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Harald Lindberg – a Finnish botanist

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Harald Lindberg was one of the most eminent botanist in Finland during the 1900's. He studied a wide range of taxa, including subfossils and bryophytes. He investigated subfossils on peatlands in 60 municipalities, many of them now belonging to Russia. Lindberg described 11 new bryophyte taxa, and discovered 12 new species to Finland (including areas of former Finnish territory of today's Russia). For East Fennoscandia he described 8 new vascular plant species to science, discovered 42 new species and 26 hybrids to country. Apomictic species interested him also, and he described 4 new *Alchemilla* species, 34 *Hieracium* taxa and 80 *Taraxacum* species or subspecies. Later he became expertise also on Mediterranean species, and described 50 new species and 22 subspecies, especially from Morocco and Spain. *Plantae Finlandiae Exsiccatae* was an extensive effort. 2,081 numbers were distributed to 23 museum.

Introduction

Harald Lindberg (2.XI.1871–13.III.1963), PhD, was born in Helsinki, Finland, where he also died. His parents were Professor in Botany Sextus Otto Lindberg and Hilda Fausta Cecilia Sällström. His older brother was a famous Finnish pomologist Björn Lindberg (1860–1954). In 1895 Harald Lindberg got married with Vivi Ottilia Charlotta Grotenfelt.

Lindberg graduated at Helsinki Swedish private secondary school on 24.V.1890. He studied natural sciences in 1890–1894 at the Imperial Alexander University (today University of Helsinki) with botany and zoology as his major subjects. Later he specialized in botany under the supervision of Professor Fredrik Elfving, who was appointed professor in 1892, three years after the death of Sextus Otto Lindberg, Harald's father. H. Lindberg taught at several secondary schools in 1896–1904.

Simultaneously while teaching at schools, Lindberg was appointed temporary assistant for 1897–1898 in the laboratory of the Botanical Institution, and as a curator in the Botanical Museum in 1897–1910. He was the only permanent employee in the museum until 1931, when Ilmari Hiitonen (1898–1986) became an amanuensis.

On 22 December 1909 Lindberg defended his licentiate thesis *Die nordischen Alchemilla vulgaris-Formen und ihre Verbreitung*, and obtained the degree of Ph.D. in 1910. The praeses was Professor Fredrik Elfving. At this stage Lindberg was already an internationally known taxonomist. Nowadays the usually recognized abbreviation of Harald Lindberg as an author of plant names is H.Lindb., not Lindb. fil., as still sometimes used. His father, S. O. Lindberg (1835–1889) is abbreviated Lindb. The herbarium abbreviations cited below follow the Index Herbariorum (http://sciweb.nybg.org/science2/IndexHerbariorum.asp).

Since 27.IV.1910 Harald Lindberg was appointed custodian (custos) in the Botanical Museum at the Imperial Alexander University, the first one in this new office of the Botanical Institute. He reached the age of retirement in 1938, but

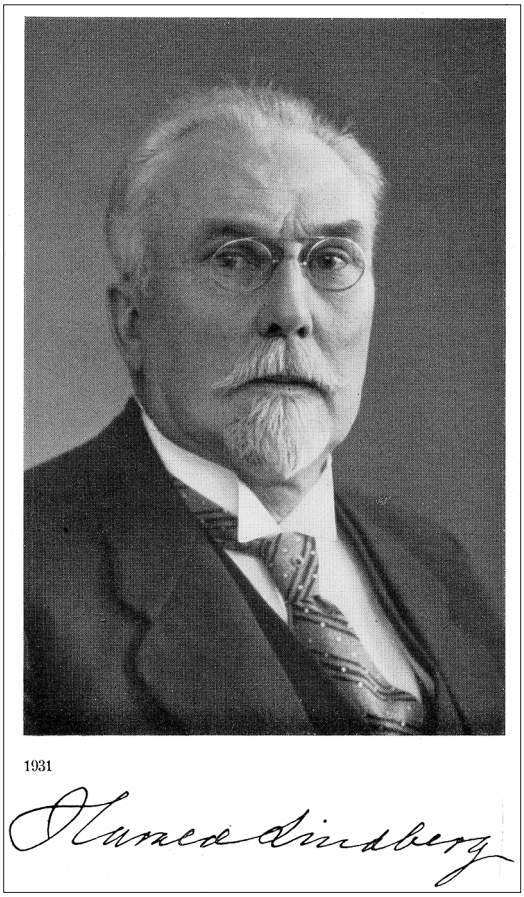

Fig. 1 Harald Lindberg at his 60th anniversary [Memoranda Soc. Fauna Flora Fennica 6 (1931).]

the appointment was continued until 1941. In 1946 he was awarded with the honory title of Professor.

Harald Lindberg's (Fig. 1) splendid career in the Botanical Museum at University of Helsinki lasted for 50 years. For a long period he alone was responsible for the herbarium curation and determination of the collections. Lindberg sold his private collection to the Botanical Museum in Helsinki in the beginning of the 1920's. It consisted of 13,000 taxa and 50,000 sheets (Hintikka 1920). Lindberg was very punctual concerning the quality of herbarium specimens.

Gradually Lindberg gained an excellent knowledge on Finnish flora and a clear vision on the potential distribution of the species. His identifications are generally considered to be at high level (Marklund 1963). If a donated specimen did not fit his view, he might even refuse to place the specimen into the collections, and threw it away (Jalas 1969). One example is probably *Carex maritima*, which was discovered in the Oulu region (Ulvinen 1997). If specimens were carelessly collected and mounted, the donator was appreciated by rigorous words. Lindberg was also widely well known abroad. For instance, he helped Otto Holmberg (1922, 1926) when he prepared his Scandinavian Flora.

Domestic studies

Until 1917 the Grand Duchy of Finland was part of the Russian Empire, and the border against Russia was located further east than today, following partially the eastern border of the geological and biogeographic concept of Fennoscandia. Concerning the Nordic countries East Fennoscandia was Lindberg's primary study area (Fig. 2).

Travels

The Lindberg's had their summer house at Ab Lohja, and his wife's family house was at Sb Joroinen. At these two localities Lindberg made a lot of collections during many years, as well as elsewhere in Nylandia, Regio aboënsis and Tavastia australis in southern Finland.

Lindberg also made many longer plant collecting excursions in East Fennoscandia, e.g. to Alandia in 1890, 1892, 1919, 1922, 1933, 1942 and 1943, to Ostrobottnia ultima in 1902, to Ostrobottnia kajanensis in 1905 and 1936, Lapponia enontekiensis in 1924, to Lapponia tulomesis in 1893 (his plankton material was determined by Kaarlo Mainio Levander in 1916), to Isthmus karelicus and Karelia ladogensis in 1894–1897, 1901, 1934 and 1938, to Regio kuusamoënsis in 1936, to the Pasvik (Paatsjoki) River valley in 1910, to Regio kuusamoënsis (Kuolajärvi), Karelia keretina (Keret, Kandalaksha) and Lapponia Imandrae in 1913 with M. Aschan. The cited Fennoscandian biogeographic provinces are given in Fig. 2. Detailed collection information is not given here for new taxa described from East Fennoscandia, because those will be treated separately in a typification article.

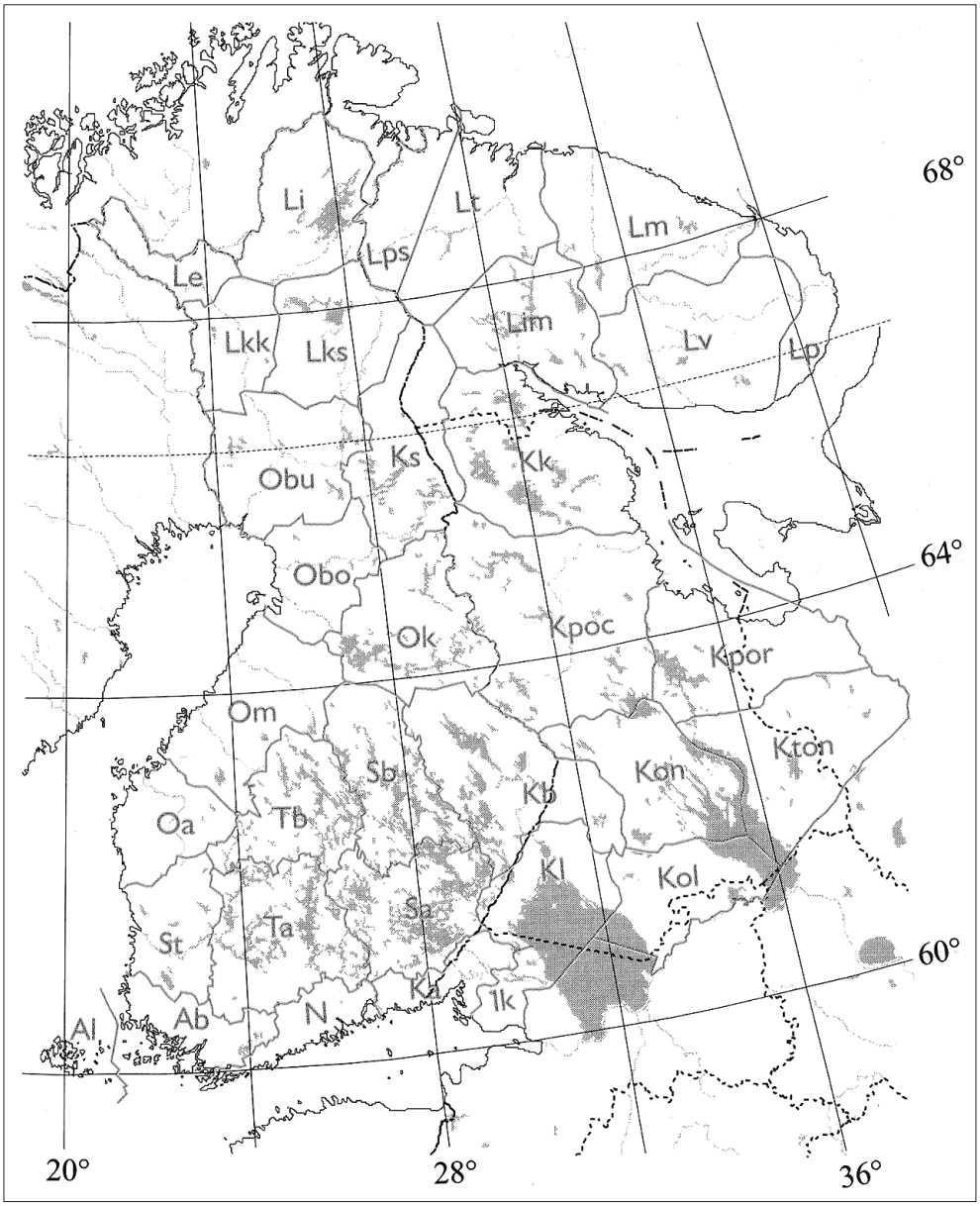

Fig. 2. East Fennoscandian biogeographic provinces. 1. Finland. Al = Alandia, Ab = Regio aboënsis, N = Nylandia, Ka = Karelia australis, St = Satakunta, Ta = Tavastia australis, Sa = Savonia australis, Kl = Karelia ladogensis, Oa = Ostrobottnia australis, Tb = Tavastia borealis, Sb = Savonia borealis, Kb = Karelia borealis, Om = Ostrobottnia media, Ok = Ostrobottnia kajanensis, Obo = Ostrobottnia ouluensis, Obu = Ostrobottnia ultima, Ks = Regio kuusamoënsis, Lkk = Lapponia kittilensis, Lks = Lapponia sompiensis, Le = Lapponia enontekiensis, Li = Lapponia inarensis. 2. Russia. Ka/Rs = Karelia australis (in Russia), Ik = Isthmus karelicus, Kl/Rs = Karelia ladogensis (in Russia), Kol = Karelia olonetsensis, Kb/Rs = Karelia borealis (in Russia), Kon = Karelia onegensis, Kton = Karelia transonegensis, Kpoc = Karelia pomorica occidentalis, Kpor = Karelia pomorica orientalis, Ks/Rs = Regio kuusamoënsis (in Russia), Kk = Karelia keretina, Lim = Lapponia Imandrae, Lv = Lapponia Varsugae, Lp = Lapponia ponojensis, Lps = Lapponia petsamoënsis, Lt = Lapponia tulomensis and Lm = Lapponia murmanica. (Kotiranta et al. 1998)

Studies on subfossils

Lindberg was employed as a botanist to the Suomen Suoviljelysyhdistys (Finska Mosskulturföreningen; Finnish peatland cultivation society) in 1899–1912, and he continued to work for the society without salary in 1913–19. The society was established in 1892 in order to facilitate establishment of fields on arable peatlands.

Lindberg was one of the pioneers in quaternary subfossil studies in Finland. He made research in various parts of East Fennoscandia and discovered numerous postglacial subfossils. He was one of the first to study the development of vegetation after the Ice Age in Finland. Only Viktor Jedidjah Alfred Roos (1890) and Uno Rafel Herlin (1896) had published prior to him.

The subject was novel in Scandinavia, and Lindberg trained himself in 1894–1895 at Stockholm, Sweden. There were many Swedish experts, whom Lindberg visited. The geologist and paleobiologist Alfred Gabriel Nathorst (1850–1921) had described the Dryas-period following the Ice Age, the chemist and geologist Per Teodor Cleve (1840–1905) the importance of diatoms in subfossil studies and the geologist Gerard Jakob DeGeer (1858–1943) had studied the evolution of the Baltic Sea after the Ice Age. Astrid Cleve von Euler (1875–1968) studied diatoms, and the geologist Gunnar Andersson (1874–1960) was expert on macrofossils. Especially von Euler helped Lindberg to determine diatom collections.

Andersson (1898) studied peatlands in southern Finland, which provided an example to Lindberg. In his turn, Lindberg determined the subfossil bryophytes that Andersson collected. Later Lindberg also determined subfossil bryophytes and plants collected by Hugo Karl Albert Berghell (1896), Johan Werner Segercrantz (1896) and Julius Edvard Ailio (1897).

