Matsum. Bot. Mag. Tokyo, XI. p. (445).

Agrostis canina Fr. Schm. Fl. Sachal. p. 203 ; Miyabe and Miyake, Fl. Saghal. p. 564.

HAB. In herbidis, prope Ruesan (Ipse ! n. 5845, Aug. 11, 1920).— In herbidis, prope Urafutoyama (Ipse ! n. 5785, Aug. 8, 1920).— In herbidis, prope Kashiwabarawan (Ipse ! n. 5478, Jul. 26, 1920).— In herbidis, prope Shirakawa (Ipse ! n. 5554, Jul. 30, 1920).— In herbidis, prope Yotsuiwahana (Ipse ! n. 5283, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu.

23. *Agrostis perennans Tuck. in Amer. Jour. Sc. ser. 2, 45. (1843) p. 44 ; Miq. Prol. Fl. Jap. p. 165 ; Steud. Syn. Glum. I. p. 165 ; Fr. et Sav. Enum. Pl. Jap. II. p. 166, p. p. ; Miyabe, Fl. Kuril. p. 269 ; Britt. and Br. Ill. Fl. I. p. 161 ; Hack. Bull. Herb. Boiss. VII. p. 648 ; Pilger, in Diels, Fl. Centr. China p. 224 ; Palib. Consp. Fl. Korea. III. p. 32 ; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 390 ; Matsum. Ind. Pl. Jap. II. i. p. 34 ; Koidz. Pl. Sachal. p. 16 ; Nakai, Fl. Korea. II. p. 359 ; Miyabe and Miyake, Fl. Saghal. p. 565.

HAB. In ruderalis, prope Hamanakagawa (Ipse ! n. 5825, Aug. 11, 1920).

DISTRIB. Sachalin, Hokkaido, Honshu, Shikoku, Liukiu, Korea, China, pars orientalis Americæ borealis.

24. *Calamagrostis villosa* Mutel, Fl. France IV. p. 41 ; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. p. 202 ; Hack. Bull. Herb. Boiss. VII. p. 650 et sér. 2, III. p. 502 ; Kom. Fl. Mansh. I. p. 277 ; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 392 ; Matsum. Ind. Pl. Jap. II. i. p. 48 ; Koidz. Pl. Sachal. p. 17 ; Nakai, Fl. Korea. II. p. 358 ; Takeda, Fl. Shikotan p. 495 ; Miyabe and Miyake, Fl. Saghal. p. 568.

Calamagrostis Langsdorffii Trin. Gram. Unisesquifl. p. 225; Ledeb. Fl. Ross. IV. p. 430; Trautv. et Mey. Fl. Ochot. p. 105; Maxim. Prim. Fl. Amur. p. 324; Korsh. Pl. Amur. p. 420; Britt. and Br. Ill. Fl. I. p. 164; Piper, Fl. Washing. p. 116; Matsum. Bot. Mag. Tokyo, XII. p. (28).

Calamagrostis villosa Mutel, var. *Langsdorffii* Hack. in Smmier, Fl. Ob. infer. p. 107 et Bull. Herb. Boiss. VII. p. 650; Takeda, Fl. Shikotan p. 495.

Calamagrostis purpurea Trin.: Fr. Schm. Fl. Sachal. p. 202.

Calamagrostis Halleriana DC.: Fr. et Sav. Enum. Pl. Jap. II. pp. 168 et 601.

HAB. In herbidis, prope Ruesan (Ipse! n. 5639, Aug. 5, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5477, Jul. 26, 1920; S. Yokoyama! Oct. 1893).—In herbidis, prope Shirakawa (Ipse! n. 5555, Jul. 30, 1920).—Ottomai (S. Yokoyama! Oct. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Manchuria, Amur, Sibiria (orientalis, baicalensis et uralensis), Europa et America borealis.

25. *Calamagrostis stricta* Trin. Gram. Unisesquifl. p. 226; A. Gr. Proc. Am. Ac. IV. p. 78; Watson, Bot. Calif. II. p. 281; Hack. Bull. Herb. Boiss. VII. p. 652; Matsum. Ind. Pl. Jap. II. i. p. 47.

Calamagrostis neglecta Gaertn. β . *stricta* Ledeb. Fl. Ross. IV. p. 429.

Deyeuxia stricta HBK. Nov. Gen. et Spec. I. p. 146; Kunth, Enum. Pl. I. p. 240.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5698, Aug. 7, 1920).—In arena litorali, prope Arahatazaki (Ipse! n. 5854, Aug. 12, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5429, Jul. 23, 1920).—Ottomai (S. Yokoyama! Sept. 1893).

DISTRIB. Kuriles, Dahuria, Altai, ins. Aleuticæ, Europa et America borealis.

26. *Calamagrostis urelytra Hack. Bull. Herb. Boiss. VII. p. 653; Matsum. Bot. Mag. Tokyo, XII. p. (28) et Ind. Pl. Jap. II. i. p. 48.

Calamagrostis urelytra Hack. var. *macrantha* Takeda, Bot. Mag. Tokyo, XXIV. p. 36.

HAB. In pratis herbosis, prope Tomarizaki (Ipse! n. 5723, Aug. 7, 1920).—In herbosis, prope Murakamiwan (Ipse! n. 5033, Jul. 8, 1920).—In pratis siccis, prope Hiratazaki (Ipse! n. 5420, Jul. 21, 1920).—Ad marginem silvarum, prope Shirakawa (Ipse! n. 5556, Jul. 30, 1920).—In herbosis, prope Shikatanoma (Ipse! n. 5070, Jul. 11, 1920).—In herbosis, prope Nagaiwasaki (Ipse! n. 5094, Jul. 11, 1920).—In herbosis, prope Yotsuiwahana (Ipse! n. 5152, Jul. 12, 1920; n. 5285, Jul. 14, 1920).—In herbosis, prope Arakawa (Ipse! n. 5316, Jul. 15, 1920).—In herbosis, inter Nishikawa et Atenkeshi (Ipse! n. 5203, Jul. 13, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu.

*27. *Deschampsia caespitosa* P. Beauv. Agrost. p. 91, t. 18, f. 3; Kunth, Enum. Pl. I. p. 286; Ledeb. Fl. Ross. IV. p. 421; Maxim. Prim. Fl. Amur. p. 323; Fr. Schm. Fl. Sachal. p. 202; Hook. f. Fl. Brit. Ind. VII. p. 273; Britt. and Br. Ill. Fl. I. p. 169; Hack. Bull. Herb. Boiss. VII. p. 702; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 203; Matsum. Ind. Pl. Jap. II. i. p. 50; Hayata, Fl. Mont. Formos. p. 238; Koidz. Pl. Sachal. p. 19; Hegi, Ill. Fl. Mitteleurop. I. p. 243; Miyabe and Miyake, Fl. Saghal. p. 570.

Aira caespitosa L. Spec. Pl. ed 1, p. 64; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. p. 289; Kom. Fl. Mansh. I. p. 283.

var. *setifolia* Ledeb. Fl. Ross. IV. p. 421.

HAB. In herbosis, prope Kashiwabarawan (Ipse! n. 5481, Jul. 26, 1920).

DISTRIB. var. Kuriles et Alaska: *sp. typicae*. Sachalin, Kuriles, Hokkaido, Honshu, Formosa, China, Manchuria, Amur, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Kamtschatka, Dahuria, Himalaya alpina et temperata, Tibet occidentalis, Caucasus, Europa et America borealis.

*28. *Deschampsia brevifolia* R. Br. Verm. Schr. I. p. 426; Hook. et Arn. Beechey's Voy. p. 131; Ledeb. Fl. Ross. IV. p. 422; Koidz. Bot. Mag. Tokyo, XXXI. p. 142.

Aira caespitosa L. var. *brevifolia* Trautv. Fl. Novaja-Semlja. in Act. Hort. Petrop. I. p. 26, V. p. 142, X. p. 544, XI. p. 484.

var. *exserens* Ledeb. Fl. Ross. IV. p. 422.

HAB. In arenosis litoralibus, prope Kamogawa (Ipse! n. 5272, Jul. 14, 1920).—In arenosis litoralibus, prope Magarikawa (Ipse! n. 5245, Jul. 13, 1920).

DISTRIB. *sp.* Kuriles, Hokkaido, Kamtschatka, Asia arctica, Rossia arctica, Unalaska, America arctica.

29. *Deschampsia flexuosa* Trin. in Bull. Acad. St. Petersburg. I. p. 66; Ledeb. Fl. Ross. IV. p. 420; Fr. Schm. Fl. Sachal. p. 202; Britt. and Br. Ill. Fl. I. p. 170; Miyabe, Fl. Kuril. p. 269; Hack. Bull. Herb. Boiss. VII. p. 702; Matsum. Ind. Pl. Jap. II. i. p. 50; Hayata, Fl. Mont. Formos. p. 238; Hegi, Ill. Fl. Mitteleurop. I. p. 245; Takeda, Fl. Shikotan p. 495; Miyabe and Miyake, Fl. Saghal. p. 569.

Aira flexuosa L. Spec. Pl. ed. 1, p. 65; Trautv. et Mey. Fl. Ochot. p. 105; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 287.

Aira flexuosa L. var. *montana* Fr. et Sav. Enum. Pl. Jap. II. p. 172.

Deschampsia flexuosa Trin. f. *montana* Hack. l. c.; Matsum. l. c. p. 51.

HAB. In paludibus, prope Ruesan (Ipse! n. 5641, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5728, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5037, Jul. 9, 1920; n. 5479,

Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5031, Jul. 8, 1920).—In herbosis, prope Hiratazaki (Ipse! n. 5419, Jul. 21, 1920).—In silvis, prope Shirakawa (Ipse! n. 5557, Jul. 30, 1920).—In silvis, prope Arakawa (Ipse! n. 5317, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 18, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Formosa, Sibiria, Caucasus, Europa et America borealis et australis.

30. *Deschampsia atropurpurea* Scheele, in Flora XVII. p. 56; Ledeb. Fl. Ross. IV. p. 423; Britt. and Br. Ill. Fl. I. p. 170; Bob. and Fern. in Gray's New Man. Bot. ed. 7, p. 140; Piper, Fl. St. Washingt. p. 123; Koidz. in Bot. Mag. Tokyo, XXXI. p. 142.

Aira atropurpurea Wahl. Fl. Lapp. p. 37; Bongard, Vég. Sitcha, p. 172; Steud. Syn. Pl. Glum. I. p. 222; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 278.

Aira latifolia Hook. Fl. Bor. Am. II. p. 243.

Avena atropurpurea Link, Hort. Berol. I. p. 119.

Vahlodea atropurpurea Fr. Bot. Not. (1842) p. 178.

var **paramushirensis** Kudo, var. nov.

Culmi caespitosi. Folia utrinque pilis capillaribus curvatis albis dense oblecta.

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5787, Aug. 8, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5067, Jul. 9, 1920).

DISTRIB. Rossia septentrionalis et arctica, insulae Aleuticae, insula Unalaska, insula Sitcha, in montibus Americae borealis.

Planta nostra sine dubio ad *Deschampsiam atropurpuream* pertinere videtur, cujus tamen specimina authentica conferre nobis non licuit. Differt tamen nostra planta a descriptione speciei typicae foliis utrinque dense pilosis, culmis caespitosis. Planta nostra forsan una varietas asiatica ejusdem speciei est.

31. *Trisetum spicatum Richter, Pl. Europ. I. p. 59; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. p. 270; Hegi, Ill. Fl. Mitteleurop. I. p. 247.

Aira spicata L. Spec. Pl. ed. 1, p. 64.

Aira subspicata L. Syst. X. p. 873.

Trisetum subspicatum P. Beauv. Agrost. p. 88; Kunth, Enum. Pl. I. p. 295; Steud. Syn. Glum. I. p. 225; Fr. Schm. Fl. Sachal. p. 202; Britt. and Br. Ill. Fl. I. p. 171; Hack. Bull. Herb. Boiss. VII. p. 703; Kawakami, Bot. Mag. Tokyo, XIV. p. (112); Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 400; Matsum. Ind. Pl. Jap. II. i. p. 86; Hayata, Fl. Mont. Formos. p. 238; Takeda, Bot. Mag. Tokyo, XXIV. p. 261 et Notes R. B. G. Edinbg. Vol. VIII. Num. XXXIX. p. 230.

Avena subspicata Clairv. Man. Herb. p. 17; Ledeb. Fl. Ross. IV. p. 418; Hook. f. Fl. Brit. Ind. VII. p. 278.

HAB. In pratis alpinis, prope Tomarizaki (Ipse! n. 5724, Aug. 7,

1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5806, Aug. 8, 1920).—In herbosis, prope Murakamiwan (Ipse! n. 5462, Jul. 23, 1920; n. 5537, Jul. 27, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Formosa, Himalaya, China, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, insulae Aleuticae, Caucasus, Europa, Unalaska et America borealis.

32. *Trisetum flavescens* P. Beauv. Agrost. p. 88; Kunth, Enum. Pl. I. p. 298; Maxim. Frim. Pl. Amur. p. 323; Miq. Prol. Fl. Jap. p. 167; Fr. Schm. Fl. Sachal. p. 202; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. p. 264; Britt. and Br. Ill. Fl. I. p. 171; Kom. Fl. Mansh. I. p. 283; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 399; Hegi, Ill. Fl. Mitteleurop. I. p. 248; Koidz. Pl. Sachal. p. 18; Nakai, Fl. Korea. II. p. 360; Miyabe and Miyake, Fl. Sachal. p. 570.

var. **purpurascens** Arcang. Comp. Fl. Ital. ed. 1, p. 779; Richter, Pl. Europ. I. p. 59; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (176); Takeda, Fl. Shikotan p. 496.

Avena purpurascens DC. Cat. Hort. Monosp. p. 82.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5699, Aug. 7, 1920).—In pratis siccis, prope Urafutoyama (Ipse! n. 5788, Aug. 8, 1920).—In herbosis, prope Kashiwabarawan (Ipse! n. 5039, Jul. 9, 1920; n. 5482, Jul. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5436, Jul. 23, 1920).—In pratis silvaticis, prope Shirakawa (Ipse! n. 5559, Jul. 30, 1920).—In pratis siccis, prope Arakawa (Ipse! n. 5321, Jul. 15, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5204, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. var. Kuriles et Europa: *sp. typicae*. Sachalin, Hokkaido, Honshu, Kiushu, Korea, China, Manchuria, Amur, Ussuri, Ochotsk, Kamtschatka, Sibiria, Himalaya temperata, Europa, Africa borealis, America borealis.

32. *Poa annua L. Spec. Pl. ed. 1, p. 68; Kunth, Enum. Pl. I. p. 349; Steud. Syn. Gram. p. 250; Ledeb. Fl. Ross. IV. p. 377; A. Gray, Pl. Jap. p. 328; Miq. Prol. Fl. Jap. p. 167; Fr. Schm. Fl. Sachal. p. 200; Fr. et Sav. Enum. Pl. Jap. II. p. 174; Britt. and Br. Ill. Fl. I. p. 201; Korsh. Pl. Amur. p. 417; Stape, in Hook. f. Fl. Brit. Ind. VII. p. 345; Miyabe, Fl. Kuril. p. 270; Hack. in Bull. Herb. Boiss. VII. p. 708; Pilger, in Diels, Fl. Centr. China p. 226; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 422; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 388; Matsum. et Hayata, Enum. Pl. Formos. p. 547; Koidz. Pl. Sachal. p. 21; Hegi, Ill. Fl. Mitteleurop. I. p. 301; Takeda, Fl. Shikotan p. 496; Miyabe and Miyake, Fl. Saghal. p. 576.

HAB. In ruderalis et ad vias, prope Murakamiwan (Ipse! n. 5015, Jul. 7, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Formosa, Manchuria, China, Dahuria, Sibiria (baicalensis, uralensis et altaica), Kamtschatka, Himalaya temperata et subalpina, Tibet occidentalis, Ceylonia, Tauria, Caucasus, Europa et ins. Aleuticae.

34. *Poa pratensis* L. Spec. Pl. ed. 1, p. 67; Ledeb. Fl. Ross.

IV. p. 378; Steud. Syn. Gram. p. 251; Trautv. et Mey. Fl. Ochot. p. 104; Rgl. et Til. Fl. Ajan. p. 126; Maxim. Prim. Fl. Amur. p. 319; Miq. Prol. Fl. Jap. p. 168; Fr. Schm. Fl. Sachal. p. 200; Fr. et Sav. Enum. Pl. Jap. II. p. 174; Korsh. Pl. Amur. p. 417; Britt. and Br. Ill. Fl. I. p. 204; Miyabe, Fl. Kuril. p. 270; Stape, in Hook. f. Fl. Brit. Ind. VII. p. 339; Hack. in Bull. Herb. Boiss. VII. p. 708 et sér. 2, III. p. 506; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 204; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 428; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 426; Kom. Fl. Mansh. I. p. 299; Hegi, Ill. Fl. Mitteleurop. I. p. 305; Matsum. Ind. Pl. Jap. II. i. p. 78; Koidz. Pl. Sachal. p. 22; Nakai, Fl. Korea. II. p. 371; Miyabe and Miyake, Fl. Saghal. p. 576.

HAB. In arena litorali, prope Kashiwabarawan (Ipse! n. 5038, Jul. 9, 1920).—In pratis, prope Murakamiwan (Ipse! n. 5034, Jul. 8, 1920): in arena litorali, prope Murakamiwan (Ipse! n. 4962, Jul. 4, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5582, Jul. 30, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5202, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Manchuria, Amur, Ochotsk, Ajan, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Himalaya, Tibet, Tauria, Caucasus, Europa, Africa borealis, America borealis et Australia.

35. *Poa acroleuca Steud. Syn. Gram. p. 256; A. Gray, Pl. Jap. p. 328; Miq. Prol. Fl. Jap. p. 168; Fr. et Sav. Enum. Pl. Jap. II. p. 175; Hack. in Bull. Herb. Boiss. VII. p. 710 et sér. 2, III. p. 506; Pilger, in Diels, Fl. Centr. China p. 226; Kom. Fl. Mansh. I. p. 305; Palib. Consp. Fl. Korea. III. p. 33; Rendle, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 422; Matsum. Ind. Pl. Jap. II. i. p. 76; Nakai, Fl. Korea. II. p. 370.

Poa acroleuca Steud. var. *psilocaulis* Munro: Miq. l. c.; Fr. et Sav. l. c.

Poa familiaris Steud.: Miq. l. c.; Fr. et Sav. l. c.

HAB. In pratis humidis, prope Arakawa (Ipse! n. 5320, Jul. 15, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Kiushu, Liukiu, Korea, Manchuria, China.

36. *Poa glumaris Trin. Mém. Ac. Pétersb. sér. 6, i. p. 379; Bong. Vég. de Sitcha, p. 173; Steud. Syn. Gram. p. 253; Maxim. Prim. Fl. Amur. p. 320; Fr. Schm. Fl. Sachal. p. 200; Miyabe, Fl. Kuril. p. 270; Britt. and Br. Ill. Fl. I. p. 208; Hack. Bull. Herb. Boiss. VII. p. 711; Yabe et Yendo, in Bot. Mag. Tokyo, XVIII. p. (175); Koidz. Pl. Sachal. p. 23; Takeda, Fl. Shikotan p. 496; Miyabe and Miyake, Fl. Saghal. p. 578.

Glyceria glumaris Griseb. in Ledeb. Fl. Ross. IV. p. 392; Rgl. et Til. Fl. Ajan. p. 126.

var. **kurilensis** (Hack.) Kudo, nom. nov.

Poa kurilensis Hack. in Bull. Herb. Boiss. sér. 2, IV. p. 524; Matsum. Ind. Pl. Jap. II. i. p. 77.

HAB. In arenosis litoralibus, prope Tomarizaki (Ipse! n. 5777,

Aug. 8, 1920).—In arenosis litoralibus, prope Hamanakagawa (Ipse! n. 5826, Aug. 11, 1920).—In arenosis litoralibus, prope Yotsuiwahana (Ipse! n. 5150, Jul. 12, 1920).—In arenosis litoralibus, prope Kamogawa (Ipse! n. 5187, Jul. 12, 1920).

DISTRIB. *var.* Kuriles et Hokkaido: *sp. typicae*. Sibiria orientalis, Kamtschatka, ins. Behringenses, Alaska, ins. Sitcha, America borealis.

37. *Poa cenisia* All. Auct. 40, no. 2209 (1789); Ledeb. Fl. Ross. IV. p. 374; Steud. Syn. Gram. p. 250; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 404; Hegi, Ill. Fl. Mitteleurop. I. p. 314; Takeda, Fl. Shikotan p. 496.

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5786, Aug. 8, 1920).

DISTRIB. Kuriles, Hokkaido, Sibiria (orientalis, altaica et uralensis), Kamtschatka, Himalaya, Asia minor, Balkan, Europa.

38. *Poa arctica R. Br. in Parry's Ist Voy. Suppl. p. 288; Hook. et Arn. in Beechey's Voy. p. 132; Ledeb. Fl. Ross. IV. p. 373; Kjellm. Phan. Fl. Vega Exped. p. 367; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 480; Koidz. Bot. Mag. Tokyo, XXV. p. 480.

HAB. In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5090, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5284, Jul. 14, 1920).

DISTRIB. Kuriles, Kamtschatka, Sibiria arctica et altaica, Europa arctica et America arctica.

Affinis *Poae laxae* Haenk., sed differt rhizomate repente non fibroso. Species haec ad floram japonicam nova est!

39. *Glyceria debilior (Trin.) Kudo, nom. nov.

Glyceria aquatica Sm. *γ. debilior* Trin. Spec. Gram. p. 365; Fr. Schm. Fl. Sachal. p. 201.

HAB. In pratis humilibus, prope Shirakawa (Ipse! n. 5558, Jul. 30, 1920).—In pratis humilioribus, prope Arakawa (Ipse! n. 5319, Jul. 15, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido.

Species intermedia, inter *Glyceriam aquaticam* Sm. et *Glyceriam remotam* Fries, var. *japonicam* Hack. A specie priore differt panicula violacea nutante, pedunculis gracilioribus, caulibus debilioribus; a posteriore distinguitur foliis laterioribus, spiculis 4-5-floris, caulibus elatioribus.

40. *Festuca rubra L. Spec. Pl. ed 1, p. 74; Ledeb. Fl. Ross. IV. p. 352; Fr. Schm. Fl. Sachal. p. 200; Miq. Prol. Fl. Jap. p. 170; Fr. et Sav. Enum. Pl. Jap. II. p. 181; Britt. and Br. Ill. Fl. I. p. 216; Miyabe, Fl. Kuril. p. 271; Hook. f. Fl. Brit. Ind. VII. p. 352; Korsh. Pl. Amur. p. 416; Hack. Bull. Herb. Boiss. VII. p. 713; Kom. Fl. Mansh. I. p. 310; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. i. p. 496; Matsum. Ind. Pl. Jap. II. i. p. 56; Nakai, Fl. Korea. II. p. 373; Takeda, Fl. Shikotan p. 497; Miyabe and Miyake, Fl. Saghal. p. 581.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5749, Aug. 6, 1920).—Ad marginem silvarum, prope Nagaiwasaki (Ipse! n. 5095, Jul. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria,

Amur, Dahuria, Sibiria (baicalensis, altaica et uralensis), Himayala temperata et subalpina, Khasia, Caucasus, Europa, Africa borealis et America borealis.

***41. *Bromus paramushirensis* Kudo, sp. nov.**

Rhizoma repens. Culmi basi ascendentes, erecti vel leviter curvati, striati, glaberrimi, nodis 4-5 præditi, 12-35 cm. alti. Vaginæ compressæ, teretes, glabræ vel hirsutæ, internodiis longiores præter summam illo brevior. Liguræ hyalinæ, pallide fulvæ, apice truncatæ, 1 mm. altæ, glabræ tamen apice minute ciliolatæ. Laminæ lineari-lanceolatæ, sursum attenuatæ, tamen apice calloso-obtusæ, basi minute auriculatæ, planæ, castaneo-virides vel pallide virides, supra glabræ, subtus hirsutæ, nervis multis crassiusculis approximatis percursæ, 10-21 cm. longæ, 8-11 mm. latæ. Panicula cylindrica, erecta vel apice nutans, 8-11 cm. longa, rachi inferne et superne scabra, ramis inferioribus 2-4 nis, superioribus solitariis, omnibus filiformibus, 1.1-3 cm. longis, scabris, erectis vel erecto-patentibus, uni-spiculatis, spiculis plerumque erectis, contractis. Spiculæ lineari-lanceolatæ, dense 4-6-floræ, ca. 2 cm. longæ, pallide virides et violaceo-suffusæ. Glumæ steriles inæquales: I. oblongo-lanceolata apice acuminata, 3-nervata, ca. 8 mm. longa, ca. 2.2 mm. lata; II. ovato-lanceolata, apice acuta, ca. 9-10 mm. longa, ca. 3 mm. lata, 5-nervata, membranacea, utrinque glabra. Glumæ fertiles lanceolato-ellipticæ, 10-12 mm. longæ, 2.7-3 mm. latæ, 7-nervatæ, dorso obtuse carinatæ, apice breviter bifidæ, parum infra apicem aristam brevem exserentes, dorso longe hirsutæ, ventre et margine glabræ, arista 2.2-4 mm. longa. Palea gluma 1/2-1/3-plo brevior, ovato-oblonga, apice obtusa, valde 2-carinata, carinis ciliatis. Antheræ 2.5-3.5 mm. longæ.

HAB. In pratis siccis, prope Suribachi (Ipse! n. 4889, Julio 27, 1920).

DISTRIB. Species endemica!

Quod ad spicæ characterem attinet, procul dubio ad *Bromum breviaristatum* Buckl¹⁾ proxime accedere videtur. Sed planta mea differt ab illo, culmis minus clatioribus et robustioribus, foliis supra glabris, glumis sterilibus 3-nervatis, glumis fertilibus 7-nervatis.

42. *Elymus mollis* Trin. in Spr. Neue. Entdeck. II. p. 72; Ledeb. Fl. Ross. IV. p. 332; Steud. Syn. Gram. p. 350; Bong. Vég. de Sitcha p. 174; Trautv. et Mey. Fl. Ochot. p. 102; Rgl. et Til. Fl. Ajan. p. 125; Maxim. Prim. Fl. Amur. p. 317; Fr. Schm. Fl. Sachal. p. 198; Miyabe, Fl. Kuril. p. 271; Kom. Fl. Mansh. I. p. 319; Takeda, Fl. Shikotan p. 497; Miyabe and Miyake, Fl. Sachal. p. 585.

Elymus arenarius Miq. Prol. Fl. Jap. p. 174; Fr. et Sav. Enum. Pl. Jap. II. p. 184; Hack. Bull. Herb. Boiss. VII. p. 715; Matsum. Ind. Pl. Jap. II. i. p. 52, (non L.).

Elymus arenarius L. var. *mollis* Koidz. Pl. Sachal. p. 24.

HAB. In arena litorali, prope Hiratazaki (Ipse! n. 5418, Jul. 21, 1920).—In arena litorali, prope Murakamiwan (Ipse! n. 4961, Jul. 4,

¹⁾ ***Bromus breviaristatus*** Buckl. in Proc. Ac. Phila. (1862) p. 98; Britt. & Br. III. Fl. I. p. 223.

Ceratochloa breviaristata Hook. Fl. Bor. Am. II. p. 253.

HAB. America boreali-occidentalis.

1920).—In arena litorali, prope Arakawa (Ipse! n. 5318, Jul. 15, 1920).
—In arena litorali, prope Kamogawa (Ipse! n. 5271, Jul. 14, 1920).—
Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 18, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Amur,
Ajan, Ochotsk, Kamtschatka, ins. Sitcha.

Cyperaceæ.

***43. Eriophorum angustifolium** Roth, Fl. Germ. II. p. 63;
Kunth, Enum. Pl. II. p. 178; Ledeb. Fl. Ross. IV. p. 254; Rgl. et Til.
Fl. Ajan. p. 125; Korsh. Pl. Amur. p. 407; Kom. Fl. Mansh. I. p.
337; Clarke, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 255; Yabe et
Yendo, Bot. Mag. Tokyo, XVIII. p. 174; Nakai, Fl. Korea. II. p. 298;
Miyabe et Kudo, Mater. Fl. Hokkaido n. 15, in Trans. Sapporo Nat.
Hist. Soc. V. p. 68.

Eriophorum polystachyon L. Spec. Pl. ed. 1, p. 52, p. p.; Aschers.
u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 333; Hegi, Ill. Fl. Mittel-
europ. II. p. 20; Koidz. Bot. Mag. Tokyo, XXV. p. 204.

Eriophorum polystachyon L. *α. angustifolium* Rgl. Tent. Fl. Ussur.
p. 161.

HAB. In paludibus, prope Arahatazaki (Ipse! n. 5855, Aug. 12,
1920).—In paludibus, prope Tomarizaki (Ipse! n. 5758, Aug. 6, 1920).
—In paludibus, prope Murakamiwan (Ipse! n. 4971, Jul. 4, 1920; n.
5436a, Jul. 23, 1920).

var. **majus** Schultz, Fl. Starg. Suppl. p. 5, cf. Wallr. Ann. Bot.
(1815) p. 13.

Eriophorum polystachyon L. subsp. II. *majus* Aschers. u. Graebn.
l. c. p. 334; Hegi, l. c.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 5436b, Jul. 23,
1920).

DISTRIB. *sp.* Kuriles septentrionales, Kamtschatka, Korea, China,
Manchuria, Amur, Dahuria, Sibiria (baicalensis, altaica et uralensis),
Europa, Africa borealis et America borealis.

***44. Scirpus caespitosus** L. Spec. Pl. ed. 1, p. 48; Kunth, Enum.
Pl. II. p. 159; Ledeb. Fl. Ross. IV. p. 246; Fr. Schm. Fl. Sachal. p.
190; Britt. and Br. Ill. Fl. I. p. 263; Makino, Bot. Mag. Tokyo, X. p.
(313); Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 299; Clarke,
in Bull. Acad. Intern. Geogr. Bot. (1904) p. 201; Matsum. Ind. Pl. Jap.
II. i. p. 160; Miyabe and Miyake, Fl. Saghal. p. 518.

Trichophorum caespitosum Hartm. Handb. p. 5; Hegi, Ill. Fl.
Mitteleurop. II. p. 24.

HAB. In paludibus, prope Nodawan (Ipse! n. 4859, Jun. 26, 1920).
—In paludibus, prope Ruesan (Ipse! n. 5666, Aug. 5, 1920).—In
paludibus, prope Tomarizaki (Ipse! n. 5867, Aug. 6, 1929).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Mongolia, Sibiria
(baicalensis et uralensis), Europa, America borealis, Unalaska, ins. Sitcha.

*45. **Eleocharis palustris** R. Br. Prodr. Fl. Nepal. p. 224, in nota; Kunth, Enum. Pl. II. p. 147; Ledeb. Fl. Ross. IV. p. 244; Maxim. Prim. Fl. Amur. p. 298; Rgl. Tent. Fl. Ussuri. p. 160; Fr. Schm. Fl. Sachal. p. 190; Korsh. Pl. Amur. p. 406; Britt. and Br. Ill. Fl. I. p. 251; Clarke, in Hook. f. Fl. Brit. Ind. VI. p. 628 et in Forb. et Hemsl. Ind. Fl. Sin. III. p. 227; Kom. Fl. Mansh. I. p. 348; Matsum. Ind. Pl. Jap. II. i. p. 145; Koidz. Pl. Sachal. p. 25; Hegi, Ill. Fl. Mitteleurop. II. p. 38; Nakai, Fl. Korea. II. p. 297; Takeda, Fl. Shikotan p. 492; Miyabe and Miyake, Fl. Saghal. p. 516.

Scirpus palustris L. Spec. Pl. ed. 1, p. 47; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 289.

Eleocharis pileata A. Gray, Bot. Jap. p. 417; Miq. Prol. Fl. Jap. p. 357.

Scirpus pileata Fr. et Sav. Enum. Pl. Jap. II. p. 110.

HAB. In stagnis, prope Murakamiwan (Ipse! n. 4993, Jul. 6, 1920). — In paludibus, prope Murakamiwan (Ipse! n. 5435, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, China, Amur, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Bengal, Himalaya occidentalis, Ceylonia, Tauria, Caucasus, Europa, America borealis, Australia.

*46. **Cobresia Bellardii** Degland, in Loisel. Fl. Gall. II. p. 626; Kük. Cyp.-Car. in Engl. Pfl.-reich. IV. 20. p. 37, f. 8.

Carex Bellardii All. Fl. Pedem. II. p. 264, t. 92, f. 2.

Cobresia scirpina Willd. Spec. Pl. IV. p. 205; Boeck. in Linnæa XXXIX. p. 6; C. B. Clarke, in Jour. Linn. Soc. XX. p. 377; Meinsh. in Acta Hort. Petropol. XVIII. p. 275.

Elyna spicata Schrad. Fl. Germ. I. p. 155; Kunth, Enum. Pl. II. p. 533; Reichb. Icon. VIII. 2, t. CXIII. f. 520; Ledeb. Fl. Alt. IV. p. 235 et Fl. Ross. IV. p. 262; Boiss. Fl. Orient. V. p. 394, p. p.

Elyna Bellardi K. Koch, in Linnæa XXI. p. 616; Britt. and Br. Ill. Fl. I. p. 284; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 3; Hegi, Ill. Fl. Mitteleurop. II. p. 49, f. 205, (non Hartm.).

Elyna scirpina Pax, in Engl. u. Pr. Nat. Pfl.-fam. II. 2. p. 122, f. 120.

HAB. In pratis siccis, prope Nagaiwasaki (Ipse! n. 5098, Jul. 11, 1920).

DISTRIB. Insulæ Behringenses, Dahuria, Sibiria (orientalis, inter Aldan et Ochotsk, altaica), Turkestan, Afghanistan, Caucasus, in regionibus alpinis et arcticis Europæ, Alaska, Grœnlandia, America borealis.

Genus hoc ad floram japonicam novum est!

*47. **Carex circinata** C. A. Mey. in Mém. Acad. St. Pétersb. I. p. 209, t. VI; Kunth, Enum. Pl. II. p. 426; Boott, Ill. IV. p. 133, t. 429; Meinsh. in Act. Hort. Petropol. XVIII. p. 308; Kük. Cyp.-Car. p. 97, f. 21, A-B.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5753, Aug. 6, 1920).

DISTRIB. Kuriles, Alaska, Unalaska, ins. Sitcha.

48. *Carex hakkodensis Franch. in Bull. Soc. Philom. Paris, 3 sér. VII. p. 24 et *Carex* As. Or. p. 204, pl. 3, f. 2; Matsum. Ind. Pl. Jap. II. i. p. 113; Kük. Cyp.-Car. p. 98; Miyabe et Kudo, Mater. Fl. Hokkaido n. 43, in Trans. Sapporo Nat. Hist. Soc. V. p. 150; Takeda, Notes, R. B. G. Edinbg. Vol. VIII. Num. XXXIX. p. 230.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5756, Aug. 6, 1920). — In paludibus, prope Ruesan (Ipse! n. 5646, Aug. 5, 1920; n. 5838, Aug. 11, 1920). — In rupibus, prope Hiratazaki (Ipse! n. 5416, Jul. 21, 1920). — In silvis humidis, prope Shirakawa (Ipse! n. 5564, Jul. 30, 1920). — In rupibus, prope Arakawa (Ipse! n. 5322, Jul. 15, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu.

49. *Carex pyrenaica Wahlenb. in Vet. Akad. Handl. Stockholm. XXIV. p. 139; Kunth, Enum. Pl. II. p. 425; Boott, Ill. IV. p. 148, tt. 475, 479; Franch. Car. As. Or. p. 205; Lév'l. et Vnt. Bull. Soc. Georg. Bot. X. p. 55; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 17; Kük. Cyp.-Car. p. 104.

HAB. In pratis siccis, prope Murakamiwan (Ipse! n. 5460, Jul. 23, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, fretum Behringii, Asia minor, Caucasus, Europa, Alaska, America borealis pacifica, Nova Zealandia.

50. *Carex microglochin Wahlenb. in Vet. Acad. Handl. Stockholm. XXIV. p. 140; Kunth, Enum. Pl. II. p. 424; Ledeb. Fl. Ross. IV. p. 269; Boott, Ill. IV. p. 174, t. 589, f. 1-5; Miyabe, Fl. Kuril. p. 267; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 16; Matsum. Ind. Pl. Jap. II. i. p. 120; Kük. Cyp.-Car. p. 108.

HAB. Kashiwabarawan (Y. Yemoto! Aug. 8, 1919).

DISTRIB. Kuriles, Dahuria, Sibiria altaica, China centralis, Tibet, Himalaya borealis, Caucasus, Europa et America borealis.

51. *Carex macloviana D'urv. in Mém. Soc. Linn. Paris, tom. IV. p. 599; Kük. in Engl. Bot. Jahrb. XXVII. p. 505 et Cyp.-Car. p. 195.

Carex ovalis, β . *minor* Brongn. in Duperr. Voy. Coquille Bot. p. 149; Boott, in Hook. f. Fl. Antarct. II. p. 362.

Carex propinqua Nees et Meyen, in Meyen Reise um die Erde, I. p. 116; Kunth, Enum. Pl. II. p. 396; Hildebrand, Fl. Hawai Isl. p. 489.

Carex festiva Desv. in Amer. Jour. Sc. XXIX. p. 246; Boott, Ill. I. p. 26, t. 66.

HAB. In ruderalis, prope Ruesan (Ipse! n. 5644, Aug. 5, 1920; n. 5846, Aug. 11, 1920).

DISTRIB. Kuriles, Kamtschatka, Europa arctica et alpina, America borealis centralisque australis, insulæ Sandwich.

Species hæc ad floram japonicam nova est!

52. *Carex lagopina Wahlenb. in Vet. Acad. Handl. Stockholm. XXIV. p. 145; A. Gray, in Ann. Sc. Nat. 2 sér. XI. p. 177; Boott, Ill. IV. p. 189; Ledeb. Fl. Ross. IV. p. 279; Wats. Bot. Calif. II. p. 233; Britt. and Br. Ill. Fl. I. p. 353; Meinsh. in Acta Horti Petropol. XVIII. p. 325; Ostenfeld, Fl. Arct. p. 58; Aschers. u. Graebn. Syn.

Mitteleurop. Fl. II. 2. p. 59; Kük. Cyp.-Car. p. 213, f. 35, A-B; Hegi, Ill. Fl. Mitteleurop. II. p. 74, f. 222.

HAB. In herbidis, prope Kamogawazaki (Ipse! n. 5189, Jul. 12, 1920).

DISTRIB. Kuriles, Kamtschatka, terra Tschuktschorum, Sibiria (arctica et baicalensis), fretum Behringii, Novaja-Semlja, Europa arctico-alpina, America borealis, Nova Zeelandia.

*53. *Carex brunnescens* Poir. Encycl. Suppl. III. p. 286; Britt. and Br. Ill. Fl. I. p. 351; Ostenfeld, Fl. Arct. p. 56; Kük. Cyp.-Car. p. 219.

var. *sphaerostachya* Kük. l. c. p. 220.

Carex sphaerostachya Desv. in Ann. Journ. Sc. XLIX. p. 44.

Carex brunnescens Poir. var. *gracilior* Britt. and Br. l. c.

Carex brunnescens Poir. var. *vitalis* Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 62.

Carex macilenta Miyabe, Fl. Kuril. p. 268, (non Fries).

HAB. In ruderalis, prope Kashiwabarawan (Ipse! n. 5483, Jul. 26, 1920).

DISTRIB. var. Kuriles, Hokkaido, Honshu, Sibiria (orientalis et uralensis), Turkestan, Europa et America borealis: *sp. typicae*. Sibiria (tungusca, jennisica, altaica et uralensis), Europa et America borealis.

*54. *Carex stellulata* Good. in Trans. Linn. Soc. II. p. 144; Kunth, Enum. Pl. II. p. 399; A. Gray, Bot. Jap. p. 417; Fr. et Sav. Enum. Pl. II. p. 126; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 54; Clarke, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 311; Matsum. Ind. Pl. Jap. II. i. p. 133; Kük. Cyp.-Car. p. 228; Takeda, Fl. Shikotan p. 493.

Carex echinata Boeck. in Linnæa XXXIX. p. 124; Franch. Car. As. Or. p. 232; Lév'l. et Vnt. Bull. Soc. Geogr. Bot. X. p. 123, (non Murr.).

HAB. In paludibus, prope Ruesan (Ipse! n. 5645, Aug. 5, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, China, Himalaya, Asia minor, Syria, Europa, Africa, America borealis, Australia, Nova Zeelandia.

*55. *Carex Lyngbyei* Hornem. Fl. Dan. t. 1888; Kunth, Enum. Pl. II. p. 523; Kük. Cyp.-Car. p. 363 et Car. Sachal. p. 36; Takeda, Fl. Shikotan, p. 493; Miyabe and Miyake, Fl. Saghal. p. 539.

Carex cryptocarpa C. A. Mey. in Mém Acad. St. Pétersb. I. p. 226, t. 14; Kunth, Enum. Pl. II. p. 416; Ledeb. Fl. Ross. IV. p. 313; Trautv. et Mey. Fl. Ochot. p. 100; Fr. Schm. Fl. Sachal. p. 197; Boott, Ill. I. p. 64, t. 171; Britt. and Br. Ill. Fl. I. p. 314; Franch. Car. As. Or. p. 126; Lév'l. et Vnt. Bull. Soc. Geogr. Bot. X. p. 217; Matsum. Ind. Pl. Jap. II. i. p. 106.

HAB. In paludibus, prope Nodawan (Ipse! n. 4858b, Jun. 26, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5730, Aug. 7, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5486, Jul. 26, 1920).

— In paludibus, prope Murakamiwan (Ipse! n. 4987, Jul. 6, 1920; n. 4970, Jul. 4, 1920; n. 5421, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Manchuria, Kamtschatka, Ochotsk, fretum Behringii, Europa et America borealis.

56. *Carex Middendorffii Fr. Schm. Fl. Amg.-Burj. p. 70 et Fl. Sachal. p. 197, t. VII. f. 1-5; Franch. Car. As. Or. p. 157; Matsum. Ind. Pl. Jap. II. i. p. 120; Kük. Cyp.-Car. p. 364; Miyabe and Miyake, Fl. Saghal. p. 539.

Carex Middendorffiana Meinsh. in Act. Hort. Petropol. XVIII. p. 344.

Carex levicaulis Franch. in Bull. Soc. Phil. Paris, 8 sér. VII. p. 11, et Nouv. Arch. Mus. Paris, 3 sér. VIII. t. 13, f. 2 et Car. As. Or. p. 157; Lév'l. et Vnt. Bull. Soc. Geogr. Bot. X. p. 227; Matsum. Ind. Pl. Jap. II. i. p. 118.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5754, Aug. 6, 1920).— In paludibus, prope Ruesan (Ipse! n. 5838, Aug. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku et Amur.

57. *Carex flaccidior Miyabe et Kudo, Mater. Fl. Hokkaido, n. 111, in Trans. Sapporo Nat. Hist. Soc. VII. p. 28.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5750, Aug. 6, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, Amur.

58. *Carex Buxbaumii Wahlenb. in Vet. Acad. Handl. Stockholm. XXIV. p. 163; Bong. Vég de Sitcha p. 169; Kunth, Enum. Pl. II. p. 432; Ledeb. Fl. Ross. IV. p. 285; Boott, Ill. IV. p. 136, t. 438; Meinsh. Act. Hort. Petrop. XVIII. p. 354; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 105; Kük. Cyp.-Car. p. 393; Koidz. Pl. Sachal. p. 30; Miyabe and Miyake, Fl. Saghal. p. 540.

Carex tarumensis Franch. in Bull. Soc. Phil. Paris, 8 sér. VII. p. 37 et Car. As. Or. p. 147; Matsum. Ind. Pl. Jap. II. i. p. 135.

Carex picea Franch. in Bull. Soc. Phil. Paris, 8 sér. VII. p. 39 et Car. As. Or. p. 151; Lév'l. et Vnt. Bull. Soc. Geogr. Bot. X. p. 224.

HAB. In paludibus, prope Kashiwabarawan (Ipse! n. 5484, Jul. 26, 1920).— In paludibus, prope Murakamiwan (Ipse! n. 5434, Jul. 3, 1920).

DISTRIB. Sachalin, Hokkaido, Kamtschatka, Sibiria (orientalis, baicalensis, altaica et uralensis), Europa, Africa borealis, America borealis, Australia.

59. *Carex Gmelini Hook et Arn. Bot. Beech. Voy. III. p. 118, t. 27; Kunth, Enum. Pl. II. p. 434; Ledeb. Fl. Ross. IV. p. 288; Trautv. et Mey. Fl. Ochot. p. 99; Rgl. et Til. Fl. Ajan. p. 125; Boott, Ill. IV. p. 137, t. 433; Maxim. Prim. Fl. Amur. p. 309; Fr. Schm. Fl. Sachal. p. 193; Franch. Car. As. Or. p. 151; Miyabe, Fl. Kuril. p. 262; Kom. Fl. Mansh. I. p. 369; Lév'l. et Vnt. Bull. Soc. Geogr. Bot. X. p. 224; Matsum. Ind. Pl. Jap. II. i. p. 112; Kük. Cyp.-Car. p. 396; Koidz. Pl. Sachal. p. 29; Takeda, Fl. Shikotan p. 493; Miyabe and Miyake, Fl. Saghal. p. 540.

Carex laticuspis Franch. in Bull. Soc. Philom. Paris, 8 sér. VII. p. 38.

HAB. In pratis siccis, prope Nodawan (Ipse! n. 4858a, Jun. 26, 1920).—In ruderalis, prope Kashiwabarawan (Ipse! n. 5041, Jul. 9, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5565, Jul. 30, 1920).—In locis siccis, prope Arakawa (Ipse! n. 5325, Jul. 15, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5099, Jul. 11, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5206, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, Amur, Ajan et Kamtschatka.

60. *Carex macrochaeta* C. A. Mey. in Mém. Acad. St. Pétersb. I. p. 224, t. 13; Bong. Vég. de Sitcha, p. 169; Kunth, Enum. Pl. II. p. 519; Ledeb. Fl. Ross. IV. p. 305; Kük. Cyp.-Car. p. 412.

var. **paramushirensis** Kudo, var. nov.

Folia culmo breviora, 3-4 mm. lata, plana, rigidula. Spiculæ ♀ anguste cylindricæ. 1.3-2 cm. longæ, basin versus laxifloræ. Squamæ ♀ elongato-ovatae, sursum acutæ, tamen apice obtusæ, ca. 4 mm. longæ, ca. 2 mm. latae, atro-fuscae. Utriculi ovato-elliptici, apice attenuati, ca. 4 mm. longi, ca. 2 mm. lati, medio nigro-maculati.

HAB. In silvis, prope Shirakawa (Ipse! n. 5526, Jul. 30, 1920).—Ottomai (S. Yokoyama! Sept. 2, 1894).

DISTRIB. *sp.* Sachalin, terra Tschuktschorum ad sinum St. Laurentii, Kamtschatka, insulae Oceani orientalis, insque America subarctica.

Habitus ut in *C. macrochaeta* C. A. Mey., sed spiculæ ♂ squamæ et utriculæ formæ diversissimæ. Proxima *C. macrochaeta*, var. *subrigida* Kük., quæ tamen culmis perrigidis, foliis latioribus, spiculis longioribus clavato-cylindricis, squamis muticis vel brevissime mucronatis dignoscitur.

61. *Carex scita* Maxim. Mém. Biol. XII. p. 564; Franch. Car. As. Or. p. 143; Matsum. Ind. Pl. Jap. II. i. p. 132; Kük. Cyp.-Car. p. 414; Takeda, Fl. Shikotan p. 494; Miyabe and Miyake, Fl. Saghal. p. 415.

form. **koraginensis** (Meinsh.) Kudo, nom. nov.

Carex koraginensis Meinsh. in Act. Hort. Petropol. XVIII. p. 351.

Carex scita Maxim. var. *koraginensis* Kük. l. c. p. 415.

Culmus scabriusculus vel apice scaber vel glaber. Folia 5-7 mm. lata. Spiculæ ♀ oblongae vel ovato-oblongae, saepe longe rarius breviter pedunculatae. Squamæ floris ♀ non aristatae vel breviter aristatae. Utriculi orbiculari-ovati, ovati, elliptico-oblongi, marginibus parce scabri.