Lindberg published most of his subfossil investigations in the yearbook of the Finnish peatland cultivation society. These were released first in Swedish and then translated to Finnish. Lindberg studied peatlands in 60 municipalities, many of them now belonging to Russia (Table 1). Based on these studies Lindberg listed the subfossil peatland species of Finland (Lindberg 1903f, g), indicated botanic structure of peatlands (Lindberg 1908d, e) and formulated ideas how peatlands have evolved (Lindberg 1908f, g). In addition, he published smaller notes on subfossils in other journals.

At Ik Kivennapa Lindberg (1900i) found subfossil *Aulacomnium turgidum*, *Dryas octopetala* and *Salix polaris* dated to Dryas-period (10050 BC, Jalas 1969), subfossil remains of 95 other plant species, e.g. achenes of *Carex pseudocyperus,* at Sb Joroinen (Lindberg 1904f), achenes of *Cladium mariscus* at Ab Bromarv (Lindberg 1910b). *C. mariscus* was not known from Finland at that time (but has been detected later).

At Ok Sotkamo he discovered subfossil *Zannichellia polycarpos* [*Z. major*], *Ceratophyllum demersum* and *Carex pseudocyperus* at 160 m a.s.l. (Lindberg 1907g), at Ok Kuhmoniemi [Kuhmo] subfossil fruits of *Sagittaria natans, Myriophyllum spicatum* and *Najas flexilis* (Lindberg 1909i), at St Huittinen both *Najas flexilis* and *N. tenuissima* (Lindberg 1910g), subfossil diatoms in Ab Bjärno [Perniö] (Lindberg 1910j), at inland Satakunta fruits of *Ruppia* and *Potamogeton* at 60 m a.s.l., and a new diatom fossil *Rhizosolenia calcaravis* of salt water stage (Lindberg 1910h), at Li Kyrö [Inari] 115 m a.s.l. subfossil *Dryas octopetala* and *Empetrum nigrum* (Lindberg 1911a), first subfossil moss *Sphagnum imbricatum* (apparently *S. affine*) and other *Sphagnum* fossils from Ab Tenala [Raasepori, Tenhola] (Lindberg 1912b), subfossil lichen *Graphis scripta* from N Kyrkslätt [Kirkkonummi] (Lindberg 1912c). Later he gave a presentation on quaternary period diatoms in Finland (Lindberg 1921e). Lindberg (1915a) participated a joint research program to study the development of Lake Ladoga basin, and provided a list of peatland subfossils, without introduction or discussion of the results.

Lindberg was interested on the development of early Finnish settlement. In a meeting of *Societas pro Fauna et Flora Fennica* on 13.IV.1912 he gave a presentation on a Stone Age settlement at N Kirkkonummi and its subfossil plant remains (Lindberg 1912f). From Lps Pasvik (Paatsjoki) valley Lindberg (1911g) found a gaff apex amongst subfossil shells. By the aid of the diatom *Eunotia clevei* and other diatoms Lindberg was able to date a fish net made of willow, found by Sakari Pälsi (1920) in 1914 at Ka/Rs Antrea (Lindberg 1920b). It was dated to late Ancylus-period (Jalas 1969), ca. 8400 BC.

Table 1. Municipalities where Lindberg studied peatland subfossils.

Ab Bjärno [Perniö] (Lindberg 1910j)
Ab Bromarv [Raasepori] (Lindberg 1910b)
Ab Lojo [Lohja] (Lindberg 1900y, z, 1911h, i, 1944a)
Ab Tenala [Raasepori, Tenhola] Lindberg 1912b)
Ik Kivennapa (Lindberg 1900i)
Ik Sakkola, several localities (Lindberg 1899c, d, 1915a)
Ik Taipale Metsäpirtti (Lindberg 1915a)
Ka/Rs Antrea (Lindberg 1920b).
Kb Libelits [Liperi] (Lindberg 1898b, c)
Kb/Rs Värtsilä (Lindberg 1898b, c)
Kl/Rs Lahdenpohja Jaakkima (Lindberg 1915a)
Kol Ylä-Hamala Olonetz [Olonets] (Lindberg 1915a)
Le Enontekis [Enontekiö] (Lindberg 1911p, 1912a)
Li Kyrö [Inari] (Lindberg 1911a)
Lk Pitkäranta [Impilahti] (Lindberg 1898b,c)
Lkk Kittilä (Lindberg 1911p, 1912a)
Lkk Muonio (Lindberg 1911p, 1912a)
Lks Sodankylä (Lindberg 1911p, 1912a)
N Askola (Lindberg 1915h, i)
N Borgå [Porvoo] (Lindberg 1915h, i)
N Borgnäs [Pornainen] (Lindberg 1915h,i)
N Helsinge härad [Helsingin pitäjä = Vantaa] (Lindberg 1898b, c)
N Ingå [Inkoo] (Lindberg 1900y, z)
N Kyrkslätt [Kirkkonummi] (Lindberg 1912c)
N Mäntsälä (Lindberg 1915h, i)
N Nurmijärvi (Lindberg 1915h, i)
N Pukkila (Lindberg 1915h, i)
N Raseborg [Raasepori] (Lindberg 1914g, h)
N Tusby [Tuusula] (Lindberg 1915h, i)
Oa Ilmola [Ilmajoki] (Lindberg 1905a,b)
Oa Kurikka (Lindberg 1898b, c)
Oa Lappo [Lapua] (Lindberg 1905a, b)
Oa Ylistaro (Lindberg 1898b, c)
Obo Muhos (Lindberg 1898b, c
Obo Pelso [Vaala] (Lindberg 1913c)
Obu Tervola (Lindberg 1898b, c)
Ok Hyrynsalmi (Lindberg 1905b, c)
Ok Kuhmo (Lindberg 1905b, c, 1909i)
Ok Paltamo (Lindberg 1905b, c)
Ok Puolanka (Lindberg 1905b, c)
Ok Ristijärvi (Lindberg 1905b, c)
Ok Säräisniemi [Vaala] (Lindberg 1905b, c)
Ok Sotkamo (Lindberg 1905 b, c, 1907g)
Ok Suomussalmi (Lindberg 1905b, c)
Om Weteli [Veteli] (Lindberg 1898b, c)
Sa Sääminki (Lindberg 1898b,c)
Sb Jorois [Joroinen] (Lindberg 1899c, d, 1900y,z, 1944b)
St Huittinen (Lindberg 1910g)
St Panelia [Eura] (Lindberg 1901h, i)
Ta Hattula (Lindberg 1903h, i)
Ta Kalvola (Lindberg 1903h, i)
Ta Kangasala (Lindberg 1898b,c)

Russia Iwanowskaja [Ivanovskaya], Tonja (Lindberg 1915a)
Russia Kronstadt (Lindberg 1915a)
Russia River Newa N, Kusminka [former village of Kuzminka], Ostrowki [former village of Ostrovki], Nowo-Saratowskaja [Novosaratovka] [all St. Peterburg area, Vsevolozhsk District] (Lindberg 1915a)
Russia Siestarjoki E [Sestroretksk] (Lindberg 1915a)
Russia Sjas [Syaz, Volkhov District] (Lindberg 1915a)
Russia Wolchow [Volkhov] (Lindberg 1915a)

Harald Lindberg summarised his studies on subfossils in several circumstances. In the Nordic Natural Science conference in 1902 at Helsinki Lindberg (1903b, 1943a) gave a presentation on the eastern element of vascular plants of Finnish flora. In a presentation held in Sweden, treating postglacial climate, he focused on fluctuating climatic conditions based on subfossil evidence (Lindberg 1910m). The subject was further elaborated twice, in the Map of Finland published in three languages, entitled "Subfossil plant findings showing the development of [Finnish] flora" (Lindberg 1911m, n, o), and in a presentation he gave 1915 in *Societas Scientiarum Fennica*, entitled "Plant paleontological evidence on the postglacial development of Finnish flora during the period man inhabited the country" (Lindberg 1916a). Later he (Lindberg 1922) still presented his main discoveries in the first Swedish agricultural congress.

In these summaries he drew the main lines on the development of Finnish flora after the Ice Age. However, concerning post-glacial stages of the Baltic Sea, he opposed the view generally accepted on existence of the Yoldia period (Lindberg 1907g, 1915j). Lindberg considered that relics of brackish water in inland areas belonged to Ancylus stage (Jalas 1969), e.g. species like *Butomus umbellatus*, *Callitriche autumnalis* [*C. hermaphroditica*], *Ceratophyllum demersum*, *Lemna trisulca*, *Myriophyllum spicatum* [*M. sibiricum* included], *Najas flexilis*, *Potamogeton panormita-*

Table 2. The bryophyte taxa described by Lindberg as new to science. The currently used name is given in parentheses.

Amblystegium brachycarpum H.Lindb. Ik Sakkola 1897 (Lindberg 1901c *Warnstorfia fluitans*)
Oncophorus riparius H.Lindb. Ik Valkjärvi 1894 (Lindberg 1900e *Kiaeria riparia* (H.Lindb.) M.F.W. Corley*, until recently placed in *Dicranella*)
Pohlia (*Cacodon*) *porosa* H.Lindb. U.S.A. Washington. Mt. Rainier 1898 (Lindberg 1900b *P. cardotii*)
Pohlia grandiflora H.Lindb. Ik Valkjärvi 1897 (Lindberg 1900q *P. annotina*)
Polytrichum angustidens H.Lindb. U.S.A. Idaho 1892 (Lindberg 1900a *Meiotrichum lyallii*)
Polytrichum fragilifolium H.Lindb. Ik Valkjärvi 1897 (Lindberg 1900e *P. jensenii*)
Sphagnum annulatum H.Lindb. ex Warnst. Ik Sakkola 1897 (Lindberg 1900g)
Sphagnum apiculatum H.Lindb., nom. superfl. (in Bauer 1903 *S. fallax*)
Sphagnum jensenii H.Lindb. 35 localities given, type (Isoviita 1966:239) Ik Mola [Muolaa] 1895 (Lindberg 1899b)
Sphagnum lenense H.Lindb., nom. nov. (in Pohle 1915)
Sphagnum propinquum H.Lindb. ex Warnst. Sb Jorois [Joroinen] 1902 (Lindberg 1900g *S. jensenii*)

* One record from Finland, InL Inari 1976, coll. Unto Laine. det. Tauno Ulvinen 2010

Table 3. The bryophytes new to Finland reported by Lindberg. The name used by Lindberg is given in parentheses, if it differs from that currently used.

Atrichum flavisetum Ik Pyhäjärvi 1897 (Lindberg 1900h *Catharinea haussknechtii*)
Bryum warneum Al Eckerö 1892 (Lindberg 1896d)
Odontoschisma sphagni Ab Lojo [Lohja] [1891] (Lindberg 1893d *Cephalozia sphagni*, this is most likely *O. denudatum*, but the specimens was not found at H)
Dichelyma capillaceum Ab Virmo [Mynämäki] 1897 (Lindberg 1900c)
Drepanocladus sendtneri Ik Pyhäjärvi 1897, Ik Valkjärvi 1897 (Lindberg 1900h *Amblystegium sendtneri*)
Fissidens fontanus St Ikaalinen subfossil! (Lindberg 1896c *Schistophyllum julianum*)
Fissidens fontanus Ik Kivennapa 1895 (Lindberg 1898a *Schistophyllum julianum*)
Lescuraea patens Ik Muolaa 1893, Ik Nykyrka [Uusikirkko] 1893 (Lindberg 1894c *Lesquereuxia patens*)
Lophozia grandiretis Obo Simo [1902] (Lindberg 1904b *Jungermannia grandiretis*)
Philonotis caespitosa Ik Valkjärvi 1897 (Lindberg 1900e)
Polytrichastrum pallidisetum Ik Sakkola 1895 (Lindberg 1896d *Polytrichum ohioense*
Sphagnum molle Al Eckerö 1892 [Lindberg 1896d, it appeared later, that this was *S. capillifolium* (Lindberg 1900d *S. acutifolium*]

nus [*P. pusillus* incl. *P. berchtoldii*], *Sagittaria natans*, *Stratiotes aloides*, *Typha angustifolia* and *Zannichellia polycarpa* [*Z. major*] (Lindberg 1915j, 1943b, 1944b), *Leymus arenarius* (Lindberg 1910f) and *Chara aspera* (Lindberg 1912g), *Potamogeton crispus*, *Hypericum montanum*, *Hieracium litoreum* and *Hieracium* Oreadea -section (Lindberg (1944a). Stimulated by *Myriophyllum spicatum* he discovered at Joroinen, Lindberg (1944b) gave in a meeting of *Societas pro Fauna et Flora Fennica* a presentation 5.XII.1942 of its former and present distribution.

Harald Lindberg's subfossil collections are at least partially preserved in Geological Museum, Finnish Museum of Natural History, University of Helsinki.

Bryophyte studies

Inspired by his father, the world-famous bryologist Sextus Otto Lindberg, Harald Lindberg became a keen collector of bryophytes already at his youth. At first he studied the Lohja area, obviously jointly with his father. For instance, he discovered a rare moss which S. O. Lindberg (1886) named by pride as *Schistophyllum Haraldii*. Later it proved to be identical with *Fissidens viridulus*, however.

Harald Lindberg studied bryophytes especially during the period he was appointed to the Finnish peatland cultivation society (see Table 1). In addition, he made a lot of collections in Alandia, Ab Lohja and Savonia borealis. Brotherus (1923) cited numerous specimen collected by him, and

many are the first ones from the biogeographic provinces, some still being the only known collections. Lindberg made many interesting discoveries, described 11 taxa as new to science (Table 2), and reported 13 new species to Finland (Table 3). Six of these are outside of present day Finland.

Other interesting discoveries

Lindberg found *Dicranum tauricum* in Eckerö as new to Alandia (Lindberg 1893f; as *Dicranum strictum*), many rare species from Isthmus karelicus (Lindberg 1894c), *Sphagnum affine* by P. H. Olsson from Ab Kemiö is the northernmost known locality (Lindberg 1894f; as *S. imbricatum*), new Finnish localities of rare *Aplodon wormskioldii*, *Sphagnum pulchrum* and *Bryum pallens* (Lindberg 1901a; as *Tetraplodon wormskjoldii*, *S. pulchrum* and *B. versisporum*) and of *Polytrichastrum pallidisetum*, *Drepanocladus longifolius* and *Scapania gymnostomophila* (Lindberg 1901c; as *Polytrichum decipiens, Amblystegium capillifolium* and *Diplophyllum gymnostomophila*), *Polytrichum jensenii* from Oa Närpiö (Lindberg 1913a). *Sphagnum affine* must have been a wrongly determind, it is a rare species in Finland, not growing in Kemiö.

In one of his few articles written in English, it was concluded that *Polytrichum ohioënse* and *P. decipiens* are different species (Lindberg 1900a). Today both are considered to be synonyms of *Polytrichastrum pallidisetum. Stereodon* [*Hypnum*] *plicatulus* and *Stereodon* [*Hypnum*] *revolutus* were both good species (Lindberg 1903a). *Dichelyma capillaceum* from Ik Muolaa was the second locality in Finland (Lindberg 1915b).

A most important bryophyte study by Lindberg (1899b) was the revision of the *Sphagnum cuspidatum* group. He accepted 14 taxa, *S. jensenii* H.Lindb. was new to science. *S. annulatum* H.Lindb. ex Warnst. was soon after preliminarily named by Lindberg (1900g). It was later also found in Russia (Lindberg 1900l). Based on his peatland studies Lindberg published a list of Finnish *Sphagnum* taxa (Lindberg 1903d, e).

Mycologist

Harald Lindberg also occasionally made contributions to lichenology and mycology, by discovering new species to Finland, e.g. *Nephroma laevigatum* from N Kirkkonummi (Lindberg 1908k; as *Nephromium lusitanicum*), *Letharia vulpina* from Al Finström (Lindberg 1909e), *Leucopaxillus giganteus* from N Helsingfors [Helsinki], Brändö [Kulosaari] (Lindberg 1910c, k; as *Clitocybe gigantea*), *Pholiota aurea* from N Helsingfors [Helsinki] (Lindberg 1931c) and *Phallus impudicus* from Al (Lindberg 1921b). He also published a book on edible mushrooms, both in Swedish and Finnish (Lindberg (1907j, k).

Fennoscandian vascular plant taxonomy

The fourth main theme of Lindberg's scientific career was taxonomy of Fennoscandian vascular plants. He collected a lot of specimens throughout his life between 1877 and 1951. The first set of his collections are at the Botanical Museum, Finnish Museum of Natural History, Helsinki (H). For many years he also inspected or determined all vascular plant specimens incoming to the museum, and it is generally acknowledged that the collections and identifications were of high level at that time. During the 1930's, he begun to stamp "HLg" on each sheet, indicating that he had inspected that collection. However, unfortunately later the stamp only indicated that the sheet was incorporated into the collections (Jalas 1969).

Based on East Fennoscandian material Lindberg described 74 taxa: 8 species, 13 varieties, 48 forms and 5 hybrids of angiosperms (Table 4). All the names have not been fully evaluated, but especially *Eleocharis mamillata* (Lindberg 1901a) and *Persicaria foliosa* (Lindberg 1900v; as *Polygonum foliosum*) are of great importance. *Erigeron brachycephalus* and *E. decoloratus* are quite commonly treated as subspecies today. Concerning *E. mamillata* and *P. foliosa* he studied also Swedish specimens (Lindberg 1901a, 1901f; as *Polygonum foliosum*), and of *P. foliosa* Japanese, Manchurian and Russian material (Lindberg 1913i, j; as *Polygonum foliosum*).

Table 4. New East Fennoscandian angiosperm taxa described by Lindberg. The currently used name is given in parentheses. Names without description (nomen nudum) are excluded.

Alnus glutinosa f. *minutulifolia* H.Lindb. (Lindberg 1934c: 92)
Agrostis clavata f. *aprica* H.Lindb. (Lindberg 1906t: 15)
Agrostis clavata f. *umbrosa* H.Lindb. (Lindberg 1906t: 15)
Bidens radiata ('radiatus') f. *pumila* ('pumilus') H.Lindb. ex Hiitonen (in Hiitonen 1933: 694)
Calamagrostis epigeios f. *laeviculmis* H.Lindb. (Lindberg 1916f: 15)
Calluna vulgaris f. *versicolor* H.Lindb. ex Hiitonen (in Hiitonen 1933: 565)
Carex hornschuchiana var. *eckeroeensis* H.Lindb. & Palmgr. (Lindberg 1916: 36)
Carex limosa f. *depauperata* H.Lindb. (Lindberg 1944d: 227).
Carex limosa f. *longevaginata* H.Lindb. ex Hiitonen (in Hiitonen 1933: 161)
Chimaphila umbellata f. *albiflora* H.Lindb. ex Hiitonen (in Hiitonen 1933: 563)
Draba cinerea f. *brachysiliqua* Mela ex H.Lindb. (Lindberg 1916e: 109 *D. cinerea*)
Draba cinerea var. *brachysiliqua* Mela ex H.Lindb. (Lindberg 1916e: 109 *D. cinerea*)
Draba cinerea var. *ladogensis* H.Lindb. (Lindberg 1916e: 109 *D. cinerea*)
Draba hirta var. *arctica* f. *hebecarpa* H.Lindb. (Lindberg 1916e: 108 *D. daurica* var. *hebecarpa*)
Epilobium angustifolium f. *rosea* H.Lindb. (in Hjelt 1911: 329)
Erigeron brachycephalus ('brachycephalum') H.Lindb. (Lindberg 1944d: 88 *E. acris* subsp. *brachycephalus*)
Erigeron decoloratus ('decoloratum') H.Lindb. (Lindberg 1944d: 89 *E. acris* subsp. *decoloratus*)
Eriophorum chamissonis var. *subalbidum* H.Lindb. (Lindberg 1916f: 26 *E. russeolum* subsp. *russeolum*)
Eriophorum intercedens H.Lindb. (Lindberg 1906t: 32 *E.* × *medium*)
Euphrasia brevipila f. *glandulosa* H.Lindb. (Lindberg 1944d:75)
Euphrasia brevipila f. *eglandulosa* H.Lindb. (Lindberg 1900t: 46 *E. stricta*)
Euphrasia brevipila f. *subeglandulosa* H.Lindb. (Lindberg 1900t:46 *E. stricta*)
Euphrasia hirtella var. *fennica* f. *brevidens* H.Lindb. ex Hiitonen (in Hiitonen 1933: 639 *E. rostkoviana* subsp. *fennica*)
Euphrasia hirtella var. *fennica* f. *macrantha* H.Lindb. (Lindberg 1916f: 140 *E. rostkoviana* subsp. *fennica*)
Galeopsis speciosa f. *alba* H.Lindb. (Lindberg 1902f: 38)
Galeopsis speciosa f. *purpurea* H.Lindb. ex Hiitonen (in Hiitonen 1933: 610)
Galium ruthenicum f. *piliferum* H.Lindb. (Lindberg 1900n: 28 *G. verum* var. *trachycarpum*)
Galium ruthenicum f. *setulosum* H.Lindb. (Lindberg 1900n: 28 *G. verum* var. *trachycarpum*)
Geum rivale f. *simplicifolium* H.Lindb. ex Hiitonen (in Hiitonen 1933: 446)
Hippuris vulgaris f. *litoralis* H.Lindb. (Lindberg 1906i: 109 *H. tetraphylla* × *vulgaris*)
Impatiens noli-tangere f. *pallidiflora* H.Lindb. (Lindberg 1916f: 106)
Juncus balticus var. *tenuis* H.Lindb. (Lindberg 1896a: 6 *J. balticus*)
Lappula deflexa f. *albiflora* H.Lindb. ex Hiitonen (in Hiitonen 1933: 589)
Lathyrus pratensis f. *pallidiflorus* H.Lindb. ex Hiitonen (in Hiitonen 1933: 473)
Linum catharticum var. *annuum* H.Lindb. ex Hiitonen (in Hiitonen 1933: 546) (This is a replecment name of *L. catharticum* f. *annua*, *simplex* H.Lindb., nomen nudum)
Lobelia dortmannar f. *decolor* H.Lindb. (Lindberg 1916f: 149)
Luzula × *hybrida* H.Lindb. (Lindberg 1906d *L. pallescens* × *sudetica*)
Lycopodium complanatum subsp. *anceps* f. *polystachyum* H.Lindb. (Lindberg 1906t: 5 *Diphasiastrum* × *zeilleri*)
Mentha alandica H.Lindb. (Lindberg 1944d: 276 *M.* × *verticillata*)
Mentha arrhenii H.Lindb. (Lindberg 1906o: 92 *M.* × *gentilis* 'Arrhenii')
Mentha litoralis f. *interrupta* H.Lindb. ex Hiitonen (in Hiitonen 1933: 599)
Montia fontana var. *boreorivularis* H.Lindb. (Lindberg 1901b: 21 *M. fontana*)
Montia lamprosperma var. *boreorivularis* f. *spathulata* H.Lindb. (Lindberg 1901b: 21 *M. fontana*)
Myosotis sylvatica ('silvatica') f. *parviflora* H.Lindb. ex Hiitonen (in Hiitonen 1933: 592)
Odontites brevifolia H.Lindb. (Lindberg 1944d: 74 *O. litoralis* subsp. *litoralis*)
Oxalis acetosella f. *albovenosa* H.Lindb. (Lindberg 1933) [Printed label was distributed in 1933, the book of labels was published later (Lindberg 1944d: 54)]
Polygonum foliosum H.Lindb. (Lindberg 1900v: 3 *Persicaria foliosa*)
Pulsatilla vernalis var. *albescens* H.Lindb. (Lindberg 1896e: 77)
Pyrola rotundifolia L. f. *pallida* H.Lindb. (Lindberg 1916f: 115)
Ranunculus baudotii f. *fluitans* subf. *pedicellatus* H.Lindb. (in Hjelt 1906: 218 *R. baudotii*)
Ranunculus paucistamineus var. *drouetii* f. *fluitans* H.Lindb. (in Hjelt 1906: 222 *R. aquatilis* var. *diffusus*)

Table 4, continued

Ranunculus paucistamineus subsp. *eradicatus* f. *submersus* ('submersa') H.Lindb. (Lindberg 1916f: 67 *R. confervoides*)
Ranunculus paucistamineus subsp. *eradicatus* f. *natans* H.Lindb. (in Hjelt 1906f: 227 *R. confervoides*)
Ranunculus paucistamineus var. *typicus* H.Lindb. (in Hjelt 1906: 219), nom. illeg.
Ranunculus paucistamineus var. *typicus* H.Lindb. (Lindberg 1906t: 69), nom. illeg.
Ranunculus ficaria var. *obtusissimus* H.Lindb. (Lindberg 1916f: 70)
Ranunculus peltatus var. *septentrionalis* H.Lindb. (in Hjelt 1906: 228)
Rhinanthus minor f. *maculifer* H.Lindb. ex Hiitonen (in Hiitonen 1933: 644)
Ribes nigrum f. *incisum* H.Lindb. ex Hiitonen (in Hiitonen 1933: 429)
Rubus × *binatus* H.Lindb. (Lindberg 1909f, 1910d: 143 *R. arcticus* × *idaeus*)
Rubus × *digeneus* H.Lindb. (Lindberg 1909f: 142 *R. idaeus* × *saxatlis*)
Rubus idaeus f. *longisepalus* ('longisepala') H.Lindb. (Lindberg 1944d: 257)
Satureja acinos f. *albiflora* H.Lindb. ex Hiitonen (in Hiitonen 1933: 603)
Scirpus mamillatus H.Lindb. [Lindberg 1902a: 7 *Eleocharis mamillata* (H.Lindb.) H.Lindb.]
Scirpus uniglumis f. *nulliseta* H.Lindb. (Lindberg 1902a: 4 *Eleocharis uniglumis*)
Scirpus uniglumis f. *subnulliseta* H.Lindb. (Lindberg 1902a: 5 *Eleocharis uniglumis*)
Subularia aquatica f. *elongata* H.Lindb. (Lindberg 1914d: 105)
Tilia cordata f. *ekebergensis* H.Lindb. (Lindberg 1933) [Printed label was distributed in 1933, the book of labels was published later (Lindberg 1944d: 55)]
Trientalis europaea var. *angusta* H.Lindb. (in Litwinow 1910: 9)
Trifolium pratense f. *versicolor* H.Lindb. ex Hiitonen (in Hiitonen 1933: 487)
× *Tritordeum bergrothii* H.Lindb. (Lindberg 1906l: 21 *Elytrigia juncea* × *repens*, syn. × *Leymotrigia bergrothii*)
Utricularia × *biseriata* H.Lindb. (Lindberg 1921d: 103 *U. intermedia* × *vulgaris*)
Verbascum lychnitis f. *cuspidatum* H.Lindb. ex Hiitonen (in Hiitonen 1933: 624)
Veronica spicata var. *arachnoidea* H.Lindb. (Lindberg 1921c:71 *V. spicata*)
Viola tricolor f. *violaceosignata* ('violaceo-signata') H.Lindb. ex Hiitonen (in Hiitonen 1933: 412)

Table 5. Genera and species on which Lindberg published special notes, especially concerning Finnish flora.

Agropyron violaceum (Lindberg 1937f)
Agrostis (Lindberg (1900k)
Antennaria lanata, *A. alpina* (Lindberg 1901g)
Anthyllis vulneraria (Lindberg 1915d)
Bidens radiata, B. tripartita (Lindberg 1894d)
Bromus (Lindberg 1937c)
Camelina (Lindberg 1906r)
Carex acuta, C. muricata, *C. vulpina* (Lindberg (1914b)
Carex imandrensis, C. limosa (Lindberg 1940
Carex rotundata (Lindberg 1911e)
Carlina biebersteinii, C. vulgaris (Lindberg 1900x s.n. *C. longifolia*, *C. vulgaris*)
Cirsium heterophyllum [*helenioides*] × *palustre* (Lindberg 1901e)
Crataegus (Lindberg 1906b)
Deschampsia bottnica × *cespitosa* (Lindberg 1900o *Aira bottnica* × *cespitosa*)
Dryopteris carthusiana, *D. dilatata* (Lindberg 1917)
Erigeron acris (Lindberg 1938b)
Euphrasia (Lindberg 1900t)
Galeospsis bifida, *G. tetrahit* (Lindberg 1902f)
Galium ruthenicum (Lindberg 1900n)
Hippuris (Lindberg 1906i)
Juncus fuscoater, *J. alpinus* (Lindberg 1912d *J. alpinoarticulatus*)
Juncus ranarius (Lindberg 1934f)
Lactuca tatarica, *L. pulchella* (Lindberg 1936d)
Leonurus cardiaca (Lindberg 1930)
Luzula sudetica (Lindberg 1906e)
Melampyrum pratense, M. sylvaticum (Lindberg 1916c)
Mentha (Lindberg 1906o)
Montia (Lindberg 1901b)
Myosotis cespitosa, *M. laxa* (Lindberg 1915g, 1934e)
Myosotis sylvatica, M. decumbens (Lindberg 1900u)
Najas (Lindberg 1900r)
Polemonium humile, P. pulchellum (Lindberg 1901g)
Polygonum aviculare, P. calcatum (Lindberg 1906c)
Potamogeton panormitanus (Lindberg 1909c *P. pusillus*)
Potentilla argentea, *P. crantzii*, *P. intermedia, P. thuringiaca* (Lindberg 1900j)
Puccinellia retroflexa, P. distans (Lindberg 1921d *P. retroflexa* = *capillaris.*)
Rosa (Lindberg (1935b)
Utricularia biseriata (Lindberg 1937d)
Veronica agrestis, *V. opaca, V. polita* (Lindberg 1894d)

Table 6. New vascular plant taxa to Finland and east Fennoscandia reported by Harald Lindberg. In parentheses is given the name he used.