HAB. In ruderalis, prope Suribachi (Ipse! n. 4885, Jul. 27, 1920).—In pratis siccis, prope Urafutoyama (Ipse! n. 5789, Aug. 8, 1920).—In ruderalis, prope Kashiwabarawan (Ipse! n. 5040, Jul. 9, 1920).—In locis siccis, prope Murakamiwan (Ipse! n. 4931, Jul. 3, 1920; n. 4999, Jul. 6, 1920; n. 5035, Jul. 8, 1920): in paludibus, prope Murakamiwan (Ipse! n. 5433, Jul. 23, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5563, Jul. 30, 1920).—In locis siccis, prope Hiratazaki (Ipse! n. 5417, 5415, Jul. 21, 1920).—In pratis siccis, prope Nagaiwa-

saki (Ipse! n. 5097, Jul. 11, 1920; n. 5100, Jul. 11, 1920).—In pratis siccis, prope Arakawa (Ipse! n. 5324, Jul. 15, 1920).—In locis siccis, prope Yotsuiwahana (Ipse! n. 5154, Jul. 12, 1920; n. 5286, Jul. 14, 1920).—Ad saxum, prope Kamogawazaki (Ipse! n. 5188, Jul. 12, 1920).—In locis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5205, Jul. 13, 1920).

DISTRIB. *formae*. Kuriles et Kamtschatka; *sp.* Kuriles, Kamtschatka, Hokkaido et Honshu.

*62. **Carex ambrolepis** Trautv. et Mey. Fl. Ochot. p. 99; Maxim. Prim. Fl. Amur. p. 312; Meinsh. in Act. Hort. Petropol. XVIII. p. 398.

Carex pennsylvanica L. ε . *ambrolepis* Kük. in Finska Vet. Soc. Förhandl. XLV. n. 8, p. 8 et in Cyp.-Car. p. 446.

HAB. In pratis alpinis, prope Suribachi (Ipse! n. 4881, Jul. 27, 1920).—In arena litorali, prope Kashiwabarawan (Ipse! n. 5042, Jul. 9, 1920).—In arena litorali, prope Murakamiwan (Ipse! n. 5000, Jul. 6, 1920).

DISTRIB. Kuriles, Kamtschatka, Sibiria orientalis, Amur.

Haec species ad floram japonicam nova est!

*63. **Carex caryophyllea** Latour. Chlor. Lugd. 1785, p. 27; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 123; Kük. Cyp.-Car. p. 463.

Carex praecox Jacq. Fl. Austr. V. p. 23; Ledeb. Fl. Alt. p. 226 et Fl. Ross. IV. p. 301; Kunth, Enum. Pl. II. p. 429; Boott Ill. IV. p. 216; Meinsh. Act. Hort. Petropol. XVIII. p. 397, (non Schreb.).

HAB. In herbidis, prope Kashiwabarawan (Ipse! n. 5485, Jul. 26, 1920).—In herbidis, prope Murakamiwan (Ipse! n. 5461, Jul. 23, 1920).—In herbidis, prope Nagaiwasaki (Ipse! n. 5102, Jul. 11, 1920).—In herbidis, prope Arakawa (Ipse! n. 5323, Jul. 15, 1920).

DISTRIB. Kuriles, Kamtschatka, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Caucasus, Armenia, Europa, America borealis.

Species haec ad floram japonicam nova est!

*64. **Carex rariflora** Smith, Engl. Bot. t. 2516; Ledeb. Fl. Ross. IV. p. 297; Boott, Ill. II. p. 79, t. 217; Fr. Schm. Fl. Sachal. p. 196; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 479; Britt. and Br. Ill. Fl. I. p. 312; Matsum. Ind. Pl. Jap. II. i. p. 130; Kük. Cyp.-Car. p. 502; Miyabe and Miyake, Fl. Saghal. p. 547.

Carex limosa L. γ . *rariflora* Wahlenb. in Vet. Acad. Handl. Stockholm. XXIV. p. 162.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5751, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4969, Jul. 4, 1920; n. 5432, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Kamtschatka, terra Tschuktschorum, Europa, Alaska, ins. Sitcha, America borealis.

*65. **Carex** (paniceae) **Fujitae** Kudo, sp. nov.

Rhizoma stolones longos tenues emittens. Caules centrales, basi

foliati. Culmus 7-11 cm. altus, rigidulus, acutangulus, gracilis, inferne dense foliatus. Folia saepe culmo longiora, rigida, cinereo-viridia, apice longe acuminata, margine setulosa, plana, multi-striata, 2-3 mm. lata. Bractee foliaceae, inflorescentia paulo breviores, breviter vaginantes. Spiculae 3-4; terminalis ♂, linearis, 8-10 mm. longa; laterales 2-3, ♀, oblongae, subtaxiflorae, 8-11 mm. longae, breviter pedunculatae vel suprema sessilis, omnes erectae. Squamae ♀ oblongo-ellipticae, apice acutiusculae, fusco-cupreae, medio viridi-carinatae, marginibus hyalinae, 4 mm. longae, 2 mm. latae. Utriculi breviter pedicellati, trigoni, lanceolato-ovati, basi attenuati, apice in rostrum brevissimum ore integrum subcontracti, subcoriacei, enervosi, glauco-virides, cum pedicello 4 mm. longi, 1.6 mm. lati. Nux obovata, trigona, ca. 2.2 mm. longa, 1.5 mm. lata, viridi-castanea, laevis. Styli basis aequalis, non incrassata.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5757, Aug. 6, 1920).

DISTRIB. Species endemica!

Species *Carici brachycalamae* Kük. Americae borealis affinis esse videtur, sed multo differt speculis ♀ non oblongo-cylindricis non densifloris, spiculis ♂ non lineari-oblongis, squamis floris ♀ non ovatis, utriculis squamas subaequantibus.

*66. *Carex sparsiflora* Steud. Nomencl. Bot. ed 2, I. p. 296; Kük. Cyp.-Car. p. 511.

Carex panicea L. β. *sparsiflora* Wahlenb. Fl. Lapp. p. 236.

Carex vaginata Tausch, in Flora IV. p. 557; Kunth, Enum. Pl. II. p. 451; Ledeb. Fl. Ross. IV. p. 291; Boott, Ill. IV. p. 148, t. 478; Miyabe, Fl. Kuril. p. 268; Kom. Fl. Mansh. I. p. 389; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 143.

Carex falcata Turcz. Fl. Baic. II. n. 1276; Maxim. Prim. Fl. Amur. p. 311.

var. *Petersii* Kük. l. c. p. 513.

Carex Petersii C. A. Mey. apud Fr. Schm. Fl. Sachal. p. 194.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5752, Aug. 6, 1920).—In pratis subsiccis, prope Nagaiwasaki (Ipse! n. 5101, Jul. 11, 1920).—In pratis subsiccis, prope Shirakawa (Ipse! n. 5696, Jul. 30, 1920).

DISTRIB. var. Sachalin, Kuriles, Kamtschatka et Manchuria: sp. Sachalin, Kuriles, Hokkaido, Manchuria, Amur, Ussuri, Sibiria orientalis, Europa.

*67. *Carex* (tumidae) *ruesanensis* Kudo, sp. nov.

Rhizoma stolones longos subvalidos emittens. Culmus 21-35 cm. altus, tenuis, tamen strictus, striatus, laevis, basi non incrassatus. Folia culmo breviora vel aequilonga, convoluta, subfiliformia, striata, laevia, tamen margine strigulosa. Bractea inferior foliacea, evaginans, deorsum dilatata, sursum convoluta, laevis, margine strigulosa, inflorescentiam longe superans. Spiculae plerumque 2-3; terminalis ♂, elongato-linearis, breviter pedunculata, 1.5-3 cm. longa, interdum altera breviter contigua addita; laterales 1-2 ♀, apice rarius ♂, oblongae, densiflorae, 1-1.5

cm. longae, remotae, breviter pedunculatae, erectae. Squamae ♀ late orbiculares, ferrugineae, apice truncatae, acutiusculae vel obtusae, margine hyalinae, dorso trinervatae et pallidae, ca. 3 mm. longae, ca. 2.5 mm. latae. Utriculi squamis minores, paulo breviores, orbiculari-ovati, turgido-trigoni, 2.3 mm. longi, 2 mm. lati, fusco-olivacei, glabri, apice dense brunneo-punctati, nervis 2 lateralibus prominentibus percursi, ceterum obsolete nervosi, apice in rostrum breve, ore emarginato-bidentulum abrupte abeuntes. Nux oblonga, parva, laxe inclusa. Styli basis aequalis. Stigmata 3, mediocria.

HAB. In paludibus, prope Ruesan (Ipse! n. 5839, Aug. 11, 1920).

DISTRIB. Species endemica!

Species distinctissima, soli *Carici olivaceae* Boott Asiae orientalis et australis proxime affinis, (quarum specimina authentica non vidi, vero comparavi specimina japonica) quae tamen culmis validioribus elatioribus 60–90 cm. altis, basi incrassatis, foliis 6–16 mm. latis, bracteis evaginantibus, spiculis 5–8 in numero, crassioribus, squamis oblongo-lanceolatis abunde differt. Statura vero, modus crescendi, magnitudo fere dissimilis.

*68. *Carex stenantha* Fr. et Sav. Enum. Pl. Jap. II. pp. 146 et 573; Franch. Car. As. Or. p. 50, t. 3, f. 2; Lév'l. et Vnt. Bull. Acad. Geogr. Bot. XI. p. 105; Matsum. Ind. Pl. Jap. II. i. p. 134; Kük. Cyp.-Car. p. 565; Miyabe and Miyake, Fl. Saghal. p. 547.

Carex ferruginea Scop. var. Fr. Schm. Fl. Sachal. p. 196.

Carex stenolepis Franch. Car. As. Or. p. 96, (non Torr.).

Carex Schmidtii Boeck. in Flora LXV. p. 63, (non Meinsh.).

Carex Ktausipali Meinsh. in Act. Hort. Petropol. XVIII. p. 359.

HAB. In herbosis, prope Yotsuiwahana (Ipse! n. 5153, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido et Honshu.

*69. *Carex capillaris* L. Spec. Pl. ed. 1, p. 977; Kunth, Enum. Pl. II. p. 472; Ledeb. Fl. Alt. IV. p. 227 et Fl. Ross. IV. p. 295; Boott, Ill. IV. p. 182; Britt. and Br. Ill. Fl. I. p. 320; Meinsh. in Act. Hort. Petropol. XVIII. p. 362; Korsh. Pl. Amur. p. 410; Kom. Fl. Mansh. I. p. 377; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 153; Fernald, in Proc. Am. Acad. Sc. XXXVII. p. 509; Ostenfeld, Fl. Arct. p. 90, f. 69; Kük. Cyp.-Car. p. 590; Nakai, Fl. Korea. II. p. 323; Hegi, Ill. Fl. Mitteleurop. II. p. 97, t. 52, f. 7; Koidz. Bot. Mag. Tokyo, XXXI. p. 143.

HAB. In paludibus, prope Ruesan (Ipse! n. 5840, Aug. 11, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Ussuri, Sibi:ia (baicalensis et altaica), Dahuria, Kamtschatka, terra Tschuktschorum, Tibet occidentalis, Turkestan, Balansa, Asia minor, Caucasus, Europa et America borealis.

*70. *Carex vesicaria* L. Spec. Pl. ed. 1, p. 979; Kunth, Enum. Pl. II. p. 494; Ledeb. Fl. Ross. IV. p. 317; Boott, Ill. IV. p. 162, t. 536; Trautv. et Mey. Fl. Ochot. p. 101; Maxim. Prim. Fl. Amur. p. 315; Franch. Car. As. Or. p. 84; Korsh. Pl. Amur. p. 608; Kom. Fl. Mansh. I. p. 380; Clarke, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 317;

Matsum. Ind. Pl. Jap. II. i. p. 137; Kük. Cyp.-Car. p. 725; Nakai, Fl. Korea. II. p. 332; Miyabe and Miyake, Fl. Saghal. p. 552.

HAB. In paludibus, prope Ruesan (Ipse! n. 5643, Aug. 5, 1920; n. 5837, Aug. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Manchuria, Amur, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Caucasus et Europa.

*71. *Carex saxatilis* L. Spec. Pl. ed. 1, p. 976; Bailey, in Mem. Torr. Bot. Club. I. p. 37; Britt. and Br. Ill. Fl. I. p. 296; Fernald, Rhodora III. p. 50.

Carex pulla Good. in Trans. Linn. Soc. III. p. 78, t. 14; Kunth, Enum. Pl. II. p. 410; Meinsh. Act. Hort. Petropol. XVIII. p. 343; Ostenfeld, Fl. Arct. p. 95.

Carex vesicaria L. subsp. *saxatilis* Kük. Cyp.-Car. p. 727.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5755, Aug. 6, 1920).—In paludibus, prope Ruesan (Ipse! n. 5642, Aug. 5, 1920).

DISTRIB. Kuriles, Kamtschatka, terra Tschuktschorum, Sibiria arctica et subarctica, Europa arctica et subarctica, ins. Behringenses, Alaska, James Bay, Ungava, Labradoria, Groenlandia.

Juncaceae.

*72. *Luzula plumosa* E. Mey. in Linnaea XXII. p. 387; Buchenau, in Engl. Bot. Jahrb. VI. p. 195, et Monogr. Juncac. p. 85 et Juncac. p. 48; Hook. f. Fl. Brit. Ind. VI. p. 401; Matsum. Ind. Pl. Jap. II. i. p. 187.

Juncus pilosa Thunb. Fl. Jap. p. 145.

Luzula pilosa Willd. var. *plumosa* Franch. Pl. David. II. p. 138; E. Brown, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 161.

Luzula pilosa Miyabe, Fl. Kuril. p. 267; Takeda, Fl. Shikotan p. 491.

Juncodes plumosum OK. Rev. Gen. Pl. II. p. 725.

HAB. In pratis silvaticis, prope Nodawan (Ipse! n. 4861, Jun. 26, 1920).—In ruderalis, prope Murakamiwan (Ipse! n. 4933, Jul. 3, 1920); in paludibus, prope Murakamiwan (Ipse! n. 5439, Jul. 23, 1920).—Ad marginem silvarum, prope Shirakawa (Ipse! n. 5560, Jul. 30, 1920).—In pratis silvaticis, prope Nagaiwasaki (Ipse! n. 5104, Jul. 11, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Shikoku, China, Himalaya temperata, Khasia

*73. *Luzula spadicæa* DC. Fl. Franc. III. p. 159; Trautv. et Mey. Fl. Ochot. p. 97; Rgl. et Til. Fl. Ajan. p. 124; Buchenau, Monogr. Juncac. p. 111 et Juncac. p. 62; Aschers. et Graebn. Syn. Mitteleurop. Fl. II. 2. p. 511; Hegi, Ill. Fl. Mitteleurop. II. p. 181.

Juncus spadicæus All. Fl. Pedem. II. p. 216.

var. *Wahlenbergii* Buchenau, in Engl. Bot. Jahrb. VII. p. 171,

et Monogr. Juncac. p. 112 et Juncac. p. 63; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 512.

Luzula parviflora Desv. var. *intermedia* Wahlenb. Fl. Suec. I. p. 217.

Luzula Wahlenbergii Rupr. Beitr. Pfl.-Kunde Russ. II. p. 58; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 476.

Luzula borealis Fries, Summa Veg. I. p. 219.

Luzula spadicea, *η. Kunthii* E. Mey. in Linnaea XXII. p. 403 et in Ledeb. Fl. Ross. IV. p. 217.

HAB. In arenosis litoralibus, ad rivos, prope Hiratazaki (Ipse! n. 5413, Jul. 21, 1920).—In glareosis litoralibus, prope Shirakawa (Ipse! n. 5561, Jul. 30, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5102, Jul. 11, 1920).

DISTRIB. var. Kuriles, Hokkaido, Ochotsk, terra Tschuktschorum, Sibiria arctica, Europa, Spitzbergen, Novaja Semlja; *sp.* Sibiria orientalis, Europa et America borealis (var. *divaricata* Buchenau).

74. *Luzula Kjellmanniana* Miyabe et Kudo, Mater. Fl. Hokkaido, n. 5, in Trans. Sapporo Nat. Hist. Soc. V. p. 38.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4835, Jun. 26, 1920).—In fruticetis, ad silvarum margines, prope Nodawan (Ipse! n. 4860, Jul. 26, 1920).—In herbosis, prope Suribachi (Ipse! n. 4887, Jul. 27, 1920).—In herbosis silvaticis, prope Okuyotsuiwa (Ipse! n. 4915, Jul. 29, 1920).—In ruderatis, prope Kashiwabarawan (Ipse! n. 5489, Jul. 26, 1920).—In herbosis, prope Murakamiwan (Ipse! n. 4934, Jul. 3, 1920; n. 5002, Jul. 6, 1920): in paludibus, prope Murakamiwan (Ipse! n. 5438, Jul. 23, 1920).—In silvis, prope Hiratazaki (Ipse! n. 5414, Jul. 21, 1920).—Ottomai (C. Tarao! Aug. 25, 1892).

DISTRIB. Kuriles, fretum Behringii, Sibiria orientalis.

75. *Luzula campestris DC. Fl. Franc. III. p. 161; Kunth, Enum. Pl. III. p. 307; Trautv. et Mey. Fl. Ochot. p. 97; Rgl. et Til. Fl. Ajan. p. 124; Maxim. Prim. Fl. Amur. p. 292; Rgl. Tent. Fl. Ussuri. p. 156; Fr. Schm. Fl. Sachal. p. 189; Fr. et Sav. Enum. Pl. Jap. II. p. 97; Hook. f. Fl. Brit. Ind. VI. p. 401; Miyabe, Fl. Kuril. p. 267; Buchenau, Monogr. Juncac. p. 155 et Juncac. p. 83; Brown, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 160; Kom. Fl. Mansh. I. p. 430.

Juncus campestris L. Spec. Pl. ed. 1, p. 329.

var. **sudetica** Celak. Prodr. Fl. Böhn. p. 749; Buchenau, Monogr. Juncac. p. 164 et Juncac. p. 89; Matsum. Ind. Pl. Jap. II. i. p. 186, p.p.

Juncus sudeticus Willd. Spec. Pl. II. p. 221.

Luzula sudetica DC. Fl. Franc. Suppl. p. 306.

HAB. In pratis silvaticis, prope Ruesan (Ipse! n. 5847, Aug. 11, 1920).—In herbosis, prope Shirakawa (Ipse! n. 5562, Jul. 30, 1920).—In herbosis, prope Yotsuiwahana (Ipse! n. 5156, Jul. 12, 1920; n. 5287, Jul. 14, 1920).—In silvis, prope Magarikawa (Ipse! n. 5246, Jul. 13, 1920).—In herbosis, inter Nishikawa et Atenkeshi (Ipse! n. 5207, Jul. 13, 1920).

DISTRIB. *var.* Eurasia subarctica alpina et montana, America borealis.

var. capitata Miq. Prol. Fl. Jap. p. 329; Fr. et Sav. Enum. Pl. Jap. II. p. 97; Buchenau, Monogr. Juncac. p. 160 et Juncac. p. 92; Palib. Consp. Fl. Korea. III. p. 17; Koidz. Pl. Sachal. p. 31; Nakai, Fl. Korea. II. p. 268; Takeda, Fl. Shikotan p. 490; Miyabe and Miyake, Fl. Saghal. p. 494.

Luzula campestris DC. *var. congesta* Miyabe, Fl. Kuril. p. 267.

HAB. In ruderalis, prope Shirakawa (Ipse! n. 5695, Jul. 30, 1920).—In herbosis, prope Nagaiwasaki (Ipse! n. 5106, Jul. 11, 1920).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiu-shu, Korea, Manchuria: *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiu-shu, Korea, Manchuria, China, Amur, Ussuri, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Dahuria, Kamtschatka, terra Tschuktschorum, Himalaya alpina et temperata, Khasia, Nilghiri, Anamallay, Tauria, Caucasus, Europa, Unalaska, Sitcha, America borealis et australis, Africa, Tasmania, Nova Zeelandia, Australia.

*76 *Juncus beringensis* Buchenau, Monogr. Juncac. p. 226 et Juncac. p. 129; Matsum. Ind. Pl. Jap. II. i. p. 183; Takeda, Hakubutsu-no-Tomo ann. 8, p. 17.

Juncus Drummondii E. Mey. in Ledeb. Fl. Ross. IV. p. 235, p. p.

Juncus Fauriei Lév'l. et Vnt. in Bull. Soc. Bot. France LI. p. 292, p. p.

HAB. In paludibus, prope Kashiwabarawan (Ipse! n. 5487, Jul. 26, 1920).—In paludibus, prope Hiratazaki (Ipse! n. 5414, Jul. 21, 1920).—In paludibus, prope Arakawa (Ipse! n. 5326, Jul. 15, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, ins. Behringii.

*77 *Juncus effusus* L. Spec. Pl. ed. 1, p. 326; Thunb. Fl. Jap. p. 145; Fr. Schm. Fl. Sachal. p. 189; Miyabe, Fl. Kuril. p. 266; Buchenau, Monogr. Juncac. p. 228 et Juncac. p. 135 et Diels, Fl. Centr. China, p. 238; Hook. f. Fl. Brit. Ind. VI. p. 392; Britt. and Br. III. Fl. I. p. 382; Palib. Consp. Fl. Korea. III. p. 16; Kom. Fl. Mansh. I. p. 425; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 442; Brown, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 163; Hegi, Ill. Fl. Mitteleurop. II. 2. p. 151; Matsum. et Hayata, Enum. Pl. Formos. p. 451.

Juncus communis E. Mey. β . *effusus* E. Mey. Juncac. Gen. Monogr. p. 20; Ledeb. Fl. Ross. IV. p. 221.

var. decipiens Buchenau, Monogr. Juncac. p. 299 et Juncac. p. 136; Matsum. Ind. Pl. Jap. II. i. p. 183; Makino, Bot. Mag. Tokyo, XII. p. 162; Koidz. Pl. Sachal. p. 32; Miyabe and Miyake, Fl. Saghal. p. 491.

Juncus communis, β . *effusus* Fr. et Sav. Enum. Pl. Jap. II. p. 97, (non E. Mey.).

Juncus communis Miq. Prol. Fl. Jap. p. 328, (non E. Mey.).

HAB. In paludibus, prope Ruesan (Ipse! n. 5647, Aug. 5, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5488, Jul. 26, 1920).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiu-shu, Tsushima; *sp.* Formosa, Korea, Manchuria, Sibiria (altaica et uralensis), China, Himalaya, Europa, Africa, Australia, America.

78. *Juncus balticus* Willd. in Berl. Magazine III. p. 298; Kunth, Enum. Pl. III. p. 317; Ledeb. Fl. Ross. IV. p. 222; Trautv. et Mey. Fl. Ochot. p. 97; Fr. Schm. Fl. Sachal. p. 189; Buchenau, Monogr. Juncac. p. 214 et Juncac. p. 144; Miyabe, Fl. Kuril. p. 266; Britt. and Br. III. Fl. I. p. 384; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 437; Hegi, Ill. Fl. Mitteleurop. II. p. 153.

var. ***Haenkei*** Buchenau, Monogr. Juncac. p. 215 et Juncac. p. 145; Makino, Bot. Mag. Tokyo, XII. p. 164; Kom. Fl. Manch. I. p. 427; Matsum. Ind. Pl. Jap. II. i. p. 183; Takeda, Fl. Shikotan p. 491; Miyabe and Miyake, Fl. Saghal. p. 491.

Juncus Haenkei E. Mey. Syn. Juncor. p. 10.

Juncus arcticus Bong. Vég. de Sitcha, p. 167; Koidz. Bot. Mag. Tokyo, XXV. p. 205, (non Willd.).

Juncus arcticus Willd. *var. sitchensis* Englm. in Trans. St. Louis Acad. II. p. 445.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5759, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5001, Jul. 6, 1920; n. 5437, Jul. 23, 1920).—In paludibus, prope Yotsuiwahana (Ipse! n. 5155, Jul. 12, 1920).—Ottomai (C. Tarao! Jul. 10, 1892).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, fretum Behringii, Nutka-sund, Unalaska, ins. Sitcha; *sp.* Japonia, Sibiria orientalis, fretum Behringii, Unalaska, America borealis et australis, Europa.

79. *Juncus kamschatcensis (Buchn.) Kudo, nom. nov.

Juncus Fauriensis Buchenau, *var. kamschatcensis* Buchenau, Juncac. p. 157.

Caules erecti, 20–36 cm. alti, subteres, subcompressi vel compressi. Folia basilaria infima cataphyllina, nitidiuscula, usque 6 cm. longa; sequentia frondosa, vaginis nitidiusculis vel basi rufescentibus; caulina 1–2, frondosa, auriculis magnis oblongis, laminis unitubulosis. Bractea infima frondescens, inflorescentia brevior vel longior. Inflorescentia terminalis, anthelata, simplex, pedunculis erectis. Capitula ca 7 in numero, 3–5-flora. Flores 3 mm. longi, cum fructu maturo 5 mm. longi. Tepala externa acuta vel acuminata, castanea, brevius albo-marginata; interna ovatuscula, castanea, late albo-marginata. Stamina 6, tepalis duplo vel 1/3-plo breviora; antherae ovatae, parvae, filamentis pluries breviores. Fructus oblongo-trigonus, unilocularis. Semina apice albo-caudata.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5760, Aug. 6, 1920).—In paludibus, prope Ruesan (Ipse! n. 5648, Aug. 5, 1920).

DISTRIB. Kuriles et Kamtschatka.

Species hæc *Juncus Fauriensi* multo differt, caulibus elatioribus, capitulis parvioribus et numerioribus, tepalis intense coloratis, staminibus 6 in numero.

80. *Juncus triglumis L. Spec. Pl. ed. 1, p. 328; Kunth, Enum. Pl. III. p. 358; Ledeb. Fl. Ross. IV. p. 233; Rgl. et Til. Fl. Ajan. p.

124; Buchenau, Monogr. Juncac. p. 388 et Junac. 224; Boiss. Fl. Orient. V. p. 355; Hook. f. Fl. Brit. Ind. VI. p. 396; Britt. and Br. Ill. Fl. I. p. 390; Trautv. Fl. Terr. Tschuktschor. p. 38; F. Kurtz, Engl. Bot. Jahrb. XIX. p. 477; Yabe, Bot. Mag. Tokyo, XVII. p. 17; Matsum. Ind. Pl. Jap. II. i. p. 186; Hegi, Ill. Fl. Mitteleurop. II. p. 163.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5761, Aug. 6, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, Dahuria, Ochotsk, Sibiria (orientalis, baicalensis et altaica), Dahuria, Himalaya alpina, Tibet occidentalis, Europa, America borealis.

*81. *Juncus castaneus* Smith, Fl. Brit. ed. 1, I. p. 383; Kunth, Enum. Pl. II. p. 357; Meyer, in Linnæa III. p. 374; Ledeb. Fl. Alt. II. p. 50 et Fl. Ross. IV. p. 232; Hook. et Arn. in Beechey's Voy. p. 131; Turcz. Fl. Cat. Baical. n. 1170; Kjellman, Phanero. Fl. Asiat. p. 373; Buchenau, Monogr. Juncac. p. 403 et Juncac. p. 233; F. Kurtz, in Engl. Bot. Jahrb. XIX. pp. 412, 476; Britt. and Br. Ill. Fl. I. p. 389; Aschers. u. Graebn. Syn. Mitteleurop. Fl. II. 2. p. 487; Hegi, Ill. Fl. Mitteleurop. II. p. 164, f. 293, 294f.

Juncus triceps Rostkovius, de Junco p. 48, f. 4; Smith, Engl. Bot. XIII. t. 900.

Juncus Czelzii Schur, in Oesterr. Bot. Zeitsch. (1863) p. 111.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5762, Aug. 6, 1920).

DISTRIB. Kuriles, terra Tschuktschorum, Sibiria (baicalensis, altaica et uralensis), Turkestan, Europa arctica et alpina, ins. Unalaska, America arctica, subarctica et alpina.

Species hæc ad floram japonicam nova est!

*82. *Juncus prominens* Miyabe et Kudo, Mater. Fl. Hokkaido, n. 8, in Trans. Sapporo Nat. Hist. Soc. V. p. 40.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5763, Aug. 6, 1920).

DISTRIB. Kuriles, Hokkaido et America borealis.

Liliaceæ.

*83. *Tofieldia nutans* Willd. ex Schult. Syst. VII. p. 1573; Kunth, Enum. Pl. IV. p. 170; Ledeb. Fl. Ross. IV. p. 210; Maxim. Mém. Biol. VI. p. 212 et VIII. p. 416; Fr. et Sav. Enum. Pl. Jap. II. p. 89; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (177); Matsum. Ind. Pl. Jap. II. i. p. 215; Takeda, Bot. Mag. Tokyo, XXIV. p. 317 et Fl. Shikotan p. 490; Miyabe et Kudo, Mater. Fl. Hokkaido, n. 27, in Trans. Sapporo Nat. Hist. Soc. V. p. 75; Miyabe and Miyake, Fl. Saghal. p. 483.

Tofieldia gracilis Matsudaira, Bot. Mag. Tokyo, IX. p. 470, (non Fr. et Sav.).

HAB. In pratis alpinis, prope Shirakawa (Ipse! n. 5569, Jul. 30, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5330, Jul. 15, 1920).

—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5111, Jul. 11, 1920).—Ad saxum, prope Shikatanoma (Ipse! n. 5072, Jul. 11, 1920).—Ad saxum, prope Yotsuiwahana (Ipse! n. 5958, Jul. 12, 1920; n. 5289, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Sibiria (orientalis et baicalensis).

*84. **Veratrum album** L. Spec. Pl. ed. 1, p. 1044; Kunth, Enum. Pl. IV. p. 186; Ledeb. Fl. Ross. IV. p. 208; Maxim. Prim. Fl. Amur. p. 289; Rgl. Tent. Fl. Ussuri. p. 153; Baker, in Jour. Linn. Soc. XVII. p. 470; Miyabe, Fl. Kuril. p. 266; Wright, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 147; Aschers. u. Graebn. Syn. Mittelurop. Fl. III. p. 11; Hegi, Ill. Fl. Mitteleurop. II. p. 193; Takeda, Fl. Shikotan p. 490.

var. **oxysepalum** Miyabe et Kudo, in Miyabe and Miyake, Fl. Saghal. p. 484.

Veratrum oxysepalum Turcz. in Bull. Soc. Nat. Mosc. 1840, p. 79; Ledeb. Fl. Ross. IV. p. 209.

Veratrum sp. Kawakami, Bot. Mag. Tokyo, XIV. p. 107.

HAB. In pratis apertis, prope Kashiwabarawan (Ipse! n. 5046, Jul. 9, 1920).—In pratis apertis, prope Murakamiwan (Ipse! n. 5004, Jul. 6, 1920).—In pratis apertis, prope Hiratazaki (Ipse! n. 5410, Jul. 21, 1920).—In pratis apertis litoralibus, prope Arakawa (Ipse! n. 5331, Jul. 15, 1920).—In pratis apertis, prope Yotsuiwahana (Ipse! n. 5290, Jul. 14, 1920).—In pratis apertis, inter Nishikawa et Atenkeshi (Ipse! n. 5208, Jul. 13, 1920).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Kamtschatka, Alaska; sp. Sachalin, Kuriles, Hokkaido, Honshu, China, Manchuria, Mongolia, Dahuria, Amur, Ussuri, Kamtschatka, Sibiria (orientalis, baicalensis, altaica et uralensis), Caucasus et Europa.

85. **Allium strictum** Schrad. Hort. Göt. t. 1; Miyabe et Kudo, Mater. Fl. Hokkaido n. 22, in Trans. Sapporo Nat. Hist. Soc. V. p. 71.

HAB. In herbidis, prope Kashiwabarawan (Ipse! n. 5491, Jul. 26, 1920).—In herbosis, prope Murakamiwan (Ipse! n. 4950, Jul. 4, 1920).—In herbidis, prope Nagaiwasaki (Ipse! n. 5107, Jul. 11, 1920).—In herbidis, prope Urafutoyama (Ipse! n. 5791, Aug. 8, 1920).—Prope Miyakawazaki (T. Matsubara! Aug. 7, 1915).—Sine loco indicato (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Amur, Manchuria, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Persia, Asia minor, Caucasus et Europa.

*86. **Allium Victorialis** L. Spec. Pl. ed. 1, p. 295; Ledeb. Fl. Alt. II. p. 8 et Fl. Ross. IV. p. 184; Kunth, Enum. Pl. IV. p. 432; Rgl. et Til. Fl. Ajan. p. 123; A. Gray, Bot. Jap. p. 416; Maxim. Prim. Fl. Amur. p. 283; Miq. Prol. Fl. Jap. p. 318; Fr. Schm. Fl. Sachal. p. 187 et Fl. Amg.-Burj. p. 65; Rgl. All. Monogr. p. 170; Fr. et Sav. Enum. Pl. Jap. II. p. 78; Franch. Pl. David. p. 306; Miyabe, Fl. Kuril. p. 264; Matsudaira, Bot. Mag. Tokyo, IX. p. 470; Hook, f. Fl. Brit. Ind. VI. p. 342; Kawakami, Bot. Mag. Tokyo, XIV. p. 107;

Diels, Fl. Centr. China p. 242; Kom. Fl. Mansh. I. p. 444; Wright, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 126; Aschers. u. Graebn. Syn. Mitteleurop. Fl. III. p. 116; Hegi, Ill. Fl. Mitteleurop. II. p. 219; Matsum. Ind. Pl. Jap. II. i. p. 191; Koidz. Pl. Sachal. p. 35; Nakai, Fl. Korea. II. p. 261; Miyabe and Miyake, Fl. Saghal. p. 473.

Allium ellipticum Wall. Cat. n. 5069; Kunth, Enum. Pl. IV. p. 456.

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5790, Aug. 8, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, China, Mongolia, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Caucasus, Europa et America borealis.

87. *Lilium medeoloides* A. Gray, Pl. Jap. p. 415; Miq. Prol. Fl. Jap. p. 320; Fr. et Sav. Enum. Pl. Jap. II. p. 63 (excl. β .); Baker, in Jour. Linn. Soc. XIV. p. 236; Wright, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 132; Matsum. Ind. Pl. Jap. II. i. p. 205; Koidz. Pl. Sachal. p. 40; Nakai, Fl. Korea. II. p. 256 et Bot. Mag. Tokyo, XXXI. p. 7; Takeda, Fl. Shikotan p. 489; Miyabe and Miyake, Fl. Saghal. p. 477.

Lilium avenaceum Fisch. ex Rgl. Gartenfl. p. 290, t. 485; Fr. Schm. Fl. Sachal. p. 186; Baker, l. c. p. 246; Miyabe, Fl. Kuril. p. 265; Kawakami, Bot. Mag. Tokyo, XIV. p. 107; Matsum. l. c. p. 202.

form **kurilense** (Nakai) Kudo, nom. nov.

Lilium medeoloides A. Gray, var. *kurilense* Nakai, Bot. Mag. Tokyo, XXXI. p. 8.

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5650, Aug. 5, 1920).— In pratis siccis, prope Tomarizaki (Ipse! n. 5700, Aug. 7, 1920).— In pratis siccis, prope Urafuto-yama (Ipse! n. 5792, Aug. 8, 1920).— In pratis siccis, prope Murakamiwan (Ipse! n. 5463, Jul. 23, 1920).— In pratis siccis, prope Shirakawa (Ipse! n. 5567, Jul. 30, 1920).— Ottomai (C. Tarao! Jul. 10, 1892).

DISTRIB. form. Kuriles; *sp.* Sachalin, Kuriles, Hokkaido.

88. *Fritillaria camschatcensis Ker.-Gawl. in Bot. Mag. sub t. 1216; Kunth, Enum. Pl. IV. p. 254; Ledeb. Fl. Ross. IV. p. 147; Maxim. Prim. Fl. Amur. p. 279; Fr. Schm. Fl. Sachal. p. 186; Fr. et Sav. Enum. Pl. Jap. II. p. 62; Miyabe, Fl. Kuril. p. 265; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 410; Kom. Fl. Mansh. I. p. 464; Wright, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 136; Matsum. Ind. Pl. Jap. II. i. p. 196; Koidz. Pl. Sachal. p. 40; Takeda, Bot. Mag. Tokyo, XXIV. p. 316 et Fl. Shikotan p. 490; Miyabe and Miyake, Fl. Saghal. p. 478.

Lilium camschatcense L. Spec. Pl. ed. 1, p. 303.

Fritillaria kamtschatcensis Fisch. ex Hook. Fl. Bor. Amer. II. p. 181; Trautv. et Mey. Fl. Ochot. p. 93; Rgl. et Til. Fl. Ajan. p. 123; Baker, in Jour. Linn. Soc. XIV. p. 273.

HAB. In pratis, prope Murakamiwan (Ipse! n. 4951, Jul. 4, 1920; n. 5003, Jul. 6, 1920): in silvis deciduis, prope Murakamiwan (Ipse! n. 5018, Jul. 7, 1920).— In pratis, prope Yotsuiwahana (Ipse! n. 5288, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, China, Amur, Sibiria orientalis, Kamtschatka, ins. Aleuticae, America borealis.

89. *Lloydia serotina* Reichb. Fl. Germ. Exc. p. 102; Kunth, Enum. Pl. IV. p. 244; Ledeb. Fl. Ross. IV. p. 144; Hook. f. Fl. Brit. Ind. VI. p. 354; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 457; Kawakami, Bot. Mag. Tokyo, XIV. p. 107; Yabe, Bot. Mag. Tokyo, XVII. p. 18; Aschers. u. Gracbn. Syn. Mitteleurop. Fl. III. p. 94; Hegi, Ill. Fl. Mitteleurop. II. p. 213; Koidz. Bot. Mag. Tokyo, XXV. p. 205; Miyabe and Miyake, Fl. Saghal. p. 479.

Bulbocodium serotinum L. Spec. Pl. ed. I, p. 294.

Nectarobothrium striatum Ledeb. Fl. Alt. II. p. 36.

Lloydia alpina Salisb. Trans. Hort. Soc. I. p. 328; Wright, in Forb. et Hemsl. Ind. Fl. Sin. III. p. 139; Matsum. Ind. Pl. Jap. II. i. p. 206.

HAB. In pratis subalpinis, prope Murakamiwan (Ipse! n. 5568, Jul. 30, 1920).—In saxosis, prope Shikatanoma (Ipse! n. 5071, Jul. 11, 1920).—In pratis subalpinis, prope Arakawa (Ipse! n. 5329, Jul. 15, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5157, Jul. 12, 1920).—Musashiwan (M. Aizawa! June 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, China, Mongolia, Himalaya, Tibet, Sibiria (baicalensis, uralensis, altaica et arctica), terra Tschuktschorum, Caucasus, Europa alpina, ins. Unalaska, America borealis.

90. *Majanthemum canadense* Desf. Ann. Mus. Paris IX. p. 54.

Smilacina bifolia Desf. var. *canadensis* A. Gray, Man. Bot. ed. 2, p. 467.

Smilacina canadensis Pursh, Flora I. p. 233.

Unifolium canadense Greene, Bull. Torr. Club. XV. p. 287; Britt. and Br. Ill. Fl. I. p. 431.

var. ***kamtschaticum*** Kudo.

Convallaria foliis cordatis L. α . *kamtschatica* Gmel. Fl. Sib. I. p. 36.

Convallaria bifolia L. var. *kamtschatica* Cham. Linnæa VI. p. 587.

Smilacina bifolia Desf. β . *kamtschatica* Ledeb. Fl. Ross. IV. p. 127; Fr. et Sav. Enum. Pl. Jap. II. p. 53.

Majanthemum bifolium F. W. Schm. var. *kamtschaticum* Trautv. et Mey. Fl. Ochot. p. 92; Maxim. Prim. Fl. Amur. p. 276; Fr. Schm. Fl. Sachal. p. 185; Miyabe, Fl. Kuril. p. 264; Matsudaira, Bot. Mag. Tokyo, IX. p. 470; Kawakami, *ibidem* XIV. p. 107; Koidz. Pl. Sachal. p. 36; Takeda, Fl. Shikotan, p. 489; Miyabe and Miyake, Fl. Saghal. p. 467.

Majanthemum canadense Kom. Fl. Mansh. I. p. 474; Nakai, Fl. Korea. II. p. 245, (non Desf.).

Unifolium bifolium kamtschaticum Piper, Fl. Washingt. p. 200.

Majanthemum kamtschaticum Nakai, Bot. Mag. Tokyo, XXXI. p. 282.

HAB. In sylvis, prope Nodawan (Ipse! n. 4862, Jun. 26, 1920).—In pratis sylvaticis, prope Okuyotsuiwa (Ipse! n. 4916, Jun. 29, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5043, Jul. 9, 1920).

—In pratis sylvaticis, prope Arakawa (Ipse! n. 5328, Jul. 15, 1920).—
In pratis sylvaticis, prope Nagaiwasaki (Ipse! n. 5109, Jul. 11, 1920).—
Sine loco indicato (C. Tarao! Aug. 15, 1892).—Ottomai (S. Yokoyama!
Sept. 1893).—Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, Honshu, Manchuria,
Amur, Sibiria orientalis, Kamtschatka, America borealis; *sp.* America
borealis.

91. *Streptopus amplexifolius DC. in Lam. et DC. Fl. Franc.
III. p. 174; Kunth, Enum. Pl. IV. p. 205; Ledeb. Fl. Ross. IV. p.
122; A. Gray, Bot. Jap. p. 415; Maxim. Prim. Fl. Amur. p. 273;
Miq. Prol. Fl. Jap. p. 310; Fr. Schm. Fl. Sachal. p. 185; Fr. et Sav.
Enum. Pl. Jap. II. p. 51; Maxim. Mél. Biol. XI. p. 855; Miyabe, Fl.
Kuril. p. 263; Kom. Fl. Mansh. I. p. 476; Aschers. u. Graebn. Syn.
Mitteleurop. Fl. III. p. 305; Matsum. Ind. Pl. Jap. II. i. p. 214; Hegi,
III. Fl. Mitteleurop. II. p. 268; Miyabe and Miyake, Fl. Saghal. p. 464.

Uvalaria amplexifolia L. Spec. Pl. ed 1, p. 304.

Streptopus amplexicaulis Baker, in Journ. Linn. Soc. XIV. p. 591.

HAB. In sylvis deciduis, prope Kashiwabarawan (Ipse! n. 5045,
Jul. 9, 1920).—In sylvis deciduis, prope Murakamiwan (Ipse! n. 5019,
Jul. 7, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, China, Manchuria,
Kamtschatka, Alaska, ins. Sitcha, Europa et America borealis.

92. *Trillium kamtschaticum Pall. in Herb. Lamb. ex Pursh,
Fl. Am. Sept. I. p. 246; Miyabe, Fl. Kuril. p. 265; Kawakami, Bot.
Mag. Tokyo, XIV. p. 107; Matsum. Ind. Pl. Jap. II. i. p. 217; Take-
da, Bot. Mag. Tokyo, XXIV. p. 317; Miyabe and Miyake, Fl. Saghal.
p. 481.

Trillium obovatum Pursh, l. c. p. 245; Kunth, Enum. Pl. V. p.
124; Ledeb. Fl. Ross. IV. p. 121; Hook. et Arn. Beechey's Voy. p.
117; Maxim. Prim. Fl. Amur. p. 273 et Mél. Biol. XI. p. 861; Fr.
Schm. Fl. Sachal. p. 185; Kom. Fl. Manch. I. p. 485; Matsum. Ind.
Pl. Jap. II. i. p. 217; Koidz. Pl. Sachal. p. 39; Nakai, Fl. Korea. II.
p. 240.

Trillium erectum L. *var. album* A. Gray, Pl. Jap. p. 320.

Trillium erectum L. *var. japonicum* A. Gray, Bot. Jap. p. 413; Fr.
et Sav. Enum. Pl. Jap. II. p. 56.

HAB. Ad marginem sylvarum, prope Nodawan (Ipse! n. 4863,
Jun. 26, 1920).—In pratis sylvaticis, prope Okuyotsuiwa (Ipse! n. 4917,
Jun. 29, 1920).—In sylvis deciduis, prope Nagaiwasaki (Ipse! n. 5110,
Jul. 11, 1920).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria,
Amur et Kamtschatka.

Iridaceæ.

93. *Iris setosa* Pall. ex Link, Jahrb. I. iii. p. 71; Ledeb. Fl.
Ross. IV. p. 96; A. Gray, Bot. Jap. p. 412; Trautv. et Mey. Fl.

Ochot. p. 90; Rgl. et Til. Fl. Ajan. p. 121; Rgl. Gartenfl. t. 322 et Tent. Fl. Ussuri. p. 147; Maxim. Prim. Fl. Amur. p. 271 et Mél. Biol. X. p. 713; Miq. Prol. Fl. Jap. p. 306; Fr. Schm. Fl. Sachal. p. 184; Fr. et Sav. Enum. Pl. Jap. II. p. 42; Miyabe, Fl. Kuril. p. 263; Kom. Fl. Mansh. I. p. 496; Kawakami, Bot. Mag. Tokyo, XIV. p. 107; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (178); Matsum. Ind. Pl. Jap. II. i. p. 228; Koidz. Pl. Sachal. p. 40; Nakai, Fl. Korea. II. p. 234; Takeda, Fl. Shikotan p. 488; Miyabe and Miyake, Fl. Saghal. p. 458.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5731, Aug. 7, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5044, Jul. 9, 1920).—In paludibus, prope Shirakawa (Ipse! n. 5570, Jul. 30, 1920).—In paludibus, prope Magarikawa (Ipse! n. 5247, Jul. 13, 1920).—Ottomai (C. Tarao! Jul. 11, 1892; S. Yokoyama! Sept. 1893).—Mushashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Sibiria orientalis, Kamtschatka, Unalaska, America borealis arctica.

Orchidaceæ.

*94. *Orchis Beeringiana* (Cham. et Schl.) Kudo, nom. nov.

Orchis latifolia L. var. *Beeringiana* Cham. et Schl. in Linnæa III. p. 26; Ledeb. Fl. Ross. IV. p. 54; Miq. Prol. Fl. Jap. p. 138; Fr. et Sav. Enum. Pl. Jap. II. p. 29; Aschers. u. Graebn. Syn. Mitteleurop. Fl. III. p. 733.

Orchis aristata Fisch. ex Lindl. Gen. et Spec. Orchid. Pl. p. 262; A. Gray, Bot. Jap. p. 409; Fr. Schm. Fl. Sachal. p. 181; Miyabe, Fl. Kuril. p. 262; Matsudaira, Bot. Mag. Tokyo, IX. p. 470; Kawakami, *ibidem* XIV. p. 107; Yabe et Yendo, *ibidem* XVIII. p. (178); Forb. et Hemsl. Ind. Fl. Sin. III. p. 49; Matsum. Ind. Pl. Jap. II. i. p. 255; Koidz. Pl. Sachal. p. 42; Takeda, Fl. Shikotan p. 487; Miyabe and Miyake, Fl. Saghal. p. 448.

Orchis latifolia L. var. *angustata* Awano, Bot. Mag. Tokyo, XIX. p. (286), (non Maxim.)

HAB. In herbidis, prope Suribachi (Ipse! n. 4888, Jun. 27, 1920).—In herbosis, prope Ruesan (Ipse! n. 5651, Aug. 5, 1920).—In herbosis, prope Murakamiwan (Ipse! n. 4932, Jul. 3, 1920): in paludibus, prope Murakamiwan (Ipse! n. 4972, Jul. 4, 1920).—In herbosis, prope Hiratasaki, (Ipse! n. 5408, Jul. 21, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5159, Jul. 12, 1920; n. 5291, Jul. 14, 1920).—In herbosis, prope Nagaiwasaki (Ipse! n. 5112, Jul. 11, 1920).—In herbidis, inter Nishikawa et Atenkeshi (Ipse! n. 5209, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, insulæ Aleuticæ, Unalaska et China.

*95. *Platanthera tipuloides* Lindl. Gen. et Spec. Orchid. Pl. p. 285; Ledeb. Fl. Ross. IV. p. 69; Trautv. et Mey. Fl. Ochot. p. 90; Maxim. Prim. Fl. Amur. p. 268; Rgl. Tent. Fl. Ussuri. p. 142; Fr.

Schm. Fl. Sachal. p. 182; Kom. Fl. Mansh. I. p. 516; Finet, in Bull. Soc. Bot. France LXVII. p. 284; Kränzl. Orchid. Gen. et Spec. I. p. 622; Takeda, Bot. Mag. Tokyo, XXIV. p. 134; Miyabe and Miyake, Fl. Saghal. p. 453.

Orchis tipuloides L. Spec. Suppl. p. 401.

HAB. In paludibus, prope Ruesan (Ipse! n. 5841, Aug. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Amur et Ussuri.

*96. *Platanthera Makinoi* Yabe, Bot. Mag. Tokyo, XVII. p. 19; Matsum. Ind. Jap. II. i. p. 260; Takeda, Bot. Mag. Tokyo, XXIV. p. 136 et Notes R. B. G. Edinbg. Vol. VIII. Num. XXXIX. p. 236 et Fl. Shikotan p. 488.

Habenaria bracteatus, Benth. et Hook. form. *Major*? Matsudaira Bot. Mag. Tokyo, IX. p. 470.

HAB. In herbidis, prope Arahatazaki (Ipse! n. 4856, Aug. 12, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu.

*97. *Listera cordata* R. Br. in Ait Hort. Kew. ed. 2, V. p. 201; Endl. Gen. et Spec. Orchid. Pl. p. 456; Ledeb. Fl. Ross. IV. p. 80; Bl. Coll. Orchid. Archip. Ind. et Jap. p. 136; Maxim. Prim. Fl. Amur. p. 269; Miq. Prol. Fl. Jap. p. 141; Fr. Schm. Fl. Sachal. p. 183; Fr. et Sav. Enum. Pl. Jap. II. p. 36; Britt. and Br. Ill. Fl. I. p. 473; Makino, Bot. Mag. Tokyo, VII. p. 66 et *ibidem* XIX. p. 12; Kawakami, Bot. Mag. Tokyo, XII. p. (268); Finet, in Bull. Soc. Bot. France XLVII. p. 271; Matsum. Ind. Pl. Jap. II. i. p. 253; Aschers. u. Graebn. Syn. Mitteleurop. Fl. III. p. 890; Takeda, Fl. Shikotan p. 487; Hegi, Ill. Fl. Mitteleurop. II. p. 387, t. 68, f. 25, t. 76, f. 3; Miyabe and Miyake, Fl. Saghal. p. 444.

Ophrys cordata L. Spec. Pl. ed. 1, p. 946.

HAB. In sylvis, prope Hiratazaki (Ipse! n. 5409, Jul. 21, 1920).

—In sylvis, prope Shirakawa (Ipse! n. 5571, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Amur, Sibiria (orientalis et uralensis), Caucasus, ins. Sitcha, Unalaska, Europa et America borealis.

Salicaceæ.

98. *Salix arctica* Pall. Fl. Ross. I. 2. p. 86; Ledeb. Fl. Ross. III. p. 619; Anders. in DC. Prodr. XVI. 2. p. 286; Lundström, Weid. Now. Semljas. in Nov. Act. Soc. Sci. Upsal. 1877, p. 31, t. 1, f. 1-3; Bebb. in Bot. Gaz. XIV. p. 115 (p. p.); Herder, Act. Hort. Petropol. XI. p. 438; Rydberg, in Bull. N. York. Bot. Gard. I. p. 265; C. K. Schn. Ill. Handb. Laubholz. I. p. 41, f. 20 n-o, f. 26 d et in Sarg. Pl. Wilson. III. p. 136, et Bot. Gaz. LXVI. p. 118 et *ibidem*, LXVII. pp. 34, 41, 56; Cham. in Linnæa VI. pp. 529, 530, 540; Hook. et Arn. in Beechey's Voy. p. 129; Hook. Fl. Bor. Am. II. p. 152; Britt. and Br. Ill. Fl. p. 502; F. Kurtz, Engl. Bot. Jahrb. XIX p. 474.

var. **kurilensis** (Koidz.) Kudo, nom. nov.

Salix arctica Tokubuchi, Bot. Mag. Tokyo, X. p. (123); Seem. Sal. Jap. p. 79, (p. p.); Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (178); Matsum. Ind. Pl. Jap. II. i. p. 8 (p. p.); Koidz. Bot. Mag. Tokyo, XXVII. p. 97, (non Pall.).

Salix kurilensis Koidz. Bot. Mag. Tokyo, XXXII. p. 62.

HAB. In paludibus, prope Nodawan (Ipse! n. 4864, Jun. 26, 1920).—In paludibus, prope Chitosewan (Ipse! n. 4837, Jun. 26, 1920).—In pratis subsiccis, prope Suribachi (Ipse! n. 4890, Jun. 27, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5732, Aug. 7, 1920).—In paludibus, prope Ruesan (Ipse! n. 5652, Aug. 5, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5493, Jul. 26, 1920).—Prope lacum, prope Murakamiwan (Ipse! n. 4985, Jul. 4, 1920).—In herbidis, prope Hiratazaki (Ipse! n. 5407, Jul. 21, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5572, Jul. 30, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5332, Jul. 15, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5160, Jul. 12, 1920 et n. 5292, Jul. 14, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5113, Jul. 11, 1920).—In arena, prope Magarikawa (Ipse! n. 5248, Jul. 13, 1920).—Prope Musashiwan (M. Aizawa! Jun. 1900).—Sine loco indicato (T. Sakurai! Aug. 1910).

HAB. var. Kuriles: *sp.* Kamtschatka, terra Tschuktschorum, ins. Behringii, Sibiria orientalis et arctica, Rossia arctica et America arctica.

*99. ***Salix anglorum*** Cham. in Linnæa VI. p. 541; Rydberg, in Bull. N. York. Bot. Gard. I. p. 266; C. K. Schn. in Sarg. Pl. Wilson. III. p. 137.

Salix arctica R. Br. in Ross. Voy. Expl. Baffin's Bay, app. CXLIII. et ed 2, II. p. 194; Herder in Act. Hort. Petropol. XI. p. 438, (p. p.).

Salix Brownei Lundström, Weid. Now. Semljas. in Nov. Act. Soc. Sci. Upsal. 1877, p. 37.

Salix arctica Pall. var. *Brownei* Anders. in DC. Prodr. XVI. 2. p. 286; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 474.

HAB. In pratis subsiccis, prope lacum, prope Murakamiwan (Ipse! n. 4984, Jul. 4, 1920).

DISTRIB. Kuriles, Yakutsk ad Kamtschatkam, et terra Tschuktschorum.

Nova species ad floram japonicam!

100. ***Salix phleobophylla*** Anders. in Oefvers. Vetensk. Akad. Förh. XV. p. 132 et Proc. Am. Acad. IV. p. 27 et in DC. Prodr. XVI. 2. p. 290 (p. p.); Rydberg, in Bull. N. York. Bot. Gard. I. p. 275; C. K. Schn. in Sarg. Pl. Wilson. III. p. 140.

Salix retusa Hook. et Arn. Bot. Beechey's Voy. p. 130, (non L.); Hook. Fl. Bor. Am. II. p. 153; Seemann, Bot. Voy. Herald. p. 40.

Salix Uva-ursi Herder, in Act. Hort. Petropol. XI. p. 444, (non Pursh.).

HAB. In paludibus, prope Chitosewan (Ipse! n. 4836, Jun. 26,

1920).—In paludibus, prope Tomarizaki (Ipse! n. 5740, Aug. 7, 1920).
—In paludibus, prope Kashiwabarawan (Ipse! n. 5492, Jul. 26, 1920).
—In paludibus, prope Murakamiwan (Ipse! n. 4973, Jul. 4, 1920 et n. 5441, Jul. 23, 1920).—Ottomai (S. Yokoyama! Sept. 1893).

DISTRIB. Kuriles, Kamtschatka, ins. Behringii, America arctica.

Hæc species ad floram japonicam nova est!

*101. *Salix* (viminales) **paramushirensis** Kudo, sp. nov.

Frutex 0.6–1.5 m. altus, valde ramosus; ramuli crassi, castanei vel fusco-castanei. Folia breviter petiolata, oblanceolato-oblonga, oblongo-elliptica, apice acuminata vel acuta, basi cuneato-attenuata, supra viridia, nitida, subrugosa, subtus pallidiora, glauciuscula, utrinque glabrata, margine subcrenulata, revoluta, 5–7.5 cm. longa, 1.0–2.2 cm. lata, petiolis 3 mm. longis; costa nervisque prominulis, tenuiter subreticulata, nervis sub 40°–50° a costa divergentibus; petioli basi subdilata, superne laxe pilosi, 2–6 mm. longi. Amenta coætanea, brevissime pedunculata; pedunculis foliatis, foliis ovato-oblongis, oblongo-ellipticis, minoribus, 8–12 mm. longis, 3–5 mm. latis, margine longe albo-ciliatis, utrinque subglabris vel minute puberulentibus. Amenta mascula cylindrica, 1.5–2 cm. longa, ca. 1.1 cm. lata, rhaci sericeo-villosa; bractæ elliptico-oblan-ceolatae, apice obtusæ, deorsum oblongæ, margine longe albo-ciliatæ, ca. 2 mm. longæ, 0.9 mm. latæ; glandula una, ventralis, linearis, 0.9 mm. longa, apice capitato-truncata; stamina 2, filamentis liberis, ca. 5–6 mm. longis, glabris; antheris oblongo-orbicularibus, 0.5 mm. longis. Amenta femina cylindrica, 1.5–2 cm. longa, 0.9–1.0 cm. lata; rhaci sericeo-villosa; bractæ oblongæ, apice rotundatæ, longe albo-ciliatæ, ca. 2.3 mm. longæ, 0.6–0.7 mm. latæ; glandula una, ventralis, ovato-linearis, apice truncata, ca. 1 mm. longa. Ovarium pedicellatum, oblongo-obovatum, dense sericeo-villosum, ca. 2.1 mm. longum, ca. 1.2 mm. latum, pedicellis sericeis, 7–8 mm. longis, stylis strictis, ca. 8 mm. longis, stigmatibus profunde bi-divisis.

HAB. In pratis, ad rivulos, prope Nodawan (Ipse! n. 4865, Jun. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5005, Jul. 6, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5210, Jul. 13, 1920).—Ichaniumbets (S. Yokoyama! Sept. 8, 1893).

DISTRIB. Species endemica!

Species hæc proximæ affinis est *Salici opacæ* Anders., sed ea facile dignoscitur, truncis valde ramosis, foliis oblanceolato-oblongis vel oblongo-ellipticis, prominente nervosis, amentis brevioribus, stigmatibus 2-divisis.

Betulaceæ.

102. *Betula glandulosa* Michx. Fl. Bor. Amer. II. p. 180.

var. *sibirica* C. K. Schn. in Sarg. Pl. Wilson. II. p. 481.

Betula nana Ledeb. Fl. Alt. IV. p. 246 (excl. syn.).

Betula nana L. var. *sibirica* Ledeb. Fl. Ross. III. p. 654.

Betula rotundifolia Spach, in Ann. Sc. Nat. sér. 2, XV. p. 194.

Betula glandulosa Michx. var. *rotundifolia* Rgl. in Bull. Soc. Nat.

Mosc. XXXVIII. 2. p. 408 et in DC. Prodr. XVI. 2. p. 172; Herder, in Act. Hort. Petropol. XII. p. 64.

Betula glandulosa Winkl. in Engl. Pl.-reich. IV. 61. p. 73. (quoad pl. asiat.); Miyabe et Kudo, Mater. Fl. Hokkaido, n. 78, in Trans. Sapporo Nat. Hist. Soc. VI. p. 166.

? *Betula humilis* L. var. *kamtschatica* Rgl. Monogr. Betulac. p. 49 et in DC. Prodr. XVI. 2. p. 174; Winkl. l. c. p. 74.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4839, Jun. 26, 1920).—In paludibus, prope Nodawan (Ipse! n. 4867, Jun. 26, 1920).—In paludibus, prope Ruesan (Ipse! n. 5654, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5764, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4974, Jul. 4, 1920; n. 5442, Jul. 23, 1920 et n. 4988, Jul. 6, 1920).—Chitosewan (T. Matsubara! Jul. 29, 1915).

DISTRIB. var. Kuriles, Sachalin et Kamtschatka; *sp.* America borealis.

103. *Alnus Maximowiczii* Call. apud C. K. Schn. Ill. Handb. Laubholz. I. p. 122, f. 66k, f. 67i et in Sarg. Pl. Wilson. II. p. 505; Miyabe and Miyake, Fl. Saghal. p. 417.

Alnus viridis DC. var. *sibirica* Rgl. Bemerk. Gatt. Betula u. Alnus p. 35 et in DC. Prodr. XVI. 2. p. 182 (quoad pl. jap.); Fr. et Sav. Enum. Pl. Jap. I. p. 456; Miyabe, Fl. Kuril. p. 259; Kawakami, Fig. and Descrip. Hokkaido Trees p. 138, f. 43; Matsum. Rev. Alni Spec. Jap. p. 1; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (178); Shirasawa, Icon. Ess. For. Trees Jap. II. p. 41, pl. 14, f. 8-15.

Alnus alnobetula Hertig. β . *fruticosa* Winkl. in Engl. Pf.-reich. IV. 61. p. 106 (p. p.); Koidz. Pl. Sachal. p. 48; Matsum. Ind. Pl. Jap. II. 2. p. 16.

HAB. In sylvis, prope Nodawan (Ipse! n. 4866, Jul. 26, 1920).—In silvis, prope Suribachi (Ipse! n. 4891, Jun. 27, 1920).—In silvis, prope Ruesan (Ipse! n. 5653, Aug. 5, 1920).—In silvis, prope Kashiwabarawan (Ipse! n. 5494, Jul. 26, 1920).—In silvis, prope Murakamiwan (Ipse! n. 5020, Jul. 7, 1920).—In silvis, prope Hiratazaki (Ipse! n. 5406, Jul. 21, 1920).—In silvis, prope Shirakawa (Ipse! n. 5573, Jul. 30, 1920).—In silvis, prope Arakawa (Ipse! n. 5333, Jul. 15, 1920).—In silvis, prope Nagaiwasaki, (Ipse! n. 5114, Jul. 11, 1920).—In silvis, inter Nishikawa et Atenkeshi (Ipse! n. 5211, Jul. 13, 1920).—Ottomai (S. Yokoyama! Sept. 18, 1893).—Uririzaki (S. Yokoyama! Sept. 9, 1893).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu et Kamtschatka.

Urticaceæ.

104. *Urtica platyphylla* Wedd. Monogr. p. 86; Takeda, Bot. Mag. Tokyo, XXV. p. 24; Miyabe and Miyake, Fl. Saghal. p. 408.

Urtica dioica L. var. *platyphylla* Wedd. in DC. Prodr. XVI. I. p. 51; Maxim. Mém. Biol. IX. p. 620; Fr. et Sav. Enum. Pl. Jap. II. p. 491; Miyabe, Fl. Kuril. p. 258; Kawakami, Bot. Mag. Tokyo, XIV.

p. 108; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (178); Matsum. Ind. Pl. Jap. II. 2. p. 47; Koidz. Pl. Sachal. p. 47.

Urtica dioica Fr. Schm. Fl. Sachal. p. 174, (non L.).

HAB. In ruderalis, prope Tomarizaki (Ipse! n. 5701, Aug. 7, 1920).

—In ruderalis litorilibus, prope Arakawa (Ipse! n. 5334, Jul. 15, 1920).

—Musashiwan (M. Aizawa! June 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu et Kamtschatka.

Polygonaceæ.

***105. Koenigia islandica** L. Mant. p. 35; Cham. et Schl. in Linnæa III. p. 36; Ledeb. Fl. Alt. I. p. 124 et Fl. Ross. III. p. 535; Meisn. in DC. Prodr. XIV. p. 83; Hook. Fl. Bor. Am. II. p. 129; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 473; Dammer, in Engl. u. Pr. Nat. Pfl.-fam. III. 1. p. 9, f. 2; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (179); Matsum. Ind. Pl. Jap. II. 2. p. 54.

Macounastrum islandicum Small. in Britt. and Br. III. Fl. I. p. 542.

HAB. Ad rivulos, prope Arahatazaki (Ipse! n. 5857, Aug. 12, 1920).

DISTRIB. Kuriles, Sibiria (baicalensis, altaica et arctica), Rossia arctica, Unalaska, Groenlandia et Labradoria usque ad sinum Hudson.

***106. Rumex arcticus** Trautv. in Middendr. Sibir. Reise. i. II. p. 29; Ledeb. Fl. Ross. III. p. 506; Meisn. in DC. Prodr. XIV. p. 43; Kjellm. Phanerog. Fl. Asia. Vega Exped. p. 360; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 472.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4840, Jun. 26, 1920).—In paludibus, prope Nodawan (Ipse! n. 4868, Jun. 26, 1920).—In paludibus prope Tomarizaki (Ipse! n. 5766, Aug. 6, 1920).

DISTRIB. Kuriles boreales, terra Tschuktschorum ad sinum St. Laurentii, Sibiria arctica ad fl. Taimyr et Boganida.

Species haec ad floram japonicam nova est!

***107. Rumex Acetosella** L. Spec. Pl. ed. 1, p. 338; Ledeb. Fl. Ross. III. p. 511; Meisn. in DC. Prodr. XIV. p. 63; Miq. Prol. Fl. Jap. p. 369; Maxim. Prim. Fl. Amur. p. 229; Rgl. Tent. Fl. Ussuri. p. 124; Fr. Schm. Fl. Sachal. (ed. ross.) p. 183; Fr. et Sav. Enum. Pl. Jap. I. p. 393; Hook. f. Fl. Brit. Ind. V. p. 61; Herder, Act. Hort. Petropol. XI. p. 201; Britt. and Br. III. Fl. I. p. 547; Korsh. Pl. Amur. p. 381; Forb. and Hemsl. Ind. Fl. Sin. II. p. 355; Kom. Fl. Mansh. II. p. 113; Nakai, Poly. Korea. p. 26 et Bot. Mag. Tokyo, XXIII. p. (458); Koidz. Pl. Sachal. p. 52; Aschers. u. Graebn. Syn. Mitteleurop. Fl. IV. p. 782; Hegi, Ill. Fl. Mitteleurop. III. p. 179, t. 92, f. 3; Matsum. Ind. Pl. Jap. II. 2. p. 65; Takeda, Fl. Shikotan p. 484 (*α vulgaris* Koch); Miyabe and Miyake, Fl. Sachal. p. 398.

HAB. In herbidijs, prope Shirakawa (Ipse! n. 5575, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China, Amur, Dahuria, Sibiria (orientalis, baicalensis, altaica, uralensis

et arctica), Himalaya, Caucasus, Europa, Africa, Australia, America borealis et australis.

108. *Oxyria digyna* Hill. Hort. Kew. p. 158; Kjellm. Vega Exped. p. 361; Boiss. Fl. Orient. IV. p. 1004; S. Watson, Bot. Cal. II. p. 7; Hook. f. Fl. Brit. Ind. V. p. 58; Britt. and Br. Ill. Fl. I. p. 533; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 472; Dammer, in Engl. u. Pr. Nat. Pfl.-fam. III. 1. a. p. 19; Yabe, Bot. Mag. Tokyo, XVII. p. 19; Yabe et Yendo, *ibidem* XVIII. p. (179); Matsum. Ind. Pl. Jap. II. 2. p. 54; Aschers. u. Graebn. Syn. Mitteleurop. Fl. IV. p. 790; Takeda, Fl. Shikotan p. 484; Hegi, Ill. Fl. Mitteleurop. III. p. 188, t. 92, f. 4, u. f. 528i.

Oxyria reniformis Hook. Scot. p. 111 et Fl. Bor. Am. II. p. 129; Cham. et Schl. in Linnæa III. p. 58; Ledeb. Fl. Ross. III. p. 498; Hook. et Arn. Beechey's Voy. p. 129; Bog. Vég. de Sitcha p. 161.

HAB. Ad rivulos, prope Kashiwabarawan (Ipse! n. 5047, Jul. 9, 1920).—Ad fluvios, prope Shirakawa (Ipse! n. 5574, Jul. 30, 1920).—Ad rivulos, prope Shikatanoma (Ipse! n. 5073, Jul. 11, 1920).—Ad fluvios, prope Arakawa (Ipse! n. 5335, Jul. 15, 1920).—Ad rivulos, inter Nishikawa et Atenkeshi (Ipse! n. 5212, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, terra Tschutschorum, Dahuria, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Himalaya, Asia minor, Caucasus, Europa, Novaja-Semlja, Groenlandia, America borealis.

109. *Polygonum viviparum L. Spec. Pl. ed. 1, p. 360; Bong. Vég. de Sitcha p. 161; Ledeb. Fl. Ross. III. 519; Meisn. in DC. Prodr. XIV. p. 124; Trautv. et Mey. Fl. Ochot. p. 75; Rgl. et Til. Fl. Ajan. p. 116; Boiss. Fl. Orient. IV. p. 2027; Maxim. in Bull. Soc. Moscou, 1879, p. 47; Fr. Schm. Fl. Amg.-Burj. p. 60; Franch. Pl. David. p. 255; Miyabe, Fl. Kuril. p. 257; Hook. f. Fl. Brit. Ind. V. p. 31; Forb. et Hemsl. Ind. Fl. Sin. II. p. 352; Britt. and Br. Ill. Fl. I. p. 555; Kew Bull. (1896) p. 214; Yabe, Bot. Mag. Tokyo, XVII. p. 19; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (179); Hemsl. Fl. Tibet, in Journ. Linn. Soc. Bot. XXXV. p. 197; Kom. Fl. Mansh. II. p. 127; Nakai, Bot. Mag. Tokyo, XXIII. p. (411) et Polyg. Korea. p. 13 et Fl. Korea. II. p. 169; Aschers. u. Graebn. Syn. Mitteleurop. Fl. IV. p. 804; Hegi, Ill. Fl. Mitteleurop. III. p. 196, t. 94, f. 1; Matsum. Ind. Pl. Jap. II. 2. p. 64; Takeda, Fl. Shikotan p. 483; Miyabe et Miyake, Fl. Saghal. p. 387.

HAB. In pratis alpinis, prope Urafutoyama (Ipse! n. 5807, Aug. 8, 1920): in pratis siccis, prope Urafutoyama (Ipse! n. 5793, Aug. 8, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5765, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5443, Jul. 23, 1920).—In pratis alpinis, prope Hiratazaki (Ipse! n. 5405, Jul. 21, 1920).—In pratis subalpinis, prope Arakawa (Ipse! n. 5336, Jul. 15, 1920).—In saxosis, prope Shikatanoma (Ipse! n. 5074, Jul. 11, 1920).—In pratis

alpinis, prope Yotsuiwahana (Ipse! n. 5161, Jul. 12, 1920 et n. 5293, Jul. 14, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5213, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China, Amur, Kamtschatka, Sibiria (orientalis, baicalensis, uralensis, altaica et arctica), Himalaya, Tibet, Indo-china, Caucasus, Europa et America borealis.

Chenopodiaceæ.

*110. *Atriplex patula* L. Spec. Pl. ed. 1, p. 1053; Ledeb. Fl. Ross. III. p. 725; Moq. in DC. Prodr. XIII. 2. p. 95; Fr. Schm. Fl. Sachal. p. 166; Britt. and Br. Ill. Fl. I. p. 578; Hegi, Ill. Fl. Mitteleurop. III. p. 242, t. 96, f. 2; Takeda, Fl. Shikotan p. 483 (α . *hololepis* Ledeb.); Aschers. u. Graebn. Syn. Mitteleurop. Fl. V. p. 123; Miyabe and Miyake, Fl. Saghal. p. 378.

Atriplex tatarica Fr. et Sav. Enum. Pl. Jap. II. p. 470, (p. p. non L.); Matsum. Ind. Pl. Jap. II. 2. p. 67.

HAB. In arena litorali, prope Hamanakagawa (Ipse! n. 5827, Aug. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Sibiria (baicalensis, altaica et uralensis), Tauria, Caucasus, Turkestan, Europa et Africa borealis; in Americam borealem introducta.

111. *Atriplex littoralis* L. Spec. Pl. ed 1, p. 1054; Ledeb. Fl. Ross. III. p. 729; Moq. in DC. Prodr. XIII. 2. p. 96; Maxim. Prim. Fl. Amur. p. 223; Miq. Prol. Fl. Jap. p. 126; Fr. et Sav. Enum. Pl. Jap. I. p. 387; Herder, in Act. Hort. Petrop. X. p. 604; Forb. et Hemsl. Ind. Fl. Sin. II. p. 325; Kom. Fl. Mansh. II. p. 156; Nakai, Fl. Korea. II. p. 165; Aschers. u. Graebn. Syn. Mitteleurop. Fl. V. p. 119; Hegi, Ill. Fl. Mitteleurop. III. p. 240.

var. *angustissima* Moq. l. c.; Fr. et Sav. Enum. Pl. Jap. II. p. 387; Matsum. Ind. Pl. Jap. II. 2. p. 67; Miyabe and Miyake, Fl. Saghal. p. 378.

Atriplex Gmelini C. A. Mey. var. Fr. Schm. Fl. Sachal. p. 166.

HAB. Suribachi (Y. Yemoto! Aug. 12, 1919).

DISTRIB. var. Sachalin, Hokkaido, Honshu, Tsushima, Korea, Dahuria, Sibiria (baicalensis, uralensis et altaica), Amur, Manchuria, China; *sp.* Asia borealis, Europa et America borealis.

Specimina pauca, flores ♂ gerentia, tamen huc sine dubitatione referenda.

Portulacaceæ.

*112. *Montia rivularis* C. C. Gmel. Fl. Bad. I. p. 301; Pax, in Engl. u. Pr. Nat. Pfl.-fam. III. 1. p. 58; Aschers. u. Graebn. Syn. Mitteleurop. Fl. V. p. 435; Hegi, Ill. Fl. Mitteleurop. III. p. 271, t. 98, f. 1; Takeda, Bot. Mag. Tokyo, XXV. p. 21.

Montia fontana L. β . *major* Schrad. Fl. Germ. p. 415.

Montia fontana L. β . *rivularis* Boenningh. Fl. Monast. p. 121.

Montia fontana Matsum. Shokubutsu-Mei-I p. 190 et List of Pl. Nikko, p. 35 et Ind. Pl. Jap. II. 2. p. 77; Makino, Bot. Mag. Tokyo, VIII. p. 508; Yabe and Yendo, *ibidem* XVIII. p. (180), (non L.).

HAB. Ad rivulos, prope Urafutoyama (Ipse! n. 5817, Aug. 8, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu et Europa.

Caryophyllaceæ.

*113. *Stellaria media* Cyrill, Char. Comm. p. 36; DC. Prodr. I. p. 396; Bong. Vég. de Sitcha p. 126; Ledeb. Fl. Ross. I. p. 377; Trautv. et Mey. Fl. Ochot. p. 22; Miq. Prol. Fl. Jap. p. 11; Fr. Schm. Fl. Sachal. p. 117; Maxim. Mél. Biol. IX. p. 42; Rgl. Pl. Radd. I. p. 270; Fr. et Sav. Enum. Pl. Jap. I. p. 51; Miyabe, Fl. Kuril. p. 220; Ito et Matsum. Tent. Fl. Lutch. p. 313; Forb. et Hemsl. Ind. Fl. Sin. I. p. 68; Kom. Fl. Mansh. II. p. 169; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (179); Koidz. Pl. Sachal. p. 58; Matsum. Ind. Pl. Jap. II. 2. p. 89; Miyabe and Miyake, Fl. Saghal. p. 70; Takeda, Fl. Shikotan, p. 454; Hegi, Ill. Fl. Mitteleurop. III. p. 352, t. 104. f. 1.

Alsine media L. Spec. Pl. ed. 1, p. 272; Thunb. Fl. Jap. p. 127; Britt. and Br. Ill. Fl. II. p. 21.

HAB. In rudertis, prope Shirakawa (Ipse! n. 5579, Jul. 50, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Liukiu, China, Manchuria, Dahuria, Sibiria (baicalensis, altaica et uralensis), Kamtschatka, Tauria, Caucasus, Europa, Unalaska, ins. Sitcha; in Americam borealem introducta.

*114. *Stellaria uliginosa* Murrey, Prod. Stirp. Gotting. p. 55; Ledeb. Fl. Ross. I. p. 393; A. Gray, Bot. Jap. p. 382; Miq. Prol. Fl. Jap. p. 11; Maxim. Ind. Fl. Pek. in Prim. Fl. Amur. p. 469 et Mél. Biol. IX. p. 49; Benth. Fl. Hongkong. p. 22; Hook. f. Fl. Brit. Ind. I. p. 233; Rgl. Pl. Radd. I. p. 281; Fr. et Sav. Enum. Pl. Jap. I. p. 51; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 458 (f. *minor* et *depressa*); Forb. et Hemsl. Ind. Fl. Sin. I. p. 69; Diels, Fl. Centr. China p. 320; Ito et Matsum. Tent. Fl. Lutchu. p. 314; Kom. Fl. Mansh. II. p. 173; Matsum. et Hayata, Enum. Pl. Formos. p. 36; Nakai, Fl. Korea. II. p. 88; Matsum. Ind. Pl. Jap. II. 2. p. 90; Hegi, Ill. Fl. Mitteleurop. III. p. 357, t. 104, f. 3.

HAB. In herbidis, prope Urafutoyama (Ipse! n. 5822, Aug. 8, 1920).—In glareosis, prope Shirakawa (Ipse! n. 5577, Jul. 30, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Liukiu, Formosa, Korea, China, Hongkong, Manchuria, Himalaya, Sibiria (baicalensis et altaica), Dahuria, terra Tschuktschorum, Caucasus, Europa, Africa borealis, America borealis.

*115. *Stellaria sachalinensis* Takeda, Bot. Mag. Tokyo, XXIV.

p. 257 et Fl. Shikotan p. 454.

Stellaria borealis Biegl. var. *corollina* Maxim. Prim. Fl. Amur. p. 59; Fr. Schm. Fl. Sachal. p. 117, (non Fenzl.).

Stellaria borealis Biegl. var. *corollina* Fenzl. *lusus sachalinensis* Rgl. in Ind. Sem. Hort. Petropol. 1883, p. 33.

Stellaria yezoensis Maxim. Mèl. Biol. XII. p. 419; Miyabe, Fl. Kuril. p. 221; Yatabe, Iconogr. Fl. Jap. I. pt. 3, t. XLI; Yabe and Yendo, Bot. Mag. Tokyo, XVIII. p. (180); Koidz. Pl. Sachal. p. 59; Matsum. Ind. Pl. Jap. II. 2. p. 91; Miyabe and Miyake, Fl. Sachal. p. 71.

Stellaria pilosula Franch. in Bull. Soc. Philom. Paris sér. vii. XII. d. 84.

HAB. In silvis, prope Ruesan (Ipse! n. 5655, Aug. 5, 1920).—In silvis, prope Kashiwabarawan (Ipse! n. 5496, Jul. 26, 1920).—In silvis deciduis, prope Murakamiwan (Ipse! n. 5021, Jul. 7, 1920).—In silvis, prope Shirakawa (Ipse! n. 5580, Jul. 30, 1920).—In silvis, prope Arakawa (Ipse! n. 5338, Jul. 15, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido et Honshu.

116. *Stellaria ruscifolia* Willd. ex Schlecht. Berl. Mag. 1816, p. 194; DC. Prodr. I. p. 399; Ledeb. Fl. Ross. I. p. 385; Trautv. et Mey. Fl. Ochot. p. 23; Rgl. et Til. Fl. Ajan. p. 74; Rgl. Pl. Radd. I. p. 300; Maxim. Prim. Fl. Amur. p. 59 et Mèl. Biol. IX. p. 46; Miyabe, Fl. Kuril. p. 221; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (180); Kom. Fl. Mansh. II. p. 174; Matsum. Ind. Pl. Jap. II. 2. p. 90; Takeda, Fl. Shikotan p. 454.

HAB. In arena litorali, prope Shirakawa (Ipse! n. 5576, Jul. 30, 1920).—In saxosis, prope Kamogawasaki (Ipse! n. 5190, Jul. 12, 1920).—In saxosis, prope Atenkeshi (Ipse! n. 5214, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Kuriles, Hokkaido, Honshu, Manchuria, Kamtschatka, Sibiria orientalis.

117. *Sagina saginoides Dalla Torre, Anleit. Beob. Alpenpfl. p. 189; Britt. and Br. Ill. Fl. II. p. 30; Takeda, Fl. Shikotan p. 455.

Spergula saginoides L. Spec. Pl. ed. 1, p. 441; DC. Prodr. I. p. 394; Cham. et Schl. in Linnaea I. p. 46; Hook. Fl. Bor. Am. I. p. 93; Bong. Vég. de Sitcha, p. 128.

Sagina Linnaei Presl. Rel. Haenk. II. p. 14; Ledeb. Fl. Ross. I. p. 339; Maxim. Mèl. Biol. IX. p. 32; Fr. Schm. Fl. Sachal. p. 117; Rgl. Pl. Radd. I. p. 424; Diels, Fl. Centr. China p. 321; Palib. Consp. Fl. Korea. I. p. 43; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (180); Forb. et Hemsl. Ind. Fl. Sin. I. p. 70; Kom. Fl. Mansh. II. p. 185; Nakai, Fl. Korea. I. p. 90; Miyabe and Miyake, Fl. Saghal p. 75; Hegi, Ill. Fl. Mitteleurop. III. p. 385.

var. ***micrantha*** (Bge.) Kudo, nom. nov.

Spergula micrantha Bge. in Ledeb. Fl. Alt. II. p. 183.

Sagina Linnaei Presl. *α. micrantha* Ledeb. Fl. Ross. I. p. 339.

HAB. In saxosis litoralibus, prope Tomarizaki (Ipse! n. 5778, Aug. 8, 1920).—In glareosis litoralibus, prope Hamanakagawa (Ipse! n. 5828, Aug. 11, 1920).

DISTRIB. *var.* Kuriles, Hokkaido, Kamtschatka, Sibiria (baicalensis, altaica et uralensis), Unalaska et America arctica; *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Liukiu, Formosa, Korea, Manchuria, Sibiria, China, Europa et America borealis.

118. *Ammodenia major* (Hook.) Kudo, nom. nov.

Arenaria peploides L. *var. major* Hook. Fl. Bor. Am. I. p. 102.

Honkeneya oblongifolia Torr. et Gray, Fl. North Am. I. p. 176.

Honkeneya peploides Ehrh. *var. oblongifolia* Fenzl. in Ledeb. Fl. Ross. I. p. 357; A. Gray, Bot. Jap. p. 309; Miq. Prol. Fl. Jap. p. 363; Rgl. et Til. Fl. Ajan. p. 73; Maxim. Prim. Fl. Amur. p. 56.

Ammodenia peploides Rupr. *β. oblongifolia* Maxim. Mém. Biol. IX. p. 34; Takeda, Fl. Shikotan p. 455; Miyabe and Miyake, Fl. Saghal. p. 74.

Honkeneya peploides Trautv. et Mey. Fl. Ochot. p. 21; Fr. Schm. Fl. Sachal. p. 117, (non Ehrh.).

Ammodenia peploides Kom. Fl. Mansh. II. p. 187, (non Rupr.).

Alsine peploides Nakai, Fl. Korea. I. p. 91; Koidz. Pl. Sachal. p. 55, (non Wahlenb.).

Arenaria peploides L. *var. oblongifolia* Watson, Ind. p. 97; Miyabe, Fl. Kuril. p. 221; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Matsum. Ind. Pl. Jap. II. 2. p. 78.

Alsine major Nakai, Chosen-Shokubutsu I. 139. (Jap.).

HAB. In arena litorali, prope Nodawan (Ipse! n. 4860, Jun. 26, 1920).—In arena litorali, prope Kamogawa (Ipse! n. 5273, Jul. 14, 1920).—Kashiwabarawan (S. Yokoyama! Sept. 15, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Sibiria orientalis, Kamtschatka, terra Tschuktschorum, insulæ Aleuticæ, Alaska, America borealis.

119. *Mœhringia lateriflora Fenzl. Verbr. Alsine Table p. 18; Torr. et Gray, Fl. N. Am. I. p. 182; Hook. Fl. Bor. Am. I. p. 102, t. 36; Hook. et Arn. in Beechey's Voy. p. 112; Bong. Vég. de Sitcha p. 128; Ledeb. Fl. Ross. I. p. 371; Trautv. et Mey. Fl. Ochot. p. 22; Rgl. et Til. Fl. Ajan. p. 74; Maxim. Prim. Fl. Amur. p. 57, et Mém. Biol. IX. p. 35 et Fl. Mongol. p. 95; Rgl. Tent. Fl. Ussuri. p. 28; A. Gray, Bot. Jap. p. 382; Miq. Prol. Fl. Jap. p. 11; Fr. Schm. Fl. Sachal. p. 117; Britt. and Br. Ill. Fl. II. p. 35; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (180); Kom. Fl. Mansh. II. p. 189; Koidz. Pl. Sachal. p. 56; Matsum. Ind. Pl. Jap. II. 2. p. 85; Takeda, Fl. Shikotan p. 455; Miyabe and Miyake, Fl. Saghal. p. 74.

Arenaria lateriflora L. Spec. Pl. ed. 1, p. 423; Ledeb. Fl. Alt. II. p. 173; DC. Prodr. I. p. 412; Bog. Vég. de Sitcha p. 128; Forb. et Hemsl. Ind. Fl. Sin. I. p. 70.

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5497, Aug. 8, 1920).—In ruderatis, prope Kashiwabarawan (Ipse! n. 5048, Jul. 9, 1920; n. 5495, Jul. 26, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5116, Jul. 11, 1920).—In silvis, prope Arakawa (Ipse! n. 5337, Jul. 15, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Manchuria, China, Amur, Ussuri, Kamtschatka, Sibiria (orientalis, baicalensis, altaica et uralensis), Dahuria, Europa, Unalaska, ins. Sitcha, America borealis.

Ranunculaceæ.

*120. *Caltha palustris* L. Spec. Pl. ed. 1, p. 558; DC. Prodr. I. p. 44; Hook. et Arn. in Beechey's Voy. p. 112; Ledeb. Fl. Alt. II. p. 303 et Fl. Ross. I. p. 48; Trautv. et Mey. Fl. Ochot. p. 9; Rgl. et Til. Fl. Ajan. p. 33; Maxim. Prim. Fl. Amur. p. 22 et Fl. Tang. p. 16, et Fl. Mong. p. 24; A. Gray, Pl. Jap. p. 306 et Bot. Jap. p. 378; Rgl. Tent. Fl. Ussuri. p. 8, et Pl. Radd. I. p. 52; Miq. Prol. Fl. Jap. p. 194; Fr. Schm. Fl. Sachal. p. 105; Bak. et Morr. in Jour. Linn. Soc. XVII. p. 376; Fr. et Sav. Enum. Pl. Jap. I. p. 9; Forb. et Hemsl. Ind. Fl. Sin. I. p. 17; Korsh. Pl. Amur. p. 298; Hook. f. Fl. Brit. Ind. I. p. 21; Palib. Consp. Fl. Korea. I. p. 17; Huth, Bull. Herb. Boiss. (1897) p. 1083 et (1899) p. 596; Kom. Fl. Mansh. II. p. 228; Nakai, Fl. Korea. I. p. 24; Koidz. Pl. Sachal. p. 60; Hegi, Ill. Fl. Mitteleurop. III. p. 457, t. 110, f. 2.

var. *parvifolia* Kudo, var. nov.

Caulis procumbens, apice uni- vel bi-florus. Folia radicalia parva, longissime petiolata, elongato-orbiculari-cordata, subintegerrima vel basi leviter crenata, sæpe 3 cm. longa, 2 cm. lata; caulina breviter petiolata usque subsessilia, orbiculari-cordata usque cordato-reniformia, foliis radicalibus paulo minora. Flores 2-3.5 cm. in diametro, petalis late ellipticis vel late obovatis, intus aurantiaco-luteis, extus viridescentibus, carpellis in stylum brevem attenuatis.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4842, Jun. 26, 1920).

DISTRIB. var. Kuriles boreales; *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, Amur, Ussuri, Tangutia, Mongolia, China, Sibiria (orientalis, baicalensis et altaica), Kamtschatka, Himalaya, Europa et America borealis.

*121. *Trollius patulus* Salisb. in Trans. Linn. Soc. VIII. p. 303; DC. Prodr. I. p. 46; Ledeb. Fl. Ross. I. p. 50; Rgl. et Til. Fl. Ajan. p. 35; Kom. Fl. Mansh. II. p. 232; Nakai, Fl. Korea. I. p. 24; Matsum. Ind. Pl. Jap. II. 2. p. 126.

Trollius japonicus Miq. Prol. Fl. Jap. p. 194; Fr. et Sav. Enum. Pl. Jap. I. p. 9.

var. *Riederianus* (Fisch. et Mey.) Kudo, nom. nov.

Trollius Riederianus Fisch. et Mey. Ind. Sem. Hort. Petrop. IV. p. 48.

Trollius patulus Salisb. var. *brevistylus* Rgl. et Til. l. c. p. 37; Makino, Bot. Mag. Tokyo, XI. p. (249); Yabe et Yendo, *ibidem* XVIII. p. (182).

HAB. In paludibus, prope Chitosewan (Ipse! n. 4844, Jun. 25, 1920).—In paludibus, prope Nodawan (Ipse! n. 4870, Jun. 26, 1920).—In paludibus, prope Ruesan (Ipse! n. 5658, Aug. 5, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5499, Jul. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4976, Jul. 4, 1920).—In pratis subalpinis, prope Hiratazaki (Ipse! n. 5403, Jul. 21, 1920).—In pratis subalpinis, prope Shirakawa (Ipse! n. 5583, Jul. 30, 1920).

DISTRIB. var. Kuriles et Kamtschatka: *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, Amgun, Manchuria, China, Sibiria orientalis, Kamtschatka, Persia, Caucasus.

122. *Coptis trifolia Salib. Trans. Linn. Soc. VIII. p. 305; DC. Prodr. I. p. 47; Hook. Fl. Bor. Am. I. p. 23; Bong. Vég. de Sitcha p. 123; Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 179; Ledeb. Fl. Ross. I. p. 52; Trautv. et Mey. Fl. Ochot. p. 10; Maxim. Prim. Fl. Amur. p. 23; Fr. Schm. Fl. Sachal. p. 160; Miq. Prol. Fl. Jap. p. 195; Rgl. Pl. Radd. I. p. 61; Miyabe, Fl. Kuril. p. 216; Huth, in Engl. Bot. Jahrb. XVI. p. 302 et in Bull. Herb. Boiss. V. p. 1085; Britt. and Br. Ill. Fl. II. p. 54; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (181); Kom. Fl. Mansh. II. p. 235; Koidz. Pl. Sachal. p. 64; Matsum. Ind. Pl. Jap. II. 2. p. 115; Miyabe and Miyake, Fl. Saghal. p. 18.

Helleborus trifolius L. Spec. Pl. ed. 1, p. 784.

Isopyrum trifolium Britt. Bull. Torr. Club. XVIII. p. 265.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4843, Jun. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4975, Jul. 4, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Amur, Sibiria (orientalis, altaica et uralensis), Kamtschatka, insulæ Behringii, Rossia, Islandia, Norvegia, Unalaska, ins. Sitcha, America borealis.

123. *Delphinium brachycentrum* Ledeb. Fl. Ross. I. p. 60; Miyabe et Kudo, Mater. Fl. Hokkaido n. 1, in Trans. Sapporo Nat. Hist. Soc. IV. p. 97.

HAB. Sine loco indicato (Tsutomu Sakurai! Aug. 1911).

DISTRIB. Kuriles boreales et Kamtschatka.

124. *Aconitum kamtschaticum* Willd. et Reichb. Ueber. Gatt. Aconit. p. 39 et Ill. Gen. Aconit. t. XV, XVI; Ledeb. Fl. Ross. I. p. 69; Schl. in Linnæa VI. p. 582; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (182); Matsum. Ind. Pl. Jap. II. 2. p. 100 (excl. var.); Nakai, Bot. Mag. Tokyo, XXXI. p. 225.

Aconitum Chamissonianum Reichb. Monogr. Gen. Aconit. p. 80, t. 10, f. 1 et 2.

HAB. In arena litorali, prope Hamanakagawa (Ipse! n. 5829, Aug. 11, 1920).—In pratis siccis, prope Urafutoyama (Ipse! n. 5795, Aug. 8, 1920).—In pratis siccis, prope Arahatazaki (Ipse! n. 5858, Aug. 12, 1920).—In arena litorali, prope Kashiwabarawan (Ipse! n. 5497, Jul.

26, 1920).—*Litus boreali-orientale* (S. Yokoyama! Sept. 9, 1893).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Kuriles, Hokkaido, Kamtschatka, Ins. Behringii.

125. *Anemone narcissiflora* L. Spec. Pl. ed. 1, p. 542; DC. Prodr. I. p. 21; Ledeb. Fl. Alt. II. p. 336 et Fl. Ross. I. p. 18; Hook. Fl. Bor. Am. I. p. 8; Hook. et Arn. Beechey's Voy. p. 121; Bong. Vég. de Sitcha p. 123; Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 179; Hegi, Ill. Fl. Mitteleurop. III. p. 527, t. 115, f. 4.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4841, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4935, Jul. 3, 1920).—In pratis subalpinis, prope Hiratazaki (Ipse! n. 5404, Jul. 21, 1920).—In pratis subalpinis, prope Nagaiwasaki (Ipse! n. 5115, Jul. 11, 1920).—In partis subalpinis, prope Yotsuiwahana (Ipse! n. 5162, Jul. 12, 1920; n. 5294, Jul. 14, 1920).—Ad marginem silvarum, prope Magarikawa (Ipse! n. 5249, Jul. 13, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5215, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. *sp.* Sachalin, Hokkaido, Honshu, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, terra Tschuktschorum, Caucasus, Europa et America borealis.

126. *Ranunculus reptans* L. Spec. Pl. ed. 1, p. 549; Miyabe et Kudo, Mater. Fl. Hokkaido, n. 82, in Trans. Sapporo Nat. Hist. Soc. VI. p. 168.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 5444, Jul. 23, 1920).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. Sachalin, Kuriles, Honshu, Korea borealis, Asia borealis, Europa et America borealis.

127. *Ranunculus nivalis L. Spec. Pl. ed. 1, p. 553; DC. Prodr. I. p. 35; Hook. Fl. Bor. Am. I. p. 17; Hook. et Arn. in Beechey's Voy. p. 121; Schl. in Linnaea VI. p. 578; Ledeb. Fl. Ross. I. p. 36; A. Gray, Syn. Fl. N. Am. I. p. 38; Trautv. in Fl. Tschukt. in Act. Hort. Petropol. VI. p. 6; Kjellm. in Vega Expedition p. 452; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 452; Britt. and Br. Ill. Fl. II. p. 76; Koidz. Bot. Mag. Tokyo, XXXV. p. 209.

HAB. In pratis humidis rivulorum et fluviorum, prope Shikatanoma (Ipse! n. 5076, Jul. 11, 1920 et n. 5339, Jul. 15, 1920).

DISTRIB. Kuriles boreales, Kamtschatka, ad sinum St. Laurentii, insulae St. Laurentii, St. Pauli et Chamissonis, ad sinum Kotzebue, Sibiria arctica, Rossia arctica et America arctica.

128. *Ranunculus hyperboreus Rottb. Skrift. Kjoeb. Selsk. X. p. 458; DC. Prodr. I. p. 35; Schl. in Linnaea VI. p. 578; Torr. et Gray, Fl. N. Am. I. p. 20; Ledeb. Fl. Ross. I. p. 35 (*α. europaeus* et *β. orientalis*); F. Kurtz, Engl. Bot. Jahrb. XIX. p. 451; Britt. and Br. Ill. Fl. II. p. 74; Hemsl. Fl. Tibet, in Journ. Linn. Soc. XXXV. p. 162 (var. *natans* Rgl.); Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. 181; Matsum. Ind. Pl. Jap. II. 2. p. 120.

HAB. In rupibus, inter Suribachi et Umeki (Ipse! n. 4892, Jul.

27, 1920).

DISTRIB. Kuriles, Kamtschatka, terra Tschuktschorum, Sibiria (orientalis et baicalensis), Tibet (var. *natans* Rgl.), Europa et America borealis.

129. *Ranunculus pygmæus Wahlenb. Fl. Lapp. p. 157; DC. Syst. Nat. I. p. 273 et Prodr. I. p. 35; Chamisso, in Linnaea VI. p. 578; Hook. Fl. Bor. Am. I. p. 17; Hook. et Arn. Bot. Beechey's Voy. p. 121; Ledeb. Fl. Ross. I. p. 36; Torr. et Gray, Fl. N. Am. I. p. 20; Britt. and Br. Ill. Fl. I. p. 76; Makino, Bot. Mag. Tokyo, XVII. p. 161; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (181); Matsum. Ind. Pl. Jap. II. 2. p. 120.

HAB. In rupibus, prope Kamogawazaki (Ipse! n. 5191, Jul. 12, 1920).

DISTRIB. Kuriles boreales, Honshu, Sibiria arctica, ad sinum St. Laurentii usque ins. St. Laurentii, America borealis.