Agrimonia odorata N Ingå [Inkoo] 1900 (Lindberg 1902e)
Aira praecox Al Eckerö 1912 (Lindberg 1913b *Airopsis praecox*)
Alisma gramineum Ka/Rs Viborg [Viipuri] 1935 (Lindberg 1936b)
Alopecurus pratensis var. *alpestris* Ok Suomussalmi Säynäjä 1911; Ks/Rs Kuolajärvi 1913 (Lindberg 1925c, specimens at H collected by Lindberg are *A. pratensis* var. *pratensis*)
Ammophila arenaria N Tenala [Raasepori, Tenhola] 1905 (Lindberg 1906g *Psamma arenaria*)
Anemone trifolia Ta Asikkala 1929 (Lindberg 1937b)
Arctium nemorosum Al Eckerö 1890 (Lindberg 1892d)
Asperula tinctoria St Raumå [Rauma] Sorkka 1916 (Lindberg 1917)
Botrychium simplex Al Eckerö 1893 (Lindberg 1893e)
Cardaminopsis arenosa Ta Koski [Hämeenkoski] 1914 (Lindberg 1921d *Arabis arenosa*)
Cicerbita macrophylla St Yläne 1911 (Lindberg 1912b *Mulgedium macrophyllum*)
Conioselinum longifolium Kk Kouta 1870(Lindberg 1901d *C. cenolophioides*, new to Fennoscandia)*
Crepis sibirica Kol Vosnessenje 1875 (Lindberg 1901e, collected by Fr. Elfving as *Inula helenioides*)
Cystopteris fragilis subsp. *dickieana* Lkk Muonio and Kolari 1877 (Lindberg 1906m; good drawings on spores!)
Draba cinerea Ks Kuusamo 1883 (Lindberg 1916e)
Dryopteris fragrans Li Utsjoki Kevo 1935 (Lindberg 1936c)*
Epilobium ciliatum Ab Lojo [Lohja] Ojamo 1915 (Lindberg 1916d, 1921c *E. adenocaulon*)
Epilobium obscurum Ab Lojo [Lohja, 1889] (Lindberg 1892a)
Erica tetralix Al Lemland Slärholmen 1905 (Lindberg 1910e)
Erysimum cheiranthoides subsp. *altum* Sb Jorois [Joroinen] 1893 (Lindberg 1894a *E. cheiranthoides* var. *nodosum*)
Galium saxatile N Pojo [Pohja] 1901 (Lindberg 1904a)
Geum aleppicum Ik Rautus [Rautu] 1894 (Lindberg 1895 *G. strictum*)
Hedysarum sibiricum Lv Tshapoma 1889 (Lindberg 1909j, 1915f, new to Fennoscandia)
Hypericum montanum Ab Lojo [Lohja] 1888 (Lindberg 1893c, 1907h)
Lemna gibba Al Kökar 1911 (Lindberg 1912g)
Monotropa hypopitys subsp. *hypophegea* Al Eckerö 1893 (Lindberg 1893e)
Poa humilis Al no locality nor date (Lindberg 1906j *Poa irrigata*
Polygonum oxyspermum N Hangö [Hanko] 1892 (Lindberg 1893b)
Potentilla anserina subsp. *groenlandica* Obu Perämeri [Bothnian Bay] no locality nor date (Lindberg 1907e *P. egedii*)
Puccinellia maritima Kk Knjäsha [Knyazhaya Guba] 1913 (Lindberg 1921d, new to east Fennoscandia)
Puccinellia phryganodes Om Siikajoki 1926 (Lindberg 1929b)
Ranunculus auricomus subsp. *sibiricus* Lmur Voroninsk 1887 (Lindberg 1901d, new to Fennoscandia)
Rosa sherardii Al Jomala 1898 (Lindberg 1904e *R. tomentosa*)
Rubus plicatus Ik Kuolemajärvi 1898 (Lindberg 1900p)
Sagina maritima Al Eckerö 1893 (Lindberg 1893e)
Sagittaria natans Kon Kivatscho 1850 (Lindberg 1901d, new to Fennoscandia)
Scirpus radicans Ik Kivennapa 1896, Ik Valkjärvi 1896, Kl/Rs Käkisalmi 1897 (Lindberg 1898a)
Sedum telephium subsp. *telephium* Ik Valkjärvi 1894 (Lindberg 1895 *S. fabaria*)
Sparganium microcarpum Al Eckerö 1890 (Lindberg 1893g)
Thalictrum minus subsp. *minus* N Raseborg [Raasepori] Snappertuna 1927 (Lindberg 1906q)
Veronica anagallis-aquatica Sa Lappeenranta 1875, Ka/Rs Viipuri 1871 (Lindberg 1896b *V. aquatica*)
Vicia cassubica Ab Tenala [Tenhola] 1936 (Lindberg 1941b)

* Accepted name for this taxon is *Conioselinum longifolium* Turcz, but Pimenov (1996) noted, that it is not clearly distinct from *C. tataricum*.

Lindberg also studied many other plant genera and species (Table 5), and contributed significantly to the understanding of the Finnish flora. *Alchemilla*, *Hieracium* and *Taraxacum* are treated further ahead.

Lindberg discovered or reported 42 indigenous vascular plant taxa as new to Finland (Table 6).

Further, Lindberg discovered several for biogeographical provinces new taxa: A 20 (Lindberg

Table 7. Hybrids which Harald Lindberg reported as new to Finland. In parentheses the name he used.

Bidens radiata × *tripartita* Ab Lojo [Lohja] 1890 (Lindberg 1892d)
Calamagrostis arundinacea × *stricta* Sb Maaninka Pöljä 1913 (Lindberg 1916b *C. arundinacea* × *neglecta*)
Carex flava × *hostiana* Al Eckerö 1891 (Lindberg 1893e *C. flava* × *fulva*)
Centaurea jacea × *phrygia* Sb Jorois [Joroinen] 1902 (Lindberg 1904a)
Cirsium heterophyllum × *oleraceum* Ik Valkjärvi 1894 (Lindberg 1895)
Elytrigia farctus × *repens* N Hangö [Hanko] 1911 (Lindberg 1912b *Triticum acutum*)
Epilobium lamyi × *montanum* Ab Lojo [Lohja] 1922 (Lindberg 1925a)
Epilobium montanum × *palustre* Ab Lojo [Lohja] 1928 (Lindberg 1929a)
Galium album× *verum* var. *trachycarpum* Ab Lojo [Lohja] 1888 (Lindberg 1900p *G. mollugo* × *ruthenicum*)
Platanthera bifolia × *chlorantha* Al Föglö 1897 (Lindberg 1908l)
Potamogeton filiformis × *vaginatus* Ks/Rs Kuolajärvi 1910 (Lindberg 1911f)
Potamogeton pectinatus × *vaginatus* Kon Suopohja [1863] (Lindberg 1909c)
Puccinella capillaris × *distans* Al Eckerö 1890 (Lindberg 1895 *P. distans* × *retroflexa*)
Pulsatilla patens × *vernalis* Ik Rautus [Rautu] 1894 (Lindberg 1896b)
Rosa dumalis × *mollis* Al Jomala 1898 (Lindberg 1904e *Rosa glauca* × *mollis*, probably incorrect)
Rumex longifolius × *obtusifolius* Al Hammarland 1890 (Lindberg 1892c *Rumex* × *conspersus*)
Rumex aquaticus × *longifolius* Obu Simo no year (Lindberg 1906f *R. aquaticus* × *domesticus*)
Salix caprea × *repens* Al Eckerö 1892 (Lindberg 1893g)
Salix cinerea × *lapponum* Ik Valkjärvi 1894 (Lindberg 1896b)
Salix cinerea × *repens* Al Eckerö 1892 (Lindberg 1893e)
Salix lapponum × *starkeana ssp. cinerascens* Sb Jorois [Joroinen] 1892 (Lindberg 1894a *S. lapponum* × *vagans*)
Utricularia intermedia × *minor* Obo Ii 1864, Ks Kuusamo 1864 (Lindberg 1921d)
Utricularia intermedia × *vulgaris* Ok Suomussalmi 1911 (Lindberg 1921d)
Verbascum lychnitis × *nigrum* Ab Lojo [Lohja] 1893 (Lindberg 1894a)
Veronica longifolia × *spicata* Al Geta 1858 (Lindberg 1921c)

1893b, e, 1907a); Sb 6 (Lindberg 1894a, 1895, 1898a, 1904b); Ik 36 (Lindberg 1895, 1896a, e, 1898a, 1900h, p), Oa 1 (Lindberg 1900p), Ab 4 (Lindberg 1907a, 1913e, 1925a), Ks/Rs 7 (Lindberg 1914a), to Kk 17 (Lindberg 1914a) and Lim 13 (Lindberg 1914a). This totals 87.

Hybrid flora

Lindberg paid much attention to hybrids, and reported at least 25 new ones to Finland (Table 7), in addition to those that he described as new to science (Table 4). *Potamogeton fluitans* var. *rivularis* found at Ik Valkjärvi in 1894 (Lindberg 1895) has proved to be *Potamogeton lucens* × *natans*. Further, he reported on many other interesting hybrid discoveries (Lindberg 1892a, e, 1893b, g, 1895, 1896a, e, 1900h, 1907a, 1908j, 1921a).

Casual aliens

Lindberg was very interested on casual aliens as well, and reported on over 30 new species to Finland (Lindberg 1892b, e, 1894b, 1900p, 1904d, 1906q, 1907b, I, 1909b, 1911d, 1913e, 1914c, 1915c, 1920a, 1921d, 1927b, c, 1931a, 1932c). Amongst Russian *Avena sativa* seeds germinated 74 weed species (Lindberg 1904c). Quite distinct issue in Lindberg's career was a comparative study of scaleless and scaly *A. sativa* seeds. Scaleless seeds seemed to be less worthy to be cultivated (Lindberg 1910l).

In addition to the papers listed above, Lindberg reported many remarkable plant occurrences, which are here referred only through the literature (Lindberg 1892a, b, d, e, 1893a, e, g, 1895, 1900f, m, s, 1902f, c, d, 1906a, e, n, p, 1907a, d, I, 1908m, 1909c, 1910i, 1911d, 1913f, h, k, 1914e, f, 1918, 1921b, f, 1927d, 1928b, 1931b, 1934d, 1937a, b). Very often he reported these findings in the monthly meetings of the *Societas pro Fauna et Flora Fennica*. This stimulated others as well to report their discoveries.

On a map of Finland Lindberg (1911j, k, l) presented statistical data on the vascular flora of Finland. The total number of vascular plant species were 1222, including 14 *Alchemilla*, 7 *Euphrasia*,

25 *Taraxacum* and 100 *Hieracium*. In addition there were 38 subspecies, 131 hybrids and 241 casual aliens. The numbers are given separately to each biogeographic province, including the number of species in each family. It included four separate species lists, seashore species, coastal Ancylus-period taxa, mountain species and lists of both woody and shrubby taxa. Subfossil plants were listed separately (Lindberg 1911m, n, o).

Lindberg paid some attention to nature protection issues, and pointed out that *Blechnum spicant* [extinct], *Aspidium lobatum* [*Polystichum aculeatum*, extinct], *Oryza clandestina* [*Leersia oryzoides*], *Juncus capitatus* [Ik, formerly Finland], *Fritillaria meleagris, Cephalanthera rubra, Alsine verna* [*Minuartia verna*, Kl/Rs, formerly Finland], *Potentilla sericea* [Kl/Rs, formerly Finland] and *Hypericum montanum* should be protected by law (Lindberg 1927a).

Studies on apomictic species

Alchemilla

Lindberg became inspired to work on the taxonomy of *Alchemilla* by the publications of the Swiss botanist Robert Buser (1857–1931), who had described many new taxa in this difficult, apomictic genus. At first Lindberg (1902g) described *Alchemilla hirsuticaulis* as a new species (in Swedish) from Finland. In his doctor's thesis he described three more new species from Russia, (outside East Fennoscandia), viz. *A. breviloba*, *A. gibberulosa* and *A. glabricaulis* (Lindberg 1909a). In the thesis Lindberg primarily treated 14 members of the *A. vulgaris* group in Fennoscandia, providing also distribution maps. He was the first botanist in Finland to use dot maps to show distribution. *A. acutangula* var. *adressepilosa* ('*adpressepilosa*') (Lindberg 1909c: 87) was described based on Finnish material from Alandia, Nylandia and Savonia australis. He later described additional *Alchemilla* species from the Mediterranean (Table 11).

Some minor papers on *Alchemilla* were also published (Lindberg 1904a). Lindberg (1907c) had noted in the Kaisaniemi Botanical Garden, Helsinki, that autumnal leaf colouration and patchiness were species-specific features for *Alchemilla*. Th. Grönblom had found *Alchemilla filicaulis* subsp. *vestita* at Pirkkala in 1908, which was reported as a new taxon to Finland (Lindberg 1909c *Alchemilla* **vestita*).