130. *Ranunculus repens L. Spec. Pl. ed. 1, p. 554; DC. Prodr. I. p. 38; Hook. et Arn. Beechey's Voy. p. 111; Ledeb. Fl. Ross. I. p. 43; Trautv. et Mey. Fl. Ochot. p. 9; A. Gray, Pl. Jap. p. 306 et Bot. Jap. p. 378; Maxim. Prim. Fl. Amur. p. 21 et Fl. Mongol. p. 23; Miq. Prol. Fl. Jap. p. 193; Rgl. Tent. Fl. Ussuri. p. 7 et Pl. Radd. I. p. 50; Fr. Schm. Fl. Sachal. p. 105; Bak. et Morr. in Jour. Linn. Soc. VII. p. 376; Fr. et Sav. Enum. Pl. Jap. I. p. 8; Korsh. Pl. Amur. p. 297; Forb. et Hemsl. Ind. Fl. Sin. I. p. 15; Huth, in Bull. Herb. Boiss. (1897) p. 1081; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (181); Palib. Consp. Fl. Korea. I. p. 17; Kom. Fl. Mansh. II. p. 298; Nakai, Fl. Korea. I. p. 22 et Bot. Mag. Tokyo, XXI. p. 126; Koidz. Pl. Sachal. p. 66; Matsum. Ind. Pl. Jap. II. 2. p. 120; Takeda, Fl. Shikotan p. 450; Miyabe and Miyake, Fl. Saghal. p. 15.

HAB. In herbidis, prope Kashiwabarawan (Ipse! n. 5498, Jul. 26, 1920).—In herbidis, prope Shikatanoma (Ipse! n. 5675, Jul. 11, 1920).—In silvis, prope Komogawa (Ipse! n. 5274, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, China borealis, Mongolia, Dahuria, Sibiria (baicalensis et altaica), Kamtschatka, Tauria, Caucasus, Europa et America borealis.

131. *Thalictrum alpinum L. Spec. Pl. ed. 1, p. 545; DC. Prodr. I. p. 12; Ledeb. Fl. Alt. II. p. 347 et Fl. Ross. I. p. 6; Schl. in Linnaea VI. p. 572; Hook. et Arn. in Beechey's Voy. p. 120; Torr. et Gray, Fl. North Am. p. 39; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 451; Kjellm. Vega-Exped. p. 353; Maxim. Mém. Biol. XII. p. 714; Hook. f. Fl. Brit. Ind. I. p. 12; Britt. and Br. Ill. Fl. II. p. 86; Makino, Bot. Mag. Tokyo, IX. p. 388; Yabe, Bot. Mag. Tokyo, XVII. p. 20; Matsum. Ind. Pl. Jap. II. 2. p. 122; Hegi, Ill. Fl. Mitteleurop. III. p. 589, t. 121, f. 3 u. 710.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5733, Aug. 7, 1920 et n. 5767, Aug. 6, 1920).—In paludibus, prope Ruesan (Ipse! n. 5842, Aug. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5163, Jul. 12, 1920).

DISTRIB. Kuriles, Kamtschatka, fretum Behringii, terra Tschuktschorum, Sibiria (orientalis et altaica), Dahuria, Tibet occidentalis, Himalaya alpina, Caucasus, Europa arctica et alpina, Alaska, America arctica et montibus Rocky.

132. *Thalictrum minus* L. Spec. Pl. ed. 1, p. 546; DC. Prodr. I. p. 13; Ledeb. Fl. Ross. I. p. 8; Miq. Prol. Fl. Jap. p. 191; Fr. et Sav. Enum. Pl. Jap. I. p. 4; Franch. Pl. David. p. 7; Hook. Fl. Brit. Ind. I. p. 14; Korsh. Pl. Amur. p. 292; Forb. et Hemsl. Ind. Fl. Sin. I. p. 8; Lecoyer, Monogr. Thalictr. p. 199; Kom. Fl. Manch. II. p. 309; Hegi, Ill. Fl. Mitteleurop. III. p. 591, f. 712.

var. **nanum** Lecoy. Monogr. Thalictr. p. 127; Miyabe, Fl. Kuril. p. 214, (excl. syn.); Takeda, Jour. Bot. (1910) p. 265 et Fl. Shikotan p. 449; Matsum. Ind. Pl. Jap. II. 2. p. 124.

HAB. In ruderalis, prope Ruesan (Ipse! n. 5657, Aug. 5, 1920). — In pratis siccis, prope Tomarizaki (Ipse! n. 5702, Aug. 7, 1920). — In ruderalis, prope Kashiwabarawan (Ipse! n. 5500, Jul. 26, 1920). — Ad marginem silvarum, prope Shirakawa (Ipse! n. 5581, Jul. 30, 1920). — In ruderalis, prope Arakawa (Ipse! n. 5340, Jul. 15, 1920). — Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 18, 1893). — Ichamiumbets (S. Yokoyama! Sept. 8, 1893).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Korea, China, Amur, Sibiria, Kamtschatka, Tibet occidentalis, Himalaya temperata, Tauria, Caucasus, Europa, Abyssinia, Africa australis, Europa.

Papaveraceæ.

133. *Papaver nudicaule* L. Spec. Pl. ed. 1, p. 507; DC. Prodr. I. p. 117; Ledeb. Fl. Alt. II. p. 270; Hook. et Arn. Beechey's Voy. p. 121; Bot. Mag. t. 1633; Torr. et Gray, Fl. N. Am. I. p. 60; Hook. f. Fl. Brit. Ind. I. p. 117; Diels, Fl. Centr. China p. 354; Makino, Bot. Mag. Tokyo, XVII. p. 163; Matsum. Ind. Pl. Jap. II. 2. p. 146; Busch, Papaverac. in Fl. Sib. Or. Ext.: p. 19.

Papaver alpinum L. var. *nudicaule* Fisch. et Mey. Ind. Sem. Hort. Petropol. III. p. 13; Ledeb. Fl. Ross. I. p. 87; Rgl. et Til. Fl. Ajan. p. 42; Rgl. Pl. Radd. I. p. 130; Maxim. Enum. Pl. Mongol. I. p. 35.

var. **Fauriei** (Fedde) Kudo, nom. nov.

Papaver nudicaule L. subsp. *xantho-petalum* Fedde, var. *Fauriei* Fedde, Repert. VII. p. 257 et Engl. Pfl.-reich. IV. 104. p. 380.

Papaver alpinum L. var. *microcarpum* Kawakami, Bot. Mag. Tokyo, XIV. p. 111, (non Ledeb.).

Papaver Fauriei Fedde, in Sched. Herb. Reg. Berol.

HAB. Kakumabetsu (M. Aizawa! Jun. 22, 1900).

DISTRIB. var. Kuriles et Hokkaido: *sp.* Kamtschatka, Ajan, Sibiria (orientalis et baicalensis), Amur, Mongolia, China, Tibet, Himalaya, Kashmir, Afghanistan, Baltistan, Iran, Turkestan, Asia centralis, Asia subarctica et arctica, Armenia, fretum Behringii, ins. Aleuticæ, Europa et America borealis.

134. *Corydalis ambigua* Cham. et Schl. in *Linnaea* I. p. 558; Ledeb. Fl. Ross. I. p. 101; Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 172; Maxim. Prim. Fl. Amur. p. 37 (varr. et formæ.); Miq. Prol. Fl. Jap. p. 200; Rgl. Pl. Radd. I. p. 137; Fr. Schm. Fl. Sachal. p. 110 (var. *sachalinensis*); Miyabe, Fl. Kuril. p. 216; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183); Kom. Fl. Mansh. II. p. 351; Matsum. Ind. Pl. Jap. II. 2. p. 142; Takeda, Bot. Mag. Tokyo, XXIV. p. 7; Busch, Papaverac. in Fl. Sib. Or. Extr. p. 63; Miyabe et Miyake, Fl. Saghal. p. 32.

HAB. In silvis, prope Okuyotsuiwa. (Ipse! n. 4918, Jul. 29, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Korea, Manchuria, Kamtschatka, Sibiria orientalis, fretum Behringii.

Cruciferae.

135. *Cochlearia oblongifolia* DC. Syst. II. p. 363 et DC. Prodr. I. p. 173; Cham. et Schl. in *Linnaea* I. p. 26; Hook. et Arn. Beechey's Voy. III. p. 121; Hook. Fl. Bor. Am. I. p. 56; Bong. Vég. de Sitcha p. 123; Ledeb. Fl. Ross. I. p. 157; Rgl. et Til. Fl. Ajan. p. 60; Kjellm. in Vega-Exped. IV. p. 301; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 457; Boiss. in Bull. Herb. Boiss. VII. p. 796; Matsum. Bot. Mag. Tokyo, XIV. p. 11 et Ind. Pl. Jap. II. 2. p. 154; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (182).

Cochlearia arctica Schl. var. *oblongifolia* Busch, Crucif. in Fl. Sib. Or. Extr. p. 122.

HAB. In saxosis litoralibus, prope Nodawan (Ipse! n. 4875, Jun. 26, 1920).—Ad saxum litorale, inter Suribachi et Umeki (Ipse! n. 4895, Jun. 27, 1920).—Ad saxum litorale, prope Yotsuiwahana (Ipse! n. 5165, Jul. 12, 1920).—Ad saxum litorale, prope Kamogawa (Ipse! n. 5194, Jul. 12, 1920).—Musashiwan (M. Aizawa! Jun. 29, 1894).

DISTRIB. Kuriles, Hokkaido, Primorskaja, Tobolsk, Jenisei, Jacutia, Kamtschatka, terra Tschuktschorum, St. Laurentii, St. Pauli, St. Georgii, fretum Behringii, America boreali-arctica.

136. *Barbarea orthoceras* Ledeb. Ind. Sem. Hort. Dorp. et Fl. Alt. III. p. 12, in adnot. et Fl. Ross. I. p. 114; Maxim. Prim. Fl. Amur. p. 43; Busch, Crucif. in Fl. Sib. Or. Extr. p. 189; Takeda, Fl. Shikotan p. 542.

Barbarea planisiliqua Cham. in Trautv. et Mey. Fl. Ochot. p. 14; Rgl. et Til. Ajan. p. 45.

Barbarea vulgaris R. Br. β . *stricta* Rgl. Pl. Radd. I. 1. p. 155.

Barbarea vulgaris R. Br. γ . *typica* Rgl. lus. b. *sibirica* Rgl. l. c. pp. 157, 159.

Barbarea vulgaris R. Br. var. *sibirica* Kjellm. in Vega-Exped. IV. p. 301; Kom. Fl. Mansh. II. p. 358.

Barbarea vulgaris Stejn. Add. Comm. Isl. p. 530; Miyabe, Fl.

Kuril. p. 217; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183); Nakai, Fl. Korea. I. p. 52; Koidz. Pl. Sachal. p. 69.

Barbarea patens Boiss. in Bull. Herb. Boiss. VII. p. 783; Matsum. Ind. Pl. Jap. II. 2. p. 150.

Barbarea stricta Boiss. in Bull. Herb. Boiss. VII. p. 782, p. p; Miyabe and Miyake, Fl. Saghal. p. 37, (non Andr.).

Barbarea orthoceras Ledeb. var *genuina* Busch, l. c. p. 190.

Barbarea sibirica Nakai, Bot. Mag. Tokyo, XXXIII. p. 52.

HAB. In glareosis, prope Nodawan (Ipse! n. 4876, Jun. 26, 1920).—In humidis, prope Okuyotsuiwa (Ipse! n. 4920, Jun. 29, 1920).—In humidis, prope Ruesan (Ipse! n. 5666, Aug. 5, 1920).—In arenosis, prope Kashiwabarawan (Ipse! n. 5051, Jul. 9, 1920).—In pratis, prope Murakamiwan (Ipse! n. 4938, Jul. 3, 1920; n. 5006, Jul. 6, 1920).—Ad marginem silvarum, prope Nagaiwasaki (Ipse! n. 5119, Jul. 11, 1920).—In humidis, prope Arakawa (Ipse! n. 5343, Jul. 15, 1920).—In saxosis, prope Kamogawasaki (Ipse! n. 5193, Jul. 12, 1920).—In saxosis, prope Magarikawa, (Ipse! n. 5252, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, Kamtschatka, Primorskaja, Amur, Transbaicalia, Jucutia.

***137. Nasturtium palustre** DC. Syst. II. p. 191 et Prodr. I. p. 137; Ledeb. Fl. Ross. I. p. 112; Maxim. Prim. Fl. Amur. p. 42 et Fl. Mongol. p. 42; A. Gray, Pl. Jap. p. 307; Rgl. Tent. Fl. Ussuri. p. 20 et Pl. Radd. I. p. 151; Miq. Prol. Fl. Jap. p. 3; Fr. Schm. Fl. Sachal. p. 111; Hook. f. Fl. Brit. Ind. I. p. 133; Hook. et Arn. Beechey's Voy. p. 135; Benth. Fl. Austral. I. p. 65; Fr. et Sav. Enum. Pl. Jap. I. p. 32; Franch. Pl. David. p. 31; Forb. et Hemsl. Ind. Fl. Sin. I. p. 41; Korsh. Pl. Amur. p. 306; Boiss. in Bull. Herb. Boiss. VII. p. 782; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183); Kom. Fl. Mansh. II. p. 358; Nakai, Fl. Korea. I. p. 50; Koidz. Pl. Sachal. p. 69; N. Busch, Crucif. in Fl. Sib. Or. Extr. p. 201; Miyabe and Miyake, Fl. Saghal. p. 37.

HAB. Ad rivulos, prope Hamanakagawa (Ipse! n. 5830, Aug. 11, 1920).—In ruderalis, prope Shirakawa (Ipse! n. 5585, Jul. 30, 1920).—In ruderalis, prope Kamogawa (Ipse! n. 5275, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, China, Manchuria, Mongolia, Sibiria (baicalensis et altaica), Kamtschatka, Himalaya, India, Turkestan, Semipala, Akmol, Assam, Bengal, Caucasus, Aegyptus, Abyssinia, Europa, Groenlandia, America borealis et australis, Nova Zealandia.

***138. Cardamine umbellata** Greene, Pittonia III. p. 154; N. Busch, Crucif. in Fl. Sib. Or. Extr. p. 245.

Cardamine hirsuta Cham. et Schl. in Linnaea I. p. 20; Hook. et Arn. Beechey's Voy. p. 112; Hook. Fl. Bor. Am. I. p. 45; Kjellm. in Vega-Exp. IV. p. 300.

Cardamine hirsuta L. subsp. *kamtschatica* Schulz, Monogr. Card. p. 470.

HAB. Ad rivulos fluviorum, prope Ruesan (Ipse! n. 5661, Aug. 5, 1920).

DISTRIB. Kuriles, Kamtschatka, fretum Behringii, ins. Aleuticaë, America borealis ab Alaska usque ad Oregon.

*139. *Cardamine Regeliana* Miq. Prol. Fl. Jap. p. 5; Maxim. Mél. Biol. IX. p. 8 (*pro syn.*); N. Busch, Crucif. in Fl. Sib. Or. Extr. p. 247.

Cardamine angulata Hook. var. *kamtschatica* Rgl. in Bull. Soc. Mosc. XXXIV. 2. p. 172.

Cardamine hirsuta L. var. *latifolia* Maxim. Bull. Acad. Pétersb. XVIII. p. 279, in *textu*.

Cardamine hirsuta L. var. *Regeliana* Maxim. in Mél. Biol. IX. p. 8; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183).

Cardamine sylvatica Link. var. *kamtschatica* Maxim. Mél. Biol. IX. p. 7; Boiss. in Bull. Herb. Boiss. VII. p. 789.

Cardamine sylvatica Link. var. *Regeliana* Fr. et Sav. Enum. Pl. Jap. I. p. 35; Boiss. in Bull. Herb. Boiss. VII. p. 789.

Cardamine flexuosa With. var. *kamtschatica* Matsum. Bot. Mag. Tokyo, XIII. p. 73.

Cardamine flexuosa With. var. *Regeliana* Matsum. Bot. Mag. Tokyo, XIII. p. 73.

Cardamine sylvatica Link. var. *latifolia* Boiss. in Bull. Herb. Boiss. VII. p. 789.

Cardamine hirsuta L. subsp. *flexuosa* Makino, Bot. Mag. Tokyo, XIII. p. (112); Ito et Matsum. Tent. Fl. Lutch. p. 298.

Cardamine hirsuta Matsum. Bot. Mag. Tokyo, XIII. p. 73; Matsum. et Hayata, Enum. Pl. Formos. p. 23.

Cardamine flexuosa With. subsp. *Regeliana* Schulz, Monogr. Card. in Engl. Bot. Jahrb. XXXII. p. 476.

Cardamine Fauriei Franch. β . *incisa* et γ . *oblonga* Boiss. in Bull. Herb. Boiss. VII. p. 792; Schulz, Monogr. Card. p. 428, (fide Schulz).

Cardamine hirsuta L. var. *sylvatica* Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183).

HAB. In paludibus, prope Chitosewan (Ipse! n. 4845, Jun. 26, 1920).—In humidis, prope Suribachi (Ipse! n. 4894, Jun. 27, 1920).—In ruderatis, prope Tomarizaki (Ipse! n. 5705, Aug. 7, 1920).—In ruderatis, prope Kashiwabarawan (Ipse! n. 5501, Jul. 26, 1920).—In humidis, prope Murakamiwan (Ipse! n. 4937, Jul. 3, 1920).—In humidis, prope Shikatanoma (Ipse! n. 5079, Jul. 11, 1920).—In humidis, prope Magarikawa (Ipse! n. 5251, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Liukiu, Formosa et Kamtschatka.

*140. *Cardamine pratensis* L. Spec. Pl. ed. 1, p. 656; DC. Syst. II. p. 256 et Prodr. I. p. 151; Cham. et Schl. in Linnaea I. p. 19;

Hook. Fl. Bor. Am. I. p. 45 ; Torr. et Gray, Fl. North Am. p. 84 ; Ledeb. Fl. Alt. III. p. 37 et Fl. Ross. I. p. 125 ; Hook. et Arn. Beechey's Voy. p. 121 ; Trautv. et Mey. Fl. Ochot. p. 15 ; Rgl. Pl. Radd. I. p. 175 ; Fr. Schm. Fl. Amg.-Burj. p. 34 ; Kjellm. Vega-Exped. I. pp. 90, 96, 126 ; Maxim. Enum. Fl. Mongol. p. 45 ; Britt. and Br. Ill. Fl. II. p. 128 ; Forb. et Hemsl. Ind. Fl. Sin. I. p. 44 ; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (182) ; Kom. Fl. Mansh. II. p. 366 ; Schulz, Monogr. Card. p. 523, t. VIII. f. 3 ; Matsum. Ind. Pl. Jap. II. 2. p. 154 ; N. Busch, Crucif. in Fl. Sib. Or. Extr. p. 258.

var. **kurilensis** Kudo, var. nov.

Folia basilaria nulla ; caulina foliola linearia, integerrima, uninervia, terminali lateralibus paulo solum majore. Petala alba vel lilacina, 8-10 mm. longa.

HAB. In paludibus, prope Murakamiwan (Ipse ! n. 4977, Jul. 4, 1920 et n. 5446, Jul. 23, 1920).

DISTRIB. *sp.* Kuriles, Kamtschatka, Amur, China, Sibiria (Jakutia, Ircutia, Jenisej, Tomsk, Tobolsk), Europa, America borealis.

Proxime affinis *Cardamini pratensi*, var. *fluitanti* Schulz est, differt tamen foliolis lateralibus foliorum caulinorum evolutis.

*141. **Arabis lyrata** L. Spec. Pl. ed. 1, p. 665 ; DC. Prodr. I. p. 146 ; Torr. et Gr. Syn. Fl. North Am. I. p. 81 ; A. Gray, Pl. Jap. p. 307 ; Fr. et Sav. Enum. Pl. Jap. I. p. 33 ; Britt. and Br. Ill. Fl. II. p. 147 ; Yabe and Yendo, Bot. Mag. Tokyo, XVIII. p. (183) ; Matsum. Ind. Pl. Jap. II. 2. p. 148 ; Nakai, Bot. Mag. Tokyo, XXXII. p. 239.

var. **kamtschatica** Fisch. apud DC. Prodr. I. p. 146 ; Nakai, l. c.

Arabis kamtschatica Fisch. apud Ledeb. Fl. Ross. I. p. 121, (non Willd.).

Arabis petraea Lam. var. *kamtschatica* Rgl. Pl. Radd. I. p. 167, t. V. f. 5, 6, 7 ; Fr. Schm. Fl. Sachal. p. 111 ; Matsum. Bot. Mag. Tokyo, XIII. p. 59 et Ind. Pl. Jap. II. 2. p. 148.

Arabis lyrata Miyabe, Fl. Kuril. p. 217 ; Boiss. in Bull. Herb. Boiss. VII. p. 788 ; Kom. Fl. Mansh. II. p. 377 ; Nakai, Fl. Korea. I. p. 53 ; Takeda, Fl. Shikotan p. 452 ; Miyabe and Miyake, Fl. Saghal. p. 40, (non L.).

HAB. In pratis siccis, prope Nodawan (Ipse ! n. 4874, Jun. 26, 1920).—In pratis siccis, prope Suribachi (Ipse ! n. 4893, Jun. 27, 1920).—In pratis siccis, prope Tomarizaki (Ipse ! n. 5704, Aug. 7, 1920).—In ruderalis, prope Kashiwabarawan (Ipse ! n. 5049, Jul. 9, 1920).—In pratis siccis, prope Murakamiwan (Ipse ! n. 4937, Jul. 3, 1920).—In pratis siccis, prope Shikatanoma (Ipse ! n. 5078, Jul. 11, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse ! n. 5117, Jul. 11, 1920).—In arena, prope rivulos, prope Arakawa (Ipse ! n. 5341, Jul. 15, 1920).—Ad marginem silvarum, prope Magarikawa (Ipse ! n. 5250, Jul. 23, 1920).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, Kamtschatka, America borealis ; *sp.* Honshu et America borealis.

142. **Arabis japonica** A. Gray, Bot. Jap. p. 381 ; Miq. Prol. Fl.

Jap. p. 363; Rgl. Gartfl. (1863) p. 308, t. 41; Takeda, Fl. Shikotan p. 452; Miyabe and Miyake, Fl. Saghal. p. 39.

Arabis Stelleri Miq. Prol. Fl. Jap. p. 4; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (183); Nakai, Fl. Korea. I. p. 54; Koidz. Pl. Sachal. p. 72.

Arabis alpina L. var? *japonica* A. Gray, Pl. Jap. p. 307.

Arabis Stelleri A. DC. var. *japonica* Fr. Schm. Fl. Sachal. p. 111; Fr. et Sav. Enum. Pl. Jap. I. p. 33; Miyabe, Fl. Kuril. p. 217; Forb. et Hemsl. Ind. Fl. Sin. I. p. 42; Palib. Consp. Fl. Korea. I. p. 26; Boiss. in Bull. Herb. Boiss. VII. p. 784; Yatabe, Iconogr. Fl. Jap. I. t. 1; Matsum. Ind. Pl. Jap. II. 2. p. 149; Nakai, Bot. Mag. Tokyo, XXXII. p. 241.

? *Arabis amplexicaulis* Yabe et Yendo, l. c. p. (183).

HAB. In arena litorali, prope Nodawan (Ipse! n. 4873, Jun. 26, 1920).—In pratis siccis, prope Okuyotsuiwa (Ipse! n. 4919, Jun. 29, 1920).—In arena litorali, prope Ruesan (Ipse! n. 5659, Aug. 5, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5703, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5050, Jul. 9, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4936, Jul. 3, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5118, Jul. 11, 1920).—In arena litorali, prope Arakawa (Ipse! n. 5342, Jul. 15, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5216, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu et Korea.

143. *Parrya macrocarpa* R. Br. in Parry's First Voy. p. 270; Hook. et Arn. in Beechey's Voy. p. 121; Cham. et Schl. in Linnaea I. p. 18; Hook. Fl. Bor. Am. I. p. 47, t. 15; Ledeb. Fl. Ross. I. p. 131; Hook. f. Fl. Brit. Ind. I. p. 131; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. (165); Miyabe, Fl. Kuril. p. 216; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (182); Matsum. Ind. Pl. Jap. II. 2. p. 159.

Parrya nudicaule Rgl. Pl. Radd. I. p. 176; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 454.

HAB. In pratis subalpinis, prope Kashiwabarawan (Ipse! n. 5053, Jul. 9, 1920).—In pratis alpinis, prope Murakamiwan (Ipse! n. 4939, Jul. 3, 1920 et n. 5007, Jul. 6, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5218, Jul. 13, 1920).—Sine loco indicato (T. Sakurai! Aug. 1910).—Sine loco indicato (D. Hoshi! Jul. 1912).

DISTRIB. Kuriles, ad lacum Baical, in alpinibus Dahuriae et plaga arctica Sibiriae, inter Irkutsk et Ochotsk, ad sinum et ins. St. Laurentii, Korjagensk, ad sinum Kotzebue, Tibet occidentalis, Afghanistan, Altai, Europa et America borealis.

144. *Draba borealis* DC. Syst. II. p. 342 et Prodr. I. p. 168; Ledeb. Fl. Ross. I. p. 152; Takeda, Bot. Mag. Tokyo, XXIV. p. 255 et Fl. Shikotan p. 452; Koidz. Pl. Sachal. p. 70.

Draba Unalaschkiana DC. Syst. II. p. 342 et Prodr. I. p. 170; Ledeb. Fl. Ross. I. p. 152; Matsum. Ind. Pl. Jap. II. 2. p. 157.

Odontocyclus kurilensis Turcz. in Bull. de Mosc. (1840) p. 65.

Draba borealis DC. var. *genuina* Rgl. et Til. Fl. Ajan. p. 59
Fr. Schm. Fl. Sachal. p. 113; Rgl. Pl. Radd. I. p. 198; Miyabe and
Miyake, Fl. Saghal. p. 47.

Draba borealis DC. var. *kurilensis* Fr. Schm. l. c. p. 114; Maxim.
Mél. Biol. IX. p. 609; Fr. et Sav. Enum. Pl. Jap. II. p. 282; Miyabe,
Fl. Kuril. p. 218; Boiss. in Bull. Herb. Boiss. VII. p. 795; Yabe et
Yendo, Bot. Mag. Tokyo, XVIII. p. (183); Koidz. l. c. p. 71; Matsum.
Ind. Pl. Jap. II. 2. p. 156; Miyabe and Miyake, Fl. Sachal. p. 48.

HAB. Ad saxum, inter Suribachi et Umeki (Ipse! n. 4896, Jun.
27, 1920).—Ad saxum, prope Kashiwabarawan (Ipse! n. 5068, Jul. 9,
1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5464, Jul. 23,
1920).—Ad saxum, prope Shikatanoma (Ipse! n. 5080, Jul. 11, 1920).
—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Primorskaja, America borealis.

Droseraceæ.

145. *Drosera rotundifolia* L. Spec. Pl. ed. 1, p. 281; Cham. et
Schl. in Linnaea I. p. 547; Hook. Fl. Bor. Am. I. p. 81; Bong.
Vég. de Sitcha p. 126; DC. Prodr. I. p. 318; Ledeb. Fl. Ross. I. p.
261; Trautv. et Mey. Fl. Ochot. p. 19; Maxim. Fl. Amur. p. 51; Miq.
Prol. Fl. Jap. p. 368; Fr. Schm. Fl. Amg.-Burj. p. 35 et Fl. Sachal.
p. 116; Fr. et Sav. Enum. Pl. Jap. I. p. 162; Britt. and Br. Ill. Fl. II.
p. 161; Makino, Bot. Mag. Tokyo, XIV. p. (134); Korsh. Pl. Amur.
p. 311; Diels, in Engl. Pfl.-reich. IV. 112. p. 93, f. 32 A; Kom. Fl.
Mansh. II. p. 389; Koidz. Pl. Sachal. p. 73; Matsum. Ind. Pl. Jap. II.
2. p. 164; Takeda, Fl. Shikotan p. 465; Miyabe et Miyake, Fl. Saghal.
p. 169.

HAB. In paludibus, prope Ruesan (Ipse! n. 5662, Aug. 5, 1920).
—In paludibus, prope Tomarizaki (Ipse! n. 5769, Aug. 6, 1920).—In
paludibus, prope Kashiwabarawan (Ipse! n. 5502, Jul. 26, 1920).—In
paludibus, prope Murakamiwan (Ipse! n. 5445, Jul. 23, 1920).—Prope
Chitosewan (I. Matsubara! Jul. 29, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea,
Manchuria, China, Amur, Sibiria (baicalensis et uralensis), Europa et
America borealis,

Crassulaceæ.

146. *Sedum roseum* Scop. Fl. Carn. ed 2, p. 326; Britt. and
Br. Ill. Fl. II. p. 165.

Rhodiola rosea L. Spec. Pl. ed. 1, p. 1035.

Sedum Rhodiola DC. Fl. Fr. ed 3, IV. p. 386 et Prodr. III. p. 401;
Ledeb. Fl. Ross. II. 179; Rgl. et Til. Fl. Ajan. p. 88; Hook. f. Fl.
Brit. Ind. II. p. 417; Maxim. Mél. Biol. XI. p. 734; Miyabe, Fl. Kuril.

p. 234; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 177; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (184); Kom. Fl. Mansh. II. p. 399; Nakai, Fl. Korea. I. p. 227.

HAB. Ad saxum, prope Shirakawa (Ipse! n. 5584, Jul. 30, 1920).— Ad saxum, prope Shikatanoma (Ipse! n. 5077, Jul. 11, 1920).— Ad saxum, prope Yotsuiwahana (Ipse! n. 5164, Jul. 12, 1920).— Ad saxum, prope Kamogawa (Ipse! n. 5192, Jul. 12, 1920).— Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Kuriles, Ochotsk, Ajan, Tibet, Himalaya ab Kumaon usque Kashmir, et in regionibus arcticis et alpinis Europae Asiae et Americae borealis.

Saxifragaceæ.

*147. *Saxifraga Merkii* Fisch. in Sternb. Rev. Sax. Suppl. I. p. 1, t. 3, II. p. 19; DC. Prodr. IV. p. 24; Cham. in Linnaea IV. p. 556; Ledeb. Fl. Ross. II. p. 208; Engl. Monogr. Saxifr. p. 208; Miyabe, Fl. Kuril. p. 233; Engl. u. Erm. in Engl. Pfl.-reich. IV. 117. I. p. 88. (*α. typica*).

HAB. In glareosis, prope Magarikawa (Ipse! n. 5253, Jul. 13, 1920).— Prope Chitosewan (T. Matsubara! Jul. 29, 1915).

DISTRIB. Kuriles, Hokkaido, Kamtschatka, Sibiria baicalensis: var. *Idzuroei* Engl. Kuriles et Honshu: var. *robustæ* Takeda, Kuriles.

148. *Saxifraga rivularis* L. Spec. Pl. ed. 1, p. 404; Ser. in DC. Prodr. IV. p. 36; Hook. et Arn. in Beechey's Voy. p. 124; Hook. Fl. Bor. Am. I. p. 245; Ledeb. Fl. Ross. I. p. 221; Engl. Monogr. Saxifr. p. 104; Britt. and Br. Ill. Fl. II. p. 172; Engl. u. Erm. in Engl. Pfl.-reich. IV. 117. I. p. 282.

var. *Laurentiana* Engl. l. c. p. 105; Yabe et Yendo, Bot. Mag. Tokyo, p. (184); Takeda, Jour. Bot. (1911) p. 114; Engl. u. Erm. l. c.

Saxifraga Laurentiana Ser. l. c. p. 35; Hook. Fl. Bor. Am. I. p. 245; Torr. et Gr. Syn. Fl. N. Am. I. p. 573.

Saxifraga exilis Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (184); Matsum. Ind. Pl. Jap. II. 2. p. 189; Engl. u. Erm. l. c. p. 267, p. p. (non Steph.).

HAB. Ad saxum, prope Nodawan (Ipse! n. 4872, Jun. 26, 1920). Ad saxum, prope Yotsuiwahana (Ipse! n. 5166, Jul. 12, 1920).— Ad saxum, prope Kamogawasaki (Ipse! n. 5195, Jul. 12, 1920).— Musahiwan, (M. Aizawa! Jun. 22, 1900).

DISTRIB. var. Kuriles et fretum Behringii: *sp.* Kamtschatka, terra Tschuktschorum, Sibiria, Europa et America borealis.

149. *Saxifraga punctata* L. Spec. Pl. ed. 1, p. 401; Ledeb. Fl. Alt. II. p. 118 et Fl. Ross. II. p. 215; Cham. in Linnaea IV. p. 554; Hook. Fl. Bor. Am. I. p. 251; Hook. et Arn. in Beechey's Voy. pp. 114, 124; Bong. Vég. de Sitcha p. 140; Rgl. et Til. Fl. Ajan. p. 95; Engl. Monogr. Saxifr. p. 137; Wats. Bot. Cal. I. p. 195; Boiss. in Bull. Herb. Boiss. V. p. 685; Kawakami, Bot. Mag. Tokyo, XIV. p. 120; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (184); Kom. Fl. Mansh.

II. p. 414; Takeda, Jour. Bot. (1911) p. 111; Matsum. Ind. Pl. Jap. II. 2. p. 190; Miyabe and Miyake, Fl. Saghal. p. 152; Engl. u. Erm. in Engl. Pfl.-reich. IV. 117. I. p. 9.

Saxifraga aestivalis Fisch. apud Fisch. et Mey. Ind. Sem. Hort. Petrop. (1835) p. 37; Trautv. et Mey. Fl. Ochot. p. 42; Torr. et Gr. Fl. Bor. Am. I. p. 567; Maxim. Prim. Fl. Amur. p. 120; Fr. Schm. Fl. Amg.-Burj. p. 43 et Fl. Sachal. p. 133.

HAB. Ad rivulos, prope Nodawan (Ipse! n. 4871, Jun. 26, 1920).—Ad rivulos, prope Ruesan (Ipse! n. 5848, Aug. 11, 1920).—In decliviis litoralibus, prope Urafutoyama (Ipse! n. 5820, Aug. 8, 1920).—Ad rivulos, inter Murakamiwan et Kashiwabarawan (Ipse! n. 5054, Jul. 9, 1920 et n. 5503, Jul. 26, 1920).—Ad rivulos, prope Hiratazaki (Ipse! n. 5402, Jul. 21, 1920).—Ad rivulos, prope Shikatanoma (Ipse! n. 5081, Jul. 11, 1920).—Ad rivulos, prope Yotsuiwahana (Ipse! n. 5169, Jul. 12, 1920).—Ad rivulos, prope Kamogawa (Ipse! n. 5196, Jul. 12, 1920).—Ad rivulos, inter Nishikawa et Atenkeshi (Ipse! n. 5219, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Prope Miyakawazaki (T. Matsubara! Aug. 7, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Kamtschatka, Ajan, Ochotsk, Manchuria, China, Amur, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), terra Tschuktschorum, fretum Behringii, ins. St. Laurentii, Europa, Unalaska, ins. Sitcha, America borealis arctica.

*150. *Saxifraga bronchialis* L. Spec. Pl. ed. 1, p. 400; Ser. in DC. Prodr. IV. p. 47; Cham. in Linnaea VI. p. 555; Ledeb. Fl. Alt. II. p. 124 et Fl. Ross. II. p. 207; Hook. Fl. Bor. Am. I. p. 254; Hook. et Arn. Beechey's Voy. p. 124; Torr. et Gr. Fl. N. Am. I. p. 564; Maxim. Prim. Fl. Amur. p. 119; Rgl. Tent. Fl. Ussuri. p. 67; Engl. Monogr. Saxfr. p. 215; Fr. Schm. Fl. Amg.-Burj. p. 43; Korsh. Pl. Amur. p. 341; Kom. Fl. Mansh. II. p. 413; Engl. u. Erm. in Engl. Pfl.-reich. IV. 117. II. p. 458.

var. *cherlerioides* Engl. Monogr. Saxfr. p. 216; Kom. Fl. Mansh. II. p. 413; Engl. u. Erm. l. c. p. 462.

Saxifraga cherlerioides D. Don, in Trans. Linn. Soc. XIII. p. 382.

Saxifraga bronchialis L. β *minor* Hook. et Arn. in Beechey's Voy. p. 114.

Saxifraga nitida Ledeb. Fl. Ross. II. p. 207 (non Schreb.); Rgl. et Til. Fl. Ajan. p. 94, (β . *glabra*).

form. *pseudo-burseriana* Engl. et Erm. l. c. p. 463.

Saxifraga pseudo-burseriana Fisch. in litt. ex Cham. in Linnaea IV. p. 555; Torr. et Gr. Fl. N. Am. I. p. 565.

HAB. Ad saxum, prope Shikatanoma (Ipse! n. 5082, Jul. 11, 1920).—Ad saxum, prope Arakawa (Ipse! n. 5344, Jul. 15, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5168, Jul. 12, 1920).

DISTRIB. form. Kuriles, Hokkaido, Honshu, Kamtschatka; *var.* fretum Behringii, Sibiria (orientalis et baicalensis), Amur; *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Ajan, Manchuria, Sibiria orientalis, fretum Behringii, Unalaska.

*151. *Chrysosplenium kamtschaticum* Fisch. in DC. Prodr. IV.

p. 48; Hook. et Arn. in Beechey's Voy. p. 114; Ledeb. Fl. Ross. II. p. 227; Fr. Schm. Fl. Sachal. p. 134; Maxim. Mém. Biol. IX. p. 765 et XI. p. 226; Franch. Monogr. Chrysosp. p. 15; Miyabe, Fl. Kuril. p. 234; Tokubuchi, Bot. Mag. Tokyo, IX. p. (334); Matsum. Ind. Pl. Jap. II. 2. p. 174; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (184); Miyabe and Miyake, Fl. Saghal. p. 154.

Chrysosplenium oppositifolium Cham. in Linnaea VI. p. 557.

HAB. Ad rivulos, prope Kashiwabarawan (Ipse! n. 5052, Jul. 9, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, terra Tscuktschorum.

*152. *Parnassia palustris* L. Spec. Pl. ed. 1, p. 273; DC. Prodr. I. p. 320; Ledeb. Fl. Alt. I. p. 427 et Fl. Ross. I. p. 262; Hook. et Arn. Beechey's Voy. p. 122; Hook. Fl. Bor. Am. I. p. 82; Trautv. et Mey. Fl. Ochot. p. 19; Maxim. Prim. Fl. Amur. pp. 51, 469; Rgl. Tent. Fl. Ussuri. p. 25; Fr. Schm. Fl. Amg.-Burj. p. 35 et Fl. Sachal. p. 116; Fr. et Sav. Enum. Pl. Jap. I. p. 149; Hook. f. Fl. Brit. Ind. II. p. 401; Miyabe, Fl. Kuril. p. 234; Korsh. Pl. Amur. p. 342; Franch. Bull. Soc. Bot. France p. 257; Forb. et Hemsl. Ind. Fl. Sin. I. p. 272; Boiss. in Bull. Herb. Boiss. V. p. 689; Palib. Consp. Fl. Korea. I. p. 90; Makino, Ill. Fl. Jap. I. i. pl. V; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (184); Kom. Fl. Mansh. II. p. 426; Hayata, Bot. Mag. Tokyo, XX. p. 19; Nakai, Fl. Korea. I. p. 220; Takeda, Fl. Shikotan p. 464; Matsum. Ind. Pl. Jap. II. 2. p. 184; Miyabe and Miyake, Fl. Saghal. p. 155.

Parnassia mucronata Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 169; Miq. Prol. Fl. Jap. p. 261.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5768, Aug. 6, 1920).—In paludibus, prope Ruesan (Ipse! n. 5656, Aug. 5, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5447, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Formosa, Korea, Amur, China, Manchuria, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), fretum Behringii, Tibet occidentalis, Caucasus, Europa et America borealis.

Rosaceæ.

153. *Spiræa betulæfolia* Pall. Fl. Ross. I. p. 33, t. 16; DC. Prodr. II. p. 544; Cham. et Schl. in Linnaea VI. p. 598; Ledeb. Fl. Ross. II. p. 14; Trautv. et Mey. Fl. Ochot. p. 31; Rgl. et Til. Fl. Ajan. p. 79; Maxim. Prim. Fl. Amur. p. 91 et in Act. Hort. Petropol. VI. p. 207; Rgl. Tent. Fl. Ussuri. p. 54; Fr. Schm. Fl. Sachal. p. 126; Fr. et Sav. Enum. Pl. Jap. I. p. 120; Franch. Pl. David. p. 108; Miyabe, Fl. Kuril. p. 227; Dippel, Handb. Laubholzk. III. p. 476; Forb. et Hemsl. Ind. Fl. Sin. I. p. 223; Kom. Fl. Mansh. II. p. 456; C. K. Schn. in Bull. Herb. Boiss. V. p. 348 et Ill. Handb. Laubholzk. I. p. 478; Matsum. Ind. Pl. Jap. II. 2. p. 243; Koidz. Pl. Sachal. p. 76 et Consp. Rosac. Jap. p. 20; Takeda, Fl. Shikotan p. 460; Miyabe and

Miyake, Fl. Saghal. p. 123.

var. **Aemiliana** Koidz. Bot. Mag. Tokyo, XXIII. p. 166 et Consp. Rosac. Jap. p. 21; Matsum. Ind. Pl. Jap. II. 2. p. 243.

Spiraea Aemiliana C. K. Schn. in Bull. Herb. Boiss. V. p. 347 et Ill. Handb. Laubholz. I. p. 477.

Spiraea Beauverdiana C. K. Schn. ll. cc. pp. 348 et 478.

HAB. In suffruticetis, prope Nodawan (Ipse! n. 4879, Jun. 26, 1920).—In suffruticetis, prope Kashiwabaran (Ipse! n. 5511, Jul. 26, 1920).—In suffruticetis, prope Shirakawa (Ipse! n. 5591, Jul. 30, 1920).—In suffruticetis, prope Nagaiwasaki (Ipse! n. 5191, Jul. 11, 1920).—In suffruticetis, inter Nishikawa et Atenkeshi (Ipse! n. 5224, Jul. 13, 1920).—Prope Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. var. Kuriles, Hokkaido, Kamtschatka, America borealis; *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, China, Sibiria orientalis, Kamtschatka, America borealis.

*154. **Aruncus sylvester** Kostel. in Ind. Prag. p. 138; Maxim. in Act. Hort. Petropol. VI. p. 169; Diels, Fl. Centr. China p. 384; Kom. Fl. Mansh. II. p. 461; Koidz. Consp. Rosac. Jap. p. 26.

Spiraea Aruncus L. Spec. Pl. ed. 1, p. 490; Thunb. Fl. Jap. p. 211; DC. Prodr. II. p. 545; Ledeb. Fl. Ross. II. p. 16; Trautv. et Mey. Fl. Ochot. p. 32; Rgl. et Til. Fl. Ajan. p. 81; Maxim. Prim. Fl. Amur. p. 92; Hook. Fl. Bor. Am. I. p. 173; Torr. et Gr. Fl. North Am. p. 417; Miq. Prol. Fl. Jap. p. 221; Fr. Schm. Fl. Sachal. p. 126; Rgl. Tent. Fl. Ussuri. p. 54; Hook. f. Fl. Brit. Ind. II. p. 323; Forb. et Hemsl. Ind. Fl. Sin. I. p. 223.

Aruncus Aruncus Karst. Deutsch. Fl. p. 779; Britt. and Br. Ill. Fl. II. p. 197; Aschers. u. Graebn. Syn. Mitteleurop. Fl. VI. 1. p. 28.

var. **kamtschatica** Maxim. l. c. p. 170; Miyabe, Fl. Kuril. p. 227; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186); Koidz. l. c. p. 28; Takeda, Fl. Shikotan p. 459; Miyabe and Miyake, Fl. Saghal. p. 121.

HAB. In silvis, prope Kashiwabaran (Ipse! n. 5055, Jul. 9, 1920 et n. 5504, Jul. 26, 1920).—In silvis, prope Hiratazaki (Ipse! n. 5401, Jul. 21, 1920).—In silvis, prope Shirakawa (Ipse! n. 5568, Jul. 30, 1920).—In silvis, prope Nagaiwasaki (Ipse! n. 5120, Jul. 11, 1920).—In silvis, prope Yotsuiwahana (Ipse! n. 5297, Jul. 14, 1920).—In silvis, prope Arakawa (Ipse! n. 5345, Jul. 15, 1920).—In silvis, inter Nishikawa et Atenkeshi (Ipse! n. 5220, Jul. 13, 1920).

DISTRIB. var. Sachalin, Kuriles et Kamtschatka; *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, China occidentalis, Dahuria, Sibiria, Kamtschatka, Himalaya, Persia, Asia minor, Caucasus, Europa et America borealis.

155. **Sorbus sambucifolia** Roem. Syn. Monogr. III. p. 139; Maxim. Mém. Biol. IX. p. 172; Hedlund, Monogr. Sorb. p. 37; C. K. Schn. in Bull. Herb. Boiss. VI. p. 311 et Ill. Handb. Laubholz. I. p. 667; Kom. Fl. Mansh. II. p. 473; Matsum. Ind. Pl. Jap. II. 2. p. 242; Koidz. Consp. Rosac. Jap. p. 46; Takeda, Fl. Shikotan p. 463; Miya-

be and Miyake, Fl. Saghal. p. 147.

Pirus sambucifolia Cham. et Schl. in Linnæa II. (1827) p. 36; Ledeb. Fl. Ross. II. p. 99; Hook. et Arn. Beechey's Voy. p. 114; Trautv. et Mey. Fl. Ochot. p. 37; Maxim. Prim. Fl. Amur. p. 103; Fr. Schm. Fl. Sachal. p. 129; Fr. et Sav. Enum. Pl. Jap. I. p. 140; Miyabe, Fl. Kuril. p. 232; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186).

HAB. In silvis, prope Nodawan (Ipse! n. 4878, Jun. 26, 1920).—In silvis, prope Suribachi (Ipse! n. 4899, Jun. 27, 1920).—In silvis, prope Ruesan (Ipse! n. 5667, Aug. 5, 1920).—In silvis, prope Okuyotsuiwa (Ipse! n. 4922, Jul. 29, 1920).—In silvis, prope Kashiwabarawan (Ipse! n. 5510, Jul. 26, 1920).—In silvis, prope Murakamiwan (Ipse! n. 4953, Jul. 4, 1920 et n. 5022, Jul. 7, 1920).—In silvis, prope Hiratazaki (Ipse! n. 5399, Jul. 21, 1920).—In silvis, prope Shirakawa (Ipse! n. 5590, Jul. 30, 1920).—In silvis, prope Yotsuiwahana (Ipse! n. 5298, Jul. 14, 1920).—In silvis, prope Arakawa (Ipse! n. 5351, Jul. 15, 1920).—In silvis, prope Nagaiwasaki (Ipse! n. 5124, Jul. 11, 1920).—In silvis, prope Magarikawa (Ipse! n. 5254, Jul. 13, 1920).—In silvis, inter Nishikawa et Atenkeshi (Ipse! n. 5223, Jul. 13, 1920).—Ottomai (S. Yokoyama! Sept. 2, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Amur, Ochotsk, Kamtschatka, ins. Behringii, America borealis.

*156. **Rubus Chamaemorus** L. Spec. Pl. ed. 1, p. 494; DC. Prodr. II. p. 565; Ledeb. Fl. Alt. II. p. 231 et Fl. Ross. II. p. 71; A. Gray, Bot. Jap. p. 387; Maxim. Prim. Fl. Amur. p. 100 et Mém. Biol. VIII. p. 374; Miq. Prol. Fl. Jap. p. 224; Fr. et Sav. Enum. Pl. Jap. I. p. 122; Fr. Schm. Fl. Sachal. p. 128; Miyabe, Fl. Kuril. p. 228; Britt. and Br. III. Fl. II. p. 200; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Matsum. Bot. Mag. Tokyo, XV. p. 155 et Ind. Pl. Jap. II. 2. p. 229; Focke, in Engl. u. Pr. Nat. Pfl.-fam. III. 3. p. 28 et Monogr. Rubi in Bibl. Bot. Heft 72, p. 12; Aschers. u. Graebn. Syn. Mitteleurop. Fl. VI. p. 442; Kom. Fl. Mansh. II. p. 482; Koidz. Pl. Sachal. p. 78 et Consp. Rosac. Jap. p. 105; Miyabe and Miyake, Fl. Saghal. p. 129.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4848, Jul. 26, 1920).—In paludibus, prope Urafutoyama (Ipse! n. 5796, Aug. 8, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Dahuria, Kamtschatka, ins. Behringii, Europa et America borealis.

157. **Rubus arcticus** L. Spec. Pl. ed. 1, p. 494; DC. Prodr. II. p. 565; Ledeb. Fl. Ross. II. p. 70; Maxim. Prim. Fl. Amur. p. 99 et Mém. Biol. VIII. p. 376; Fr. Schm. Fl. Sachal. p. 128; Korsh. Pl. Amur. p. 332; Britt. and Br. III. Fl. II. p. 200; Focke, in Engl. u. Pr. Nat. Pfl.-fam. III. 3. p. 29 et Monogr. Rubi p. 24; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Kom. Fl. Mansh. II. p. 481; Matsum. Ind. Pl. Jap. II. 2. p. 228; Nakai, Fl. Korea. II. p. 186 et Bot. Mag. Tokyo, XXX. p. 219; Koidz. Pl. Sachal. p. 78 et Consp. Rosac. Jap. p. 108; Miyabe and Miyake, Fl. Saghal. p. 127.