Hieracium

Lindberg (1906h) started his studies on *Hieracium* at Sb Jorois [Joroinen], where he discovered about 100 taxa, and soon named both *H. jaervikylense* and *H. subaureum*, with short descriptions (also in Norrlin 1906b), and pointed out, that *H. fennoorbicans* Norrl. is to be regarded as synonymous with *H. orbicans* Almqv. (Lindberg 1906k). Totally Lindberg described 34 *Hieracium* taxa (Table 8), 9 being published in Norrlin 1906 and 11 in Norrlin 1912, and the remaining 14 in his *exsiccatae* (Lindberg 1944d): 23 species, 5 subspecies, 5 varieties and 1 forma. Most of the *Hieracium* names have not been evaluated. Many of these names are referable to *Pilosella.* Further, there are several replacement names [a name used to replace an illegitimate name, and published as nomen novum] (Lindberg 1901j), which are listed by Sennikov (2002).

Taraxacum

Lindberg acquired expertise also as a specialist of *Taraxacum*, another difficult apomictic genus. Here he was inspired by the Danish botanist Christen Christensen Raunkiær (1860–1938) and Swedish specialist Hugo Dahlstedt (1856–1934), who had a little earlier in Lindberg's opinion obviously erroneously described many new species of *Taraxacum*. Lindberg visited Stockholm to meet Dahlstedt and study methodology, and later Dahlstedt visited Helsinki.

Lindberg started cultivation experiments with *Taraxacum* at Kaisaniemi Botanical Garden in early 1900's. Largely based on his experimental work he described 65 new taxa (Table 9) from East Fennoscandia: published in Marklund 1911 (2), 1938 (7); in Dahlstedt 1912 (1), 1925 (1); Lindberg 1908a (25 species and 1 subspecies), 1908n (4 species and 1 subspecies), 1910a (4), 1944d (15); and in Palmgren 1911 (1). It is remarkable that 49 of them are currently accepted (Lundevall & Øllgaard 1999).

At first Lindberg (1907b) reported *Taraxacum*

Table 8. The *Hieracium* taxa described by Lindberg.

Hieracium abundans H.Lindb. (Lindberg 1944d: 168), later homonym
Hieracium binatifolium H.Lindb. ex Norrl. (in Norrlin 1912: 58)
Hieracium caespiticola subsp. *prosechum* Norrl. & H.Lindb. (in Norrlin 1906: 723)
Hieracium chrysoprasium Norrl. & H.Lindb. (in Norrlin 1912: 32)
Hieracium cirsiiforme Norrl. ex H.Lindb. (Lindberg 1944d: 204)
Hieracium collicola Norrl. & H.Lindb. (in Norrlin 1912: 65)
Hieracium cornigerum Norrl. & H.Lindb. (in Norrlin 1906:723)
Hieracium curvescens subsp. *piceatum* Norrl. & H.Lindb. (in Norrlin 1912: 58)
Hieracium deficiens H.Lindb. (Lindberg 1944d: 156)
Hieracium dimorphoides var. *lateritium* Norrl. & H.Lindb. (in Norrlin 1906: 650).
Hieracium evernium Norrl. & H.Lindb. (in Norrlin 1912: 40)
Hieracium floccomarginatum subsp. *paerharaldii* H.Lindb. (Lindberg 1944d: 203)
Hieracium intercedens H.Lindb. (Lindberg 1944d: 183)
Hieracium jaervikylense Norrl. & H.Lindb. (in Norrlin 1906: 702 = *H. prolixum*)
Hieracium laurae var. *angustisquameum* H.Lindb. (Lindberg 1944d: 205)
Hieracium lyratifolium H.Lindb. (in Norrlin 1912: 85), later homonym
Hieracium macroauricula H.Lindb. (Lindberg 1944d: 159)
Hieracium nigrantipilum Norrl. & H.Lindb. (in Norrlin 1912: 59)
Hieracium parviglandulosum H.Lindb. (Lindberg 1944d: 206)
Hieracium perveniens Norrl. & H.Lindb. (in Norrlin 1912: 67)
Hieracium prolixum var. *densiglandulosum* H.Lindb. (Lindberg 1944d: 192)
Hieracium pseudodenticuliferum (Lindberg 1944d: 178)
Hieracium pseudospeireum Norrl. & H.Lindb. (in Norrlin 1912: 69)
Hieracium rigidum subsp. *cruentiferum* Norrl. & H.Lindb. (in Norrlin 1906: 611)
Hieracium semiseptentrionale Norrl. & H.Lindb. (in Norrlin 1912: 33)
Hieracium subaureum H.Lindb.ex Norrl. (in Norrlin 1906: 735)
Hieracium subhypochnoodes H.Lindb. ex Norrl. (in Norrlin 1906: 737)
Hieracium subobatrescens var. *paucidentatum* H.Lindb. (Lindberg 1944d: 202)
Hieracium subrasile H.Lindb. (Lindberg 1944d: 205)
Hieracium subsuomense Norrl. & H.Lindb. (in Norrlin 1906: 669)
Hieracium syncomistum Norrl. & H.Lindb. (in Norrlin 1912: 69)
Hieracium tubulascens var. *valdetubulosum* Norrl. & H.Lindb. (in Norrlin 1906: 649)
Hieracium umbellatum subsp. *deustum* H.Lindb. (Lindberg 1944d: 207)
Hieracium vitellinum f. *subepilosum* H.Lindb. (Lindberg 1944d: 175)

balticum, *T. litorale*, and *T. palustre* as new to Finland, while *T. intermedium* Raunk. was synonymized with *T. tenebricans* Dahlst. (Lindberg 1907e). Then he studied material from Southern and Central Finland (Lindberg 1908a, h), reporting 35 species and two subspecies; 25 taxa were new to science. Lindberg also gave instructions, how to collect good *Taraxacum* specimens, which is not always easy. Most of the species found in Finland were unknown in Sweden.

Lindberg also criticized the determinations and publications by his contemporary Finnish taraxacologist Magnus Brenner, which resulted in polemic writings (Brenner 1909). Lindberg (1909g) soon responded, and gave numerous examples of mistakes made by Brenner. There was no doubt, that Lindberg was largely correct (Jalas 1969), although a number of Brenner's names were resurrected by Lundevall & Öllgaard (1998).

Taraxacum crocodes was reported to be new to Finland by Lindberg (1909d), and in a meeting of *Societas pro Fauna et Flora Fennica* he presented 10 species from Lapland (Lindberg 1911b), four were new to science, but he did not described these species. It was typical for that period amongst apomicts specialists that names (nomina nuda) were occasionally published without descriptions. Jointly with Palmgren (1911) he described *Taraxacum kuusamoënse,* and with Marklund (1911) *T. karelicum*. An important contribution to taraxacologists was a publication of photographs of seeds of 185 Finnish *Taraxacum* taxa (Lindberg 1935a). Finally, new descriptions also appeared in Lindberg's (1944d) *exsiccatae*.

Table 9. The *Taraxacum* taxa described by Lindberg. Names in bold concerning Fennoscandian taxa are currently accepted (Lundevall & Öllgaard 1998). Lindberg (1932d, 1946) are Mediterranean species. C = Cyprus, M = Morocco, S = Spain.

Taraxacum acutidens H.Lindb. (Lindberg 1944d: 109)
Taraxacum alatum H.Lindb. (Lindberg 1908a: 9, 20)
Taraxacum altissimum H.Lindb. (Lindberg 1908a: 9, 20)
Taraxacum angustisectum H.Lindb. (Lindberg 1944d: 99)
Taraxacum angustisquameum Dahlst. ex H.Lindb. (Lindberg 1908a: 10, 23)
Taraxacum angustissimum H.Lindb. (in Marklund 1938: 90)
Taraxacum approximans H.Lindb. (in Marklund 1938: 91)
Taraxacum atlanticola H.Lindb. (Lindberg 1932d: 170) (M)
Taraxacum atlantis-majoris H.Lindb. (Lindberg 1932d: 170) (M)
Taraxacum atrimarginatum H.Lindb. (Lindberg 1944d: 114)
Taraxacum aurosulum H.Lindb. (Lindberg 1908n: 14)
Taraxacum biformatum H.Lindb. (Lindberg 1910a: 5)
Taraxacum boldtii H.Lindb. (Lindberg 1944d: 115)
Taraxacum boreophilum H.Lindb. (Lindberg 1944d: 116)
Taraxacum canaliculatum H.Lindb. (Lindberg 1908a: 16, 39)
Taraxacum canaliculatum subsp. *potens* H.Lindb. (Lindberg 1908n: 22)
Taraxacum canoviride H.Lindb. (Lindberg 1944d: 118)
Taraxacum cochleatum Dahlst. & H.Lindb. (in Dahlstedt 1912: 73)
Taraxacum concolor H.Lindb. (Lindberg 1910a: 5)
Taraxacum crassipes H.Lindb. (Lindberg 1908a: 15, 37)
Taraxacum crebridens H.Lindb. (Lindberg 1908a: 13, 31)
Taraxacum crispifolium H.Lindb. (Lindberg 1908a: 11, 27)
Taraxacum cymbifolium H.Lindb. ex Dahlst. (in Dahlstedt 1930: 10, 73)
Taraxacum cyprium H.Lindb. (Lindberg 1946: 36) (C)
Taraxacum dahlstedtii H.Lindb. (Lindberg 1908a: 10, 27)
Taraxacum dilatatum H.Lindb. (Lindberg 1908a: 10, 22)
Taraxacum distantilobum H.Lindb. (Lindberg 1908a: 14, 33)
Taraxacum distinctum H.Lindb. (in Marklund 1938: 95).
Taraxacum duplidens H.Lindb. (Lindberg 1908a: 16, 38)
Taraxacum gracilentum H.Lindb. (Lindberg 1944d: 129)
Taraxacum guttulatum H.Lindb. ex Puolanne (in Puolanne 1933: 154)
Taraxacum haematopus H.Lindb. (Lindberg 1908a: 11, 25)
Taraxacum hispanicum H.Lindb. (Lindberg 1932d: 171) (S)
Taraxacum holmboei (1946: 36) (C)
Taraxacum imitans H.Lindb. ex Såltin (in Såltin 1971: 42)
Taraxacum intricatum H.Lindb. (Lindberg 1910a: 5)
Taraxacum isthmicola H.Lindb. (Lindberg 1908a: 17, 42)
Taraxacum jaervikylense H.Lindb. (Lindberg 1944d: 156)
Taraxacum karelicum H.Lindb. & Marklund (in Marklund 1911: 13)
Taraxacum kittilense H.Lindb. (Lindberg 1944d: 133)
Taraxacum kolaënse H.Lindb. ex Dahlst. (in Dahlstedt 1930: 7, 62)
Taraxacum kuusamoênse H.Lindb. & Palmgr. (in Palmgren 1911: 41)
Taraxacum latisectum H.Lindb. (Lindberg 1908a: 11, 26)
Taraxacum lehbertii H.Lindb. (in Marklund 1938: 101)
Taraxacum leptophyllum H.Lindb. ex Såltin (in Såltin 1971: 44)
Taraxacum linguicuspis H.Lindb. (Lindberg 1908n: 16)
Taraxacum lojoënse H.Lindb. (Lindberg 1944d: 137)
Taraxacum longisquameum H.Lindb. (Lindberg 1908a: 10, 21)
Taraxacum maculigerum H.Lindb. (Lindberg 1908a: 14, 35)
Taraxacum marginellum H.Lindb. (Lindberg 1932d: 171) (S)
Taraxacum maroccanum H.Lindb. (Lindberg 1932d: 171) (M)
Taraxacum melanostigma H.Lindb. (in Marklund 1938: 104)
Taraxacum messanense H.Lindb. (Lindberg 1932d: 171) (M)
Taraxacum microcarpum H.Lindb. (Lindberg 1932d: 172) (S)
Taraxacum mimuloides H.Lindb. (Lindberg 1932d: 172) (S)

Table 9, continued

Taraxacum mimulum Dahlst. ex H.Lindb. H.Lindb. (Lindberg 1908a: 13, 29)
Taraxacum miniatum H.Lindb. (Lindberg 1932d: 172) (S)
Taraxacum montellii H.Lindb. ex Sonck (in Sonck 1998: 29)
Taraxacum mucronatum H.Lindb. (Lindberg 1908a: 10, 24)
Taraxacum nevadense H.Lindb. (Lindberg 1932d: 172) (S)
Taraxacum obtusiusculum H.Lindb. (Lindberg 1932d: 173) (S)
Taraxacum obtusulum H.Lindb. (Lindberg 1908n: 21)
Taraxacum pachypodum H.Lindb. (Lindberg 1932d: 173) (M)
Taraxacum pallens H.Lindb. (in Marklund 1938: 106)
Taraxacum pallidulum H.Lindb. (Lindberg 1908a: 16, 40)
Taraxacum parvuliceps H.Lindb. (Lindberg 1910a: 5)
Taraxacum pectinatiforme H.Lindb. (Lindberg 1908a: 13, 30)
Taraxacum penicilliforme H.Lindb. (Lindberg 1908a: 15, 36)
Taraxacum perattenuatum H.Lindb. (Lindberg 1944d: 108)
Taraxacum praestans H.Lindb. (Lindberg 1908a: 10, 24)
Taraxacum pseudofulvum H.Lindb. ex Puol. (in Puolanne 1933: 141)
Taraxacum pulcherrimum H.Lindb. (Lindberg 1908a: 15, 35)
Taraxacum pulvigerum Dahlst. ex H.Lindb. (Lindberg 1908a: 323)
Taraxacum pycnodes H.Lindb. (Lindberg 1932d: 173) (M)
Taraxacum reflexilobum H.Lindb. (Lindberg 1908a: 13, 31)
Taraxacum remotijugum H.Lindb. (Lindberg 1908n: 20)
Taraxacum retroflexum H.Lindb. (Lindberg 1908n: 18)
Taraxacum revalense H.Lindb. (in Marklund 1938: 112)
Taraxacum rubrolineatum H.Lindb. (Lindberg 1944d: 108)
Taraxacum sagittifolium H.Lindb. ex Dahlst. (in Dahlstedt 1930: 7, 74)
Taraxacum semiglobosum H.Lindb. (Lindberg 1908a: 13, 33)
Taraxacum subalatum H.Lindb. (Lindberg 1944d: 149)
Taraxacum sublaciniosum Dahlst. & H.Lindb. (in Dahlstedt 1925: 15)
Taraxacum subpenicilliforme H.Lindb. ex Dahlst. (in Dahlstedt 1912: 111)
Taraxacum triangulare H.Lindb. (Lindberg 1908n: 19)
Taraxacum uberilobum H.Lindb. (Lindberg 1944d: 109)
Taraxacum undulatum H.Lindb. & Markl. (in Marklund 1911: 109)
Taraxacum unguiculosum H.Lindb. & Palmgr. (Lindberg 1910a: 4)
Taraxacum xanthostigma H.Lindb. (Lindberg 1910a: 5)

Further, Lindberg indicated provisionally 9 taxa (Table 9), which were validly published by others: 1 name in Dahlstedt 1912, 3 in 1930; 2 in Puolanne 1933; 1 in Sonck 1998; and 2 in Såltin 1971. Early diagnoses were published in Swedish, but later he provided also Latin ones to many of them (Lindberg 1944d).