HAB. In pratis siccis, prope Nodawan (Ipse! n. 4880, Jun. 26, 1920).—In pratis siccis, prope Ruesan (Ipse! n. 5665, Aug. 5, 1920).—In pratis siccis, prope Okuyotsuiwa (Ipse! n. 4921, Jun. 29, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5708, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5508, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4952, Jul. 4, 1920 et n. 4940, Jul. 3, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5592, Jul. 30, 1920).—In pratis subalpinis, prope Arakawa (Ipse! n. 5349, Jul. 15, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5222, Jul. 13, 1920).—Ottomai (C. Tarao! Jul. et Aug. 15, 1892).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Sachalin, Kuriles, Korea, Manchuria, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, fretum Behringii, Europa et America borealis.

158. Comarum palustre L. Spec. Pl. ed. 1, p. 502; Ledeb. Fl. Ross. II. p. 62; Trautv. et Mey. Fl. Ochot. p. 34; Maxim. Prim. Fl. Amur. p. 98; Fr. Schm. Fl. Sachal. p. 127; Korsh. Pl. Amur. p. 331; Britt. and Br. III. Fl. II. p. 217; Kom. Fl. Mansh. II. p. 514; Matsum. Ind. Pl. Jap. II. 2. p. 193; Aschers. u. Graebn. Syn. Mitteleurop. Fl. VI. 1. p. 663; Miyabe and Miyake, Fl. Saghal. p. 138.

Potentilla palustris Scop. Fl. Carniol. I. p. 359; Ledeb. Fl. Alt. II. p. 259; Miq. Prol. Fl. Jap. p. 225; Fr. et Sav. Enum. Pl. Jap. I. p. 131; Focke, in Engl. u. Pr. Nat. Pfl.-fam. III. 3. p. 34; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Koidz. Fl. Sachal. p. 79.

Potentilla Comarum Nestl.: DC. Prodr. II. p. 583; Koidz. Consp. Rosac. Jap. p. 172.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4847, Jun. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5449, Jul. 23, 1920).—Ottomai (C. Tarao! Jul. 10, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Dahuria, Kamtschatka, Armenia, Caucasus, Europa, Unalaska, ins. Sitcha, America borealis.

***159. Potentilla Anserina** L. Spec. Pl. ed. 1, p. 495; DC. Prodr. II. p. 582; Ledeb. Fl. Alt. II. p. 249, et Fl. Ross. II. p. 44; Hook. et Arn. Beechey's Voy. pp. 113, 123; A. Gray, Bot. Jap. 387; Boiss. Fl. Orient. II. p. 707; Maxim. Prim. Fl. Amur. p. 97; Miq. Prol. Fl. Jap. p. 225; Fr. Schm. Fl. Sachal. p. 127; Hook. f. Fl. Brit. Ind. II. p. 350; Fr. et Sav. Enum. Pl. Jap. I. p. 131; Franch. Pl. David. p. 113; Britt. and Br. III. Fl. II. p. 216; Forb. et Hemsl. Ind. Fl. Sin. I. p. 240; Miyabe, Fl. Kuril. p. 232; Wolf. Monogr. Potent. p. 669; Korsh. Pl. Amur. p. 331; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 174; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Kom. Fl. Mansh. II. p. 507; Matsum. Ind. Pl. Jap. II. 2. p. 209; Takeda, Fl. Shikotan p. 461; Koidz. Consp. Rosac. Jap. p. 174; Miyabe and Miyake, Fl. Saghal. p. 136.

HAB. In rupibus, prope Yotsuiwahana (Ipse! n. 5170, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, China, Amur, Dahuria, Sibiria (uralensis et altaica), Kamtschatka, Tibet occidentalis, Kashmir, Asia occidentalis, Europa, Australia, Tasmania, Nova Zealandia, America borealis.

160. *Potentilla fragarioides L. Spec. Pl. ed. 1, p. 496; DC. Prodr. II. p. 583; Lehm. Monogr. p. 50; Ledeb. Fl. Alt. II. p. 248 et Fl. Ross. II. p. 38; Maxim. Prim. Fl. Amur. p. 95 et Mél. Biol. IX. p. 158; A. Gray, Pl. Jap. p. 310 et Bot. Jap. p. 387; Rgl. Tent. Fl. Ussuri. p. 55; Fr. et Sav. Enum. Pl. Jap. I. p. 130, II. p. 337; Forb. et Hemsl. Ind. Fl. Sin. I. p. 242; Hook. Fl. Brit. Ind. II. p. 350; Korsh. Pl. Amur. p. 329; Diels, Fl. Centr. China p. 403; Yabe, Bot. Mag. Tokyo, XVIII. p. 7; Palib. Consp. Fl. Korea. I. p. 81; Kom. Fl. Mansh. II. p. 492; Koidz. Consp. Rosac. Jap. p. 181.

var. **stolonifera** Maxim. Mél. Biol. IX. p. 160; Miyabe, Fl. Kuril. p. 230; Wolf. Monogr. p. 639; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Matsum. Ind. Pl. Jap. II. 2. p. 211; Miyabe and Miyake, Fl. Saghal. p. 135.

Potentilla stolonifera Lehm. Revisio, p. 44, t. 15; Ledeb. Fl. Ross. II. p. 38.

Potentilla fragarioides Cham et Schl. in Linnæa II. p. 25; Hook. et Arn. Beechey's Voy. p. 113.

HAB. In arena litorali, prope Murakamiwan (Ipse! n. 4963, Jul. 4, 1920).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea, Kamtschatka et Himalaya: *sp.* Manchuria, China, Dahuria, Sibiria (baicalensis, altaica et uralensis), Himalaya.

161. *Potentilla megalantha Takeda, in Kew Bull. (1911) p. 255 et Fl. Shikotan p. 462; Koidz. Consp. Rosac. Jap. p. 187; Miyabe and Miyake, Fl. Saghal. p. 136.

Potentilla fragiformis A. Gray, Bot. Jap. p. 387; Fr. Schm. Fl. Sachal. p. 127; Miyabe, Fl. Kuril. p. 231; Matsudaira, Bot. Mag. Tokyo, IX. p. (468); Yabe et Yendo, *ibidem* XVIII. p. (185); Matsum. Ind. Pl. Jap. II. 2. p. 211, (non Willd.).

Potentilla grandiflora Maxim. Mél. Biol. IX. p. 161, (p. p. non L.).

HAB. Ad saxum, inter Suribachi et Umeki (Ipse! n. 4898, Jun. 27, 1920).—Ad saxum, prope Kamogawazaki (Ipse! n. 5197, Jul. 12, 1920).—Ad saxum, prope Yotsuiwahana (Ipse! n. 5171, Jul. 12, 1920).—Ad saxum, prope Atenkeshi (Ipse! n. 5221, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido.

162. *Potentilla fruticosa L. Spec. Pl. ed. 1, p. 495; DC. Prodr. II. p. 579; Ledeb. Fl. Alt. II. p. 234 et Fl. Ross. II. p. 61; Hook. et Arn. Beechey's Voy. p. 123; Maxim. Mél. Biol. IX. p. 157; Fr. Schm. Fl. Sachal. p. 127; Fr. et Sav. Enum. Pl. Jap. I. p. 133; Franch. Pl. David. p. 110; Forb. et Hemsl. Ind. Fl. Sin. I. p. 243; Miyabe, Fl. Kuril. p. 230; Britt. and Br. Ill. Fl. II. p. 215; Korsh. Pl. Amur. p. 329; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 175; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (185); Kom. Fl. Mansh. II. p.

490; C. K. Schn. Ill. Handb. Laubholz. I. p. 523; Focke, in Engl. u. Pr. Nat. Pfl.-fam. III. 3. p. 34; Matsum. Ind. Pl. Jap. II. 2. p. 212; Nakai, Fl. Korea. I. p. 195; Koidz. Consp. Rosac. Jap. p. 175; Miyabe and Miyake, Fl. Saghal. p. 138.

var. **tenuifolia** Lehm. Monogr. p. 31; Wolf. Monogr. p. 58; C. K. Schn. l. c. p. 524; Takeda, Fl. Shikotan p. 461.

Potentilla tenuifolia Willd ex Schl. in Ges. Naturf. Fr. Berol. Mag. VII. p. 285.

Potentilla floribunda Pursh, Fl. Am. Sept. I. p. 355.

Potentilla fruticosa L. var. *tenuiloba* Ser. in DC. Prodr. II. p. 579.

HAB. In pratis, prope Okuyotsuiwa (Ipse! n. 5865, Aug. 16, 1920).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Manchuria, Sibiria (orientalis, baicalensis et altaica), Dahuria, Kamtschatka, terra Tschuktschorum, Tibet, Himalaya, Asia centralis, Caucasus, Europa, fretum Behringii, America borealis.

*163. **Geum Alepicum** Jacq. Icon. I. p. 95; Aschers. u. Graebn. Syn. Mitteleurop. Fl. VI. p. 879; Koidz. Bot. Mag. Tokyo, XXIII. p. 178 et Pl. Sachal. p. 81 et Consp. Rosac. Jap. p. 196; Matsum. Ind. Pl. Jap. II. 2. p. 202; Miyabe and Miyake, Fl. Saghal. p. 130.

Geum strictum Ait. Hort. Kew ed 2, p. 207; Ledeb. Fl. Ross. II. p. 22; A. Gray, Bot. Jap. p. 387; Trautv. et Mey. Fl. Ochot. p. 32; Maxim. Prim. Fl. Amur. p. 93; Miq. Prol. Fl. Jap. p. 226; Fr. Schm. Fl. Sachal. p. 126; Fr. et Sav. Enum. Pl. Jap. I. p. 128, II. p. 335; Franch. Pl. David. p. 199; Miyabe, Fl. Kuril. p. 229; Forb. et Hemsl. Ind. Fl. Sin. I. p. 239; Palib. Consp. Fl. Korea. I. p. 82; Britt. and Br. Ill. Fl. II. p. 221; Kom. Fl. Mansh. II. p. 517; Takeda, Fl. Shikotan p. 461.

Geum sachalinense Lév'l. in Fedde Repert. Nov. Sp. VIII. p. 281.

HAB. In umbrosis, prope Shirakawa (Ipse! n. 5688, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Transcaucasus, Europa et America borealis.

164. **Geum calthæfolium** Sm. Rees. Cycl. V. n. 13; Walp. Repert. II. p. 48; DC. Prodr. II. p. 552; Torr. et Gray, Fl. Bor. Am. I. p. 425.

var. **dilatatum** Torr. et Gray, l. c.; Walp. l. c.; Fr. et Sav. Enum. Pl. Jap. II. p. 335; Yabe, Bot. Mag. Tokyo, XVII. p. 22; Yabe et Yendo, *ibidem* XVIII. p. (185); Koidz. Consp. Rosac. Jap. p. 199; Takeda, Fl. Shikotan p. 461.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4846, Jul. 26, 1920).—In pratis subalpinis, prope Suribachi (Ipse! n. 4897, Jun. 27, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5735, Aug. 7, 1920).—In pratis nudis, prope Murakamiwan (Ipse! n. 5009, Jun. 6, 1920).—In pratis subalpinis, prope Hiratazaki (Ipse! n. 5400, Jul. 21, 1920).—In pratis subalpinis, prope Shirakawa (Ipse! n. 5589, Jul. 30, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5296, Jul. 14, 1920).

—In pratis subalpinis, prope Nagaiwasaki (Ipse! n. 5121, Jul. 11, 1920).
 —In pratis subalpinis, prope Arakawa (Ipse! n. 5347, Jul. 16, 1920).
 —Ottomai (C. Tarao! Aug. 10 et 15, 1892; S. Yokoyama! Sept. 2, 1893).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. *sp.* Kuriles, Hokkaido, Honshu, Kamtschatka, Unalaska, America borealis arctica.

*165. ***Geum pentapetalum*** Makino, Bot. Mag. Tokyo, XXIV. p. 32; Koidz. Consp. Rosac. Jap. p. 201; Miyabe and Miyake, Fl. Saghal. p. 131.

Dryas pentapetala L. Spec. Pl. ed. 1, p. 501.

Geum anemonoides Willd. Spec. Pl. II. p. 117; DC. Prodr. II. p. 553; Ledeb. Fl. Ross. II. p. 24; Koidz. Bot. Mag. Tokyo, XXIII. p. 179; Matsum. Ind. Pl. Jap. II. 2. p. 202.

Sieversia anemonoides Willd. in Ges. Naturf. Fr. Berl. Mag. V. p. 398; Fr. Schm. Fl. Sachal. p. 127.

Sieversia dryadoides Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 125; Miq. Prol. Fl. Jap. p. 225.

Geum dryadoides Fr. et Sav. Enum. Pl. Jap. I. p. 128, II. p. 335; Yabe, Bot. Mag. Tokyo, XVII. p. 22; Yabe et Yendo, *ibidem* XVIII. p. (185).

HAB. In paludibus, prope Nodawan (Ipse! n. 4877, Jul. 26, 1920).
 —In paludibus, prope Ruesan (Ipse! n. 5664, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5770, Aug. 6, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5506, Jul. 26, 1920).—In pratis subalpinis, prope Murakamiwan (Ipse! n. 5008, Jul. 6, 1920): in paludibus, prope Murakamiwan (Ipse! n. 5448, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Ochotsk.

166. ***Filipendula kamtschatica*** Maxim. in Act. Hort. Petropol. VI. p. 248; Miyabe, Fl. Kuril. p. 228; Kom. Fl. Mansh. II. p. 524; Matsum. Ind. Pl. Jap. II. 2. p. 201; Koidz. Consp. Rosac. Jap. p. 207; Takeda, Fl. Shikotan p. 460.

Spiræa kamtschatica Pall. Fl. Ross. I. p. 41, t. 28; DC. Prodr. II. p. 545; Ledeb. Fl. Ross. II. p. 19; Maxim. Prim. Fl. Amur. p. 93; Fr. Schm. Fl. Sachal. p. 126.

Ulmaria kamtschatica Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186).

Filipendula kamtschatica Maxim. a. *typica* Koidz. Bot. Mag. Tokyo, XXIII. p. 180 et Consp. Rosac. Jap. p. 207; Matsum. Ind. Pl. Jap. II. 2. p. 201; Miyabe and Miyake, Fl. Saghal. p. 125.

HAB. Ad marginem silvarum, prope Ruesan (Ipse! n. 5663, Aug. 5, 1920).—In decliviis, prope Tomarizaki (Ipse! n. 5706, Aug. 7, 1920).—In ruderalis, prope Kashiwabarawan (Ipse! n. 5505, Jul. 26, 1920).—In silvis deciduis, prope Murakamiwan (Ipse! n. 5028, Jul. 8, 1920).—In silvis, prope Shirakawa (Ipse! n. 5587, Jul. 30, 1920).—In ruderalis, prope Arakawa (Ipse! n. 5346, Jul. 15, 1920).—Ottomai (C. Tarao!

Aug. 15, 1892; S. Yokoyama! Sept. 1893).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur et Kamtschatka.

167. *Sanguisorba tenuifolia* Fisch. ex Link, Enum. Hort. Berol. I. p. 144; DC. Prodr. II. p. 593; Cham. in Linnæa IV. p. 590; Ledeb. Fl. Ross. II. p. 28; Trautv. et Mey. Fl. Ochot. p. 35; Maxim. Prim. Fl. Amur. p. 94 et Mém. Biol. IX. p. 152; Rgl. Tent. Fl. Ussuri. p. 54; Fr. Schm. Fl. Amg.-Bur. p. 39 et Fl. Sachal. p. 126; Korsh. Pl. Amur. p. 328; Palib. Consp. Fl. Korea. I. p. 83; Kom. Fl. Mansh. II. p. 527.

Poterium tenuifolium Fr. et Sav. Enum. Pl. Jap. I. p. 133; Forb. et Hemsl. Ind. Fl. Sin. I. p. 247; Ito et Matsum. Tent. Fl. Lutch. I. p. 454.

var. **kurilensis** Kudo, nom. nov.

Sanguisorba grandiflora Makino, Bot. Mag. Tokyo, XXI. p. 141; Matsum. Ind. Pl. Jap. II. 2. p. 239; Koidz. Consp. Rosac. Jap. p. 220.

Sanguisorba tenuifolia Fisch. var. *purpurea* Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186), (non Trautv. et Mey.).

HAB. In paludibus, prope Ruesan (Ipse! n. 5666, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5734, Aug. 7, 1920).—In paludibus, prope Kashiwabarawan (Ipse! n. 5509, Jul. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5450, Jul. 23, 1920).—In paludibus, prope Nagaiwasaki (Ipse! n. 5123, Jul. 11, 1920).—In pratis umbrosis, prope Arakawa (Ipse! n. 5350, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 1893).—Prope Chitosewan (T. Matsubara! Jul. 29, 1915).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. var. Kuriles et Hokkaido: *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Liukiu, Korea, Manchuria, China, Amur, Dahuria, Kamtschatka et Sibiria orientalis.

168. *Rosa rugosa* Thunb. Fl. Jap. p. 213; Sieb. et Zucc. Fl. Jap. I. p. 66, t. 28; DC. Prodr. II. p. 607; Maxim. Prim. Fl. Amur. p. 101; Miq. Prol. Fl. Jap. p. 227; Fr. Schm. Fl. Sachal. p. 128; Fr. et Sav. Enum. Pl. Jap. I. p. 137; Franch. Pl. David. p. 116; Miyabe, Fl. Kuril. p. 232; Dippel, Handb. Laubholzk. III. p. 586; Forb. et Hemsl. Ind. Fl. Sin. I. p. 253; Palib. Consp. Fl. Korea. I. p. 85; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186); C. K. Schn. III. Handb. Laubholzk. I. p. 582; Koehne, Deutsche Dendr. p. 297; Kom. Fl. Mansh. II. p. 529; Aschers. u. Graebn. Syn. Mitteleurop. Fl. VI. 1. p. 295; Koidz. Pl. Sachal. p. 83 et Consp. Rosac. Jap. p. 222; Nakai, Fl. Korea. II. p. 206; Takeda, Fl. Shikotan p. 463; Miyabe and Miyake, Fl. Saghalin. p. 143; A. Rydberg, N. Am. Fl. Vol. 22, part 6, p. 508.

Rosa kamtschatica Redouté, Roses I. p. 47.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5707, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5507, Jul. 26,

1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5122, Jul. 11, 1920).—In pratis siccis, prope Arakawa (Ipse! n. 5348, Jul. 15, 1920).—Uririzaki (S. Yokoyama! Sept. 1893).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Manchuria, Amur, Kamtschatka, Ochotsk et America borealis.

Leguminosæ.

169. Thermopsis fabacea DC. Prodr. II. p. 99; Ledeb. Fl. Ross. I. p. 511; Trautv. et Mey. Fl. Ochot. p. 26; A. Gray, Bot. Jap. p. 385; Maxim. Prim. Fl. Amur. p. 78; Miq. Prol. Fl. Jap. p. 230; Fr. Schm. Fl. Sachal. p. 123; Miyabe, Fl. Kuril. p. 224; Ito et Matsum. Tent. Fl. Lutch. p. 394; Palib. Consp. Fl. Korea. I. p. 60; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186); Matsum. Bot. Mag. Tokyo, XVI. p. 37 et Ind. Pl. Jap. II. 2. p. 277; Kom. Fl. Mansh. II. p. 571; Nakai, Fl. Korea. I. p. 143; Koidz. Pl. Sachal. p. 85; Takeda, Fl. Shikotan p. 457; Miyabe and Miyake, Fl. Saghal. p. 101.

Sophora fabacea Pall. Sp. Astragal. Descript. p. 122, t. 90, f. 2.

HAB. In graminosis, prope Kashiwabaran (Ipse! n. 5056, Jul. 9, 1920).—In ruderalis, prope Murakamiwan (Ipse! n. 5011, Jul. 6, 1920).—In arenosis maritimis, prope Magarikawa (Ipse! n. 5255, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 18, 1893).—Prope Murakamiwan (T. Matsubara! Aug. 10, 1915).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Shikoku, Kiushu, Liukiu, Korea, China, Manchuria, Primorskaja, Kamtschatka, ? America borealis.

170. Astragalus secundus DC. Astrag. p. 128, n. 55 et DC. Prodr. II. p. 292; Ledeb. Fl. Ross. I. p. 621; Boiss. Bull. Herb. Boiss. VI. p. 663; Kawakami, Bot. Mag. Tokyo, XIV. p. 120; Matsum. *ibidem* XVI. p. 67 et Ind. Pl. Jap. II. 2. p. 250.

Phaca frigida L. β . *exaltata* Ledeb. Fl. Alt. III. p. 263.

HAB. In pratis alpinis, prope Murakamiwan (Ipse! n. 5010, Jul. 6, 1920); in ruderalis, prope Murakamiwan (Ipse! n. 5538, Jul. 27, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5225, Jul. 13, 1920).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Kuriles, Hokkaido, Honshu, Sibiria (altaica et australis).

***171. Oxytropis Pumilio** Ledeb. Fl. Ross. I. p. 589; Bunge, Sp. Gen. Oxtrop. p. 115; Miyabe, Fl. Kuril. p. 224.

Astragalus Pumilio Pall. Sp. Astr. p. 67, t. 55; Willd. Spec. Pl. III. p. 1297; DC. Astrag. p. 195 et Prodr. II. p. 306.

Oxytropis japonica Maxim. var. *sericea* Koidz. Bot. Mag. Tokyo, XXXII. p. 63.

HAB. In pratis alpinis, prope Murakamiwan (Ipse! n. 4941, Jul. 3, 1920 et n. 5540, Jul. 27, 1920).

DISTRIB. Kuriles et Hokkaido, et Honshu (*Oxytropis Pumilio*

Ledeb. var. *japonica* [Maxim.] Kudo).

172. *Oxytropis retusa* Matsum. Bot. Mag. Tokyo, XV. p. 116 et XVI. p. 66 et Ind. Pl. Jap. II. 2. p. 272; Takeda, Fl. Shikotan p. 458.

HAB. In pratis subalpinis, prope Nagaiwasaki (Ipse! n. 5126, Jul. 11, 1920).—In pratis subalpinis, prope Arakawa (Ipse! n. 5353, Jul. 15, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5173, Jul. 15, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5227, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Kuriles.

173. *Hedysarum obscurum* L. Syst. Nat. ed X; DC. Prodr. II. p. 343; Ledeb. Fl. Alt. III. p. 341 et Fl. Ross. I. p. 705; Maxim. Prim. Fl. Amur. p. 84; Fr. Schm. Fl. Sachal. p. 124; Forb. et Hemsl. Ind. Fl. Sin. I. p. 169; Kom. Fl. Mansh. II. p. 594; Miyabe and Miyake, Fl. Saghal. p. 108.

HAB. In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5172, Jul. 12, 1920 et n. 5299, Jul. 14, 1920).

DISTRIB. Sachalin, Kuriles, Manchuria, Amur, China, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Europa.

Planta nostra, quod ad habitum, caulem, folia et inflorescentiam attinet, prorsus quadrat in descriptionem Ledebourianam. Variat leguminibus toto glaberrimis vel prater marginem sericeo-barbatam glaberrimis.

var. ***neglectum*** Trautv. in Bull. Soc. Nat. Mosc. XXXIII. ii. p. 516; Boiss. in Bull. Herb. Boiss. VI. p. 667; Matsum. Bot. Mag. Tokyo, XVI. p. 68, et Ind. Pl. Jap. II. 2. p. 264; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (187); Takeda, Fl. Shikotan p. 458 et Notes R.B.G. Edinbg. VIII. Num. XXXIX. p. 230; Miyabe and Miyake, Fl. Saghal. p. 108.

Hedysarum neglectum Ledeb. Fl. Alt. III. p. 340 et Fl. Ross. I. p. 705 et Icon. Fl. Ross. V. t. 482.

HAB. In pratis alpinis, inter Murakamiwan et Kashiwabarawan (Ipse! n. 5512, Jul. 26, 1920).—In pratis alpinis, prope Murakamiwan (Ipse! n. 5539, Jul. 27, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5226, Jul. 13, 1920).—Sine loco indicato (I. Kodama! Aug. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Sibiria altaica et Caucasus. Specimina nostra flores habent. Ovaria dense barbato-pubescentia.

174. *Lathyrus maritimus* Biegl. Fl. Bost. ed 2, p. 268; Torr. et Gray, Fl. Bor. Am. I. p. 273; Maxim. Prim. Fl. Amur. p. 82 et Mél. Biol. IX. p. 60; Miq. Prol. Fl. Jap. p. 233; Fr. Schm. Fl. Sachal. p. 124; Fr. et Sav. Enum. Pl. Jap. I. p. 105; Miyabe, Fl. Kuril. p. 225; Forb. et Hemsl. Ind. Fl. Sin. I. p. 186; Boiss. in Bull. Herb. Boiss. VI. p. 676; Palib. Consp. Fl. Korea. I. p. 69; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186); Kom. Fl. Mansh. II. p. 626; Matsum. Bot. Mag. Tokyo, XVI. p. 82 et Ind. Pl. Jap. II. 2. p. 266; Nakai, Fl. Korea. I. p. 163; Koidz. Pl. Sachal. p. 85; Takeda, Fl. Shi-

kotan p. 459; Miyabe et Miyake, Fl. Saghal. p. 112.

Pisum maritimum L. Spec. Pl. ed. 1, p. 727; DC. Prodr. II. p. 368; Bong. Vég. de Sitcha p. 130; Ledeb. Fl. Ross. I. p. 661; Cham. in Linnæa VI. p. 647; Trautv. et Mey. Fl. Ochot. p. 27; Rgl. et Til. Fl. Ajan. p. 78.

HAB. In graminosis, præcique prope litus marinum, prope Murakamiwan (Ipse! n. 4964, Jul. 4, 1920).—In arena litorali, prope Hiratazaki (Ipse! n. 5398, Jul. 21, 1920).—In arena litorali, prope Arakawa (Ipse! n. 5352, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Korea, Manchuria, Sibiria (media et orientalis), Kamtschatka, Europa temperata et arctica, America borealis.

*175. *Lathyrus palustris* L. Spec. Pl. ed. 1, p. 733; DC. Prodr. II. p. 371; Ledeb. Fl. Ross. I. p. 686; Maxim. Prim. Fl. Amur. p. 83; Baker et Moore, in Jour. Linn. Soc. XVII. p. 381; Forb. et Hemsl. Ind. Fl. Sin. I. p. 186; Boiss. in Bull. Herb. Boiss. VI. p. 676; Diels, Fl. Centr. China p. 417; Palib. Consp. Fl. Korea. I. p. 69; Korsh. Pl. Amur. p. 325; Britt. and Br. Ill. Fl. II. p. 330; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (186); Matsum. Bot. Mag. Tokyo, XVI. p. 83 et Ind. Pl. Jap. II. 2. p. 267; Kom. Fl. Mansh. II. p. 626; Nakai, Fl. Korea. I. p. 163; Koidz. Pl. Sachal. p. 84.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 5451, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China, Amur, Sibiria, Kamtschatka, Europa et America borealis.

Specimen unicum sterile inventum est, foliis lanceolato-linearibus, 1-2-jugis caulibusque glaberrimis.

Geraniaceæ.

176. *Geranium erianthum* DC. Prodr. I. p. 641; Hook. et Arn. Beechey's Voy. p. 113; Bong. Vég. de Sitcha p. 129; Ledeb. Fl. Ross. I. p. 464; Trautv. et Mey. Fl. Ochot. p. 25; A. Gray, Bot. Jap. p. 383; Maxim. Prim. Fl. Amur. p. 70 et Mém. Biol. X. p. 631; Miq. Prol. Fl. Jap. p. 201; Fr. Schm. Fl. Sachal. p. 120; Fr. et Sav. Enum. Pl. Jap. I. p. 69, II. p. 303; Miyabe, Fl. Kuril. p. 222; Knuth, Geran. in Engl. Pfl.-reich. IV. 129. p. 122; Kom. Fl. Mansh. II. p. 656; Nakai, Bot. Mag. Tokyo, XXIII. p. 101; Matsum. Ind. Pl. Jap. II. 2. p. 283; Takeda, Fl. Shikotan p. 456; Koidz. Pl. Sachal. p. 86; Miyabe and Miyake, Fl. Saghal. p. 83.

HAB. In herbidis litoralibus, prope Nodawan (Ipse! n. 4881, Jun. 26, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5490, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4942, Jul. 3, 1920).—Ad marginem silvarum, prope Hiratazaki (Ipse! n. 5397, Jul. 21, 1920).—In herbosis, prope Shirakawa (Ipse! n. 5593, Jul. 30, 1920).—In pratis subalpinis, prope Arakawa (Ipse! n. 5354, Jul. 15, 1920).—In graminosis, prope Yotsuiwahana (Ipse! n. 5301, Jul. 9, 1920).—In

arena ad flumen, prope Magarikawa (Ipse! n. 5256, Jul. 13, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5228, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 18, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Amur, Ochotsk, Ajan, Kamtschatka, America borealis occidentalis.

Variat caulibus elatis vel humilibus.

Rutaceæ.

177. *Skimmia japonica* Thunb. Fl. Jap. pp. 4, 62; DC. Prodr. II. p. 18; Fr. Schm. Fl. Sachal. p. 121; Fr. et Sav. Enum. Pl. Jap. I. p. 74, II. p. 311; Miyabe, Fl. Kuril. p. 222; Ito et Matsum. Tent. Fl. Lutch. p. 357; Diels, Fl. Centr. China p. 424; Hayata, Bot. Mag. Tokyo, XX. p. 55 et Fl. Mont. Formos. p. 68; Merrill, in Philipp. Jour. Sc. I. Suppl. Bot. p. 201; Matsum. Ind. Pl. Jap. II. 2. p. 294; C. K. Schn. III. Handb. Laubholz. II. p. 127; Miyabe and Miyake, Fl. Saghal. p. 88.

HAB. Kashiwabarawan (S. Yokoyama! Sept. 15, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Liukiu, Formosa, China centralis, Himalaya, Philippin.

Empetraceæ.

178. *Empetrum nigrum* L. Spec. Pl. ed. 1, p. 1022; DC. Prodr. XVI. 1. p. 25; Ledeb. Fl. Ross. III. p. 555; A. Gray, Bot. Jap. p. 398; Trautv. et Mey. Fl. Ochot. p. 76; Rgl. et Til. Fl. Ajan. p. 117; Maxim. Prim. Fl. Amur. p. 238; Miq. Prol. Fl. Jap. p. 99; Fr. Schm. Fl. Sachal. p. 171; Fr. et Sav. Enum. Pl. Jap. I. p. 429; Miyabe, Fl. Kuril. p. 260; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (187); Kom. Fl. Mansh. II. p. 701; Koidz. Pl. Sachal. p. 87; Nakai, Fl. Korea. II. p. 210; Matsum. Ind. Pl. Jap. II. 2. p. 311; Takeda, Fl. Shikotan p. 485; Miyabe and Miyake, Fl. Saghal. p. 433.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4849, Jul. 26, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5736, Jul. 7, 1920): in pratis alpinis, prope Tomarizaki (Ipse! n. 5725, Aug. 7, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5808, Aug. 8, 1920).—In pratis alpinis, prope Suribachi (Ipse! n. 4900, Jul. 27, 1920).—In pratis alpinis, prope Kashiwabarawan (Ipse! n. 5513, Jul. 26, 1920).—In pratis alpinis, prope Murakamiwan (Ipse! n. 5012, Jul. 6, 1920): in paludibus, prope Murakamiwan (Ipse! n. 5452, Jul. 23, 1920).—In pratis alpinis, prope Hiratazaki (Ipse! n. 5396, Jul. 21, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5594, Jul. 30, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5127, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5302, Jul. 14, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5229, Jul. 13, 1920).—Ottomai (S. Yokoyama! Sept. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Kamtschatka, terra Tschuktschorum, ins. Behringii, Caucasus, Europa et America borealis et australis.

Guttiferae.

179. *Hypericum kamtschaticum Ledeb. in Denkschr. Bot. Ges. Regensb. III. p. 131 et Fl. Ross. I. p. 447; Maxim. Mém. Biol. XI. p. 170; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (188); Matsum. Ind. Pl. Jap. II. 2. p. 366.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5709b, Aug. 7, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5129, Jul. 11, 1920).

DISTRIB. Kuriles, Hokkaido et Kamtschatka.

Planta nostra ob folia parce nigro-punctata, amplexicaulia, late ovata vel ovato-rotundata, apice rotundato-emarginata, cymas foliatis paucifloras, pedicellos folio florali breviores, antheras glandula nigra innatas, spectare mihi videtur ad *Hypericum kamtschaticum* Ledeb., cujus tamen specimina authentica conferre mihi non licuit. Variat etiam stylis 3-4 in numero.

180. *Hypericum paramushirense Kudo, sp. nov.

Caulis tenuis, ascendens, teres, simplex vel apice leviter ramosus, glaber, 15-22 cm. altus. Folia sessilia, ovato-rotundata, ovato-elliptica, elliptica, basi rotundata, obtusa vel subcordata, apice emarginata, obtusa, rotundata vel rarius truncata, 1.4-2.7 cm. longa, 1-1.7 cm. lata, papyracea, supra viridia, subtus pallidiora, margine obsolete undulata, utrinque glabra, dense pellucido-punctata, prope marginem pauce nigro-punctata, nervis teneris. Cyma terminalis, pauci-flora. Calycis laciniae 5, foliaceae, valde inaequales; majores oblongo-ellipticae, purpureo-marginatae, et nigro-punctatae, 7 mm. longae, 3.5 mm. latae; minores oblongo-lineares, 5-6 mm. longae, margine nigro-punctatae. Petala 4, obovata, sursum cuneata, apice truncato-obtusa, basi cuneata, ca. 1.2 cm. longa, 6 mm. lata. Stamina triadelpa, filamentis stylis paulo longioribus, antheris subglobosis nigro-maculatis. Styli 3-4, ovario paulo longiores, leviter curvati. Ovarium late ovatum, bruneo-striatum. Capsula mihi ignota. Semina mihi ignota.

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5668, Aug. 5, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5909, Aug. 7, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5595, Jul. 30, 1920).

DISTRIB. Planta endemica!

Species haec procul dubio ad *Hypericum kamtschaticum* Ledeb. prope accedit, differt tamen foliis distincte pellucido-punctatis, floribus leviter minoribus. Specimina nostra optime congruunt cum descriptione *Hyperici paradoxii*, sed floribus non tetrameris facile dignoscitur.

Violaceae.

181. *Viola Selkirkii Pursh, apud Goldie in Edinbg. Phil. Jour. (1822) p. 319; Hook. Fl. Bor. Am. I. p. 75; Torr. et Gray, Fl. North Am.

I. p. 137; DC. Prodr. I. p. 305; A. Gray, Bot. Jap. p. 382; Miq. Prol. Fl. Jap. p. 85; Maxim. Mém. Biol. IX. p. 730; Fr. et Sav. Enum. Pl. Jap. I. p. 41, II. p. 284; Franch. Pl. David. p. 42; Forb. et Hemsl. Ind. Fl. Sin. I. p. 55; Miyabe, Fl. Kuril. p. 219; Korsh. Pl. Amur. p. 310; Boiss. in Bull. Herb. Boiss. (1901) p. 1079 et Bull. Soc. Bot. Fr. XLVII. p. 319; Makino, Bot. Mag. Tokyo, II. p. 352 et XVI. p. 130; Kom. Fl. Mansh. III. p. 59; Nakai, Fl. Korea. I. p. 73 et Bot. Mag. Tokyo, XXX. p. 287; Matsum. Ind. Pl. Jap. II. 2. p. 379; Becker, Bull. Herb. Boiss. (1908) p. 743 et Bot. Centr. Beihft. XXXIV. 2. p. 412; Takeda, Fl. Shikotan p. 453; Miyabe and Miyake, Fl. Saghal. p. 57.

Viola umbrosa Fries, Novit. p. 271; Ledeb. Fl. Ross. I. p. 248; Maxim. Prim. Fl. Amur. p. 48; Fr. Schm. Fl. Amg.-Burj. p. 34 et Fl. Sachal. p. 115.

Viola kamtschatica Ging. in Linnæa I. p. 406; Ledeb. Fl. Ross. I. p. 245; Rgl. Pl. Radd. I. p. 472, t. VI. f. 6-15.

Viola imberbis Ledeb. Fl. Alt. I. p. 257 et Fl. Ross. I. p. 245.

HAB. In umbrosis, prope Okuyotsuiwa (Ipse! n. 4923, Jun. 29, 1920).—In umbrosis silvarum, prope Ruesan (Ipse! n. 5669, Aug. 5, 1920).—In silvis diciduis, prope Murakamiwan (Ipse! n. 5023, Jul. 7, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea, Manchuria, China, Kamtschatka, Dahuria, Sibiria (baicalensis et altaica), Caucasus, Europa, America borealis.

*182. *Viola blanda* Willd. Hort. Berol. t. 24; Nutt. Gen. N. Am. Pl. I. p. 149; Hook. Fl. Bor. Am. I. p. 76; DC. Prodr. I. p. 295; Ledeb. Fl. Ross. I. p. 247; Torr. et Gray, Fl. N. Am. I. p. 138; Rgl. Pl. Radd. I. pp. 461, 479, t. 6, f. 20-23; Maxim. Mém. Biol. IX. p. 732; Britt. and Br. Ill. Fl. II. p. 450; Makino, Bot. Mag. Tokyo, XXIX. p. 71; Matsum. Ind. Pl. Jap. II. 2. p. 372; Bckr. Bot. Centr. Beihft. XXXIV. 2. p. 402.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 4979, Jul. 4, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka et America borealis.

*183. *Viola repens* Turcz. in Bull. Soc. Nat. Mosc (1838) p. 88; Trautv. et Mey. Fl. Ochot. p. 18; Maxim. Prim. Fl. p. Amur. 49.

Viola epipsila Turcz. l. c. p. 302; Rgl. et Til. Fl. Ajan. 62; Rgl. Pl. Radd. I. p. 641; Kom. Fl. Mansh. III. p. 61. (nec Ledeb.)

Viola palustris Turcz. l. c. p. 302; Cham. et Schl. in Linnæa II. p. 116; Maxim. Mém. Biol. IX. p. 733; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 456, (f. *epipsila*); Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (187); Matsum. Ind. Pl. Jap. II. 2. p. 377. (non L.)

Viola epipsila Ledeb. ssp. *repens* Bckr. Bot. Centr. Beihft. XXXIV. 2. p. 406.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4851, Jun. 26, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4990, Jul. 6, 1920).—In pratis humidis, prope Yotsuiwahana (Ipse! n. 5174, Jul. 12, 1920).—In pratis humidis, prope Arakawa (Ipse! n. 5356, Jun. 15, 1920).

DISTRIB. Kuriles, Korea, Manchuria, Amur, Ussuri, Kamtschatka, Sibiria, terra Tschutschorum, ins. Sitcha.

*184. *Viola Komarovii* Bckr. in Bot. Centr. Beihft. XXXIV. 2. p. 237.

Viola sylvestris Ledeb. Fl. Ross. II. p. 253 p. p.; Trautv. et Mey. Fl. Ochot. p. 19; Maxim. Prim. Fl. Amur. p. 51 et Fl. Mongol. p. 80, (var. *rupestris* Rgl.); Fr. Schm. Fl. Saghal. p. 115 et Fl. Amg-Burj. p. 34; Korsh. Pl. Amur. p. 310 (var. *rupestris* Rgl.); Kom. Fl. Mansh. III. p. 65, (non Kit.)

Viola sylvestris Kit. var. *typica* Maxim. Mél. Biol. IX. p. 743; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (187); Miyabe and Miyake, Fl. Saghal. p. 59.

Viola canina L. ζ. *kamtschatica* Ging. in Linnaea I. p. 507.

HAB. In pratis siccis, prope Suribachi (Ipse! n. 4901, Jul. 27, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4943, Jul. 3, 1920 et n. 4954, Jul. 4, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, Mongolia, China, Amur, Sibiria, Kamtschatka.

*185. *Viola Langsdorfii* Fisch. in DC. Prodr. I. p. 296; Gingins, in Linnaea I. p. 407; Hook. Fl. Bor. Am. I. p. 77; Ledeb. Fl. Ross. I. p. 250; Fr. Schm. Fl. Sachal. p. 115; Maxim. Mél. Biol. IX. p. 741; Miyabe, Fl. Kuril. p. 219; Bckr. in Bull. Herb. Bioss. (1908) p. 743; Matsum. Ind. Pl. Jap. II. 2. p. 375; Koidz. Pl. Sachal. p. 92; Miyabe and Miyake, Fl. Saghal. p. 58.

Viola mirabilis L. var. *Langsdorfii* Rgl. Pl. Radd. I. p. 485, t. VI. f. 24-29.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5771, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4989, Aug. 6, 1920 et n. 4978, Jul. 4, 1920; n. 5453, Jul. 23, 1920).—In paludibus, prope Magarikawa (Ipse! n. 5257, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Kamtschatka, Sibiria orientalis, ins. Aleutica, Alaska.

186. *Viola biflora* L. Spec. Pl. ed 1, p. 936; DC. Prodr. I. p. 300; Ledeb. Fl. Alt. I. p. 261 et Fl. Ross. I. p. 254; Trautv. et Mey. Fl. Ochot. p. 19; Rgl. et Til. Fl. Ajan. p. 62; Hance, Journ. Bot. XIII. p. 131; Fr. Schm. Fl. Amg-Burj. p. 35 et Fl. Sachal. p. 116; Maxim. Mél. Biol. IX. p. 749 et Fl. Tangut. p. 79 et Fl. Mongol. p. 81; Franch. Pl. David. p. 44; Hook. f. Fl. Brit. Ind. I. p. 183; Fr. et Sav. Enum. Pl. Jap. II. p. 290; Forb. et Hemsl. Ind. Fl. Sin. I. p. 52; Boiss. in Bull. Soc. Bot. France XLVII. p. 323; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (187); Kom. Fl. Mansh. III. p. 70; Nakai, Fl. Korea. I. p. 66, et Bot. Mag. Tokyo, XXX. p. 276; Matsum. Ind. Pl. Jap. II. 2. p. 372; Miyabe and Miyake, Fl. Saghal. p. 60; Bckr. in Bot. Centr. Beihft. XXXVI. 2. p. 39.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4850, Jun. 25, 1920).—In pratis siccis, prope Okuyotsuiwa (Ipse! n. 4924, Jun. 29, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4944, Jul. 3, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5128, Jul. 11,

1920).—Ad marginem silvarum, prope Shirakawa (Ipse! n. 5595, Jul. 30, 1920).—In pratis siccis, prope Arakawa (Ipse! n. 5355, Jul. 15, 1920, *floribus majusculis*).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915 *floribus majusculis*).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Mongolia, Songalia, China, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, nec non in Himalaya a Nepal ad Tibet, Caucasus, Turkestan, Europa, America borealis.

Oenotheraceæ.

*187. *Epilobium angustifolium* L. Spec. Pl. ed. 1, p. 347; Willd. Spec. Pl. II. p. 313; Roem. et Schl. Syst. Veg. II. p. 151; Ledeb. Fl. Alt. II. p. 68 et Fl. Ross. II. p. 105; Trautv. et Mey. Fl. Ochot. p. 37; Miq. Prol. Fl. Jap. p. 258; Fr. Schm. Fl. Sachal. p. 129; Hance, Jour. Bot. 1883, p. 321; Clarke, in Hook. f. Fl. Brit. Ind. II. p. 582; Forb. et Hemsl. Ind. Fl. Sin. I. p. 307; Miyabe, Fl. Kuril. p. 235; Hausskn. Monogr. Epilob. pp. 37 et 190; Diels, Fl. Centr. China p. 484; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (188); Nakai, Fl. Korea. I. p. 241 et Bot. Mag. Tokyo, XXII. p. 75; Koidz. Pl. Sachal. p. 94; Matsum. Ind. Pl. Jap. II. 2. p. 406; Miyabe. and Miyake, Fl. Saghal. p. 175.

Epilobium spicatum Lam. Fl. Fr. III. p. 482; DC. Prodr. III. p. 40; Fr. et Sav. Enum. Pl. Jap. I. p. 168; Brew. et Wats. Bot. Calif. I. p. 219; Lév'l. in Bull. l'Acad. Intern. Geogr. Bot. (1903) p. 17 et Bull. Soc. Bot. Fr. (1907) p. 521.

Chamænerion angustifolium Scop. Fl. Carn. ed 2, I. p. 271; Britt. and Br. Ill. Fl. II. p. 481; Kom. Fl. Mansh. III. p. 88.

HAB. In arena litorali, prope Hamanakagawa (Ipse! n. 5832, Aug. 11, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5465, Jul. 27, 1920 et n. 5541, Jul. 27, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, China, Mongolia, Dahuria, Sibiria (orientalis, altaica, uralensis et arctica), Kamtschatka, ins. Behringii, Tibet, Himalaya temperata occidentalis, Tauria, Asia occidentalis, Europa et America borealis.

188. *Epilobium latifolium* L. Spec. Pl. ed. 1, p. 347; Willd. Spec. Pl. II. p. 314; DC. Prodr. III. p. 40; Ledeb. Fl. Alt. II. p. 68 et Fl. Ross. II. p. 106; Bong. Vég. de Sitcha p. 134; Torr. et Gray, Fl. Bor. Am. I. p. 487; Hook. et Arn. Beechey's Voy. p. 123; Rgl. et Til. Fl. Ajan. p. 88; Trautv. et Mey. Fl. Ochot. p. 38; Maxim. Prim. Fl. Amur. p. 104; Brew. et Wats. Bot. Calif. I. p. 219; Clarke, in Hook. f. Fl. Brit. Ind. II. p. 583; Hausskn. Monogr. Epilob. p. 190.

Chamænerion latifolium Sweet, Hort. Brit. ed 2, p. 198; Britt. and Br. Ill. Fl. II. p. 481; Kom. Fl. Mansh. III. p. 89.

var. *arcticum* Haussk. Monogr. p. 191.

HAB. In arena, ad ripas rivulorum, prope Kamogawa (Ipse! n. 5276, Jul. 14, 1920).

DISTRIB. var. Kuriles, Ochotsk, Ajan, Anadyr, fretum Behringii ad

sinum St. Laurentii, Unalaska, Alaska, Labradoria, Grœnlandia; *sp.* Kuriles, Kamtschatka, Sibiria (orientalis et arctica), Dahuria, Amur, Himalaya, Europa, America borealis.

***189. *Epilobium palustre* L.** Spec. Pl. ed. 1, p. 348; Willd. Spec. Pl. II. p. 317; Spr. Syst. II. p. 233; DC. Prodr. III. p. 43; Ledeb. Fl. Alt. II. p. 70 et Fl. Ross. II. p. 109; Trautv. et Mey. Fl. Ochot. p. 38; Rgl. et Til. Fl. Ajan. p. 88; Maxim. Prim. Fl. Amur. p. 105; Rgl. Tent. Fl. Ussuri. p. 57; Fr. Schm. Fl. Sachal. p. 129; Hausskn. Monogr. Epilob. p. 128; Hook. f. Fl. Brit. Ind. II. p. 585; Forb. et Hemsl. Ind. Fl. Sin. I. p. 308; Britt. and Br. Ill. Fl. II. p. 483; Korsh. Pl. Amur. p. 335; Diels, Fl. Centr. China p. 485; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (188); Kom. Fl. Mansh. III. p. 90; Lév'l. Bull. Soc. Bot. Fr. (1907) p. 523; Nakai, Fl. Korea. I. p. 243 et Bot. Mag. Tokyo, XXII. p. 82; Koidz. Pl. Sachal. p. 95; Matsum. Ind. Pl. Jap. II. 2. p. 410; Takeda, Fl. Shikotan p. 465; Miyabe and Miyake, Fl. Saghal. p. 179.

Epilobium palustre L. race. *dahuricum* Lév'l. in Bull. Acad. Intern. Geogr. Bot. (1907) p. 247 et Bull. Soc. Bot. Fr. (1907) p. 523.

Epilobium dahuricum Nakai, Bot. Mag. Tokyo, XXII. p. 83; Matsum. Ind. Pl. Jap. II. 2. p. 407, (non Fisch. p. p.).

HAB. Ad marginem rivulorum, prope Tomarizaki (Ipse! n. 5818, Aug. 8, 1920).

DISTRIB. Saghalin, Kuriles, Hokkaido, Korea, Manchuria, Amur, China, Dahuria, Mongolia, Sibiria (orientalis, baicalensis, altaica, uralensis et arctica), Kamtschatka, Tibet, Kashmir, Baltistan, Persia, Asia minor, Caucasus, Europa, America borealis.

***190. *Epilobium glandulosum* Lehm.** Pug. II. p. 14; Hook. Fl. Bor. Am. I. p. 206; Hausskn. Monogr. Epilob. p. 273; Kom. Fl. Mansh. III. p. 92; Lév'l. in Bull. Acad. Intern. Geogr. Bot. (1900) pp. 90, 212 et Bull. Soc. Bot. Fr. (1907) p. 522; Koidz. Pl. Sachal. p. 95; Matsum. Ind. Pl. Jap. II. 2. p. 408; Takeda, Fl. Shikotan, p. 465; Miyabe and Miyake, Fl. Saghalin p. 179.

Epilobium affine Bong. Vég. Sitcha p. 135; Torr. et Gray, Fl. N. Am. I. p. 489; Ledeb. Fl. Ross. II. p. 110; Fr. Schm. Fl. Sachal. p. 129; Fr. et Sav. Enum. Pl. Jap. I. p. 168.

Epilobium Maximowiczii Hausskn. in Skof. XXIX. p. 57, p. p.

Epilobium minutiflorum Nakai, Bot. Mag. Tokyo, XXII. p. 82, (non Hausskn.).

Epilobium Wallichianum Lév'l. in Bull. Acad. Intern. Geogr. Bot. (1900) p. 90, (non Hausskn.).

HAB. In pratis humidis, ad ripas, prope Hamanakagawa (Ipse! n. 5831, Aug. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Amur, Ochotsk, Kamtschatka, ins. Aleuticæ, Unalaska, America borealis.

***191. *Epilobium lactiflorum* Hausskn.** Monogr. Epilob. p. 158; Miyabe, Fl. Kuril. p. 235.

HAB. In pratis humidis, prope Shirakawa (Ipse! n. 5598, Jul. 30,

1920).

DISTRIB. Kuriles, Kamtschatka, Islandia, Suecia, Norvegica, Grœnlandia, ins. Aleutica, ins. Sitcha, Labradoria, America borealis.

192. *Epilobium Behringianum Hausskn. Monogr. Epilob. p. 277; Miyabe, Fl. Kuril. p. 235; Miyabe and Miyake, Fl. Saghal. p. 180.

Epilobium origanifolium Cham. et Schl. in Linnæa II. p. 553, (non Lam.).

HAB. In pratis humidis, ad marginem silvarum prope Shirakawa (Ipse! n. 5693, Jul. 30, 1920).

DISTRIB. Kuriles, Kamtschatka, ins. Aleutica, Unalaska, Kadiak, ins. Sitcha.

193. *Epilobium ovale Takeda, Fl. Shikotan p. 466.

HAB. In pratis humidis, prope Kashiwabarawan (Ipse! n. 5514, Jul. 26, 1920).

DISTRIB. Kuriles.

194. *Epilobium Bongardi* Hausskn. Monogr. Epilob. p. 278; Miyabe, Fl. Kuril. p. 235; Lévl. in Bull. Acad. Intern. Geogr. Bot. (1901) p. 34; Matsum. Ind. Pl. Jap. II. 2. p. 407.

Epilobium roseum Bong. Vég. de Sitcha p. 135; Torr. et Gray, Fl. N. Am. I. p. 489; Ledeb. Fl. Ross. II. p. 110, p. p. (non Schreb.).

Epilobium Hornemanni Bong. l. c. p. 136; Ledeb. l. c. p. 112, p. p. (non Reichb.).

HAB. In pratis humidis, prope Tomarizaki (Ipse! n. 5727, Aug. 7, 1920).—In pratis humidis, prope Ruesan (Ipse! n. 5849, Aug. 11, 1920).—Ottomai (C. Tarao! Jul. 10, 1892).

DISTRIB. Kuriles, Honshu, Kamtschatka, ins. Aleutica, Unalaska, ins. Sitcha.

195. *Epilobium Hornemanni* Rchb. Icon. Crit. II. p. 73, t. 180, f. 313; DC. Prodr. III. p. 42; Ledeb. Fl. Ross. II. p. 112, p. p.; Hausskn. Monogr. Epilob. p. 174; Kawakami, Bot. Mag. Tokyo, XIV. p. 121; Matsum. Ind. Pl. Jap. II. 2. p. 409.

Epilobium sertulatum Kawakami, Bot. Mag. Tokyo, XIV. p. 121; Lévl. in Bull. Soc. Bot. Fr. (1907) p. 523; Matsum. Ind. Pl. Jap. II. 2. p. 411, (non Hausskn.).

HAB. In pratis, prope Suribachi (Ipse! n. 4902, Jun. 27, 1920).—In pratis, prope Okuyotsuiwa (Ipse! n. 4925, Jun. 29, 1920).—In pratis, prope Arahatazaki (Ipse! n. 5859, Aug. 12, 1920).—In pratis, prope Ruesan (Ipse! n. 5850, Aug. 11, 1920).—In pratis, prope Shirakawa (Ipse! n. 5599, Jul. 30, 1920).—In pratis humidis, prope Shikatanoma (Ipse! n. 5085, Jul. 11, 1920).—In pratis, prope Arakawa (Ipse! n. 5357, Jul. 15, 1920).—In pratis, prope Magarikawa (Ipse! n. 5258, Jul. 13, 1920).—Ad flumen Toruki (T. Matsubara! Jul. 31, 1915).—Sine loco indicato (I. Kodama! Aug. 1893).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, Sibiria (orientalis et uralensis), Europa, America borealis.

193. *Circæa alpina L. Spec. Pl. ed. 1, p. 9; DC. Prodr. III. p. 63; Ledeb. Fl. Ross. II. p. 114; A. Gray, Bot. Jap. p. 388; Maxim. Prim. Fl. Amur. p. 106; Clarke, in Hook. f. Fl. Brit. Ind. II. p. 589; Fr. Schm. Fl. Sachal. p. 129; Fr. et Sav. Enum. Pl. Jap. I. p. 170; Franch. Pl. David. p. 134; Miyabe, Fl. Kuril. p. 235; Forb. et Hemsl. Ind. Fl. Sin. I. p. 310; Korsh. Pl. Amur. p. 335; Diels, Fl. Centr. China p. 485; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Kom. Fl. Mansh. III. p. 98; Nakai, Fl. Korea. I. p. 246; Koidz. Pl. Sachal. p. 93; Matsum. Ind. Pl. Jap. II. 2. p. 404; Takeda, Fl. Shikotan. p. 467; Miyabe and Miyake, Fl. Saghal. p. 181.

HAB. In silvis, prope Ruesan (Ipse! n. 5670, Aug. 5, 1920).—In silvis, prope Murakamiwan (Ipse! n. 5029, Jul. 8, 1920).—In silvis, prope Shirakawa (Ipse! n. 5597, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, Amur, China, Sibiria (baicalensis, altaica et uralensis), Kamtschatka, Himalaya, Tauria, Caucasus, Europa, Africa borealis, America borealis.

Hippuridacææ.

197. *Hippuris vulgaris L. Spec. Pl. ed. 1, p. 4; DC. Prodr. III. p. 71; Torr. et Gray, Fl. Bor. Am. I. p. 531; Ledeb. Fl. Alt. I. p. 7 et Fl. Ross. II. p. 119; Rgl. et Til. Fl. Ajan. p. 88; Maxim. Ind. Fl. Pek. in Prim. Fl. Amur. p. 471; Fr. Schm. Fl. Amg.-Bur. p. 42; Clarke, in Hook. f. Fl. Brit. Ind. II. p. 432; Forb. et Hemsl. Ind. Fl. Sin. I. p. 292; Makino, Bot. Mag. Tokyo, XVI. p. 215; Hemsl. Fl. Tibet, in Jour. Linn. Soc. XXXV. p. 178; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (188); Kom. Fl. Mansh. III. p. 111; Matsum. Ind. Pl. Jap. II. 2. p. 416; Miyabe and Miyake, Fl. Saghal. p. 170.

Hippuris montana Maxim. Prim. Fl. Amur. p. 107; Fr. Schm. Fl. Sachal. p. 130, (non Ledeb.).

HAB. In stagnis, prope Murakamiwan (Ipse! n. 4996, Jul. 6, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, China, Amur, Ajan, Dahuria, Sibiria (baicalensis et altaica), Kamtschatka, Tibet, Caucasus, Europa, ins. Sitcha, America borealis, fretum Magellan.

Specimen unicum sterile lectum est, absque dubio ad hanc speciem pertinens.

Umbelliferæ.

198. *Anthriscus sylvestris* Hoffm. Umbellif. pp. 40, 46, t. 1, f. 19; DC. Prodr. IV. p. 223; Ledeb. Fl. Ross. II. p. 346; A. Gray, Bot. Jap. p. 390; Miq. Prol. Fl. Jap. p. 252; Fr. et Sav. Enum. Pl. Jap. I. p. 183; Forb. et Hemsl. Ind. Fl. Sin. I. p. 330; Miyabe, Fl. Kuril. p. 236; Diels, Fl. Centr. China p. 492; Yabe, Rev. Umbell. Jap. p. 22,

(excl. syn. nonnull.); Boiss. in Bull. Herb. Boiss. (1903) p. 955; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Nakai, Fl. Korea. I. p. 254; Matsum. Ind. Pl. Jap. II. 2. p. 427; Miyabe and Miyake, Fl. Saghal. p. 190.

Charophyllum sylvestre L. Spec. Pl. ed. 1, p. 258.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5710, Aug. 7, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4955, Jul. 4, 1920).—In ruderalis, prope Arakawa (Ipse! n. 5358, Jul. 15, 1920).—In pratis siccis, prope Kamogawasaki (Ipse! n. 5199, Jul. 12, 1920).—In pratis, inter Nishikawa et Atenkeshi (Ipse! n. 5230, Jul. 13, 1920).—Prope Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea, Manchuria, China, Dahuria, Sibiria (baicalensis, altaica et uralensis), Kamtschatka, Tauria, Caucasus, Europa, Africa borealis.

Specimina nostra pro maxima parte flores habent; specimen unicum ad Tomarizaki lectum, fructibus sparse tuberculatis præditum est. *Anthriscus nemorosa* Spr. fructibus dense muriculato-tuberculatis huic speciei affinissima est, sed signa diagnostica bona hujusque desunt et sine dubio varietatem unam (*Anthriscus sylvestrem*, var *nemorosam*) esse videtur.

199. *Pleurospermum austriacum Hoffm. Umbellif. præf. p. 8; DC. Prodr. IV. p. 244; Ledeb. Fl. Ross. II. p. 360; Maxim. Prim. Fl. Amur. p. 130; Forb. et Hemsl. Ind. Fl. Sin. I. p. 333; Miyabe, Fl. Kuril. p. 236; Yabe, Rev. Umbell. Jap. p. 29; Kom. Fl. Mansh. III. p. 135; Koidz. Pl. Sachal. p. 95; Matsum. Ind. Pl. Jap. II. 2. p. 442; Miyabe and Miyake, Fl. Saghal. p. 196.

Ligusticum austriacum L. Spec. Pl. ed. 1, p. 250.

Pleurospermum kamschaticum Hoffm. l. c.; DC. Prodr. IV. p. 244; Ledeb. Fl. Ross. II. p. 361; Rupr. Rev. Umbell. Kamtsch. p. 27; Fr. Schm. Fl. Sachal. p. 140; Fr. et Sav. Enum. Pl. Jap. I. p. 186.

HAB. In herbidis, prope Ruesan (Ipse! n. 5672, Aug. 5, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5058, Jul. 9, 1920).—In herbidis, prope Nagaiwasaki (Ipse! n. 5131, Jul. 11, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, China, Amur, Kamtschatka, Sibiria altaica et Europa.

Planta nostra cum *Pleurospermo kamschatico* Hoffm. exacte convenit.

200. *Cnidium ajanense Drude, in Engl. u. Pr. Nat. Pfl.-fam. III. viii. p. 210; Yabe, Rev. Umbell. Jap. p. 62 et Bot. Mag. Tokyo, XVII. p. 23; Matsum. Ind. Pl. Jap. II. 2. p. 432; Takeda, Fl. Shikotan p. 468 et Bot. Mag. Tokyo, XXXII. p. 202; Miyabe and Miyake, Fl. Saghal. p. 195.

Tilingia ajanensis Rgl. et Til. Fl. Ajan. p. 97; Fr. Schm. in Maxim. Prim. Fl. Amur. p. 130 et Fl. Amg.-Burj. p. 44 et Fl. Sachal. p. 135.

Selinum Tilingia Maxim. Mém. Biol. XII. p. 469; Miyabe, Bot. Mag. Tokyo, VIII. pp. (483), (487).

Selinum Benthani Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p.

(189), (non Wats.).

Cnidium Tilingia Takeda, Bot. Mag. Tokyo, XX. p. 305.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5772, Aug. 6, 1920; n. 5579, Aug. 8, 1920).—In paludibus, prope Ruesan (Ipse! n. 5671, Aug. 5, 1920).—In pratis subalpinis, prope Shirakawa (Ipse! n. 5601, Jul. 30, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5130, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5303, Jul. 14, 1920 et n. 5176, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Amur, Sibiria orientalis et Kamtschatka.

201. *Ligusticum scoticum* L. Spec. Pl. ed. 1, p. 250; DC. Prodr. IV. p. 157; Lour. Fl. Cochinch. I. p. 224; Ledeb. Fl. Ross. II. p. 286; Sieb. et Zucc. Fl. Jap. Fam. Nat. I. p. 203; Hook. et Arn. Bot. Beechey's Voy. p. 115; Rgl. et Til. Fl. Ajan. p. 98; Rupr. Rev. Umbell. Kamtsch. p. 23; Maxim. Mém. Biol. IX. p. 249; Fr. et Sav. Enum. Pl. Jap. II. p. 374; Miyabe, Fl. Kuril. p. 236; Britt. and Br. III. Fl. II. p. 519; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 382; Yabe, Rev. Umbell. Jap. p. 64; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Takeda, Fl. Shikotan p. 468; Matsum. Ind. Pl. Jap. II. 2. p. 437; Koidz. Pl. Sachal. p. 98; Miyabe and Miyake, Fl. Saghal. p. 193.

Haloscias scoticum Fries, Summa Vég. Scad. I. p. 180; Fr. Schm. in Maxim. Prim. Fl. Amur. p. 126 et Fl. Sachal. p. 135.

HAB. In arena litorali, prope Kashiwabarawan (Ipse! n. 5057, Jul. 9, 1920).—Ad litora marina, prope Hiratazaki (Ipse! n. 5393, Jul. 21, 1920).—In arena litorali, prope Shirakawa (Ipse! n. 5602, Jul. 30, 1920).—In arena litorali, prope Arakawa (Ipse! n. 5360, Jul. 15, 1920).—Ad saxum, prope Yotsuiwahana (Ipse! n. 5175, Jul. 12, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Sibiria orientalis, Europa arctica et America borealis.

202. *Cœlopleurum Gmelini* Ledeb. Fl. Ross. II. p. 361; Rupr. Rev. Umbell. Kamtsch. p. 12; A. Gray, Bot. Jap. p. 391; Fr. Schm. Fl. Sachal. p. 136; Miyabe, Fl. Kuril. p. 236; Britt. and Br. III. Fl. II. p. 520; Yabe, Rev. Umbell. Jap. p. 69; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Matsum. Ind. Pl. Jap. II. 2. p. 433; Koidz. Pl. Sachal. p. 97; Takeda, Fl. Shikotan p. 469; Miyabe and Miyake, Fl. Sachal. p. 200.

Archangelica Gmelini DC. Prodr. IV. p. 170; Benth. et Hook. f. Gen. Pl. I. p. 1009; Fr. et Sav. Enum. Pl. Jap. I. p. 188; F. Kurtz, in Engl. Bot. Jahrb. XIX. pp. 383, 464.

Physolophium saxatile Trautv. et Mey. Fl. Ochot. p. 44; Fr. Schm. in Prim. Fl. Amur. p. 126, (non Turcz.).

HAB. In pratis siccis, prope Murakamiwan (Ipse! n. 4956, Jul. 4, 1920).—In pratis siccis, prope Hiratazaki (Ipse! n. 5394, Jul. 21, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5231, Jul. 13, 1920).—Sine loco indicato (S. Yokoyama! Sept. 9, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Amur, Ochotsk, Kamtscha-

tka, terra Tschuktschorum, America borealis.

*203. *Angelica refracta* Fr. Schm. Fl. Sachal. p. 138; Fr. et Sav. Enum. Pl. Jap. I. p. 187; Yabe, Rev. Umbell. Jap. p. 76; Matsum. Ind. Pl. Jap. II. 2. p. 426; Koidz. Pl. Sachal. p. 97; Takeda, Fl. Shikotan p. 469; Miyabe and Miyake, Fl. Saghal. p. 198.

Angelica sylvestris Rupr. Rev. Umbell. Kamtsch. p. 10, (non L.).

HAB. In paludibus, prope Murakamiwan (Ipse! n. 5454, Jul. 23, 1920).—In pratibus umbrosis, prope Shirakawa (Ipse! n. 5600, Jul. 30, 1920).—Ad saxum, prope Kamogawasaki (Ipse! n. 5198, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu et Kamtschatka.

Specimina nostra flores et fructus carent. Sed optime congruunt cum descriptione *Angelicæ refractæ* Fr. Schm. et etiam optime respondent speciminibus *Angelicæ refractæ* in ins. Sachalin lectis et herbario nostro conservatis.

204. *Heracleum lanatum* Michx. Fl. Bor. Am. I. p. 166; Bong. Vég. de Sitcha p. 142; Torr. et Gray, Fl. Bor. Am. I. p. 632; DC. Prodr. IV. p. 192; Hook. Fl. Bor. Am. I. p. 269; A. Gray, Bot. Jap. p. 391; Miq. Prol. Fl. Jap. p. 251; Forb. et Hemsl. Ind. Fl. Sin. I. p. 336; Miyabe, Fl. Kuril. p. 236; Britt. and Br. Ill. Fl. II. p. 514; Diels, Fl. Centr. China p. 503; Yabe, Rev. Umbell. Jap. p. 101 et Bot. Mag. Tokyo, XVII. p. 108; Kom. Fl. Mansh. III. p. 177; Nakai, Fl. Korea. I. p. 272; Matsum. Ind. Pl. Jap. II. 2. p. 435; Takeda, Fl. Shikotan p. 469; Miyabe and Miyake, Fl. Saghal. p. 202.

Heracleum barbatum Ledeb. Fl. Alt. I. p. 300 et Fl. Ross. II. p. 322; Trautv. et Mey. Fl. Ochot. p. 44; Rgl. et Til. Fl. Ajan. p. 98; Maxim. Prim. Fl. Amur. p. 129; Rgl. Tent. Fl. Ussuri. p. 71; Fr. Schm. Fl. Sachal. p. 138; Fr. et Sav. Enum. Pl. Jap. I. p. 189; Korsh. Pl. Amur. p. 344.

Heracleum dulce Fisch. ex Fisch., Mey. et Ave-Lall. Ind. Sem. Hort. Petrop. IX. Suppl. p. 23; Rupr. Rev. Umbell. Kamtsch. p. 19.

Heracleum dissectum Ledeb. Fl. Alt. I. p. 301 et Fl. Ross. II. p. 323; Fr. Schm. Fl. Amg.-Burj. p. 47.

Heracleum isopetalum Maxim. in. litt.

HAB. In herbidis siccis, prope Arakawa (Ipse! n. 5359, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Korea, Manchuria, China, Sibiria (orientalis, baicalensis et altaica), Dahuria, Kamtschatka, ins. Sitcha, America borealis.

Cornaceæ.

205. *Cornus suecica* L. Spec. Pl. ed. 1, p. 118; DC. Prodr. IV. p. 274; Torr. et Gray, Fl. N. Am. I. p. 653; Hook. et Arn. in Beechey's Voy. I. p. 125; Ledeb. Fl. Ross. II. p. 377; A. Gray, Bot. Jap. p. 391; Trautv. et Mey. Fl. Ochot. p. 45; Rgl. et Til. Fl. Ajan. p. 99;

Maxim. Prim. Fl. Amur. p. 134; Miq. Prol. Fl. Jap. p. 364; Fr. Schm. Fl. Sachal. p. 141; Fr. et Sav. Enum. Pl. Jap. I. p. 197; Miyabe, Fl. Kuril. p. 237; Britt. and Br. Ill. Fl. II. p. 543; Kom. Fl. Mansh. III. p. 182; Wangerin, Cornac. in Engl. Pfl.-reich. IV. 229. p. 82; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (189); Matsum. Ind. Pl. Jap. II. 2. p. 446; Miyabe and Miyake, Fl. Saghal. p. 210.

Arctocrania suecica Nakai, Bot. Mag. Tokyo, XXIII. p. 39.

HAB. In herbosis, prope Suribachi (Ipse! n. 4903, Jun. 27, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5737, Aug. 7, 1920; n. 5773, Aug. 6, 1920; n. 5780, Aug. 8, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5809, Aug. 8, 1920).—In herbidis siccis, prope Kashiwabarawan (Ipse! n. 5059, Jul. 9, 1920; n. 5515, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4945, Jul. 9, 1920).—In pratis siccis, prope Hiratazaki, (Ipse! n. 5392, Jul. 21, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5603, Jul. 30, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5132, Jul. 11, 1920).—In pratis siccis, prope Magarikawa (Ipse! n. 5259, Jul. 13, 1920).—In pratis subalpinis, prope Yotsuiwahana (Ipse! n. 5304, Jul. 14, 1920).—In pratis subalpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5232, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 10 et 15, 1892; S. Yokoyama! Sept. 15, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, Amur, Ochotsk, Sibiria borealis, Kamtschatka, Europa borealis et America borealis.

206. *Cornus canadensis L. Spec. Pl. ed. 1, p. 118; Torr. et Gray, Fl. N. Am. I. p. 652; Bong. Vég. de Sitcha p. 144; DC. Prodr. IV. p. 274; Ledeb. Fl. Ross. II. p. 378; Trautv. et Mey. Fl. Ochot. p. 45; Pers. Syn. I. p. 143; Bot. Mag. t. 880; Gray, Bot. Jap. p. 391; Maxim. Prim. Fl. Amur. p. 134; Miq. Prol. Fl. Jap. p. 364; Fr. Schm. Fl. Amg.-Burj. p. 47 et Fl. Sachal. p. 141; Fr. et Sav. Enum. Pl. Jap. I. p. 196; Miyabe, Fl. Kuril. p. 237; Wats. Bot. Calif. I. p. 274; Forb. et Hems. Ind. Fl. Sin. I. p. 344; Coult. et Ev. in Bot. Gaz. XV. p. 31; Britt. and Br. Ill. Fl. II. p. 543; Kom. Fl. Mansh. III. p. 181; Nakai, Fl. Korea. I. p. 280; Koidz. Pl. Sachal. p. 98; Wangerin, Cornac. in Engl. Pfl.-reich. IV. 229. p. 83; Matsum. Ind. Pl. Jap. II. 2. p. 446; Takeda, Fl. Shikotan p. 469; Miyabe and Miyake, Fl. Sachal. p. 210.

HAB. In herbidis siccis, prope Okuyotsuiwa (Ipse! n. 4926, Jun. 29, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Ochotsk, America borealis.

Pyrolaceæ.

207. *Pyrola minor L. Spec. Pl. ed. 1, p. 396; DC. Prodr. VII. p. 774; Ledeb. Fl. Alt. II. p. 99 et Fl. Ross. II. p. 930; Rgl. et Til. Fl. Ajan. p. 111; Hook. et Arn. Beechey's Voy. p. 116 et Brit. Fl. p. 271; A. Gray, Bot. Jap. p. 400 et Syn. Fl. North Am. II. p. 46; Fr. Schm. Fl. Sachal. p. 158; Maxim. Mém. Biol. VIII. p. 652; Miyabe, Fl. Kuril. p. 248; Britt. and Br. Ill. Fl. II. p. 552; Piper, Fl. St. Washing.

p. 433; Miyabe and Miyake, Fl. Saghal. p. 314.

Pyrola minor L. α *genuina* Herder, Pl. Radd. Monop. IV. 1. p. 80; Makino, Bot. Mag. Tokyo, XI. p. (450); Matsum. Ind. Pl. Jap. II. 2. p. 449.

HAB. In paludibus, prope Ruesan (Ipse! n. 5843, Aug. 11, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5797, Aug. 8, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4980, Jul. 4, 1920; n. 5455, Jul. 23, 1920): in pratis, prope Murakamiwan (Ipse! n. 5013, Jul. 6, 1920).—In pratis humidis, prope Magarikawa (Ipse! n. 5260, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Novaja-Semlja, Caucasus, Tauria, Europa, America borealis.

Ericaceæ.

208. *Ledum palustre* L. Spec. Pl. ed. 1, p. 391; DC. Prodr. VII. p. 730; Ledeb. Fl. Ross. II. p. 923; Trautv. et Mey. Fl. Ochot. p. 64; Rgl. et Til. Fl. Ajan. p. 110; Maxim. Prim. Fl. Amur. p. 189 et Rhod. As. Or. p. 49; Fr. Schm. Fl. Amg.-Burj. p. 55 et Fl. Sachal. p. 158; Britt. and Br. Ill. Fl. II. p. 557; Korsh. Pl. Amur. p. 366.

var. **dilatatum** Wahl. Fl. Lapp. p. 103; Ledeb. l. c.; Tarutv. et Mey. l. c.; Maxim. II. cc.; Kom. Fl. Mansh. III. p. 201; Busch, Ericac. in Fl. Sib. Or. Extr. p. 5; C. K. Schn. Ill. Handb. Laubholz. II. p. 469; Takeda, Fl. Shikotan p. 478; Miyabe and Miyake, Fl. Saghal. p. 308.

HAB. Sine loco indicato (N. Hashimoto! 1908).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, Mongolia, Manchuria, Ussuri, Sibiria orientalis, Kamtschatka, Europa et America borealis.

209. *Rhododendron chrysanthum* Pall. Itin. III. p. 729, t. N. f. 1-2 et Fl. Ross. I. p. 44, t. 30; DC. Prodr. VII. p. 723; Ledeb. Fl. Ross. II. p. 920; Trautv. et Mey. Fl. Ochot. p. 63; Rgl. et Til. Fl. Ajan. p. 110; Maxim. Prim. Fl. Amur. p. 189 et Rhod. As. Or. p. 20; Fr. Schm. Fl. Amg.-Burj. p. 55 et Fl. Sachal. p. 158; Herder, Pl. Radd. Monop. VI. 1. p. 63; Miyabe, Fl. Kuril. p. 247; Boiss. Bull. Herb. Boiss. V. p. 917; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); Kom. Fl. Mansh. III. p. 205; C. K. Schn. Ill. Handb. Laubholz. II. p. 481; Nakai, Fl. Korea. II. p. 74 et Bot. Mag. Tokyo, XXXI. p. 242 et Fl. Korea. Sylv. VIII. p. 40; Matsum. Ind. Pl. Jap. II. 2. p. 459; Takeda, Fl. Shikotan p. 478; Busch, Ericac. in Fl. Sib. Or. Extr. p. 15; Miyabe and Miyake, Fl. Saghal. p. 310; Millais, Rhod. (1917) p. 143; Komatsu, Bot. Mag. Tokyo, XXXI. p. (290).

HAB. In pratis humidis, prope Chitosewan (Ipse! n. 4853, Jun. 26, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5811, Aug. 8, 1920).—In decliviis, prope Murakamiwan (Ipse! n. 4957, Jul. 4, 1920;

n. 5542, Jul. 27, 1920).—In decliviis, prope Hiratazaki (Ipse! n. 5387, Jul. 21, 1920).—In decliviis, prope Shirakawa (Ipse! n. 5609, Jul. 30, 1920).—In decliviis, prope Magarikawa (Ipse! n. 5262, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Dahuria, Amur, Ussuri, Sibiria (orientalis, baicalensis et altaica), Kamtschka, ins. Behringii, ins. Sitcha.

210. *Rhododendron kamtschaticum* Pall. Fl. Ross. I. p. 48, t. 33; DC. Prodr. VII. p. 726; Hook. Fl. Bor. Am. II. p. 43; Ledeb. Fl. Ross. II. p. 922; Rgl. et Til. Fl. Ajan. p. 110; Fr. Schm. Fl. Sachal. p. 157; Maxim. Rhod. As. Or. p. 47; Fr. et Sav. Enum. Pl. Jap. I. p. 293; Herd. Pl. Radd. Monop. IV. 1. p. 67; Miyabe, Fl. Kuril. p. 247; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 468; Boiss. in Bull. Herb. Boiss. V. p. 921; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); C. K. Schn. Ill. Handb. Laubholzk. II. p. 507; Matsum. Ind. Pl. Jap. II. 2. p. 462; Takeda, Fl. Shikotan p. 478; Busch, Ericac. in Fl. Sib. Or. Extr. p. 35; Miyabe and Miyake, Fl. Sachal. p. 310; Komatsu, Bot. Mag. Tokyo, XXXII. p. (7).

Azalea kamtschatica OK. Rev. Gen. Pl. II. p. 387.

HAB. In lapidosis, prope Ruesan (Ipse! n. 5673, Aug. 5, 1920; n. 5851, Aug. 11, 1920).—In lapidosis, prope Kashiwabarawan (Ipse! n. 5517, Jul. 26, 1920).—In rupestribus, prope Hiratazaki (Ipse! n. 5388, Jul. 21, 1920).—In rupestribus, prope Shirakawa (Ipse! n. 5608, Jul. 30, 1920).—Ad saxum, prope Shikatanoma (Ipse! n. 5087, Jul. 11, 1920).—In lapidosis, prope Arakawa (Ipse! n. 5361, Jul. 15, 1920).—Ad saxum, prope Yotsuiwahana (Ipse! n. 5361, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 25, 1892).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Ajan, Ochotsk, Kamtschatka, terra Tschuktschorum, ins. Behringii, ins. Aleutica, Alaska, America borealis.

211. *Loiseleuria procumbens* Desv. Jour. Bot. III. p. 35; DC. Prodr. VII. p. 714; Cham. et Schl. in Linnaea I. p. 513; Hook. et Arn. Beechey's Voy. p. 127; Hook. Fl. Bor. Am. II. p. 44; Ledeb. Fl. Ross. II. p. 918; Trautv. et Mey. Fl. Ochot. p. 63; Rgl. et Til. Fl. Ajan. p. 110; Maxim. Prim. Fl. Amur. p. 189 et Rhod. As. Or. p. 7; Fr. Schm. Fl. Sachal. p. 157; Fr. et Sav. Enum. Pl. Jap. II. p. 427; Boiss. in Bull. Herb. Boiss. V. p. 913; Kom. Fl. Mansh. III. p. 214; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); Matsum. Ind. Pl. Jap. II. 2. p. 455; C. K. Schn. Ill. Handb. Laubholzk. II. p. 513; Miyabe and Miyake, Fl. Sachal. p. 306; Busch, Ericac. in Fl. Sib. Or. Extr. p. 42.

Azalea procumbens L. Spec. Pl. ed. 1, p. 151; Bong. Vég. Sitcha p. 155.

HAB. In pratis alpinis, prope Suribachi (Ipse! n. 4906, Jun. 27, 1920).—In pratis alpinis, prope Tomarizaki (Ipse! n. 5782, Aug. 8, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5810, Aug. 8, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5605, Jul. 30, 1920),

—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5134, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5306, Jul. 14, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5233, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).—Prope Miyakawazaki (T. Matsubara! Aug. 7, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Amur, Primorskaja, Kamtschatka, terra Tschuktschorum, Anadyr, Europa et America borealis.

212. *Phyllodoce aleutica* Makino, Bot. Mag. Tokyo, XIX. p. 134; C. K. Schn. Ill. Handb. Laubholzk. II. p. 518; Busch, Ericac. in Fl. Sib. Or. Extr. p. 48.

Menziesia aleutica Spr. Syst. Veg. II. p. 202; Cham. et Schl. in Linnæa I. p. 515; Hook. Fl. Bor. Am. II. p. 40.

Phyllodoce Pallasiana D. Don, in Edinbg. New Phil. Jour. XVII. p. 160; DC. Prodr. VII. p. 713; Ledeb. Fl. Ross. II. p. 917; Maxim. Rhod. As. Or. p. 6; Fr. et Sav. Enum. Pl. Jap. I. p. 286; Boiss. in Bull. Herb. Boiss. V. p. 914; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191); Matsum. Ind. Pl. Jap. II. 2. p. 456.

Phyllodoce taxifolia Salisb. *β. aleutica* Herd. Pl. Radd. IV. 1. p. 55. HAB. In decliviis, prope Urafutoyama (Ipse! n. 5821, Aug. 8, 1920).—In decliviis, inter Kashiwabarawan et Murakamiwan (Ipse! n. 5060, Jul. 9, 1920; n. 5516, Jul. 26, 1920).—In decliviis, prope Murakamiwan (Ipse! n. 4946, Jul. 3, 1920).—In decliviis, prope Hiratazaki (Ipse! n. 5389, Jul. 21, 1920).—In pratis, prope Magarikawa (Ipse! n. 5261, Jul. 13, 1920).—Ottomai (C. Taraō! Aug. 15, 1892).—Prope Miyakawazaki (T. Matsubara! Aug. 7, 1915).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, Unalaska, Alaska et ins. Sitcha.

Species haec variat florum colore, corollis albido-luteis vel luteo-viridibus vel albis. Una varietas *rosea* mei, in monte Nutakkamushpe lecta, etiam corollam pallide roseum habet.

213. *Bryanthes Gmelini Don, in Edinbg. New Phil. Jour. XVII. p. 160; DC. Prodr. VII. p. 712; Ledeb. Fl. Ross. II. p. 916; A. Gray, Syn. Fl. N. Am. II. p. 36; Maxim. Rhod. As. Or. p. 4; Boiss. in Bull. Herb. Boiss. V. p. 914; C. K. Schn. Ill. Handb. Laubholzk. II. p. 517; Matsum. Ind. Pl. Jap. II. 2. p. 451; Takeda, Notes R. B. G. Edinbg. VIII. Num. XXXIX. p. 229; Busch, Ericac. in Fl. Sib. Or. Extr. p. 50.

Andromeda Bryantha L. Manit. p. 238; Pall. Fl. Ross. II. p. 57.

Menziesia Bryantha Swartz, in Trans. Linn. Soc. X. p. 378, t. 30, B.

HAB. In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5305, Jul. 14, 1920 et n. 5178, Jul. 12, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Ochotsk, Kamtschatka, ins. Behringii.

214. *Cassiope lycopodioides* Don, in Edinbg. New Phil. Jour. XVII. p. 157; DC. Prodr. VII. p. 610; Ledeb. Fl. Ross. II. p. 912;

A. Gray, Syn. Fl. N. Am. II. p. 36; Maxim. Mém. Biol. VIII. p. 614; Fr. et Sav. Enum. Pl. Jap. I. p. 285; Miyabe, Fl. Kuril. p. 247; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191); C. K. Schn. III. Handb. Laubholzk. II. p. 523; Matsum. Ind. Pl. Jap. II. 2. p. 451; Miyabe and Miyake, Fl. Saghal. p. 304; Busch, Ericac. in Fl. Sib. Or. Extr. p. 55.

Andromeda lycopodioides Pall. Fl. Ross. I. 2. p. 55, t. 73, f. 1; Cham. et Schl. in Linnaea I. p. 516.

HAB. In pratis alpinis, prope Shikatanoma (Ipse! n. 5086, Jul. 11, 1920).—In decliviis alpinis, prope Hiratazaki (Ipse! n. 5390, Jul. 21, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, terra Tschuktschorum, Ochotsk, ins. Behringii, Unalaska, ins. Aleutica, America borealis.

***215. Cassiope Stelleriana** DC. Prodr. VII. p. 611; Ledeb. Fl. Ross. II. p. 913; A. Gray, Syn. Fl. N. Am. II. p. 35; Fr. et Sav. Enum. Pl. Jap. II. p. 427; C. K. Schn. III. Handb. Laubholzk. II. p. 524; Matsum. Ind. Pl. Jap. II. 2. p. 451; Busch, Ericac. in Fl. Sib. Or. Extr. p. 67.

Andromeda Stelleriana Pall. Fl. Ross. I. 2. p. 58, t. 74; Hook. Fl. Bor. Am. II. p. 37, t. 131; Bong. Vég. Sitcha p. 153.

Erica Stelleriana Willd. Spec. Pl. II. p. 387; Spreng. Syst. Veg. II. p. 197.

Harrinanella Stelleriana Cov. Proc. Wash. Acad. (1901) pp. 569-574.

HAB. In decliviis alpinis, prope Hiratazaki (Ipse! n. 5391, Jul. 21, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, fretum Behringii, ins. Sitcha, America borealis.

***216. Andromeda polifolia** L. Spec. Pl. ed. 1, p. 393; Cham. et Schl. in Linnaea I. p. 518; Hook. et Arn. Beechey's Voy. p. 127; Bong. Vég. Sitcha p. 153; Ledeb. Fl. Ross. II. p. 910; Trautv. et Mey. Fl. Ochot. p. 62; Rgl. et Til. Fl. Ajan. p. 110; Turcz. Fl. Baic.-Dah. II. p. 198; Maxim. Prim. Fl. Amur. p. 188 et Mém. Biol. VIII. p. 615; Miq. Prol. Fl. Jap. p. 94; Fr. Schm. Fl. Amg.-Burj. p. 54 et Fl. Sachal. p. 157; Fr. et Sav. Enum. Pl. Jap. I. p. 284; Herder, Pl. Radd. Monop. IV. 1. p. 24; Makino, Bot. Mag. Tokyo, VIII. p. (212); Britt. and Br. III. Fl. II. p. 568; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); Kom. Fl. Mansh. III. p. 211; C. K. Schn. III. Handb. Laubholzk. II. p. 526, f. 344 a-d; Matsum. Ind. Pl. Jap. II. 2. p. 451; Miyabe and Miyake, Fl. Saghal. p. 306; Busch, Ericac. Fl. Sib. Or. Extr. p. 72.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4852, Jun. 26, 1920).—In pratis alpinis, prope Suribachi (Ipse! n. 4904, Jun. 27, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5738, Aug. 7, 1920).

et n. 5774, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4981, Jul. 4, 1920; n. 4991, Jul. 6, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Mongolia, Dahuria, Amur, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, terra Tschuktschorum, fretum Behringii, ins. Sitcha, Europa et America borealis.

217. Gaultheria Miqueliana Takeda, Bot. Mag. Tokyo, XXXII. p. 195.

Gaultheria pyroloides Miq. Prol. Fl. Jap. p. 94; Maxim. Mém. Biol. VIII. p. 611; Boiss. in Bull. Herb. Boiss. V. p. 909; Matsum. Ind. Pl. Jap. II. 2. p. 454; C. K. Schn. III. Handb. Laubholz. II. p. 537 p. p. (non Hook. f. et Thoms.)

HAB. Sine loco indicato (N. Hashimoto! 1908).

DISTRIB. Kuriles, Hokkaido, Honshu.

***218. Arctous alpina** Niedenzu, in Engl. Bot. Jahrb. XI. p. 180; Drude, in Engl. u. Pr. Nat. Pfl.-fam. IV. 1. p. 49; C. K. Schn. III. Handb. Laubholz. II. p. 545; Matsum. Ind. Pl. Jap. II. 2. p. 451; Takeda, Fl. Shikotan p. 477; Miyabe and Miyake, Fl. Saghal. p. 302; Rehder and Wils. in Sarg. Pl. Wils. III. p. 556.

Arbutus alpina L. Spec. Pl. ed. 1, p. 395.

Arctostaphylos alpina Spr. Syst. Veg. II. p. 287; Cham. et Schl. in Linnaea I. p. 538; DC. Prodr. VII. p. 584; Turcz. Fl. Baic. Dah. II. p. 197; Ledeb. Fl. Ross. II. p. 908; Trautv. et Mey. Fl. Ochot. p. 62 et Rgl. et Til. Fl. Ajan. p. 109; Maxim. Prim. Fl. Amur. p. 188; Fr. Schm. Fl. Amg.-Burj. p. 54 et Fl. Sachal. p. 157; Herder, Pl. Radd. Monop. IV. 1. p. 41; Fr. et Sav. Enum. Pl. Jap. II. p. 426; Boiss. in Bull. Herb. Boiss. V. p. 909; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); Kom. Fl. Mansh. III. p. 212; Komatsu, in Matsum. Icon. Koishikav. I. p. 11, pl. 6.

Mairania alpina Desv. in Jour. Bot. I. p. 37.

HAB. In locis aridis, prope Suribachi (Ipse! n. 4905, Jun. 27, 1920).—In locis aridis, prope Tomarizaki (Ipse! n. 5781, Aug. 8, 1920).—In pratis aridis, prope Murakamiwan (Ipse! n. 5015, Jul. 7, 1920).—In pratis aridis, prope Shirakawa (Ipse! n. 5604, Jul. 30, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5133, Jul. 11, 1920).—In pratis aridis, prope Yotsuiwahana (Ipse! n. 5177, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea (var. *rubra* Rehd. et Wils.), Manchuria, China occidentalis (var. *rubra*), Amur, Mongolia, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, terra Tschuktschorum, Europa et America borealis.

***219. Oxycoccus palustris** Pers. Syn. I. p. 419; DC. Prodr. VII. p. 577; Ledeb. Fl. Ross. II. p. 905; Maxim. Prim. Fl. Amur. p. 188; Fr. Schm. Fl. Amg.-Burj. p. 54 et Fl. Sachal. p. 157; Kom. Fl. Mansh. III. p. 217; Takeda, Fl. Shikotan p. 477.

Vaccinium Oxycoccus L. Spec. Pl. ed. 1, p. 351; Pall. Fl. Ross. I. 2. p. 47; A. Gray, Syn. Fl. N. Am. II. p. 25; Miq. Prol. Fl. Jap. p. 92;

Maxim. Mél. Biol. VIII. p. 604; Fr. et Sav. Enum. Pl. Jap. I. p. 280; Miyabe, Fl. Kuril. p. 246; Boiss. in Bull. Herb. Boiss. V. p. 905; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); C. K. Schn. Ill. Handb. Laubholz. II. p. 560; Koidz. Pl. Sachal. p. 101; Miyabe and Miyake, Fl. Saghal. p. 298.

Oxycoccus Oxycoccus MacM. Bull. Torr. Bot. Club. XIX. p. 15; Britt. et Br. Ill. Fl. II. p. 581.

HAB. In paludibus, prope Ruesan (Ipse! n. 5674, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5739, Aug. 7, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 4982, Jul. 4, 1920; n. 4992, Jul. 6, 1920; n. 5456, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Europa et America borealis.

220. *Vaccinium Vitis-idaea* L. Spec. Pl. ed. 1, p. 351; DC. Prodr. VII. p. 568; Bong. Vég. Sitcha p. 152; Ledeb. Fl. Ross. II. p. 901; Rupr. Mél. Biol. II. p. 550; Trautv. et Mey. Fl. Ochot. p. 61; Maxim. Prim. Fl. Amur. p. 186 et Mél. Biol. VIII. p. 605; A. Gray, Bot. Jap. p. 317; Miq. Prol. Fl. Jap. p. 92; Fr. Schm. Fl. Amg.-Burj. p. 54 et Fl. Sachal. p. 155; Fr. et Sav. Enum. Pl. Jap. I. p. 280; Herder, Pl. Radd. IV. 1. p. 30; Miyabe, Fl. Kuril. p. 246; Korsh. Pl. Amur. p. 366; Britt. and Br. Ill. Fl. II. p. 580; Boiss. in Bull. Herb. Boiss. V. p. 906; Kom. Fl. Mansh. III. p. 215; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (190); C. K. Schn. Ill. Handb. Laubholz. II. p. 559; Koidz. Pl. Sachal. p. 100; Nakai, Fl. Korea. II. p. 71 et Bot. Mag. Tokyo, XXXI. p. 250 et Fl. Korea. Sylv. VIII. p. 60; Matsum. Ind. Pl. Jap. II. 2. p. 469; Takeda, Fl. Shikotan p. 477; Miyabe and Miyake, Fl. Sachal. p. 299.

Vaccinium jesoense Miq. Ann. Mus. Lugd. Bat. I. p. 28.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5741, Aug. 7, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5812, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4947, Jul. 3, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5607, Jul. 30, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5135, Jul. 11, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).—Kashiwabarawan (S. Yokoyama! Sept. 9, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Amur, Ussuri, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Europa et America borealis.

221. *Vaccinium uliginosum* L. Spec. Pl. ed. 1, p. 350; DC. Prodr. VII. p. 574; Bong. Vég. Sitcha p. 150; Ledeb. Fl. Ross. II. p. 904; Rupr. Mél. Biol. II. p. 550; A. Gray, Syn. Fl. N. Am. II. 1. p. 23; Trautv. et Mey. Fl. Ochot. p. 61; Maxim. Prim. Fl. Amur. p. 188 et Mél. Biol. VIII. p. 605; Herder, Pl. Radd. Monop. IV. 1. p. 37; Fr. Schm. Fl. Amg.-Burj. p. 54 et Fl. Sachal. p. 156; Fr. et Sav. Enum. Pl. Jap. I. p. 281; Miyabe, Fl. Kuril. p. 246; Drude, in Engl. u. Pr. Nat. Pfl.-fam. IV. 1. p. 51; Korsh. Pl. Amur. p. 366; Britt. and Br. Ill.

Fl. II. p. 576; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191); Kom. Fl. Mansh. III. p. 215; C. K. Schn. III. Handb. Laubholzk. II. p. 556; Koidz. Pl. Sachal. p. 101; Matsum. Ind. Pl. Jap. II. 2. p. 469; Nakai, Fl. Korea. II. p. 71 et Bot. Mag. Tokyo, XXXI. p. 251 et Fl. Korea. Sylv. VIII. p. 62; Takeda, Fl. Shikotan p. 477; Miyabe and Miyake, Fl. Saghal. p. 300.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5711, Aug. 7, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5813, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4948, Jul. 3, 1920).—In decliviis alpinis, prope Hiratazaki (Ipse! n. 5386, Jul. 21, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5606, Jul. 30, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5180, Jul. 12, 1920; n. 5307, Jul. 14, 1920).—Ottomai (S. Yokoyama! Sept. 1893).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Korea, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Europa et America borealis.

222. *Vaccinium ovalifolium* Smith, in Rees Cyclop. 36, n. 2; DC. Prodr. VII. p. 573; Bong. Vég. Sitcha p. 150; Ledeb. Fl. Ross. II. p. 903; Maxim. Prim. Fl. Amur. p. 187 et Mém. Biol. VIII. p. 605; Fr. Schm. Fl. Sachal. p. 156; Fr. et Sav. Enum. Pl. Jap. I. p. 281; Britt. and Br. III. Fl. II. p. 577; Boiss. in Bull. Herb. Boiss. (1897) p. 906; Matsum. Ind. Pl. Jap. II. 2. p. 468; Piper, Fl. St. Washingt. p. 444; Miyabe and Miyake, Fl. Saghal. p. 301.

HAB. Sine loco indicato (N. Hashimoto! 1908).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Ussuri, Sibiria orientalis, Kamtschatka, Alaska, America borealis.

Diapensiaceæ.

223. *Diapensia lapponica* L. Spec. Pl. ed. 1, p. 141; Willd. Spec. Pl. I. p. 795; Cham. in Linnæa VI. p. 553; Hook. Fl. Bor. Am. II. p. 76; Ledeb. Fl. Ross. III. p. 85; A. Gray, Bot. Jap. p. 400; Trautv. et Mey. Fl. Ochot. p. 69; Miq. Prol. Fl. Jap. p. 258; Fr. Schm. Fl. Sachal. p. 161; Herder, Pl. Radd. Monop. IV. 1. p. 205; Fr. et Sav. Enum. Pl. Jap. I. p. 297; Miyabe, Fl. Kuril. p. 248; Britt. and Br. III. Fl. II. p. 583; Drude, in Engl. u. Pr. Nat. Pfl.-fam. IV. 1. p. 82; Yabe, Bot. Mag. Tokyo, XVII. p. 24; Yabe et Yendo, *ibidem* XVIII. p. (191); C. K. Schn. III. Handb. Laubholzk. II. p. 570; Matsum. Ind. Pl. Jap. II. 2. p. 470.

var. **obovata** Fr. Schm. Fl. Sachal. p. 161; Takeda, Fl. Shikotan p. 478; Miyabe and Miyake, Fl. Saghal. p. 318.

Diapensia lapponica L. var. *asiatica* Herder, l. c. p. 206; Fr. et Sav. Enum. Pl. Jap. II. p. 428.

HAB. In rupestribus, prope Shikatanoma (Ipse! n. 5088, Jul. 11, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka,

Siberia orientalis et uralensis, terra Tschuktschorum, fretum Behringii et St. Laurentii; *sp. typicæ*. Lapplandia et Groenlandia.

Primulaceæ.