Lindberg paid attention also to Mediterranean *Taraxacum* species, describing six taxa from Morocco, seven from Spain (Lindberg 1932d) and two from Cyprus (Lindberg 1946). This brings the total to 80 validly published taxa.

Lindberg pointed out that there are *Taraxacum* species with both pollen-producing and not pollen-producing flowers in the same specimen (Lindberg 1911c). Fasciations in *Taraxacum* capitula are also common (Lindberg 1915e).

Lindberg (1912e) reported that there are a few specimens (H) of *T. oinopolepis* and *T. stenocentrum*, and some *T. norvegicum* specimens from Lt Lps Vaidoguba (Vaitolahti; Lindberg 1925b), all from Russia. Lindberg gave a presentation in the 6th International Botanical Congress in Amsterdam on the Finnish *Taraxacum* studies. About 200 species were known from Finland at that time (Lindberg 1935d).

Plantae Finlandiae Exsiccatae

Harald Lindberg edited a highly valuable series of exsiccatae of Finnish vascular plants. It was distributed in four parts, totally consisting of 2,081 numbers. The first part included 400 numbers

(Lindberg 1906s, t, 1907f), the second one 600 (Lindberg 1916f), the third one 300 (Lindberg 1933) and the fourth one 781 numbers (Lindberg 1945). Each number consisted of 25 duplicate sheets, amounting to the staggering figure 52,025 sheets.

Hjalmar Hjelt began the assembly of this exsiccata in 1876, and continued until 1887. K. J. W. Unonius, A. Arrhenius, C. Leopold, R. Hult, V. F. Brotherus, A. O. Kihlman and H. Hollmén were other frequent collectors.

Alfred Oswald Kihlman [later Kairamo] was in charge of the editorship of the exsiccati in 1892–1899. While Hjelt had tried to collect 75 sets of each number, Kihlman continued with more realistic 25–30 sheets. The most important contributors were W. M. Axelson [later Linnaniemi], Ch. E. Boldt, V. Borg [later Kivilinna], A. K. Cajander, C. W. Fontell, K. E. Hirn, E. af Hällström, E. Häyrén, V. Laurén, H. Lindberg, J. I. Lindroth [later Liro], J. Lindén, G. Lång, J. Montell and K. E. Stenroos [later Kivirikko].

Kihlman left botany behind, and Harald Lindberg continued in 1900, and thereafter most numbers were collected by him. A kind of starting point was Lindbergs (1901j) checklist of Finnish vascular plants. Lindberg's aim was to compile all the recorded Finnish taxa into the exsiccata. E.g., when *Ranunculus cymbalaria* was discovered from Finland in 1935, Lindberg went to collect it and produced an article of that species (Lindberg 1939a, b). He considered that it was native in Finland (Lindberg 1943b), although it is undoubtedly an American introduction. To get some aid for collecting material, he later published a list of 440 wanted taxa (Lindberg 1915k). Lindberg then got the following contributors: M. Arvonen, A. L. Backman, H. Buch, C. Cedercreutz, O. Eklund, Fr. Elfving, L. Fagerström, E. af Hällström, E. Häyrén, R. Idman, F. W. Klingstedt, O. Kyyhkynen, P. Lindberg, A. Lindfors, K. Linkola, E. Lindström, G. Marklund, J. Montell, A. Palmgren, M. Puolanne, K. J. Valle ja J. A. Wecksell.

Full sets of the Exsiccatae were distributed to B, BG, BP, C, CAN, COI, G, K, L, LE, MO, NY, O, P, RO, S, TI, TK, UC, UPS and W (Lindberg 1944d, 1945). Later sets were set, partially incomplete, at least to CANB, COLO and LD.The last volume included an index. Many new taxa were described in the exsiccatae, and isotypes or isolectotypes should be in the herbaria mentioned above. As a result, the exchange activity of the Botanical Museum increased rapidly (Lindberg 1904–1942, not listed in references). Annual reports on accessions to the Botanical Museum from 1903 to 1941 were compiled by Lindberg. These were published first in the *Meddelanden af Societas pro Fauna et Flora Fennica* and since 1927 in the *Memoranda Societatis pro Fauna et Flora Fennica*. Lindberg (1913g) also planned to accomplish a third edition of the Herbarium Musei Fennici – an updated catalogue of plants of Finland – but that plan was not fulfilled.

Mediterranean botany

Austria-Hungary

Lindberg made several excursions abroad. In May to June 1905 he participated in the International Botanical Congress at Vienna, during which botanical excursions were organised to various parts of Austro-Hungarian monarchy, e.g. through Dalmatia and Montenegro to Adriatic Sea. In his travel account (Lindberg 1906u) 34 taxa were described as new to science, including two species and two subspecies (Table 10), 17 varieties and 13 forms. Detailed collection information is not given here for new taxa described from Mediterranean, because those will be treated separately in a typification article.

Western Mediterranean

After Balkan Lindberg studied western Mediterranean region. He gathered extensive plant material to Helsinki and made determinations himself, and

Table 10. The species and subspecies described by Lindberg (1906u) from Austria-Hungary. The currently used name is given in parentheses.

Anthemis coronata H.Lindb. (*Cota dalmatica*)
Carduus angusticeps H.Lindb.
Pirus aria subsp. *tergestina* H.Lindb. (*Sorbus aria* s. lat., neglected name)
Trifolium ochroleucum subsp. *lamprotrichum* H.Lindb. (neglected name)

Table 11. New species and subspecies described by Lindberg (1932d) from Morocco (M) and Spain (S), collected by him in 1926. The currently used name is given in brackets or parentheses. Not all names have been taxonomically later evaluated.

Agrostis spicigera H.Lindb. (M)
Alchemilla atlantica H.Lindb. (M)
Alchemilla litardierei H.Lindb. (M)
Alchemilla mairei H.Lindb. (M)
Andryala atlanticola H.Lindb. (M)
Anthyllis vulneraria L. subsp. *pseudoarundana* ('pseudo-arundana') H.Lindb. (S)
Artemisia absinthium L. subsp. *nevadensis* 'nevadense') H.Lindb. (S)
Bromus atlanticus H.Lindb. [*Bromopsis ramosa* (Huds.) *Holub* subsp. *atlantica* (H.Lindb.) H.Scholz & Valdés]
Bromus erectus Huds. subsp. *permixtus* H.Lindb. (*Bromopsis erecta* (Huds.) Fourr. subsp. *permixta* (H.Lindb.) H. Scholz & Valdés) (M)
Carex leporina L. subsp. *atlasica* H.Lindb. [*C. atlasica* (H.Lindb.) M.Ibn Tattou] (M)
Centaurium candelabrum H.Lindb. [*C. pulchellum* (Sw.) Druce subsp. *grandiflorum* (Batt.) Maire] (M)
Centaurium laxiflorum H.Lindb. (M)
Centaurium suffruticosum (Salzm.) H.Lindb. subsp. *apertum* H.Lindb. [*Centaurium erythraea* Rafn. subsp. *apertum* (H.Lindb.) Greuter] (M)
Cirsium flavispina Boiss. subsp. *perniveum* H.Lindb. [*Cirsium pyrenaicum* (Jacq.) All.] (M)
Cotyledon attenuata H.Lindb. subsp. *attenuata* [*Pistorinia attenuata* (H.Lindb.) Greuter subsp. *attenuata*] (M)
Cotyledon attenuata H.Lindb. subsp. *mairei* H.Lindb. [*Pistorinia attenuata* (H.Lindb.) Greuter subsp. *mairei* (H.Lindb.) Greuter)] (M)
Digitalis ballii H.Lindb. (M)
Echium versicolor H.Lindb. (M)
Euphorbia pseudodendroides H.Lindb. (M)
Haynaldia breviaristata H.Lindb. [*Dasypyrum breviaristatum* (H.Lindb.) S.Frederiksen] (M)
Juncus bufonius L. subsp. *mogadorensis* H.Lindb. [*Juncus mogadorensis* (H.Lindb.) Förther & Podlech] (M)
Lolium teres H.Lindb. (M)
Lotus macrocarpus H.Lindb. (M)
Malcolmia broussonetii DC. subsp. *mamorensis* H.Lindb. (M)
Myosotis sylvatica (Ehrh.) Hoffm. subsp. *albomarginata* H.Lindb. (M)
Onopordum murbeckii H.Lindb. [*O. dissectum* Murb. subsp. *murbeckii* (H.Lindb.) Maire] (M)
Phagnalon saxatile (L.) Cass. subsp. *spathulatum* H.Lindb. [*P. calycinum* DC. subsp. *spathulatum* (H.Lindb.) Maire] (M)
Pinguicula vulgaris L. subsp. *nevadensis* H.Lindb. (S)
Pseudorlaya pycnacantha H.Lindb. (M)
Puccinellia embergeri H.Lindb. [*Puccinellia iberica* (Wolley-Dod) Tzvelev] (M)
Rosa mesatlantica H.Lindb. (M)
Rumex conglomeratus Murr. subsp. *nevadensis* H.Lindb. (S)
Santolina pectinata Lag. subsp. *subclausa* H.Lindb. (M)
Sideritis imbricata H.Lindb. (M)
Sinapis mairei H.Lindb. [*S. alba* L. subsp. *mairei* (H.Lindb.) Maire] (M)
Sonchus maculigerus H.Lindb. (M)
Sonchus oleraceus L. subsp. *angustissimus* H.Lindb. (M)
Thymus pseudopallidus H.Lindb. (M)
Trisetum flavescens (L.) P.Beauv. var. *africanum* H.Lindb. [*T. flavescens* (L.) P.Beauv. subsp. *africanum* (H.Lindb.) Dobignard] (M)
Trisetum griseovirens H.Lindb. [*T. flavescens* (L.) P.Beauv. subsp. *griseovirens* (H.Lindb.) Dobignard] (M)
Urginea aurantiaca H.Lindb. [*Drimia aurantiaca* (H.Lindb.) J.C.Manning & Goldblatt] (M)
Vulpia alopecuros (Schousb.) Link subsp. *fibrosa* H.Lindb. [*Vulpia alopecuros* (Schousb.) Dumort] (M)
Vulpia alopecuros (Schousb.) Link subsp. *schousboei* H.Lindb. [*Vulpia alopecuros* (Schousb.) Dumort] (M)

became a well-known specialist of Mediterranean flora.

In 1924 he studied Sicily and Tunisia, in 1926 Spain and Morocco (Lindberg 1928a). From Tunisia he described 6 new taxa (1 variety and 5 formas), and from Sicily 9 taxa [1 species and 1 subspecies, 3 varieties and 4 formas]. A new name was *Plantago pseudoceratophylla* H.Lindb. based

Table 12. New species and subspecies described by Lindberg (1942, 1946) from Cyprus, collected by him in 1939. Taraxacum are given in Table 9.The currently used name is given in brackets or parentheses.

Agrostis cypricola H.Lindb. (1942)
Allium troodi H.Lindb. (1946) (*Allium cassium* Boiss. var. *hirtellum* Boiss.)
Alsine sintenisii H.Lindb. (1946) [*Minuartia sintenisii* (H.Lindb.) Rech. f.]
Anthemis cypricola H.Lindb. (1946) (*A. tricolor* Boiss.)
Astragalus echinus subsp. *chionistrae* H.Lindb. (1946) [*A. echinus* var. *chionistrae* (H.Lindb.) Meikle]
Bassia pulverulenta H.Lindb. (1946) (*Salsola inermis* Forssk.)
Brachypodium firmifolium H.Lindb. (1946) [*Brachypodium glaucovirens* (Murb.) Sagorski]
Cynoglossum troodi H.Lindb. (1946)
Epipactis troodi H.Lindb. (1942) [*Epipactis helleborine* (L.) Crantz subsp. *troodi* (H.Lindb.) H.Sund.]
Galium canum Req. subsp. *hilarionis* H.Lindb. (1946) (*G. canum* subsp. *canum*)
Juncus cyprius H.Lindb. (1942) (*Juncus inflexus* L. var. *inflexus*)
Origanum pseudo-onites H.Lindb. (1946) (*O. syriacum* L.)
Pistacia atlantica Desf. subsp. *cypricola* H.Lindb. (1942) (*P. atlantica* subsp. *atlantica*)
Platanthera holmboei H.Lindb. (1942) [*Platanthera montana* (F.W.Schmidt) Rchb.f. subsp. *holmboei* (H.Lindb.) J. J. Wood]
Poa sintenisii H.Lindb. (1942) [*Lindbergella sintenisii* (H.Lindb.) N.L.Bor]
Ranunculus troodi H.Lindb. (1946) [*R. marginatus* Urv. var. *trachycarpus* (Fisch. & Mey.) Azn.]
Rosa chionistrae H.Lindb. (1942) (*R. agrestis* Savi)
Satureja crassinervis H.Lindb. (1942) [*Acinos exiguus* (Sm.) Meikle]
Silene stenocalyx H.Lindb. (1946) (*S. kotschyi* Boiss. var. *maritima* Boiss.)
Statice mucronulata H.Lindb. (1946) [*Limonium mucronulatum* (H.Lindb.) Greuter & Burdet]
Urtica dioica L. subsp. *cypria* H.Lindb. (1946)
Viola cypria H.Lindb. (1942) (*V. sieheana* W. Becker)

on *P. coronopus* L. var. *ceratophylla* Fiori, with the subspecies *panormitana*. *Najas armata* H.Lindb. was validated. From Spain he described 31 taxa [4 subspecies (Table 11), 6 varieties and 21 forms], and from Morocco 110 taxa [23 species, 12 subspecies (Table 11), 24 varieties and 51 forms]. Few names are based on material collected in two countries. In addition, Lindberg (1932d) described six *Taraxacum* species from Morocco and seven from Spain (see Table 9).