*224. *Primula eximia* Greene, in Pittonia III. p. 251; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191); Pax u. Knuth, Primulac. in Engl. Pfl.-reich. IV. 237. p. 106; Matsum. Ind. Pl. Jap. II. 2. p. 479; Takeda, Notes R. B. G. Edinbg. VIII. Num. XXXVII. p. 90, Pl. XXIIA.

HAB. In pratis humidis rivulorum, prope Arahatazaki (Ipse! n. 5860, Aug. 12, 1920).

DISTRIB. Kuriles, fretum Behringii, terra Tschuktschorum, ins. Aleuticæ, Unalaska, America arctica.

225. *Primula cuneifolia* Ledeb. in Mém. Ac. St. Pétersb. V. p. 522.

var. *typica* Makino, Bot. Mag. Tokyo, XVI. p. 140; Matsum. Ind. Pl. Jap. II. 2. p. 478; Takeda, Notes R.B.G. Edinbg. VIII. Num. XXXVII. p. 90, Pl. XXII B.

Primula cuneifolia Ledeb. l. c. et Fl. Ross. III. p. 15; Duby, in DC. Prodr. VIII. p. 39; Rgl. et Til. Fl. Ajan. p. 111; Rgl. Hort. Petrop. III. 1. p. 150; Herder, Pl. Radd. Monop. IV. 1. p. 115; Fr. Schm. Fl. Amg.-Burj. p. 56; Miyabe, Fl. Kuril. p. 249; Pax, in Engl. Bot. Jahrb. X. p. 211; Makino, Bot. Mag. Tokyo, XI. p. (112) et XIII. p. (83); Pax u. Knuth, Primulac. in Engl. Pfl.-reich. IV. 237. p. 112; Blanc. et Decr. in Bull. Herb. Boiss. (1898) p. 703 et (1899) p. 83; Kawakami, Bot. Mag. Tokyo, XIV. p. (111); Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191).

Primula cuneifolia Ledeb. *α. Dubyi* Pax et Knuth, in Engl. Pfl.-reich. l. c. p. 112.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4854, Jul. 26, 1920).—In pratis humidis, prope Shirakawa (Ipse! n. 5612, Jul. 30, 1920).—In pratis humidis, prope Hiratazaki (Ipse! n. 5385, Jul. 21, 1920).—In pratis humidis, prope Arakawa (Ipse! n. 5363, Jul. 15, 1920).—In pratis humidis, prope Kamogawazaki (Ipse! n. 5200, Jul. 12, 1920).—In pratis humidis, prope Magarikawa (Ipse! n. 5263, Jul. 13, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5234, Jul. 13, 1920).—Musashiwan (M. Ajzawa! Jun. 22, 1900).—Prop: Murakamiwan (T. Matsubara! Aug. 10, 1915).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Kuriles, Hokkaido, Siberia orientalis, ins. Unalaska, America arctica.

226. *Androsace Chamæjasme* Host. Syn. Pl. Austr. p. 95; Willd. Spec. Pl. I. p. 799; Cham. et Schl. in Linnæa I. p. 218; Hook. et Arn. in Beechey's Voy. p. 129; Hook. Fl. Bor. Am. II. p. 119; DC. Prodr. VIII. p. 51; Ledeb. Fl. Ross. III. p. 18; Boiss. Fl. Orient. IV. p. 14; Hook. f. Fl. Brit. Ind. III. p. 499; Forb. et Hemsl. Ind. Fl. Sin. III. p. 44; Pax u. Knuth, Primulac. in Engl. Pfl.-reich. IV. 237. p. 188.

Androsace villosa L. var. *latifolia* Ledeb. Fl. Alt. I. p. 218; Herder, Pl. Radd. Monop. IV. 1. p. 118; Maxim. Mém. Biol. XII. p. 753; Miyabe, Fl. Kuril. p. 250; Matsum. Bot. Mag. Tokyo, XIV. p. 70 et Ind. Pl. Jap. II. 2. p. 474; Hemsl. in Journ. Linn. Soc. XXXV. p. 189.

var. **capitata** R. Knuth, in Pax u. Knuth, l. c. p. 190.

Androsace capitata Willd. apud Pax u. Knuth, l. c.

HAB. Musashiwan (M. Aizawa! Jun. 22, 1900).

var. **paramushirensis** Kudo, var. nov.

Folia oblongo-elliptica vel spatulato-elliptica, basi longe cuneata, dense globosa, pilis longis hyalinis utrinque densissime vestita. Scapi graciles, elongati, pilis albis hyalinis crispulis densissime obtecti, 2-4.3 cm. longi. Inflorescentia 3-4-flora, congesta, floribus 8 mm. in diametro longis. Bracteae lineares, oblongo-obovatae vel obovato-oblongae.

HAB. In rupestribus, prope Yotsuiwahana (Ipse! n. 5167, Jul. 12, 1920 et n. 5295, Jul. 14, 1920).—Ad saxum, prope Shikatanoma (Ipse! n. 5083, Jul. 11, 1920).

Varietas haec differt a priore non solum formis foliorum et longitudine pedunculi, sed etiam colore pilorum. Haec varietas, procul dubio, proxime accedit, ad varietatem *arcticam* R. Knuth, cujus tamen specimina authentica conferre nobis non licuit. Si descriptiones varietatis *arcticae* R. Knuth (Pax et Knuth, in Engl. Pfl.-reich. IV. 237. p. 190) respicis, varietas haec a planta nostra discrepat, foliis oblongo-ellipticis vel spatulato-ellipticis, nec late ovatis, pilis albis nec lutescentibus.

DISTRIB. *sp.* Kuriles, Ochotsk, Ajan, Kamtschatka, terra Tschuktschorum, Mongolia, China, Transbaicalia, Sibiria (uralensis et borealis), Songalia, Tibet, Europa arctica et alpina, America borealis.

227. Trientalis europæa L. Spec. Pl. ed. 1, p. 344; Duby, in DC. Prodr. VIII. p. 59; Ledeb. Fl. Ross. III. p. 24; Trautv. et Mey. Fl. Ochot. p. 67; Maxim. Prim. Fl. Amur. p. 139; Fr. Schm. Fl. Amg.-Burj. p. 56 et Fl. Sachal. p. 159; Fr. et Sav. Enum. Pl. Jap. II. p. 430; Miyabe, Fl. Kuril. p. 250; Forb. et Hemsl. Ind. Fl. Sin. II. p. 58; Korsh. Pl. Amur. p. 368; Kom. Fl. Mansh. III. p. 239; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (191); Blanc. et Decr. in Bull. Herb. Boiss. (1898) p. 705; Pax et Knuth, Primulac. in Engl. Pfl.-reich. IV. 237. p. 313; Koidz. Pl. Sachal. p. 102; Matsum. Ind. Pl. Jap. II. 2. p. 482.

var. **arctica** Ledeb. Fl. Ross. III. p. 25; A. Gray, Syn. Fl. N. Am. II. 1. p. 61; Pax et Knuth, l. c. p. 315; Takeda, Fl. Shikotan p. 479; Miyabe and Miyake, Fl. Saghal. p. 322.

Trientalis arctica Fisch. ex Hook. Fl. Bor. Am. II. p. 121; Duby, in DC. Prodr. VIII. p. 59.

HAB. In pratis alpinis, prope Suribachi (Ipse! n. 4907, Jul. 27, 1920).—In pratis alpinis, prope Okuyotsuiwa (Ipse! n. 4927, Jun. 29, 1920).—In arena litorali, prope Murakamiwan (Ipse! n. 4965, Jul. 4, 1920): in silvis deciduis, prope Murakamiwan (Ipse! n. 5024, Jul. 7, 1920): in paludibus, prope Murakamiwan (Ipse! n. 5457, Jul. 23, 1920).

—In silvis deciduis, prope Hiratazaki (Ipse! n. 5411, Jul. 21, 1920).—In silvis, prope Arakawa (Ipse! n. 5364, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Ad flumen Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. *var.* Sachalin, Kuriles, Hokkaido, Kamtschatka, Sibiria orientalis, fretum Behringii, ins. Aleuticæ, ins. Sitcha, Unalaska, America borealis. *sp.* Asia, Europa et America borealis.

Plumbaginaceæ.

228. *Armeria vulgaris* Willd. Enum. Hort. Berol. I. p. 333; Schult. Syst. Veg. VI. p. 771; A. Gray, Syn. Fl. N. Am. II. p. 55; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 472; Herder, Pl. Radd. in Act. Hort. Petropol. X. 1. p. 53; Miyabe, Fl. Kuril. p. 249; Pax, in Engl. u. Pr. Nat. Pfl.-fam. IV. 1. p. 124; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (192); Matsum. Ind. Pl. Jap. II. 2. p. 483.

Armeria elongata Hoffm. Deutsch. Fl. V. 1. p. 150; DC. Prodr. XII. p. 681.

form. **arctica** Cham. Herd. 1. c.; Miyabe, 1. c.; Kurtz, 1. c.

Statice Armeria L. *β. arctica* Ledeb. Fl. Ross. III. p. 457.

HAB. Musashiwan (M. Aizawa! Jun. 22, 1900).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. *sp.* Kuriles, Sibiria arctica, terra Tschuktschorum, Unalaska, Europa et America borealis.

Gentianaceæ.

229. *Gentiana auriculata* Pall. Fl. Ross. II. p. 102, t. 92, f. 1; DC. Prodr. IX. p. 97; Ledeb. Fl. Ross. III. p. 55; Trautv. et Mey. Fl. Ochot. p. 67; Rgl. et Til. Fl. Ajan. p. 111; Maxim. Prim. Fl. Amur. p. 197; Fr. Schm. Fl. Sachal. p. 160; Herder, Pl. Radd. Monop. IV. 1. p. 149; Miyabe, Fl. Kuril. p. 251; Kawakami, Bot. Mag. Tokyo, XIV. p. (111) et p. 137; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (192); Lév'l. et Vnt. in Bull. Soc. Bot. Fr. (1906) p. 648; Kom. Fl. Mansh. III. p. 269; Matsum. Ind. Pl. Jap. II. 2. p. 500; Miyabe and Miyake, Fl. Sachal. p. 329.

Gentiana Fauriei Lév'l. et Vnt. 1. c.; Matsum. 1. c.

HAB. In pratis siccioribus, prope Tomarizaki (Ipse! n. 5712, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5518, Jul. 26, 1920).—In pratis siccioribus, prope Murakamiwan (Ipse! n. 5466, Jul. 23, 1920).—Ottomai (C. Tarao! Jul. 10 et Aug. 15, 1892).—Sine loco indicato (I. Kodama! Aug. 1893; T. Sakurai! Aug. 1910).

DISTRIB. Sachalin, Kuriles, Hokkaido, Amur, Ochotsk, Ajan, Kamtschatka, fretum Behringii.

230. *Swertia tetrapetala* Pall. Fl. Ross. II. p. 99, t. 90, f. 2; Miyabe, Fl. Kuril. p. 251; Yabe et Yendo, Bot. Mag. Tokyo, XVIII.

p. (192); Kom. Fl. Mansh. III. p. 273; Matsum. Ind. Pl. Jap. II. 2. p. 504; Takeda, Fl. Shikotan p. 480.

Stellaria cyanea Turcz. in Bull. Mosc. (1840) p. 167; DC. Prodr. IX. p. 123; Ledeb. Fl. Ross. III. p. 73; Trautv. et Mey. Fl. Ochot. p. 68.

Rellesta cyanea Turcz. Fl. Baical. Dahur. II. 2. p. 270 in nota; Maxim. Prim. Fl. Amur. p. 198; Fr. Schm. Fl. Amg.-Burj. p. 56.

HAB. In pratis humidis, prope Ruesan (Ipse! n. 5676, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5742, Aug. 7, 1920).—In pratis siccioribus, prope Kashiwabarawan (Ipse! n. 5520, Jul. 26, 1920).—In pratis alpinis, prope Murakamiwan (Ipse! n. 5423, Jul. 22, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5611, Jul. 30, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5136, Jul. 11, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5362, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).—Sine loco indicato (I. Kodama! Aug. 1893).

DISTRIB. Kuriles, Hokkaido, Manchuria, Amur, Primorskaja et Kamtschatka.

Variat florum colore, foliorum forma et magnitudine.

*231. *Halenia sibirica* Borkh. in Roemer, Archiv. I. p. 25; DC. Prodr. IX. p. 128; Ledeb. Fl. Ross. III. p. 74; Rgl. et Til. Fl. Ajan. p. 112; Maxim. Prim. Fl. Amur. p. 198; Miq. Prol. Fl. Jap. p. 288; Fr. Schm. Fl. Sachal. p. 160; Fr. et Sav. Enum. Pl. Jap. I. p. 325; Franch. Pl. David. p. 213; Herder, Pl. Radd. Monop. IV. 1. p. 186; Forb. et Hemsl. Ind. Fl. Sin. II. p. 141; Korsh. Pl. Amur. p. 370; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (192); Kom. Fl. Mansh. III. p. 277; Koidz. Pl. Sachal. p. 103; Matsum. Ind. Pl. Jap. II. 2. p. 502; Miyabe and Miyake, Fl. Sachal. p. 330.

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5675, Aug. 5, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5714, Aug. 7, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5519, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5543, Jul. 27, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 6510, Jul. 30, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Manchuria, Amur, Ussuri, China borealis, Primorskaja, Kamtschatka et Sibiria.

232. *Menyanthes trifoliata* L. Spec. Pl. ed. 1, p. 145; DC. Prodr. IX. p. 137; Bong. Vég. de Sitcha p. 157; Ledeb. Fl. Ross. III. p. 76; Trautv. et Mey. Fl. Ochot. p. 68; Rgl. et Til. Fl. Ajan. p. 112; Maxim. Prim. Fl. Amur. p. 199; Miq. Prol. Fl. Jap. p. 289; A. Gray, Fl. N. Am. II. p. 128; Fr. Schm. Fl. Amg.-Burj. p. 56 et Fl. Sachal. p. 160; Hook. f. Fl. Brit. Ind. IV. p. 131; Korsh. Pl. Amur. p. 370; Fr. et Sav. Enum. Pl. Jap. I. p. 325; Herder, Pl. Radd. Monop. IV. 1. p. 193; Britt. and Br. III. Fl. II. p. 622; Miyabe, Fl. Kuril. p. 251; Kom. Fl. Mansh. III. p. 278; Matsum. Ind. Pl. Jap. II. 2. p. 503; Takeda, Fl. Shikotan p. 480; Miyabe and Miyake, Fl. Saghal. p. 332.

HAB. In paludibus, prope Murakamiwan (Ipse! n. 4983, Jul. 4, 1920).—Prope Chitosewan (T. Matsubara! Jul. 29, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Amur, Manchuria, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Kamtschatka, Tibet, Himalaya, Kashmir, Caucasus, Europa, Alaska, Groenlandia, America borealis.

Polemoniaceæ.

*233. *Polemonium villosum* Rudolphi, ex Georgi, Besch. Russ. Reich. III. iv. p. 771.

Polemonium acutiflorum Willd. ex Roem. et Schl. Syst. IV. p. 792; DC. Prodr. IX. p. 318; Eastwood, in Bot. Gazette XXXIII. p. 286.

Polemonium cœruleum L. β *acutiflorum* Ledeb. Fl. Ross. III. p. 84; Trautv. et Mey. Fl. Ochot. p. 69; Rgl. et Til. Fl. Ajan. p. 112; Herd. Pl. Radd. Monop. IV. 1. p. 201; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 399.

Polemonium cœruleum L. subsp. *B. villosum* Brand, in Engl. Pfl.-reich. IV. 250. p. 38; Miyabe et Kudo, Mater. Fl. Hokkaido, n. 2, in Trans. Sapporo Nat. Hist. Soc. IV. 2. p. 101.

HAB. In glareosis, prope Magarikawa (Ipse! n. 5268, Jul. 13, 1920).—In glareosis, prope Kamogawazaki (Ipse! n. 5201, Jul. 12, 1920).

DISTRIB. Sachalin, Kuriles, Manchuria, Sibiria orientalis, ins. Aleutica, ins. Behringii, Alaska, America borealis.

Borraginaceæ.

234. *Mertensia maritima* G. Don, Gen. Syst. IV. p. 320; Ledeb. Fl. Ross. III. p. 132; Trautv. et Mey. Fl. Ochot. p. 69; A. Gray, Bot. Jap. p. 403; Miq. Prol. Fl. Jap. p. 360; Fr. Schm. Fl. Sachal. p. 161; Fr. et Sav. Enum. Pl. Jap. I. p. 334; Maxim. Mém. Biol. VIII. p. 543; Herd. Pl. Radd. Monop. IV. 1. p. 226; Miyabe, Fl. Kuril. p. 252; Gürke, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. a. p. 120; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (192); Kom. Fl. Mansh. III. p. 324; Nakai, Fl. Korea. II. p. 106; Matsum. Ind. Pl. Jap. II. 2. p. 526; Koidz. Pl. Sachal. p. 104; Miyabe and Miyake, Fl. Saghal. p. 336.

Pulmonaria maritima L. Spec. Pl. ed. 1, p. 136.

subsp. *asiatica* Takeda, in. Jour. Bot. XLIX. p. 22 et Fl. Shikotan p. 480.

HAB. In arena litorali, prope Nodawan (Ipse! n. 4882, Jun. 20, 1920).—In arena litorali, prope Suribachi (Ipse! n. 4908, Jun. 27, 1920).—In arena litorali, prope Kamogawa (Ipse! n. 5277, Jul. 14, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).—Ottomai (S. Yokoyama! Sept. 1893).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, Ussuri, Sibiria orientalis; Kamtschatka, terra Tschutkschorum, Europa et America borealis.

*235. *Mertensia paniculata* Don, Syst. IV. p. 318; A. Gray, Syn. Fl. N. Am. II. p. 201; Herd. Pl. Radd. Monop. IV. 1. p. 229; Miyabe, Fl. Kuril. p. 252; Gürke, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. a. p. 121; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (193); Matsum. Ind. Pl. Jap. II. 2. p. 526.

Mertensia pilosa DC. Prodr. X. p. 90; Ledeb. Fl. Ross. III. p. 134.

Steenhammera pilosa Turcz. in Bull. Mosc. (1840) p. 249.

var. *pubescens* (DC.) Kudo, nom. nov.

Mertensia pubescens DC. Prodr. X. p. 90.

Pulmonaria pubescens Willd. in Roem. et Schl. Syst. IV. p. 744.

HAB. In pratis siccis, prope Yotsuiwahana (Ipse! n. 5308, Jul. 14, 1920).

DISTRIB. var. Planta endemica! *sp.* Kamtschatka, fretum Behringii, Alaska et America borealis.

Specimen meum satis bene respondet descriptioni *Mertensiae pubescentis*. Varietas haec quod ad habitum et ad notas fere omnes attinet, formis pumilibus *Mertensiae paniculatae* simillimum est, sed a hujus speciei differt, caulibus humilioribus, erectis, foliis supra glabris, floribus fasciculatis.

*236. *Mertensia rivularis* DC. Prodr. X. p. 90; Ledeb. Fl. Ross. III. p. 135; Rgl. et Til. Fl. Ajan. p. 113; Herd. Pl. Radd. Monop. IV. 1. p. 232; Maxim. Mém. Biol. VIII. p. 543; Fr. Schm. Fl. Amg.-Burj. p. 57; Miyabe, Fl. Kuril. p. 252; Gürke, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. a. p. 121; Kom. Fl. Mansh. III. p. 325; Matsum. Ind. Pl. Jap. II. 2. p. 526.

Lithospermum rivulare Turcz. in Bull. Mosc. (1840) p. 232.

Steenhammera rivularis Turcz. l. c. p. 248.

var. *japonica* Takeda, Jour. Bot. XLIX. p. 222 et Notes R. B. G. Edinbg. VIII. Num. XXXIX. p. 230 et Fl. Shikotan p. 480.

HAB. Ad ripas rivulorum, prope Shikatanoma (Ipse! n. 5089, Jul. 11, 1920).—Ad ripas rivulorum, prope Magarikawa (Ipse! n. 5265, Jul. 13, 1920).

DISTRIB. var. Kuriles et Hokkaido: *sp.* Kamtschatka, Ochotsk, Ajan et Manchuria.

Labiatae.

*237. *Prunella vulgaris* L. Spec. Pl. ed. 1, p. 600; Kudo, Enum. Lab. Kuril. et Yezo, in Jour. Coll. Sc. Imp. Univ. Tokyo, XLIII. 8. p. 22.

var. *japonica* Kudo, l. c. p. 23.

HAB. In arena litorali, prope Urafutoyama (Ipse! n. 5816, Aug. 8, 1920).

DISTRIB. var. Insulae Kurilenses, Hokkaido et Honshu; *sp.* Asia temperata, Sibiria (orientalis, baicalensis, uralensis et altaica), ins. Sitcha,

Himalaya, Tibet occidentalis, Europa, America borealis temperata, Australia, Andes.

Scrophulariaceæ.

238. *Pentstemon frutescens* Lamb. in Trans. Linn. Soc. X. p. 259; Benth. in DC. Prodr. X. p. 321; Hook. Fl. Bor. Am. II. p. 98; Ledeb. Fl. Ross. III. p. 222; Wettstein, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. b. p. 65; Matsum. Ind. Pl. Jap. I. 2. p. 568; Furumi, Bot. Mag. Tokyo, XXX. p. 109.

Chelone frutescens Steud. Nom. ed. 1, p. 186; Spr. Syst. Vég. II. p. 812.

HAB. In glareosis, prope Magarikawa (Ipse! n. 5276, Jul. 13, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5237, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, Sibiria uralensis, ins. Unalaska.

239. *Veronica Stelleri Pall. ex Link, Jahrb. i. III. p. 40; Cham. et Schl. in Linnaea II. p. 557; Hook. Fl. Bor. Am. II. p. 101; Benth. in DC. Prodr. X. p. 481; Ledeb. Fl. Ross. III. p. 247; A. Gray, Syn. Fl. N. Am. II. p. 288; Fr. Schm. Fl. Sachal. (ed. ross.) p. 178; Maxim. Mém. Biol. XII. p. 501; Herder, Pl. Radd. Monop. IV. 2. p. 34; Miyabe, Fl. Kuril. p. 254; Yabe, Bot. Mag. Tokyo, XVII. p. 25; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (194); Matsum. Ind. Pl. Jap. I. 2. p. 573; Miyabe and Miyake, Fl. Saghal. p. 347; Furumi, Bot. Mag. Tokyo, XXX. p. 124.

HAB. In silvis, prope Suribachi (Ipse! n. 4909, Jun. 27, 1920).—In silvis, prope Tomarizaki (Ipse! n. 5713, Aug. 7, 1920).—In silvis, prope Urafutoyama (Ipse! n. 5799, Aug. 8, 1920).—Ad ripas fluviorum, prope Ruesan (Ipse! n. 5680, Aug. 5, 1920).—Ad ripas silvarum, prope Hiratazaki (Ipse! n. 5383, Jul. 21, 1920).—In silvis, prope Magarikawa (Ipse! n. 5264, Jul. 13, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5238, Jul. 13, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka, ins. Aleutica, Unalaska.

240. *Veronica americana* Schweinitz, apud Benth. in DC. Prodr. X. p. 468; A. Gray, Fl. N. Am. II. p. 287; Herd. Pl. Radd. Monop. IV. 2. p. 20; Britt. and Br. III. Fl. III. p. 167; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (194); Miyabe and Miyake, Fl. Saghal. p. 347.

Veronica Anagallis Bong. Vég. Sitcha p. 157.

Veronica Beccabunga L. var. *americana* Glehn, apud Maxim. Mém. Biol. XI. p. 278; Miyabe, Fl. Kuril. p. 253; Koidz. Pl. Sachal. p. 108; Matsum. Ind. Pl. Jap. II. 2. p. 571; Furumi, Bot. Mag. Tokyo, XXX. p. 125.

Veronica Beccabunga Fr. Schm. Fl. Saghal. p. 163, (non L.).

HAB. Ad ripas, prope Hamanakagawa (Ipse ! n. 5833, Aug. 11, 1920).—Ottomai (C. Tarao ! Jul. 10, 1892).—Sine loco indicato (I. Kodama ! Aug. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Sibiria orientalis, Kamtschatka, ins. Aleuticæ, ins. Sitcha, Unalaska, America borealis.

***241. Veronica aphylla** L. Spec. Pl. ed. 1, p. 11; DC. Prodr. X. p. 476; Hegi, Ill. Fl. Mitteleurop. VI. p. 59, t. 239, f. 4.

var. **grandiflora** Benth. in DC. Prodr. X. p. 476; Ledeb. Fl. Ross. III. p. 245; Herder, Pl. Radd. Monop. IV. 2. p. 32; Miyabe, Fl. Kuril. p. 253; Matsum. Ind. Pl. Jap. II. 2. p. 571; Furumi, Bot. Mag. Tokyo, XXX. p. 126.

Veronica grandiflora J. Gärtn. in. Nov. Comm. Petrop. XIV. p. 531, t. 18, f. 1.

Veronica kamtschatica L. f. Suppl. p. 83; A. Gray, Syn. Fl. N. Am. II. p. 287; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (194).

HAB. In silvis, prope Hiratazaki (Ipse ! n. 5382, Jul. 21, 1920).

DISTRIB. var. Kamtschatka et ins. Aleuticæ; *sp.* Sibiria altaica, Europa et America borealis.

242. Lagotis glauca Gaertn. in Nov. Comm. Petrop. XIV. p. 533, t. 18, f. 2; Maxim. Mém. Biol. XI. p. 297; Herder, Pl. Radd. VII. p. 8 et Bull. Mosc. LIX. 1. p. 238; Hook. f. Fl. Brit. Ind. IV. p. 559; Wettstein, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. b. p. 87; Hemsl. Fl. Tibet. in Jour. Linn. Soc. XXXV. p. 194 (var. *kunawurensis* Hook. f.); Matsum. Ind. Pl. Jap. II. 2. p. 561; Takeda, Notes R. B. G. Edenbg. Vol. VIII. Num. XXXIX. p. 230; Furumi, Bot. Mag. Tokyo, XXX. p. 126.

Gymnandra Gmelini Cham. et Schl. in Linnaea II. p. 561; Choisy, in DC. Prodr. XII. p. 25; Ledeb. Fl. Ross. III. p. 332.

Gymnandra borealis Pall. It. III. pp. 33, 44, 320; Rgl. et Til. Fl. Ajan. p. 115.

Lagotis glauca Gaertn. 1. *borealis* Maxim. var. *Pallasii* Maxim. Mém. Biol. XI. p. 298.

Lagotis glauca Gaertn. α . *borealis* Herd. form. *Gmelini* Herder, l. c. p. 9.

HAB. Prope Miyakawazaki (T. Matsubara ! Aug. 7, 1915).

DISTRIB. Kuriles, Hokkaido, Honshu, China, Dahuria, Sibiria, Tibet, Himalaya alpina, Kamtschatka, terra Tschuktschorum, fretum Behringii, America borealis.

***243. Euphrasia mollis** Wettst. Monogr. Euphr. p. 141, t. IV. f. 205–210, t. XII, f. 5; Takeda, Bot. Mag. Tokyo, XXIV. p. 157 et Fl. Shikotan p. 481; Furumi, Bot. Mag. Tokyo, XXX. p. 137.

Euphrasia officinalis L. var. *mollis* Ledeb. Fl. Ross. III. p. 263.

Euphrasia officinalis Miyabe, Fl. Kuril. p. 254; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (194), (non L.).

Euphrasia officinalis L. var. *imbricata*? Makino, Bot. Mag. Tokyo, XI. p. (451), (p.p., non Benth.).

HAB. In pratis siccioribus, prope Ruesan (Ipse! n. 5677, Aug. 5, 1920).—In pratis siccioribus, prope Urafutoyama (Ipse! n. 5798, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5467, Jul. 23, 1920).

DISTRIB. Kuriles, Hokkaido, Asia borealis et America borealis.

244. *Pedicularis Chamissonis* Stev. in Mém. Soc. Nat. Mosc. VI. p. 20, t. 4, f. 1; Hook. Fl. Bor. Am. II. p. 207; Benth. in DC. Prodr. X. p. 561; Ledeb. Fl. Ross. III. p. 274; Maxim. Mém. Biol. X. p. 90, et XII. p. 858, f. 90; Miyabe, Fl. Kuril. p. 254; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (193); Miyabe and Miyake, Fl. Saghalin, p. 353.

var. **Maximowiczii** (Nakai) Kudo, nom. nov.

Pedicularis japonica Miq. var. *Maximowiczii* Nakai, Bot. Mag. Tokyo, XXIII. p. (99); Matsum. Ind. Pl. Jap. II. 2. p. 566; Furumi, Bot. Mag. Tokyo, XXX. p. 132.

Pedicularis Chamissonis Maxim. l. c. (p. p.); Yabe et Yendo, l. c.; Miyabe and Miyake, l. c. (non Stev.)

Pedicularis japonica Takeda, Fl. Shikotan p. 481. (non Miq.)

HAB. In pratis siccioribus, prope Ruesan (Ipse! n. 5678, Aug. 5, 1920).—In pratis siccis, prope Kashiwabarawan (Ipse! n. 5061, Jul. 9, 1920; n. 5522, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 4958, Jul. 4, 1920).—In pratis siccis, prope Hiratazaki (Ipse! n. 5384, Jul. 21, 1920).—In arena, prope ripas, prope Shirakawa (Ipse! n. 5614, Jul. 30, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5137, Jul. 11, 1920).—In pratis siccis, prope Arakawa (Ipse! n. 5366, Jul. 15, 1920).—In pratis siccis, prope Yotsuiwahana (Ipse! n. 5310, Jul. 14, 1920).—In glareosis, prope Magarikawa (Ipse! n. 5266, Jul. 13, 1920).—In pratis siccis, inter Nishikawa et Atenkeshi (Ipse! n. 5235, Jul. 13, 1920).—Ottomai (C. Tarao! Aug. 25, 1892).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. var. Sachalin, Kuriles, Hokkaido. var. *japonica*. Honshu. sp. *typica*. Kamtschatka, Unalaska et Sibiria.

Variat floribus intense violaceis vel pallide violaceis, caulibus elatioribus vel humilibus, inflorescentiis densifloris vel laxifloris, foliis subcoriaceis vel membranaceis, pallide viridibus vel viridibus.

245. *Pedicularis resupinata* L. Spec. Pl. ed. 1, p. 608; Benth. in DC. Prodr. X. p. 581; Ledeb. Fl. Alt. II. p. 429 et Fl. Ross. III. p. 281; Trautv. et Mey. Fl. Ochot. p. 72; Rgl. et Til. Fl. Ajan. p. 114; A. Gray, Bot. Jap. p. 402; Maxim. Prim. Fl. Amur. p. 210, 475 et Mém. Biol. X. p. 106, XII. p. 831, t. III. f. 51; Rgl. Tent. Fl. Ussuri. p. 113; Miq. Prol. Fl. Jap. p. 54; Fr. Schm. Fl. Amg.-Burj. p. 58 et Fl. Sachal. p. 163; Fr. et Sav. Enum. Pl. Jap. I. p. 351; Miyabe, Fl. Kuril. p. 254; Korsh. Pl. Amur. p. 375; Forb. et Hemsl. Ind. Fl. Sin. II. p. 214; Palib. Consp. Fl. Korea. II. p. 22; Yabe et Yendo, Bot.

Mag. Tokyo, XVIII. p. (193); Kom. Fl. Mansh. III. p. 447; Nakai, Bot. Mag. Tokyo, XXIII. p. (100) et Fl. Korea. II. p. 125; Matsum. Ind. Pl. Jap. II. 2. p. 567; Koidz. Pl. Sachal. p. 107; Takeda, Fl. Shikotan p. 481; Miyabe and Miyake, Fl. Saghal. p. 352; Furumi, Bot. Mag. Tokyo, XXX. p. 133.

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5679, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5743, Aug. 7, 1920).—In pratis siccis, prope Kashiwabaran (Ipse! n. 5523, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5545, Jul. 27, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5613, Jul. 30, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5140, Jul. 11, 1920).—Prope Murakamiwan (T. Matsubara! Aug. 10, 1915).—Sine loco indicato (C. Tarao! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Korea, Manchuria, Amur, Ussuri, Mongolia, China borealis, Dahuria, Sibiria (orientalis, altaica et uralensis), Kamtschatka, Rossia.

*246. **Pedicularis euphrasioides** Steph. in Willd. Spec. Pl. III. p. 204; Cham. et Schl. in Linnaea II. p. 583; Hook. et Arn. Beechey's Voy. p. 128; Hook. Fl. Bor. Am. II. p. 109; Bunge, in Ledeb. Fl. Ross. III. p. 284; Trautv. et Mey. Fl. Ochot. p. 72; Rgl. et Til. Fl. Ajan. p. 114; Maxim. Prim. Fl. Amur. p. 210 et Mél. Biol. X. p. 112 et XII. p. 901, t. IV. f. 136; A. Gray, Syn. Fl. N. Am. II. p. 307; Fr. Schm. Fl. Amg.-Burj. p. 58 et Fl. Sachal. p. 163; Miyabe, Fl. Kuril. p. 255; Kom. Fl. Mansh. III. p. 456; Nakai, Bot. Mag. Tokyo, XXIII. p. (100); Matsum. Ind. Pl. Jap. II. 2. p. 566; Miyabe and Miyake, Fl. Saghal. p. 354; Furumi, Bot. Mag. Tokyo, XXX. p. 134.

HAB. In pratis alpinis, prope Ruesan (Ipse! n. 5852, Aug. 11, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5814, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5424, Jul. 22, 1920; n. 5544, Jul. 27, 1920).—In pratis alpinis, prope Shirakawa (Ipse! n. 5615, Jul. 30, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5365, Jul. 15, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5181, Jul. 12, 1920 et n. 5309, Jul. 14, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5138, Jul. 11, 1920).

DISTRIB. Sachalin, Kuriles, Kamtschatka, Manchuria, Dahuria, Sibiria (orientalis, baicalensis et arctica), ins. Aleuticae, America borealis.

*247. **Pedicularis sudetica** Willd. Spec. Pl. III. p. 209; Cham. et Schl. in Linnaea II. p. 583; Hook. et Arn. in Beechey's Voy. p. 128; Hook. Fl. Bor. Am. II. p. 109; Ledeb. Fl. Ross. III. p. 286; Benth. in DC. Prodr. X. p. 568; Gray, Fl. Bor. Am. II. p. 308; Maxim. Mél. Biol. X. p. 116 et XII. p. 903; Hegi, Ill. Fl. Mitteleurop. IV. 4. p. 122, f. 69, g. u. h.

HAB. In paludibus, prope Chitosewan (Ipse! n. 4855 b, Jun. 26, 1920).

DISTRIB. Kuriles, Kamtschatka, Sibiria (orientalis, transbaicalensis et arctica), Europa, America arctica et frigida.

Species haec ad floram japonicam nova est!

248. **Pedicularis Oederi** Vahl. in Hornem. Dansk. Oek. Plantel.

ed. 2, p. 580; Thomé, Fl. Deuts. Schw. Oester. IV. p. 175; Hemsl. in Journ. Linn. Soc. XXX. p. 138 et Fl. Tibet, *ibidem* XXXV. p. 193; Stev. in Bull. Torr. Bot. Club. XLIII. p. 643; Prain, in Ann. Bot. Gard. Calc. III. p. 181, t. 34; Hegi, Ill. Fl. Mitteleurop. VI. 4. p. 127, f. 74, e-h; Koidz. Bot. Mag. Tokyo, XXXI. p. 34.

Pedicularis versicolor Wahlenb. Veg. Helvet. p. 118; Steven, Monogr. Pedic. p. 52; Cham. et Schl. in Linnaea II. p. 585; Hook. Fl. Bor. Am. II. p. 110; Ledeb. Fl. Ross. III. p. 300; DC. Prodr. X. p. 578; Rgl. et Til. Fl. Ajan. p. 115; Hook. f. Fl. Brit. Ind. IV. p. 316; Maxim. Mém. Biol. X. p. 133 et XII. p. 918; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (193).

HAB. In paludibus, prope Chitosewan (Ipse! n. 4855, Jun. 26, 1920).—In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5139, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5186, Jul. 12, 1920; n. 5311, Jul. 14, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5236, Jul. 13, 1920).—Musashiwan (M. Aizawa! Jun. 22, 1900).

DISTRIB. Kuriles, Hokkaido, Kamtschatka, terra Tschuktschorum, Sibiria (orientalis, altaica, uralensis et arctica), Dahuria, China, Mongolia, Tibet, Himalaya et Europa.

249. *Pedicularis lanata Willd. ex Cham. et Schl. in Linnaea II. p. 184; Hook. et Arn. in Beechey's Voy. p. 128; Ledeb. Fl. Ross. III. p. 299; Maxim. Mém. Biol. X. p. 131; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (193); Nakai, Bot. Mag. Tokyo, XXIII. p. 101; Matsum. Ind. Pl. Jap. II. 2. p. 567; Furumi, Bot. Mag. Tokyo, XXX. p. 133.

HAB. In pratis siccis, prope Shirakawa (Ipse! n. 5617, Jul. 30, 1920).

DISTRIB. Kuriles, Kamtschatka, Sibiria orientalis et arctica, terra Tschuktschorum, fretum Behringii, America arctica.

Specimen unicum fructus maturos portans, a me collectum, optime respondet descriptioni a Ledeburio scriptæ, nec non specimenibus in insula Shimushu lectis.

Orobanchaceæ.

250. *Boschniakia glabra C. A. Mey. in Bong. Vég. Sitcha p. 159; DC. Prodr. XI. p. 39; Ledeb. Fl. Ross. III. p. 323; Rgl. et Til. Fl. Ajan. p. 115; A. Gray, Bot. Jap. p. 401; Miq. Prol. Fl. Jap. p. 287; Fr. Schm. Fl. Amg.-Bur. p. 58 et Fl. Sachal. p. 164; A. Gray, Syn. Fl. N. Am. II. p. 313; Herder, Pl. Radd. Monop. VII. p. 7; Fr. et Sav. Enum. Pl. Jap. I. p. 354; Miyabe, Fl. Kuril. p. 255; Kom. Fl. Mansh. III. p. 470; Matsum. Ind. Pl. Jap. II. 2. p. 575; Miyabe and Miyake, Fl. Saghal. p. 357.

HAB. In radicibus, *Alni Maximowiczii*, prope Shirakawa (Ipse! n. 5616, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kamtschatka,

Sibiria (orientalis, baicalensis et altaica), Manchuria, Dahuria, ins Aleuticæ et America borealis.

Lentibulariaceæ.

*251. *Pinguicula vulgaris* L. Spec. Pl. ed. 1, p. 17; DC. Prodr. VIII. p. 28; Bong. Vég. de Sitcha p. 160; Ledeb. Fl. Ross. III. p. 2; Hook. Fl. Bor. Am. II. p. 118; Herder, Pl. Radd. Monop. IV. 1. p. 96; Britt. and Br. Ill. Fl. III. p. 194; Hegi, Ill. Fl. Mitteleurop. VI. p. 160, t. 244, f. 4, f. 92 i u. f. 94.

var. *macroceras* Herder, l. c. p. 98; Yabe, Bot. Mag. Tokyo, XVII. p. 26; Matsum. Ind. Pl. Jap. II. 2. p. 578.

Pinguicula macroceras Pall. ex Link, Jahrb. i. III. p. 54; DC. Prodr. VIII. p. 30; Cham. et Schl. in Linnæa VI. p. 568; Ledeb. Fl. Ross. III. p. 3; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (193).

HAB. In paludibus, prope Ruesan (Ipse! n. 5844, Aug. 11, 1920).—In pratis alpinis, prope Arahatazaki (Ipse! n. 5861, Aug. 12, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5367, Jul. 15, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5182, Jul. 12, 1920 et n. 5312, Jul. 14, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5239, Jul. 19, 1920).

DISTRIB. var. Kuriles, Hokkaido, Honshu, Kamtschatka, Unalaska. S. Sibiria baicalensis, Asia minor, Europa et America borealis.

*252. *Utricularia intermedia* Hayne, in Schrad. Jour. I. p. 18, t. 5; DC. Prodr. VIII. p. 7; Ledeb. Fl. Ross. III. p. 2; Wats. Bot. Calif. II. p. 476; A. Gray, Bot. Jap. p. 401; Miq. Prol. Fl. Jap. p. 286; Korsh. Pl. Amur. p. 367; Forb. et Hemsl. Ind. Fl. Sin. II. p. 223; Kemienski, in Engl. u. Pr. Nat. Pfl.-fam. IV. 3. p. 122; Britt. and Br. Ill. Fl. III. p. 192; Palib. Consp. Fl. Korea. II. p. 23; Kom. Fl. Mansh. III. p. 472; Nakai, Fl. Korea. II. p. 132; Matsum. Ind. Pl. Jap. II. 2. p. 579; Makino, Bot. Mag. Tokyo, XXVIII. p. 28; Piper, Fl. Washingt. p. 523; Hegi, Ill. Fl. Mitteleurop. VI. p. 169, f. 97. o-r, f. 98, c-g.

HAB. In paludibus, prope Tomarizaki (Ipse! n. 5775, Aug. 6, 1920).

DISTRIB. Kuriles, Hokkaido, Honshu, Korea, Sibiria orientalis et altaica, Europa et America borealis.

Rubiaceæ.

*253. *Galium trifidum* L. Spec. Pl. ed. 1, p. 105; Cham. et Schl. in Linnæa III. p. 221; Torr. et Gr. Fl. Bor. Am. II. p. 22; Bong. Vég. Sitcha p. 144; DC. Prodr. IV. p. 597; Ledeb. Fl. Alt. I. p. 133 et Fl. Ross. II. p. 409; Rgl. et Til. Fl. Ajan. p. 100; Maxim. Prim. Fl. Amur. p. 141 et Mél. Biol. IX. p. 260; Rgl. Tent. Fl. Ussuri. p. 77; A. Gray, Syn. Fl. N. Am. I. 2. p. 38; Fr. Schm. Fl. Amg.-Burj. p. 48 et Fl. Sachal. p. 144; Fr. et Sav. Enum. Pl. Jap. I. p. 215; Britt. and Br.

III. Fl. III. p. 224; Korsh. Pl. Amur. p. 347; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (195); Kom. Fl. Mansh. III. p. 491; Nakai, Bot. Mag. Tokyo, XXIII. p. 105 et Fl. Korea. II. p. 498; Koidz. Pl. Sachal. p. 110; Matsum. Ind. Pl. Jap. II. 2. p. 588; Takeda, Fl. Shikotan, p. 471; Miyabe and Miyake, Fl. Saghal. p. 227.

HAB. Ad rivulos, prope Urafutoyama (Ipse! n. 5823, Aug. 8, 1920).—In paludibus, prope Murakamiwan (Ipse! n. 5458, Jul. 23, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Amur, Manchuria, Dahuria, Sibiria (orientalis, baicalensis et uralensis), Europa, Unalaska et America borealis.

*254. **Galium boreale** L. Spec. Pl. ed. 1, p. 105; DC. Prodr. IV. p. 600; Ledeb. Fl. Ross. II. p. 412; Hook. et Arn. Bot. Beechey's Voy. p. 349; Trautv. et Mey. Fl. Ochot. p. 48; A. Gray, Syn. Fl. N. Am. I. 2. p. 38; Rgl. Tent. Fl. Ussuri. p. 77; Maxim. Mém. Biol. IX. p. 264; Hook. f. Fl. Brit. Ind. III. p. 205; Herder, Pl. Radd. Monop. III. 1. p. 28; Fr. et Sav. Enum. Pl. Jap. II. p. 392; Franch. Pl. David. p. 155; Korsh. Pl. Amur. p. 347; Forb. et Hemsl. Ind. Fl. Sin. I. p. 393; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (195); Kom. Fl. Mansh. III. p. 498; Nakai, Fl. Korea. I. p. 295 et Bot. Mag. Tokyo, XXIII. p. 103; Matsum. Ind. Pl. Jap. II. 2. p. 586.

var. **kamtschaticum** Maxim. Prim. Fl. Amur. p. 141 et Mém. Biol. IX. p. 264; Fr. Schm. Fl. Sachal. p. 144; Koidz. Pl. Sachal. p. 109; Nakai, Bot. Mag. Tokyo, XXIII. p. 103 et Fl. Korea. II. p. 498; Takeda, Fl. Shikotan p. 471; Miyabe and Miyake, Fl. Saghal. p. 225.

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5681, Aug. 5, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5715, Aug. 7, 1920).—In pratis siccis, prope Nagaiwasaki (Ipse! n. 5141, Jul. 11, 1920).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Korea, Manchuria, Amur, Kamtschatka et Sibiria orientalis: *sp.* Sachalin, Kuriles, Hokkaido, Korea, Manchuria, China, Sibiria (orientalis, baicalensis et altaica), Dahuria, Himalaya temperata occidentalis, Caucasus, Armenia, Europa et America borealis.

*255. **Galium kamtschaticum** Steller, in Roem. et Schult. Syst. Mant. III. p. 186; A. Gray, in Proc. Am. Ac. Sc. XIX. p. 80 et Syn. Fl. N. Am. I. 2. p. 37; Miyabe, Fl. Kuril. p. 239; Britt. and Br. III. Fl. III. p. 222; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (195); Piper, Fl. Washingt. p. 526; Nakai, Fl. Korea. I. p. 297; Takeda, Bot. Mag. Tokyo, XXIV. p. 65; Miyabe and Miyake, Fl. Sachal. p. 226.

Galium obovatum Ledeb. Fl. Ross. II. p. 412; Fr. Schm. Fl. Sachal. p. 144; Maxim. Mém. Biol. IX. p. 263, (non K.H.B.)

Galium kamtschaticum Steller, *α. hirsutum* Takeda, Bot. Mag. Tokyo, XXIV. p. 65 et Fl. Shikotan p. 471.

HAB. In silvis, prope Murakamiwan (Ipse! n. 5030, Jul. 8, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kamtschatka et America borealis.

var. **oreganum** Piper, l. c. p. 526; Takeda, Bot. Mag. Tokyo,

XXIV. p. 66; Miyabe and Miyake, Fl. Saghal. p. 226.

Galium oreganum Britt. in Bull. Torr. Club. XXI. p. 31.

HAB. In silvis, prope Ruesan (Ipse! n. 5682, Aug. 5, 1920).—In silvis, prope Kashiwabarawan (Ipse! n. 5524, Jul. 26, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku et America borealis.

Caprifoliaceæ.

*256. *Linnæa borealis* L. Spec. Pl. ed. 1, p. 631; Bong. Vég. de Sitcha p. 144; Torr. et Gr. Fl. N. Am. II. p. 3; Hook. Fl. Bor. Am. I. p. 285; DC. Prodr. IV. p. 340; Hook. et Arn. Bot. Beechey's Voy. p. 125; Ledeb. Fl. Ross. II. p. 392; A. Gray, Syn. Fl. N. Am. I. 2. p. 13; Trautv. et Mey. Fl. Ochot. p. 48; Rgl. et Til. Fl. Ajan. p. 100; Maxim. Prim. Fl. Amur. p. 139; Fr. Schm. Fl. Amg.-Burj. p. 48; Herder, Pl. Radd. Monop. III. 1. p. 20; Korsh. Pl. Amur. p. 346; Forb. et Hemsl. Ind. Fl. Sin. I. p. 359; Britt. and Br. Ill. Fl. III. p. 235; Graebn. in Engl. Bot. Jahrb. XXIX. p. 124; Kom. Fl. Mansh. III. p. 514; C. K. Schn. Ill. Handb. Laubholz. II. p. 680; Hegi, Ill. Fl. Mitteleurop. VI. p. 245, t. 250, f. 4 u. f. 136, 137, 138.

form. *arctica* Wittrock, in Act. Hort. Berg. IV. n. 7, p. 159; Nakai, Tent. Syst. Capr. Jap. p. 51.

Linnæa borealis Fr. Schm. Fl. Sachal. p. 143; Miyabe, Fl. Kuril. p. 238; Palib. Consp. Fl. Korea. I. p. 103; Yabe, Bot. Mag. Tokyo, XVII. p. 26; Yabe et Yendo, *ibidem* XVIII. p. (194); Nakai, Fl. Korea. I. p. 284; Koidz. Pl. Sachal. p. 112; Matsum. Ind. Pl. Jap. II. 2. p. 598; Miyabe and Miyake, Fl. Saghal. p. 217.

HAB. In silvis *Pini fumilæ*, prope Murakamiwan (Ipse! n. 5026, Jul. 7, 1920 et n. 5425, Jul. 22, 1920).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Korea, Manchuria, China, Dahuria, Amur, Sibiria (*orientalis*, *baicalensis* et *altaica*), Kamtschatka, terra Tschuktschorum, Europa et America borealis.