England and Ireland

Harald Lindberg visited England and Ireland in 1932, and collected especially *Taraxacum*. That fairly large material has never breen treated and published. One species treatment resulted, *Juncus welwitschii* Hochst. ex Steud. in Great Britain (Lindberg 1933c). In his last botanic work, at age of 86, Lindberg (1958) published a list of Nordic specimens in the Linnaean herbarium (LINN) at London. It was prepared during the visit in Britain.

Bulgaria, Cyprus and Greece

In 1939 Lindberg made collections in Greece (Lindberg 1941a) and Bulgaria, but especially in Cyprus (Lindberg 1942, 1946). He held a presentation of the results of his journeys in the *Societatis Scientiarum Fennicae* on 29.IV.1941, which was published (Lindberg 1942). Based on that presentation Lindberg (1942) described 8 species and 1 subspecies new to science (Table 12). Later, Lindberg (1946) described further 26 new taxa from Cyprus, 11 species (including 2 *Taraxacum* given

Table 13. Summary table of Mediterranean taxa Lindberg described.

	f.	var.	subsp.	sp.
Austria-Hungary	13	17	2	2
Sicily (Italia)	4	3	1	1
Tunisia	5	1	–	–
Spain	21	6	4	7
Morocco	51	24	12	29
Cyprus	7	7	3	11
Total	101	58	22	50

in Table 9) and 3 subspecies (Table 12), 7 varieties and 7 forms.

The number of Mediterranean taxa Lindberg described is 231 (Table 13), including *Alchemilla* and *Taraxacum*. Further, Lindberg provided at least 220 nomenclatural combinations in his articles treating Mediterranean flora.

At older age Harald Lindberg started writing obituaries of botanists (Table 14).

Table 14. Obituaries Lindberg wrote.

Ernst Evald Bergroth (Lindberg 1928c)
Albert Hjalmar Hjelt (Lindberg 1928d)
C. E. Ostenfeld (Lindberg 1932a)
O. R. Holmberg (Lindberg 1932b)
Selim Birger (Lindberg 1933a)
Walter Laurén (Lindberg 1928d)
O. A. Gröndal (Lindberg 1935b)
Hugo Dahlstedt (Lindberg 1936a)
Gustaf O. Malme (Lindberg 1938a)
Björn Floderus (Lindberg 1943c)
Maria (Maja) Katharina Arvonen (Lindberg 1944c)
Svante Samuel Murbeck (Lindberg 1947)
Laura Lydia Lovisa Wecksell (Lindberg 1950)

Other activities

Throughout his career, Lindberg was also especially interested in Coleoptera, and collected 17,000 species in 55,000 specimens (Anonymous 1963, Palm 1962, Lindroth 1957, 1963). After retirement he particlarly worked on his insects.

Lindberg was also a keen philatelist. His collection was considered to be largest in Scandinavia, with 250,000 stamps. He was the chairman of the Helsinki (Helsingfors) philatelists society 1900–1920, when the society split to a Finnish and Swedish society due to Lindberg's strict linguistic opinions (Hellman 1963). Lindberg was a chair of a committee planning new, nationalistic "lion stamps" (lion is a state emblem of Finland) for Finland after it became independent in 1917. Lindberg even designed a model, but that by the famous architect Eliel Saarinen was chosen, today known as Saarinen's model (Tuori 2010).

Harald Lindberg was accepted to be a member of the *Societas pro Fauna et Flora Fennica* in 1889, when he was only 18 years old. By this the Society wanted to honor his father, Sextus Otto Lindberg, who had died a little earlier. Harald Lindberg was a board member of the Society in 1904–56, and it's intendent on botanical collections in 1903–41. An honorary member he became in 1941. In 1917 he was chosen to *Societas Scientiarum Fennica*, and in 1948 to Uppsala Royal Scientific Society. He was honored in 1926 by the Linnaeus medal by Royal Swedish Academy of Sciences, in 1946 honorary professor title by president of Finland, was named as honorary president in 1950 Stockholm international botanical conference, and nominated honorary doctor during 250-anniversary of Linnaeus in 1957 at Uppsala university.

During Lindberg's era, there was ongoing linguistic struggle between Finnish and Swedish speaking scientists in the university. Lindberg was unable to well communicate in Finnish, but the situation was facilitated in Botanical Museum since 1931, when the bilingual Ilmari Hiitonen was appointed as an amanuensis in the herbarium. In 1933 he published a new flora of Finland in Finnish. Lindberg never wrote a flora of Finland, but his taxonomic studies on Fennoscandian flora provided a firm basis also for Hiitonen's work.

He had a good voice, and he was a member of a company of Swedish oratory society in Helsinki. He was also a conspicuously tall and sturdy, almost giant man!

Eponyms. Genus *Lindbergella* Bor. (later correctly *Lindbergia* Bor), *Alchemilla haraldii* Juz., *Alchemilla lindbergiana* Juz., *Eleocharis palustris* var. *lindbergi* Strandh., *Hieracium haraldii* Norrl., *Rosa lindbergiana* Lindst., *Taraxacum haraldii* Markl. and the moss *Schistophyllum haraldii* Lindb. were named in honor of Harald Lindberg.

Harald Lindberg was a great collector, taxonomist in the Linnean sense. His main task was to clarify and order. Thus it was a most proper end to his career as a writer, to release an article of Scandinavian specimens in Linnaeus herbarium at London (Lindberg 1958).

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Harald Lindberg's botanical publications

Based on Saelan (1916) and Collander et al. 1973

1892a: [Växter från Lojo]. — Medd. Soc. Fauna Flora Fennica 18: 190.
1892b: [Ledum palustre var. dilatatum i Piikkiö, Conringia orientalis i Helsingfors]. — Medd. Soc. Fauna Flora Fennica 18: 201.
1892c: [Rumex conspersus, R. domesticus × obtusifolius på Åland]. — Medd. Soc. Fauna Flora Fennica 18: 227–228.
1892d: [Växter från Åland och Lojo]. — Medd. Soc. Fauna Flora Fennica 18: 229.
1892e: [Växter från södra Finland]. — Medd. Soc. Fauna Flora Fennica 18: 234.

1893a: [Picea excelsa f. parvifolia och Riccia Huebeneri från Lojo]. — Medd. Soc. Fauna Flora Fennica 19: 8.
1893b: [Växter från Åland och Hangö]. — Medd. Soc. Fauna Flora Fennica 19: 21.
1893c: [Hypericum montanum i Lojo]. — Medd. Soc. Fauna Flora Fennica 19: 28.
1893d: [Cephalozia sphagni i Lojo]. — Medd. Soc. Fauna Flora Fennica 19: 42.
1893e: [Växter från Åland]. — Medd. Soc. Fauna Flora Fennica 19: 50–51.
1893f: [Dicranum strictum från Åland]. — Medd. Soc. Fauna Flora Fennica 19: 58.
1893g: [Växter från Åland]. — Medd. Soc. Fauna Flora Fennica 19: 113–114.

1894a: [För vår flora nya växter]. — Medd. Soc. Fauna Flora Fennica 20: 3.
1894b: [Om utbredningen af Bidens plathycephalus och B. tripartitus, Veronica agrestis, V. opaca och V. polita] — Medd. Soc. Fauna Flora Fennica 20: 4.
1894c: [Anmärkningsvärda mossfynd från Karelska näset]. — Medd. Soc. Fauna Flora Fennica 20: 15–16.
1894d: Om förekomsten af Pulmonaria angustifolia i Finland. — Medd. Soc. Fauna Flora Fennica 20: 16.
1894e: Om „hallonmasken" (Byturus aestivus) i Lojo socken. — Medd. Soc. Fauna Flora Fennica 20: 17.
1894f: Om Sphagnum imbricatum fr. Kimito. — Medd. Soc. Fauna Flora Fennica 20: 61.

1895: Några för finska flora-området nya fanerogamer. — Medd. Soc. Fauna Flora Fennica 21: 3–5.

1896a: Fanerogamer från Karelska näset. — Medd. Soc. Fauna Flora Fennica 22: 4–7.
1896b: Trenne för den finska floran nya fanerogamer. — Medd. Soc. Fauna Flora Fennica 22: 20–21.
1896c: En utdöd mossa, Schistophyllum Julianum (Sav.) Lindb. — Medd. Soc. Fauna Flora Fennica 22: 25–26.
1896d: [Trenne för floran nya mossor]. — Medd. Soc. Fauna Flora Fennica 22: 73–74.
1896e: [Fanerogamer från Karelska näset]. — Medd. Soc. Fauna Flora Fennica 22: 74–77.

1898a: [Scirpus radicans, Salix triandra, Sagina nodosa, Schistophyllum Julianum]. — Medd. Soc. Fauna Flora Fennica 23: 8–9.
1898b: Botanisk undersökning af till Finska mosskulturföreningen insända prof från torfmossar. — Finska Mosskulturföreningens årsbok 3: 94–105.
1898c: Suomen Suoviljelysyhdistykselle lähetettyjen turvesuonäytteiden tutkimus. — Suomen Suoviljelysyhdistyksen vuosikirja 3: 92–104.

1899a: Om Pohlia pulchella (Hedw.), P. carnea (L.) och några med dem sammanblandade former. — Acta Soc. Fauna Flora Fennica 16(5): 1–28 + plate.
1899b: Bidrag till kännedomen om de till Sphagnum cuspidatum-gruppen hörande arternas utbredning i Skandinavien och Finland. — Acta Soc. Fauna Flora Fennica 18(3): 1–26 s.
1899c: Botanisk undersökning af Isosuo-mosse i Sakkola socken. — Finska Mosskulturföreningens årsbok 3: 98–154 + map.
1899d: Sakkolan pitäjän Isosuon kasvitieteellinen tutkimus. — Suomen Suoviljelysyhdistyksen Vuosikirja 3: 98–157 + map.
1899e: En rik torffyndighet i Jorois socken i Savolaks (62° 12' n. br). — Finska Mosskulturföreningens Årsbok 4: 178–213.
1899f: Eräs rikas turvelöytö Joroisten pitäjässä Savossa (62º12' pohj. lev.). — Suomen Suoviljelysyhdistyksen Vuosikirja 4: 178–214.

1900a: On some species of Polytrichum. — Botanisches Centralblatt 84: 337–339 + plate.
1900b: Pohlia (Cacodon) porosa sp. n. — Bull. Torrey Bot. Club 27: 318–319 + plate.
1900c: Dichelyma capillaceum (Dicks.) Hartm. — Medd. Soc. Fauna Flora Fennica 24: 19–20.
1900d: Beriktigande rörande Sphagnum molle Sulliv. — Medd. Soc. Fauna Flora Fennica 24: 26.
1900e: Trenne för den finska floran nya mossor. — Medd. Soc. Fauna Flora Fennica 24: 28–29.
1900f: Förekomsten af Convolvulus sepium på Karelska näset. — Medd. Soc. Fauna Flora Fennica 24: 45.
1900g: Om Sphagnum annulatum Lindb. fil. — Medd. Soc. Fauna Flora Fennica 24: 66–67.
1900h: Anmärkningsvärda växtfynd på Karelska näset, nya för floran. — Medd. Soc. Fauna Flora Fennica 24: 81–84.
1900i: Om förekomsten i Kivinebb af subfossila växter i glaciala aflagringar. — Medd. Soc. Fauna Flora Fennica 24: 99–103.
1900j: De finska Potentilla-formerna. — Medd. Soc. Fauna Flora Fennica 24: 116–121.
1900k: De i Finland förekommande Agrostis-formerna. — Medd. Soc. Fauna Flora Fennica 24: 151–157.
1900l: Om förekomsten af Sphagnum annulatum i Kuro-

wo vid Moskva. — Medd. Soc. Fauna Flora Fennica 25: 9.
1900m: [Alchemilla pubescens på Isthmus karelicus]. — Medd. Soc. Fauna Flora Fennica 25: 19.
1900n: Om förekomsten af Galium ruthenicum Willd. i Finland. — Medd. Soc. Fauna Flora Fennica 25: 28–29.
1900o: [Aira bottnica × cespitosa]. — Medd. Soc. Fauna Flora Fennica 25: 32–33.
1900p: [Varia]. — Medd. Soc. Fauna Flora Fennica 25: 33–34.
1900q: Om Pohlia grandiflora n. sp. från Karelska näset. — Medd. Soc. Fauna Flora Fennica 25: 41.
1900r: De i Finland förekommande arterna af slägtet Najas. — Medd. Soc. Fauna Flora Fennica 25: 48–52 + plate.
1900s: [Poa compressa i Helsingfors]. — Medd. Soc. Fauna Flora Fennica 25: 106.
1900t: [Om Euphrasia brevipila f. eglandulosa och f. subeglandulosa]. — Medd. Soc. Fauna Flora Fennica 26: 46.
1900u: Myosotis svaveolens Waldst. & Kit. ny för Finlands flora-område. — Medd. Soc. Fauna Flora Fennica 26: 50–52.
1900v Polygonum foliosum n. sp. — Medd. Soc. Fauna Flora Fennica 27: 3–7 + plate. [reprint publ. on 19.I.1900)
1900x: Finska Carlina-former. — Medd. Soc. Fauna Flora Fennica 26: 68–71.
1900y: Finska torfmossar. 1–4. — Finska Mosskulturföreningens årsbok 5: 185–257.
1900z: Suomen turvesuot. 1–4. — Suomen Suoviljelysyhdistyksen vuosikirja 5: 184–257.

1901a: Tre sällsynta finska mossor. — Medd. Soc. Fauna Flora Fennica 27: 7–8.
1901b: Om de i Finland förekommande Montia-formerna. — Medd. Soc. Fauna Flora Fennica 27: 18–21.
1901c: [Några anmärkningsvärda mossor]. — Medd. Soc. Fauna Flora Fennica 27: 35–39.
1901d: Förekomsten inom Fennoscandia orientalis af följande ej förut urskilda växtarter. — Medd. Soc. Fauna Flora Fennica 27: 64–72.
1901e: [Tvenne felbestämningar i Herbarium Musei Fennici]. — Medd. Soc. Fauna Flora Fennica 27: 72–73.
1901f: [Polygonum foliosum anträffad i Uppland och Helsingland]. — Medd. Soc. Fauna Flora Fennica 27: 73.
1901g: [Antennaria carpatica, Polemonium pulchellum, P. humile]. — Medd. Soc. Fauna Flora Fennica 27: 86–88.
1901h: Panelia mossens uppkomst och byggnad. — Finska Mosskulturföreningens årsbok 6: 31–41.
1901i: Panelian suon synty ja rakenne. — Suomen Suoviljelysyhdistyksen vuosikirja 6: 32–41.
1901j: Enumeratio plantarum in Fennoscandia orientali sponte et subsponte nascentium. — 7 + 79 s. J. Simelii arfvingars Boktryckeri Aktiebolag. Helsingfors.