257. *Lonicera cærulea* L. Spec. Pl. ed. 1, p. 174; Pall. Fl. Ross. I. p. 58, pl. 37; Ledeb. Fl. Alt. I. p. 247 et Fl. Ross. II. p. 390; Kirillow, Lonic. Russ. Reich. p. 51; Trautv. et Mey. Fl. Ochot. p. 48; Rgl. et Til. Fl. Ajan. p. 100; Maxim. Prim. Fl. Amur. p. 139; Forb. et Hemsl. Ind. Fl. Sin. I. p. 360; Miyabe, Fl. Kuril. p. 238 (excl. syn.); Dippel, Handb. Laubholz. I. p. 264; Fritsch. in Engl. u. Pr. Nat. Pfl.-fam. IV. 4. p. 168; Koehne, Deut. Dendr. p. 545; Rehder, Syn. Lonic. p. 67; Diels, Fl. Centr. China p. 596; C. K. Schn. Ill. Handb. Laubholz. II. p. 693; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (194); Nakai, Fl. Korea, I. p. 290.

var. *altaica* Sweet*, Hort. Brit. ed 2, p. 258, nom. nud.; Dippel, Handb. Laubholz. I. p. 265; Rehd. Syn. Lonic. p. 71; C. K. Schn. Ill. Handb. Laubholz. II. p. 694; Matsum. Ind. Pl. Jap. II. 2. p. 600; Takeda, Fl. Shikotan p. 470.

Lonicera altaica Pall. Fl. Ross. I. t. 37; DC. Prodr. IV. p. 337.

Lonicera caerulea L. var. *villosa* Maxim. Bull. Acad. Sc. St. Petersb. XXIV. p. 48 et Mém. Biol. X. p. 75; Herder, Pl. Radd. Monop. III. 1. p. 18, t. 3, f. 3; Matsum. Ind. Pl. Jap. II. 2. p. 599, (non Torr. et Gray.).

Lonicera caerulea L. var. *edulis* Nakai, Tent. Syst. Caprif. Jap. p. 85, (non Rgl. quoad pl. Paramushir).

HAB. In pratis, prope Nodawan (Ipse! n. 4883, Jun. 25, 1920).—In pratis, prope Suribachi (Ipse! n. 4910, Jun. 27, 1920).—In pratis, prope Okuyotsuiwa (Ipse! n. 4928, Jun. 29, 1920).—In pratis, prope Ruesan (Ipse! n. 5683, Aug. 5, 1920).—In pratis, prope Tomarizaki (Ipse! n. 5718, Aug. 7, 1920).—In pratis, prope Kashiwabarawan (Ipse! n. 5525, Jul. 26, 1920).—In pratis, prope Murakamiwan (Ipse! n. 4949, Jul. 3, 1920; n. 5036, Jul. 8, 1920).—In pratis, prope Shirakawa (Ipse! n. 5618, Jul. 30, 1920).—In pratis, prope Nagaiwasaki (Ipse! n. 5142, Jul. 11, 1920).—In pratis, prope Arahatasaki (Ipse! n. 5862, Aug. 12, 1920).—Ottomai (S. Yokoyama! Sept. 1893).—Musashiwan (M. Aizawa! Jun. 20, 1900).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Dahuria, Sibiria altaica usque ad Kamtschatkam, Europa borealis; *sp.* Japonia, Amur, China, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Kamtschatka, Tibet, Turkestan, Asia minor, Caucasus, Europa, America borealis.

Varietas haec maxime appropinquat varietate *eduli* Rgl., quod tamen foliis ellipticis usque oblongo-ellipticis, nec oblongis usque lanceolatis, staminibus inclusis non exsertis, fructibus subglobosis non ovoideo-oblongis, satis superque ab illa differe mihi videtur.

Campanulacæ.

258. *Campanula dasyantha* Bieb. Fl. Taur. Cauc. III. p. 147; Cham. in Linnæa IV. p. 37; A. DC. Monogr. Camp. p. 230, t. 10, f. 4 et DC. Prodr. VII. p. 461; Hook. Fl. Bor. Am. II. p. 27; Ledeb. Fl. Ross. II. p. 877; Yabe, Bot. Mag. Tokyo, XVII. p. 26; Yabe et Yendo, *ibidem* XVIII. p. (195); Matsum. Ind. Pl. Jap. II. 2. p. 615; Miyabe and Miyake, Fl. Sachal. p. 292.

Campanula pilosa Pall. var. *dasyantha* Herder, Pl. Radd. Monop. IV. 1. p. 6.

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5800, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5426, Jul. 22, 1920 et n. 5468, Jul. 23, 1920).—In pratis subalpinis, prope Shirakawa (Ipse! n. 5619, Jul. 30, 1920).—In pratis, prope Nagaiwasaki (Ipse! n. 5143, Jul. 11, 1920).—In pratis alpinis, prope Arakawa (Ipse! n. 5368, Jul. 15, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5183, Jul. 12, 1920; n. 5313, Jul. 14, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Prope Kujirawan (T. Matsubara! Jul. 24, 1915).—Prope Miyakawazaki (T. Matsubara! Aug. 7, 1915).—Prope Murakamiwan (T. Matsubara! Aug. 10, 1915).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, fretum Behringii, Sibiria orientalis, Unalaska et America arctica.

259. *Campanula lasiocarpa* Cham. in Linnæa IV. p. 39; A. DC. Monogr. Camp. p. 338, t. 11, f. 4 et DC. Prodr. VII. p. 482; Hook. et Arn. Beechey's Voy. p. 127; Hook. Fl. Bor. Am. II. p. 28; Ledeb. Fl. Ross. II. p. 890; A. Gray, Fl. N. Am. II. 1. p. 12; Herder, Pl. Radd. Monop. IV. 1. p. 17; Fr. et Sav. Enum. Pl. Jap. II. p. 421; F. Kurtz, in Engl. Bot. Jahrb. XIX. pp. 391 et 467; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (195); Matsum. Ind. Pl. Jap. II. 2. p. 615.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5788, Aug. 8, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5469, Jul. 23, 1920).—In pratis alpinis, prope Hiratazaki (Ipse! n. 5381, Jul. 21, 1920).—In pratis siccis, prope Shirakawa (Ipse! n. 5620, Jul. 30, 1920).—Murakamiwan (S. Yokoyama! Sept. 15, 1893).

DISTRIB. Kuriles, Hokkaido, Honshu, Kamtschatka, terra Tschuktschorum, Unalaska, fretum Behringii, ins. Aleutica et America arctica.

Compositæ.

260. *Solidago Virgaurea* L. Spec. Pl. ed. 1, p. 880; Thunb. Fl. Jap. p. 317; DC. Prodr. V. p. 338; Ledeb. Fl. Ross. II. p. 493; Trautv. et Mey. Fl. Ochot. p. 51; Rgl. et Til. Fl. Ajan. p. 102; A. Gray, Bot. Jap. p. 395; Benth. Fl. Honkong. p. 179; Maxim. Prim. Fl. Amur. p. 149; Rgl. Tent. Fl. Ussuri. p. 84; Miq. Profl. Fl. Jap. p. 104; Fr. Schm. Fl. Amg.-Burj. p. 49 et Fl. Sachal. p. 147; Hook. f. Fl. Brit. Ind. III. p. 245; Fr. et Sav. Enum. Pl. Jap. I. p. 228; Herder, Pl. Radd. Monop. III. 2. p. 26; Forb. et Hemsl. Ind. Fl. Sin. I. p. 406; Miyabe, Fl. Kuril. p. 240; Britt. and Br. Ill. Fl. III. p. 337; Diels, Fl. Centr. China p. 609; Kom. Fl. Mansh. III. p. 583; Hayata, Comp. Formos. p. 10; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Koidz. Pl. Sachal. p. 115; Nakai, Fl. Korea. II. p. 6; Takeda, Fl. Shikotan p. 472; Miyabe and Miyake, Fl. Saghal. p. 236.

HAB. In herbidis, prope Tomarizaki (Ipse! n. 5722, Aug. 7, 1920).—In herbidis, prope Kashiwabaran (Ipse! n. 5536, Jul. 26, 1920).—In herbosis, prope Shirakawa (Ipse! n. 5631, Jul. 30, 1920).—In herbosis prope Nagaiwasaki (Ipse! n. 5148, Jul. 11, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 2, 1893).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Liukiu, Formosa, Korea, Amur, Ussuri, China, Hongkong, Manchuria, Dahuria, Kamtschatka, Sibiria (orientalis, baicalensis, altaica et uralensis), Caucasus, Tauria, Himalaya temperata, Armenia, Europa et America borealis.

261. *Erigeron Thunbergii* A. Gray, Bot. Jap. p. 395; Miq. Profl. Fl. Jap. pp. 102, 362; Fr. et Sav. Enum. Pl. Jap. I. p. 227.

Aster japonicus Less. Syn. Gen. Compos. p. 182 et DC. Prodr. V.

p. 228; Sieb. et Zucc. Fl. Jap. Fam. Nat. II. p. 181; A. Gray, Pl. Jap. p. 314.

var. β . **glabratum** A. Gray, Bot. Jap. p. 395; Miyabe and Miyake, Fl. Saghal. p. 241.

Erigeron salsuginosus Miyabe, Fl. Kuril. p. 240; Takeda, Fl. Shikotan p. 472, (non A. Gray).

HAB. Prope Chitosewan (T. Matsubara! Jul. 29, 1915). - Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Kuriles, Hokkaido et Honshu. (α . *dubium* [Thunb.] et γ . *alpicolum* [Makino].).

***262. Erigeron acre** L. Spec. Pl. ed. 1, p. 863; DC. Prodr. V. p. 290; Ledeb. Fl. Ross. II. p. 488; Trautv. et Mey. Fl. Ochot. p. 50; Maxim. Prim. Fl. Amur. p. 147; Rgl. Tent. Fl. Ussuri. p. 84; Miq. Prol. Fl. Jap. p. 103; Boiss. Fl. Orient. III. p. 166; Fr. et Sav. Enum. Pl. Jap. II. p. 400; Hoffm. in Engl. u. Pr. Nat. Pfl.-fam. IV. 5. p. 164; Forb. et Hemsl. Ind. Fl. Sin. I. p. 417 (excl. syn.); Korsh. Pl. Amur. p. 351; Britt. and Br. III. Fl. III. p. 390; Kom. Fl. Mansh. III. p. 608; Matsum. Ind. Pl. Jap. II. 2. p. 645.

HAB. In herbidis, prope Urafutoyama (Ipse! n. 5803, Aug. 8, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Korea, Manchuria, China, Ochotsk, Amur, Ussuri, Kamtschatka, Sibiria, Dahuria, Tauria, Caucasus, Europa et America borealis.

***263. Erigeron kamtschaticum** DC. Prodr. V. p. 290; Ledeb. Fl. Ross. II. p. 488; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196).

Erigeron acre L. var. *kamtschaticum* Herder, Pl. Radd. Monop. III. 2. p. 24; Miyabe and Miyake, Fl. Saghal. p. 240.

var. **hirsutum** Fr. Schm. Fl. Sachal. p. 147; Takeda, Fl. Shikotan p. 472.

Erigeron acre L. var. *hirsutum* Miyabe and Miyake, Fl. Saghal. p. 240.

HAB. In herbidis, prope Ruesan (Ipse! n. 5688, Aug. 5, 1920).—In herbidis, prope Urafutoyama (Ipse! n. 5804, Aug. 8, 1920).—In herbidis, prope Murakamiwan (Ipse! n. 5471, Jul. 23, 1920).—Ad fl. Toruki (T. Matsubara! Jul. 31, 1915).

DISTRIB. var. Sachalin, Kuriles et Hokkaido; *sp.* Kamtschatka.

***264. Antennaria dioica** Gärtn. Fruct. II. p. 410, t. 167, f. 3; DC. Prodr. VI. p. 269; Hook. et Arn. in Beechey's Voy. p. 115; Ledeb. Fl. Ross. II. p. 612; Trautv. et Mey. Fl. Ochot. p. 55; Rgl. et Til. Fl. Ajan. p. 104; A. Gray, Syn. Fl. N. Am. I. 2. p. 233; Maxim. Prim. Fl. Amur. p. 163; Fr. Schm. Fl. Amg.-Burj. p. 50 et Fl. Sachal. p. 151; Wats. Bot. Calif. II. p. 339; Britt. and Br. III. Fl. III. p. 398; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Koidz. Pl. Sachal. p. 116; Matsum. Ind. Pl. Jap. II. 2. p. 622; Miyabe and Miyake, Fl. Saghal. p. 242.

Gnaphalium dioicum L. Spec. Pl. ed. 1, p. 850; Ledeb. Fl. Alt. IV. p. 55; Hook. et Arn. Beechey's Voy. p. 386.

HAB. In pratis alpinis, prope Suribachi (Ipse! n. 4911, Jun. 27,

1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5529, Jun. 26, 1920).—In pratis alpinis, prope Murakamiwan (Ipse! n. 4959, Jul. 4, 1920 et n. 5548, Jul. 27, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Kamtschatka, Manchuria, Amur, Dahuria, Sibiria (orientalis, baicalensis, altaica et uralensis), Caucasus, Tauria, Europa, ins. Behringii et America borealis.

265. *Anaphalis margaritacea* Benth. et Hook. f. Gen. Pl. II. p. 303; Gray, Syn. Fl. N. Am. I. p. 233; Maxim. Mél. Biol. XI. p. 235; Miyabe, Fl. Kuril. p. 241; Forb. et Hemsl. Ind. Fl. Sin. I. p. 425; Diels, Fl. Centr. China p. 613; Hayata, Fl. Mont. Formos. p. 128; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Kom. Fl. Mansh. III. p. 615; Nakai, Fl. Korea. II. p. 15; Koidz. Pl. Sachal. p. 116; Matsum. Ind. Pl. Jap. II. 2. p. 612; Takeda, Fl. Shikotan p. 473; Miyabe and Miyake, Fl. Saghal. p. 243.

Gnaphalium margaritaceum L. Spec. Pl. ed. 1, p. 850; Herder, Pl. Radd. Monop. III. 2. p. 102; Fr. et Sav. Enum. Pl. Jap. I. p. 242.

Antennaria margaritacea R. Br. Ledeb. Fl. Ross. II. p. 613; DC. Prodr. VI. p. 270; Trautv. et Mey. Fl. Ochot. p. 55; Maxim. Prim. Fl. Amur. p. 164; Fr. Schm. Fl. Amg.-Burj. p. 50 et Fl. Sachal. p. 151.

Antennaria cinnamomum Miq. Prol. Fl. Jap. p. 110, (non DC.).

HAB. In herbidis, prope Kashiwabarawan (Ipse! n. 5528, Jul. 26, 1920).—In herbidis, prope Hiratazaki (Ipse! n. 5380, Jul. 21, 1920).—In herbidis, prope Arahatazaki (Ipse! n. 5863, Aug. 12, 1920).—Kashiwabarawan (C. Tarao! Ang. 15, 1892; S. Yokoyama! Sept. 9, 1983).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Liukiu, Formosa, Korea, Manchuria, China, Amur, Himalaya, Sibiria orientalis, Kamtschatka, ins. Behringii et America borealis.

form. **latifolia** Kudo, form. nov.

Folia latissima, 1.8–3 cm. lata.

HAB. In pratis siccis, prope Tomarizaki (Ipse! n. 5717, Aug. 7, 1920).—In arena, prope Shirakawa (Ipse! n. 5622, Jul. 30, 1920).

DISTRIB. Planta endemica!

236. *Achillea sibirica* Ledeb. in Ind. Sem. Hort. Dorpat, (1811); Rgl. Tent. Fl. Ussuri. p. 87; Miq. Prol. Fl. Jap. p. 106; Herder, Pl. Radd. Monop. III. 2. p. 37; Fr. et Sav. Enum. Pl. Jap. I. p. 233; Forb. et Hemsl. Ind. Fl. Sin. I. p. 437; Miyabe, Fl. Kuril. p. 241; Hoffm. in Engl. u. Pr. Nat. Pfl.-fam. IV. 4. p. 272; Korsh. Pl. Amur. p. 351; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Kom. Fl. Mansh. III. p. 635; Koidz. Pl. Sachal. p. 117; Matsum. Ind. Pl. Jap. II. 2. p. 619; Nakai, Fl. Korea. II. p. 21; Takeda, Fl. Shikotan p. 473; Miyabe and Miyake, Fl. Saghal. p. 247.

Ptarmica sibirica Ledeb. Fl. Ross. II. p. 528; Sieb. et Zucc. Fl. Jap. Fam. Nat. II. p. 185; Trautv. et Mey. Fl. Ochot. p. 51; Rgl. et Til. Fl. Ajan. p. 102.

Ptarmica mongolica DC. Prodr. VI. p. 22; Maxim. Prim. Fl. Amur. pp. 154, 473; Fr. Schm. Fl. Sachal. p. 147.

HAB. In herbidis, prope Ruesan (Ipse! n. 5684, Aug. 5, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5526, Jul. 26, 1920).—In herbidis, prope Murakamiwan (Ipse! n. 5547, Jul. 27, 1920).—In herbidis, prope Shirakawa (Ipse! n. 5621, Jul. 30, 1920).—In herbidis, prope Kamogawa (Ipse! n. 5278, Jul. 14, 1920).—In herbidis, prope Arakawa (Ipse! n. 5369, Jul. 15, 1920).—Ottomai (C. Tarao! Aug. 15, 1892).—Sine loco indicato (I. Kodama! Aug. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Korea, Manchuria, China, Mongolia, Dahuria, Sibiria (orientalis et baicalensis), Kamtschatka, et ins. Unalaska.

267. *Achillea Ptarmica L. Spec. Pl. ed. 1, p. 898; A. Gray, Syn. Fl. N. Am. I. p. 363; Rgl. Tent. Fl. Ussuri. p. 87; Korsh. Pl. Amur. p. 352; Hoffm. in Engl. u. Pr. Nat. Pfl.-fam. IV. 4. p. 272; Britt. and Br. Ill. Fl. III. p. 454; Kom. Fl. Mansh. III. p. 636; Nakai, Fl. Korea. II. p. 21.

Ptarmica vulgaris Clus. Hist. II. p. 12; DC. Prodr. VI. p. 23; Ledeb. Fl. Ross. II. p. 529; Maxim. Prim. Fl. Amur. p. 154.

var. **speciosa** Herder, Pl. Radd. Monop. III. 2. p. 39; Miyabe, Fl. Kuril. p. 241; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Koidz. Pl. Sachal. p. 117; Takeda, Fl. Shikotan p. 473; Miyabe and Miyake, Fl. Saghal. p. 248.

Ptarmica speciosa DC. Prodr. VI. p. 23; Ledeb. Fl. Ross. II. p. 530.

Ptarmica vulgaris Fr. Schm. Fl. Saghal. p. 147, (non Blackw.).

HAB. In ruderatis, prope Ruesan (Ipse! n. 5685, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse! n. 5144, Jul. 11, 1920).—In herbosis, prope Kashiwabarawan (Ipse! n. 5527, Jul. 26, 1920).—In pratis siccis, prope Murakamiwan (Ipse! n. 5470, Jul. 23, 1920 et n. 5546, Jul. 27, 1920).—In herbidis, prope Nagaiwasaki (Ipse! n. 5144, Jul. 11, 1920).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Kamtschatka, Sibiria (orientalis, baicalensis et altaica), Rossia et America borealis; *sp.* Amur, Manchuria, Sibiria uralensis, Tauria, Europa et America borealis.

268. *Matricaria matricarioides Porter, Mem. Torr. Club. V. p. 341; Britt. and Br. Ill. Fl. III. p. 460; Piper, Fl. Washingt. p. 585.

Santolina suaveolens Pursh, Fl. Am. Sept. II. p. 520.

Artemisia matricarioides Less. in Linnaea VI. p. 210.

Matricaria discoidea DC. Prodr. VI. p. 50; Torr. et Gray, Fl. N. Am. II. p. 413; Ledeb. Fl. Ross. II. p. 544; A. Gray, Syn. Fl. N. Am. I. 2. p. 364; Rgl. et Til. Fl. Ajan. p. 102; Wats. Bot. Calif. II. p. 401; Miyabe, Fl. Kuril. p. 242; Kom. Fl. Mansh. III. p. 638; Matsum. Ind. Pl. Jap. II. 2. p. 659; Miyabe and Miyake, Fl. Saghal. p. 249.

Cotula matricarioides Bong. Vég. Sitcha p. 147.

HAB. In herbidis, prope Shirakawa (Ipse! n. 5627, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, Ochotsk, Kamtschatka, Sibiria orientalis et America borealis.

269. *Chrysanthemum arcticum* L. Spec. Pl. ed. 1, p. 889, excl. syn. Gmel.; Less. in Linnaea VI. p. 169; Hook. Fl. Bor. Am.* I. p. 319; Willd. Hort. Berol. t. 33; Pursh, Fl. Am. Sept. II. p. 526; A. Gray. Syn. Fl. N. Am. I. 2. p. 365; Miyabe, Fl. Kuril. p. 242; Macoun, Cat. Canad. Pl. II. p. 253; F. Kurtz, in Engl. Bot. Jahrb. XIX. pp. 388, 465; Britt. and Br. Ill. Fl. III. p. 457; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Koidz. Pl. Sachal. p. 118 et Bot. Mag. Tokyo, XXV. p. 221; Miyabe and Miyake, Fl. Saghal. p. 250.

Leucanthemum arcticum DC. Prodr. VI. p. 45; Torr. et Gr. Fl. Bor. Am. II. p. 412; Ledeb. Fl. Ross. II. p. 541; Trautv. et Mey. Fl. Ochot. p. 52, excl. syn. *Leucanthemum Gmelini* et *Pyrethrum Gmelini*; Rgl. et Til. Fl. Ajan. p. 102; Maxim. Prim. Fl. Amur. p. 155; Fr. Schm. Fl. Sachal. p. 147. p. p. excl. syn. Ledeb.; Herder, Pl. Radd. Monop. III. 2. p. 47, excl. syn. Ledeb.

Tanacetum arcticum Sch.-Bip. Tanacet. p. 35.

HAB. Ad saxum, inter Suribachi et Umeki (Ipse! n. 4912, Jul. 27, 1920).—Ad saxum, prope Tomarizaki (Ipse! n. 5726 et n. 5784, Aug. 8, 1920).—Ad saxum, prope Arahatazaki (Ipse! n. 5864, Aug. 12, 1920).—Ad saxum, prope Kamogawazaki (Ipse! n. 5280, Jul. 14, 1920).

DISTRIB. Sachalin, Amur, Ochotsk, Ajan, Kamtschatka, terra Tschuktschorum, America borealis, Rossia arctica.

var. **kurilense** Kudo, var. nov.

Foliorum caulinarum inferiorum lamina basi subcuneiformis, saepe pinnatim 5-partita: lacinia terminali late obovata, superne tridentata: laciniis lateralibus intermediis oblongo-ovatis, oblongis, apice bi-dentatis: laciniis lateralibus infimis saepe oblongis vel oblongo-ovatis, lacinia una interdum dificiente; dentibus omnibus apice obtusis vel rotundatis.

HAB. In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5147, Jul. 11, 1920).—In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5185, Jul. 12, 1920 et n. 5315, Jul. 14, 1920).—In glareosis, prope Magarikawa (Ipse! n. 5269, Jul. 13, 1920).

DISTRIB. Planta endemica!

var. **Gmelini** (Ledeb.) Kudo, nom. nov.

Leucanthemum Gmelini Ledeb. Fl. Ross. II. p. 541; Fr. Schm. Fl. Sachal. p. 147 (p. p., ex descriptione).

Pyrethrum foliis longe petiolatis palmatis etc. Gmel. Fl. Sib. II. p. 203, Nr. 170, p. p. t. 84.

Chrysanthemum arcticum Hook. et Arn. in Beechey's Voy. p. 116. (non L., ex citat. icon. Gmel.)

Chrysanthemum Gmelini Miyabe, apud Miyabe and Miyake, Fl. Saghal. p. 250, (non Turcz.).

HAB. In pratis humidis, prope Shirakawa (Ipse! n. 5625, Jul. 30, 1920).

DISTRIB. Sachalin, Kuriles et Kamtschatka.

var. **palmatifidum** Kudo, var. nov.

Foliorum caulinarum inferiorum lamina basi reniformi-subcuneata, palmatim 5-partita : segmento terminali maximo, saepe tri-fisso, laciniis apice 2-3-dentatis : segmentis lateralibus intermediis saepe 2-3-dentatis : segmentis lateralibus infimis, parvioribus, subintegris.

HAB. In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse ! n. 5241, Jul. 13, 1920).

DISTRIB. Planta endemica !

var. **flabelliforme** Kudo, var. nov.

Foliorum caulinarum inferiorum lamina basi reniformi-subcuneata, flabellatim 3-5-lobata : lobo medio maximo, saepe obtuse tri-crenulato-dentato, lobis lateralibus intermediis 2-3-crenulato-dentatis, lobis lateralibus infimis parvis apice integris vel obtuse bi-dentatis.

HAB. In glareosis litoralibus, prope Hiratazaki (Ipse ! n. 5378, Jul. 20, 1920).

DISTRIB. Planta endemica !

270. *Artemisia vulgaris* L. Spec. Pl. ed. 1, p. 848 ; Lour. Fl. Cochinch. p. 491 ; DC. Prodr. VI. p. 112 ; Ledeb. Fl. Alt. IV. p. 82 et Fl. Ross. II. p. 585 ; Rgl. et Til. Fl. Ajan. p. 103 ; Benth. Fl. Hongk. p. 187 ; A. Gray, Syn. Fl. N. Am. I. p. 372 ; Maxim. Prim. Fl. Amur. p. 160 et Mél. Biol. VIII. p. 535 ; Rgl. Tent. Fl. Ussuri. p. 89 ; Hook. f. Fl. Brit. Ind. III. p. 325 ; Forb. et Hemsl. Ind. Fl. Sin. I. p. 446 ; Fr. et Sav. Enum. Pl. Jap. I. p. 239 ; Miyabe, Fl. Kuril. p. 243 ; Kom. Fl. Mansh. III. p. 671 ; Matsum. Ind. Pl. Jap. II. 2. p. 825.

var. **kamtschatica** Bess. Tent. Abrot. p. 54 ; DC. Prodr. VI. p. 113 ; Herder, Pl. Radd. Monop. III. 2. p. 76 ; Trautv. et Mey. Fl. Ochot. p. 54 ; Fr. Schm. Fl. Amg.-Burj. p. 50 et Fl. Sachal. p. 149 ; Nakai, Bot. Mag. Tokyo, XXVI. p. 104 ; Miyabe and Miyake, Fl. Saghal. p. 259.

Artemisia vulgaris L. var. *communis* Koidz. Pl. Sachal. p. 120 et Fl. Shikotan p. 474, (non Ledeb.).

HAB. In herbidis, prope Ruesn (Ipse ! n. 5686, Aug. 5, 1920).—In herbidis, prope Kashiwabarawan (Ipse ! n. 5685, Jul. 26, 1920).—In herbidis, prope Shirakawa (Ipse ! n. 5623, Jul. 30, 1920).—Ottomai (C. Tarao ! Aug. 15, 1892).

DISTRIB. var. Sachalin, Kuriles, Hokkaido, Kamtschatka, Sibiria orientalis et Alaska. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Kiushu, Liukiu, Formosa, Korea, China, Mongolia, Manchuria, Amur, Ussuri, Dahuria, Kamtschatka, terra Tschktschorum, Sibiria (orientalis, baicalensis, uralensis et altaica), Malaya, Siam, Java, India, Ceylon, Europa, Africa borealis et America borealis.

271. *Artemisia norvegica Fries, Novit. Suec. ed. 1, p. 56 ; Bess. Abrot. p. 76 ; DC. Prodr. VI. p. 119 ; A. Gray, Syn. Fl. N. Am. I. 2. p. 371 ; Maxim. Mél. Biol. VIII. p. 533 ; Kom. Fl. Mansh. III. p. 668 ; Matsum. Ind. Pl. Jap. II. 2. p. 624 ; Nakai, Bot. Mag. Tokyo, XXVI. p. 105.

Artemisia Chamissoniana Bess. in Hook. Fl. Bor. Am. I. p. 324 et Abrot. p. 77, t. 4, (*pro maxima parte*).

Artemisia norvegica Fries, var. *pacifica* A. Gray, Syn. Fl. N. Am. I. p. 371; Miyabe, Fl. Kuril. p. 243; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Miyabe and Miyake, Fl. Saghal. p. 256.

Artemisia arctica Less. var. *sachalinensis* Fr. Schm. Fl. Sachal. p. 150.

Artemisia norvegica Fries, var. *villosa* Koidz. Bot. Mag. Tokyo, XXXII. p. 63.

form. **longepedunculata** (Rudolphi) Kudo, nom. nov.

Artemisia longepedunculata Rudolphi, Bess. Abrot. p. 77; DC. Prodr. VI. p. 119; Ledeb. Fl. Ross. II. p. 591.

HAB. In arena litorali, prope Hamanakagawa (Ipse! n. 5834, Aug. 11, 1920).—In pratis alpinis, prope Urafutoyama (Ipse! n. 5815, Aug. 8, 1920).—In arena litorali, prope Kashiwabarawan (Ipse! n. 5533, Jul. 26, 1920).

from. **arctica** (Less.) Kudo, nom. nov.

Artemisia arctica Less. in Linnaea VI. p. 213; Hook. et Arn. Beechey's Voy. p. 125; DC. Prodr. VI. p. 119; Bong. Vég. Sitcha p. 147; Torr. et Gray, Fl. N. Am. II. p. 423.

HAB. In herbidis, prope Ruesan (Ipse! n. 5689, Aug. 5, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5064, Jul. 8, 1920).—In arena litorali, prope Murakamiwan (Ipse! n. 4966, Jul. 4, 1920 et n. 5549, Jul. 27, 1920).—In herbidis, prope Hiratazaki (Ipse! n. 5376, Jul. 21, 1920).—In arena litorali, prope Shirakawa (Ipse! n. 5626, Jul. 30, 1920).—In herbidis, prope Nagaiwasaki (Ipse! n. 5145, Jul. 11, 1920).—In herbidis, prope Arakawa (Ipse! n. 5372, Jul. 15, 1920).—In pratis alpinis, inter Nishikawa et Atenkeshi (Ipse! n. 5242, Jul. 13, 1920).

DISTRIB. *sp.* Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, Kamtschatka, Sibiria orientalis, terra Tschuktschorum, Norvegia, America borealis.

272. *Artemisia Stelleriana* Bess. in Nouv. Mém. Soc. Nat. Mosc. III. p. 79; DC. Prodr. VI. p. 119; Ledeb. Fl. Ross. II. p. 592; A. Gray, Syn. Fl. N. Am. I. 2. p. 371; Rgl. Gart. Fl. (1866) p. 36, t. 498; Fr. Schm. Fl. Sachal. p. 150; Maxim. Mém. Biol. VIII. p. 534; Herder, Pl. Radd. Monop. III. 3. p. 82; Miyabe, Fl. Kuril, p. 243; Britt. and Br. III. Fl. III. p. 465; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Kom. Fl. Mansh. III. p. 668; Koidz. Pl. Sachal. p. 119; Takeda, Fl. Shikotan p. 473; Matsum. Ind. Pl. Jap. II. 2. p. 625; Nakai, Bot. Mag. Tokyo, XXVI. p. 100; Miyabe and Miyake, Fl. Saghal. p. 257.

Artemisia Stelleriana Bess. var. *sachalinensis* Nakai, Bot. Mag. Tokyo, XXVI. p. 102.

HAB. In arena litorali (Ipse! n. 5835, Aug. 11, 1920).—In arena litorali, prope Kashiwabarawan (Ipse! n. 5062, Jul. 9, 1920).—In arena litorali, prope Kamogawa (Ipse! n. 5279, Jul. 14, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 14, 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Kamtschatka, Ussuri, Amur et America borealis.

*273. *Artemisia glomerata* Ledeb. in Mém. Acad. Pétersb. V. p. 564 et Fl. Ross. II. p. 588; DC. Prodr. VI. p. 116; Less. in Linnaea VI. p. 212; Bess. in Hook. Fl. Bor. Am. I. p. 324; Torr. et Gray, Fl. N. Am. II. p. 423; Gray, Syn. Fl. N. Am. I. 2. p. 370; Maxim. Mém. Biol. VIII. p. 532; Miyabe, Fl. Kuril. p. 242; Makino, Bot. Mag. Tokyo, XX. p. 40; Matsum. Ind. Pl. Jap. II. 2. p. 623; Nakai, Bot. Mag. Tokyo, XXVI. p. 100, (non Sieb.).

Artemisia curilensis Spr. Syst. Veg. III. p. 489, (nec Bess. non DC.)

HAB. In pratis alpinis, prope Nagaiwasaki (Ipse! n. 5146, Jul. 11, 1920).

DISTRIB. Kuriles, Kamtschatka, terra Tschuktschorum, Sibiria orientalis et Alaska.

*274. *Artemisia trifurcata* Steph. ex Spr. Syst. III. p. 488; Bess. in Nouv. Mém. Soc. Nat. Mosc. III. p. 75; DC. Prodr. VI. p. 119; Ledeb. Fl. Ross. II. p. 591; Maxim. Mém. Biol. VIII. p. 533; Herder, Pl. Radd. Monop. III. 2. p. 82.

var. *heterophylla* (Bess.) Kudo, nom. nov.

Artemisia heterophylla Bess. l. c. p. 74; DC. l. c. p. 118; Ledeb. l. c. p. 591.

HAB. In pratis alpinis, prope Yotsuiwahana (Ipse! n. 5184, Jul. 12, 1920; n. 5314, Jul. 14, 1920).

DISTRIB. var. Kamtschatka, terra Tschuktschorum, Sibiria orientalis et baicalensis; *sp. typ.* Sibiria altaica.

Specis haec ad floram japonicam nova est!

275. *Arnica unalaschensis* Less. in Linnaea VI. p. 238; DC. Prodr. VI. p. 317; Torr. et Gr. Fl. N. Am. Fl. II. p. 451; Ledeb. Fl. Ross. II. p. 623; Herder, Pl. Radd. III. 2. p. 110 (*α. minor* et *β. major*); A. Gray, Syn. Fl. N. Am. I. 2. p. 383; F. Kurtz, in Engl. Bot. Jahrb. XIX. pp. 350, 389; Makino, Bot. Mag. Tokyo, XI. p. (381) et XV. p. 93; Takeda, Fl. Shikotan p. 474 et Notes R. B. G. Edinbg. VIII. Num. XXXIX. p. 229; Matsum. Ind. Pl. Jap. II. 2. p. 622.

Arnica angustifolia Fr. et Sav. Enum. Pl. Jap. I. p. 245, (non Vahl.).

HAB. In pratis siccis, prope Urafutoyama (Ipse! n. 5801, Aug. 8, 1920).—Sine loco indicato (T. Sakurai! Aug. 1910).

DISTRIB. Kuriles, Hokkaido, Honshu, fretum Behringii, ins. Aleuticae et Unalaska.

*276. *Cacalia auriculata* DC. Prodr. VI. p. 329.

var. *kamtschatica* Matsum.: Kudo, Bot. Mag. Tokyo, XXIX. p. 225.

HAB. In herbidis, prope Tomarizaki (Ipse! n. 5718, Aug. 7, 1920).—In silvis deciduis, prope Murakamiwan (Ipse! n. 5025, Jul. 7, 1920).—In silvis deciduis, prope Hiratazaki (Ipse! n. 5379, Jul. 21, 1920).—In silvis deciduis, prope Shirakawa (Ipse! n. 5624, Jul. 30, 1920).—In herbidis, prope Arakawa (Ipse! n. 5370, Jul. 15, 1920).

DISTRIB. Sachalin, Kuriles, Hokkaido, Kamtschatka. *sp.* Sachalin, Korea, Manchuria, Dahuria, Sibiria ochotensis.

277. *Senecio palmatus* Pall. Reise III. p. 321; Ledeb. Fl. Ross. II. p. 636; Trautv. et Mey. Fl. Ochot. p. 57; Maxim. Prim. Fl. Amur. p. 166 et Mél. Biol. VIII. p. 15; Miq. Prol. Fl. Jap. p. 113; Fr. Schm. Fl. Sachal. p. 151; Herder, Pl. Radd. Monop. III. 2. p. 120 (*α. genuinus* et *β. kamtschaticus*); Fr. et Sav. Enum. Pl. Jap. I. p. 252; Miyabe, Fl. Kuril. p. 244; Korsh. Pl. Amur. p. 358; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Kom. Fl. Mansh. III. p. 709; Koidz. Pl. Sachal. p. 121; Matsum. Ind. Pl. Jap. II. 2. p. 666; Takeda, Fl. Shikotan p. 475; Miyabe and Miyake, Fl. Saghal. p. 266.

Senecio cannabifolius Less. in Linnaea VI. p. 242; DC. Prodr. VI. p. 349.

HAB. In pratis umbrosis, prope Kashiwabaran (Ipse! n. 5534, Jul. 26, 1920).—In pratis umbrosis, prope Shirakawa (Ipse! n. 5629, Jul. 30, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Manchuria, China, Dahuria, Sibiria (orientalis et transbaicalensis), Kamtschatka, fretum Behringii.

278. *Senecio Pseudo-Arnica* Less. in Linnaea VI. p. 240; DC. Prodr. VI. p. 358; Hook. Fl. Bor. Am. I. p. 334, t. 113; Torr. et Gray, Fl. N. Am. II. p. 446; Ledeb. Fl. Ross. II. p. 642; Trautv. et Mey. Fl. Ochot. p. 57; Rgl. et Til. Fl. Ajan. p. 105; A. Gray, Syn. Fl. N. Am. I. 2. p. 384; Maxim. Prim. Fl. Amur. p. 166 et Mél. Biol. VIII. 15; Fr. Schm. Fl. Sachal. p. 152; Herder, Pl. Radd. Monop. III. 2. p. 123; Fr. et Sav. Enum. Pl. Jap. II. p. 407; F. Kurtz, in Engl. Bot. Jahrb. XIX. p. 389; Miyabe, Fl. Kuril. p. 244; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Kom. Fl. Mansh. III. p. 704; Takeda, Fl. Shikotan p. 474; Miyabe and Miyake, Fl. Saghal. p. 267.

Arnica maritima L. Spec. Pl. ed. 1, p. 884; Hook. et Arn. in Beechey's Voy. p. 126.

Senecio maritimus Koidz. Pl. Sachal. p. 122; Matsum. Ind. Pl. Jap. II. 2. p. 665, (non L. f. nec Rchb.).

Sonchus Fauriei Lév'l. et Vnt. in Fedde, Repert. VII. p. 102.

HAB. In litore marino, prope Kashiwabaran (Ipse! n. 5535, Jul. 26, 1920).—In litore marino, prope Shirakawa (Ipse! n. 5630, Jul. 30, 1920).—In litore marino, prope Kamogawa (Ipse! n. 5281, Jul. 14, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 15, 1893).—Prope Murakamiwan (Ipse! Aug. 10, 1915).

DISTRIB. Sachalin, Kuriles, Manchuria, Amur, Sibiria orientalis, Kamtschatka, America arctica.

var. ***kurilensis*** Kudo, var. nov.

Folia lanceolata vel oblongo-lanceolata, apice sensim acuminata, margine subintegra vel remote callosa-denticulata, supra viridia, subtus glabra vel parce arachnoidea, 8–11 cm. longa, 2–1 cm. lata.

HAB. Ottomai (S. Yokoyama! Sept. 18, 1893).

DISTRIB. Planta endemica !

279. *Cirsium kamtschaticum* Ledeb. in DC. Prodr. VI. p. 644 et Fl. Ross. II. p. 736; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (198); Matsum. Ind. Pl. Jap. II. 2. p. 641; Nakai, Bot. Mag. Tokyo, XXVI. p. 360.

Cnicus kamtschaticus Maxim. Mél. Biol. IX. p. 310; A. Gray, Syn. Fl. N. Am. I. p. 399; Miyabe, Fl. Kuril. p. 244.

Cirsium kamtschaticum Ledeb. α . *genuinum* Herder, in Pl. Radd. Monop. III. iv. p. 4 (excl. β .).

Cnicus kamtschaticus Maxim. α . *genuinus* Maxim. Mél. Biol. IX. p. 310; Takeda, Fl. Shikotan p. 475.

HAB. In herbidis, prope Kashiwabarawan (Ipse ! n. 5063, Jul. 9, 1920; n. 5531, Jul. 25, 1920).—In herbidis, prope Hiratazaki (Ipse ! n. 5377, Jul. 21, 1920).—In herbidis, prope Arakawa (Ipse ! n. 5371, Jul. 15, 1920).—In herbidis, inter Nishikawa et Atenkeshi (Ipse ! n. 5240, Jul. 13, 1920).—Ottomai (C. Tarao ! Aug. 15, 1892).

DISTRIB. Kuriles, Hokkaido, Kamtschatka, ins. Aleuticae.

form. **elatus** Kudo, form. nov.

Caulis 3–4 pedalis. Anthodia longe pedunculata, erecta, subnuntantia. Folia superiora non vel breviter decurrentia. Flores purpurascens.

HAB. In herbidis, prope Rucsan (Ipse ! n. 5687, Aug. 5, 1920).—In herbidis, prope Tomarizaki (Ipse ! n. 5719, Aug. 7, 1920).—In herbidis, prope Urafutoyama (Ipse ! n. 5802, Aug. 8, 1920).

DISTRIB. Forma endemica !

Forma haec a speciei typicae non differe mihi videtur, nisi caule elatiore, foliis superioribus non vel breviter decurrentibus, anthodiis longe pedunculatis, erectis vel subnulantibus, floribus purpurascens.

280. *Saussurea Tilesii Ledeb. Fl. Alt. IV. p. 15, in nota, et Fl. Ross. II. p. 662; DC. Prodr. VI. p. 536; Fr. Schm. Fl. Amg.-Burj. p. 51; Koidz. Bot. Mag. Tokyo, XXXI. p. 253.

Serratula Tilesii Ledeb. in Mém. Acad. Sc. St. Pétersb. V. p. 562.

Saussurea nuda Ledeb. var. *Tilesii* Rgl. et Til. Fl. Ajan. p. 106.

var. **kurilensis** Kudo, var. nov.

Saussurea Tilesii? Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197).

Folia ovato-lanceolata vel oblongo-lanceolata, apice acuminata, basi subcuneata, margine denticulata et ciliata, utrinque facie puberulentia vel supra glabriuscula, petiolis inferioribus longis, superioribus brevibus.

HAB. In paludibus, prope Rucsan (Ipse ! n. 5692, Aug. 5, 1920).—In paludibus, prope Tomarizaki (Ipse ! n. 5776, Aug. 6, 1920).—In paludibus, prope Murakamiwan (Ipse ! n. 5427, Jul. 22, 1920 et n. 5459, Jul. 23, 1920).

DISTRIB. var. Planta endemica ! *sp.* Kamtschatka et Sibiria orientalis.

Descriptio speciei typicae differt a planta mea, foliis oblongis vel oblongo-linearibus, subtus languinosis vel tomentosis.

281. Saussurea Riederi Herder, Pl. Radd. Monop. III. iii. p. 35; Maxim. Mém. Biol. IX. p. 343 (var. *yezoënsis*); Fr. et Sav. Enum. Pl. Jap. I. p. 254; Franch. in Bull. Herb. Boiss. V. p. 544 (α . β . et γ .); Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Matsum. Ind. Pl. Jap. II. 2. p. 663; Takeda, Fl. Shikotan p. 476.

HAB. In herbidis, prope Ruesan (Ipse! n. 5691, Aug. 5, 1920).—In herbidis, prope Tomarizaki (Ipse! n. 5721, Aug. 7, 1920).—In herbosis, prope Urafutoyama (Ipse! n. 5805, Aug. 8, 1920).—In herbidis, prope Kashiwabarawan (Ipse! n. 5521, Jul. 26, 1920).—In herbidis, prope Hiratazaki (Ipse! n. 5375, Jul. 21, 1920).—In herbidis, prope Shirakawa (Ipse! n. 5628, Jul. 30, 1920).—Ottomai (C. Tarao! Aug. 1892; S. Yokoyama! Sept 9 et 18, 1893).

DISTRIB. Kamtschatka, Kuriles, Hokkaido, Honshu et Shikoku.
Variat foliorum latitudine.

282. Picris japonica Thunb. Fl. Jap. p. 299; DC. Prodr. VII. p. 130; Ledeb. Fl. Ross. II. p. 800; Maxim. Prim. Fl. Amur. p. 177; Rgl. Tent. Fl. Ussuri. p. 97; Fr. Schm. Fl. Sachal. p. 154; Fr. et Sav. Enum. Pl. Jap. I. p. 268; Miyabe, Fl. Kuril. p. 245; Korsh. Pl. Amur. p. 362; Kom. Fl. Mansh. III. p. 766; Nakai, Fl. Korea. II. p. 58; Miyabe and Miyake, Fl. Saghal. p. 283.

Picris dahurica DC. Prodr. VII. p. 129.

Picris kamczatica Ledeb. in Mém. Acad. Pétrap. V. p. 557.

Picris Hieracioides L. var. *japonica* Rgl. Pl. Radd. Monop. III. iv. p. 25; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (196); Takeda, Fl. Shikotan p. 476.

Picris hieracioides Forb. et Hemsl. Ind. Fl. Sin. I. p. 474; Matsum. Ind. Pl. Jap. II. 2. p. 660, (non L.).

HAB. In pratis siccis, prope Ruesan (Ipse! n. 5690, Aug. 5, 1920).—In pratis siccis, prope Tomarizaki (Ipse! n. 5720, Aug. 7, 1920).—In arena litorali, prope Kashiwabarawan (Ipse! n. 5065, Jul. 9, 1920).—Ottomai (C. Tarao! Aug. 15, 1892; S. Yokoyama! Sept. 1893).

DISTRIB. Sachalin, Kuriles, Hokkaido, Honshu, Shikoku, Kiushu, Liukiu, Korea, Manchuria, Amur, China, Kamtschatka, Dahuria, Sibiria (baicalensis et altaica), Rossia.

283. Lactuca sibirica Benth. ex Maxim. in Bull. Acad. Pétersb. XIX. p. 528 et Mém. Biol. IX. p. 357; Miyabe, Fl. Kuril. p. 245; Franch. Pl. David. p. 187; Forb. et Hemsl. Ind. Fl. Sin. I. p. 484; Yabe et Yendo, Bot. Mag. Tokyo, XVIII. p. (197); Koidz. Pl. Sachal. p. 115; Matsum. Ind. Pl. Jap. II. 2. p. 655; Miyabe and Miyake, Fl. Saghal. p. 287.

Sonchus sibiricus L. Spec. Pl. ed. 1, p. 795.

Mulgedium sibiricum Less. Syn. Comp. p. 142; DC. Prodr. VII. p. 249; Ledeb. Fl. Ross. II. p. 843; Trautv. et Mey. Fl. Ochot. p. 59; Rgl. et Til. Fl. Ajan. p. 108; Maxim. Prim. Fl. Amur. p. 182; Rgl. Tent. Fl. Ussuri. p. 98; Fr. Schm. Fl. Amg.-Burj. p. 53 et Fl. Sachal. p. 154; Herder, Pl. Radd. Monop. III. iv. p. 72; Korsh. Pl. Amur. p. 363; Kom. Fl. Mansh. III. p. 773.

HAB. Suribachi (Y. Yemoto ! Aug. 12, 1919).

DISTRIB. Sachalin, Kuriles, Hokkaido, Manchuria, China, Dahuria, Sibiria (orientalis, baicalensis, uralensis et altaica), Kamtschatka, Europa, America borealis frigida.

284. *Taraxacum ceratophorum* DC. Prodr. VII. p. 146 ; Ledeb. Fl. Ross. II. p. 813 ; Turcz. Fl. Baical. Dah. p. 100 ; Trautv. et Mey. Fl. Ochot. p. 59 ; Fr. Schm. Fl. Sachal. p. 154.

Leontodon ceratophorum Ledeb. Fl. Alt. IV. p. 149, in nota et Ic. Pl. Ross. t. 34.

Taraxacum ceratophorum DC. α . *genuinum* Rgl. et Til. Fl. Ajan. p. 108.

Taraxacum officinale Wigg. β . *glabrescens* Koch, b. *ceratophorum* Herder, Pl. Radd. Monop. III. iv. p. 33.

HAB. In arena litorali, prope Kashiwabarawan (Ipse ! n. 5066, Jul. 9, 1920).—In herbosis, prope Murakamiwan (Ipse ! n. 4960, Jul. 4, 1920).—In herbosis, prope Nagaiwasaki (Ipse ! n. 5149, Jul. 11, 1920).—In herbidis, inter Nishikawa et Atenkeshi (Ipse ! n. 5243, Jul. 13, 1920).—Ottomai (C. Tarao ! Aug. 15, 1892).

DISTRIB. Sachalin, Kuriles, Kamtschatka, Ochotsk, Dahuria, Rossia, ins. Unalaska.