1902a: Die Nordeuropäischen Formen von Scirpus (Heleocharis) paluster L. — Acta Soc. Fauna Flora Fennica 23(7): 1–16 + plates.
1902b: [Cuscuta trifolii]. — Medd. Soc. Fauna Flora Fennica 28A: 13.
1902c: Trenne anmärkningsvärda växter från Jorois (Sav. bor.) — Medd. Soc. Fauna Flora Fennica 28: 17–18.
1902d: Picea excelsa lus. brevifolia Cripps. — Medd. Soc. Fauna Flora Fennica 28A: 32.
1902e: Agrimonia odorata Mill. — Medd. Soc. Fauna Flora Fennica 28A: 35–37.
1902f: Finlands Galeopsis-former. — Medd. Soc. Fauna Flora Fennica 28B: 36–39.

1903a: Stereodon plicatulus Lindb. — The Bryologist 6: 82–83.
1903b: Über Pflanzen östlichen Ursprunges in der Flora von Fennoscandia orientalis. — Förhandlingar vid Nordiska Naturforskare- och Läkaremötet i Helsingfors den 7 till 12 Juli 1902: 11–15.
1903c: Viime talvena Venäjältä hankitussa siemenkaurassa tavatuista rikkaruohosiemenistä. — Luonnon Ystävä 7: 139–141.
1903d: Företeckning öfver Finlands Sphagnum-arter. — Finska Mosskulturföreningens årsbok 8: 185–186.
1903e: Suomen Sphagnum-lajeista. — Suomen Suoviljelysyhdistyksen vuosikirja 1903: 181–182.
1903f: Företeckning öfver subfossila växträster funna i Finlands kärr och mossar. — Finska Mosskulturföreningens årsbok 8: 186–192.
1903g: Suomen soista löydetyistä kasvijätteistä. — Suomen Suoviljelysyhdistyksen vuosikirja 8: 182–188.
1903h: Vegetationen på Leteensuo. — Finska Mosskulturföreningens årsbok 8: 273–279.
1903i: Leteensuon kasvillisuus. — Suomen Suoviljelysyhdistyksen vuosikirja 8: 264–270.

1904a: Galium saxatile och Centaurea jacea × Phrygia funna i Finland. — Medd. Soc. Fauna Flora Fennica 29: 45–48.
1904b: [Jungermannia grandiretis, Ranunculus auricomus *sibiricus, Poa compressa]. — Medd. Soc. Fauna Flora Fennica 29: 95.
1904c: Ogräsfrön bland den senaste vinter från Ryssland importerade utsädeshafren. — Medd. Soc. Fauna Flora Fennica 29: 173–180.
1904d: Lathyrus sativus från Finland. — Medd. Soc. Fauna Flora Fennica 30: 25.
1904e: Tvänne för det Finska floraområdet nya Rosa-former. — Medd. Soc. Fauna Flora Fennica 30: 50–51.
1904f: Subfossila växtrester, funna i Finlands kärr och mossar. — Medd. Soc. Fauna Flora Fennica 30: 69–74.
1904g: De inom floraområdet funna formerna af Alchimilla vulgaris L. coll. — Medd. Soc. Fauna Flora Fennica 30: 143–149.

1905a: Botanisk undersökning af torfmarker inom Lappo

och Ilmola socknar. — Finska Mosskulturföreningens årsbok 9: 230–314.
1905b: Lapuan ja Ilmajoen pitäjissä olevain soiden kasvitieteellinen tutkimus. — Suomen Suoviljelysyhdistyksen vuosikirja 9: 225–315.

1906a: [Agrimonia odorata i Jomala]. — Medd. Soc. Fauna Flora Fennica 31: 5.
1906b: Crataegus calycina Peterm. — Medd. Soc. Fauna Flora Fennica 31: 7–9.
1906c: Polygonum calcatum Lindman. — Medd. Soc. Fauna Flora Fennica 31: 9–10.
1906d: Luzula sudetica (Willd.) Presl. och L. multiflora × Sudetica (L. hybrida Lindb. fil. n. hybr.) — Medd. Soc. Fauna Flora Fennica 31: 10–11.
1906e: Populus tremula med starkt håriga blad. — Medd. Soc. Fauna Flora Fennica 31: 29.
1906f: Rumex aquaticus × dometicus (R. armoraciifolius Neum.) — Medd. Soc. Fauna Flora Fennica 31: 29.
1906g: [Psamma arenaria från Tvärminne]. — Medd. Soc. Fauna Flora Fennica 31: 30.
1906h: Hieracium-floran i Jorois. — Medd. Soc. Fauna Flora Fennica 31: 44.
1906i: Finlands Hippuris-former. — Medd. Soc. Fauna Flora Fennica 31: 107–110.
1906j: Poa irrigata Lindman. — Medd. Soc. Fauna Flora Fennica 31: 110.
1906k: Hieracium Fenno-orbicans Norrl. — Medd. Soc. Fauna Flora Fennica 31: 110.
1906l: Triticum repens L. × Hordeum arenarium (L.) Aschers. (Tritordeum Bergrothii Lindb. fil. n. hybr.) — Medd. Soc. Fauna Flora Fennica 32: 21.
1906m: Cystopteris fragilis * eu-fragilis Aschers. var. Dickieana (Sim.) — Medd. Soc. Fauna Flora Fennica 32: 21–24.
1906n: [Rosa mollis × glauca]. — Medd. Soc. Fauna Flora Fennica 32: 42.
1906o: De i Finland förekommande formerena af släktet Menta. — Medd. Soc. Fauna Flora Fennica 32: 92.
1906p: Växtsynonymiska meddelanden. — Medd. Soc. Fauna Flora Fennica 32: 110.
1906q: Anmärkningsvärda fanerogamer. — Medd. Soc. Fauna Flora Fennica 32: 135–136.
1906r: Finlands Camelina-former. — Medd. Soc. Fauna Flora Fennica 32: 136–138.
1906s: Plantae Finlandiae Exsiccatae. — Medd. Soc. Fauna Flora Fennica 32: 156.
1906t: Plantae Finlandiae Exsiccatae. Fasc. I–VIII. — 127 s. + map. J. Simelii Arfvingars Boktryckeriaktiebolag. Helsingfors.
1906u: Iter Austro-Hungaricum. Verzeichniss der auf einer Reise in Österreich-Ungarn im Mai und Juni 1905 gesammelten Gefässpflanzen. — Öfversigt af Finska Vetenskaps-Societetens Förhandlingar 48(13): 1–128 + 3 plates.

1907a: Fanerogamer från sydvästra Finland. — Medd. Soc. Fauna Flora Fennica 33: 6.
1907b: Anmärkningsvärda fanerogamer. — Medd. Soc. Fauna Flora Fennica 33: 33.
1907c: Höstfärgning hos Alchimilla-blad. — Medd. Soc. Fauna Flora Fennica 33: 33–34.
1907d: [Dvärgformer hos gran i Lojo]. — Medd. Soc. Fauna Flora Fennica 33: 36.
1907e: Anmärkningsvärda fanerogamer från Finland. — Medd. Soc. Fauna Flora Fennica 33: 54–55.
1907f: Plantae Finlandiae Exsiccatae. — Medd. Soc. Fauna Flora Fennica 33: 76.
1907g: Kvartärflorans utveckling i Finland. — Medd. Soc. Fauna Flora Fennica 33: 76–77.
1907h: Hypericum montanum L. från Lojo. — Medd. Soc. Fauna Flora Fennica 33: 104.
1907i: [Amelanchier canadensis i Valkjärvi]. — Medd. Soc. Fauna Flora Fennica 33: 105.
1907j: Finlands viktigaste matsvampar jämte förklarande text. — 12 s. + plates. K. E. Holm. Helsingfors.
1907k: Suomen tärkeimmät ruokasienet. — 12 s. + plate. K. E. Holm. Helsingfors.

1908a: Taraxacum-former från södra och mellersta Finland. — Acta Soc. Fauna Flora Fennica 29(9): 1–48.
1908b: [Torfbildningarna i Kajana härad]. — Finska Mosskulturföreningens årsbok 10: 204–213.
1908c: [Suomaiden kasvitieteellinen kokoomus Kajaanin kihlakunnassa]. — Suomen Suoviljelysyhdistyksen vuosikirja 10: 204–212.
1908d: Om torfmarkernas botaniska byggnad. — Finska Mosskulturföreningens årsbok 11: 147–154.
1908e: Suomaiden kasvitieteellinen rakenne. — Suomen Suoviljelysyhdistyksen vuosikirja 11: 147–154.
1908f: Om torfmarkernas uppkomst och botaniska byggnad. — Finska Mosskulturföreningens årsbok 12: 149–156.
1908g: Suomaiden synnystä ja kasvitieteellisestä rakenteesta. — Suomen Suoviljelysyhdistyksen vuosikirja 12: 148–155.
1908h: [Taraxaca]. — Medd. Soc. Fauna Flora Fennica 34: 15–16.
1908i: [Egendomlig gran]. — Medd. Soc. Fauna Flora Fennica 34: 38.
1908j: Calamagrostis gracilescens Blytt. — Medd. Soc. Fauna Flora Fennica 34: 42–46.
1908k: [Nephromium lusitanicum funnen i Finland]. — Medd. Soc. Fauna Flora Fennica 34: 83.
1908l: [Platanthera bifolia × chlorantha samt Rosa tomentosa på Åland]. — Medd. Soc. Fauna Flora Fennica 34: 117.
1908m: [Pulsatilla, Hyacinthus, Najas]. — Medd. Soc. Fauna Flora Fennica 34: 168.
1908n: Nytt bidrag till kännedomen af Taraxacum-formerna i södra och mellersta Finland. — Medd. Soc. Fauna Flora Fennica 35: 13–31. [reprint publ. in 1908]

1909a: Die nordlischen Alchemilla vulgaris-Formen und ihre Verbreitung. Ein Beitrag zur Kenntnis der Einwanderung der Flora Fennoskandias mit Besonderer

Rücksicht auf die finnländische Flora. — Acta Soc. Scient. Fenn. 37(10): 1–171 + 20 plates + 15 distribution maps.
1909b: Tre för floran nya adventivväxter. — Medd. Soc. Fauna Flora Fennica 35: 4–5.
1909c: [Potamogeton spp., Alchimilla]. — Medd. Soc. Fauna Flora Fennica 35: 71–74.
1909d: Taraxacum crocodes Dahlst. funnen i Finland. — Medd. Soc. Fauna Flora Fennica 35: 126–130.
1909e: [Letharia vulpina, ny för vårt land]. — Medd. Soc. Fauna Flora Fennica 35: 131.
1909f: Formae duae hybridae generis Rubi novae e Finlandia. — Medd. Soc. Fauna Flora Fennica 35: 141–144 + 3 plates.
1909g: Rektor M. Brenners Taraxaca. — Medd. Soc. Fauna Flora Fennica 35: 144–150.
1909h: Intresannta växtfynd från Nyland. — Medd. Soc. Fauna Flora Fennica 35: 170–171.
1909i: Subfossila frukter och frön af Sagittaria natans, Myriophyllum spicfatum och Najas flexilis från Kuhmoniemi. — Medd. Soc. Fauna Flora Fennica 35: 193–194.
1909j: [Hedysarum sibiricum, ny för fenoskandiska floraområdet]. — Medd. Soc. Fauna Flora Fennica 35: 216.

1910a: Finska Taraxacum-former. — Medd. Soc. Fauna Flora Fennica 36: 5–6.
1910b: [Cladium mariscus fossil i Bromarf]. — Medd. Soc. Fauna Flora Fennica 36: 6.
1910c: Clitocybe gigantea (Sowerb.) Fr. — Medd. Soc. Fauna Flora Fennica 36: 19–21.
1910d: [Beriktigande rörande Rubus arcticus × Idaeus]. — Medd. Soc. Fauna Flora Fennica 36: 28.
1910e: Erica tetralix L. på Åland. — Medd. Soc. Fauna Flora Fennica 36: 29.
1910f: Elymus arenarius L. vid Pyhäjärvi sjö i Satakunta. — Medd. Soc. Fauna Flora Fennica 36: 73–75.
1910g: Ny fyndorter för fossil Najas flexilis (Willd.) Rostk. et Schm. och N. tenuissima A. Br. — Medd. Soc. Fauna Flora Fennica 36: 75–76.
1910h: [Subfossila havsväxter inom Satakunta]. — Medd. Soc. Fauna Flora Fennica 36: 80.
1910i: [Askens förekomst på Karelska näset]. — Medd. Soc. Fauna Flora Fennica 36: 82.
1910j: [Diatomacéfloran i prof från Bjärnå]. — Medd. Soc. Fauna Flora Fennica 36: 114.
1910k: Suomen suurin sieni. Clitocybe gigantea (Sowerb.) Fr. — Luonnon Ystävä 14: 20–22.
1910l: Värdet af skalllösa frön hos utsädeshafre och riandets inverkan därpå. — Meddelanden från Finlands Utsädesföreningen 6: 31–48.
1910m: Phytopaläontologische Beobachtungen als belege für Postglaziale Klimaschwankungen in Finnland. — In Postglaziale Klimaveränderungen: 177–194. Centraltryckeriet. Stockholm.

1911a: [Subfossila glaciala växter]. — Medd. Soc. Fauna Flora Fennica 37: 4–5.
1911b: Taraxacum-former från finska Lappmarken. — Medd. Soc. Fauna Flora Fennica 37: 35–36.
1911c: [Korgar med och utan pollen hos samma Taraxacum-stånd]. — Medd. Soc. Fauna Flora Fennica 37: 36.
1911d: [Lepidium apetalum, ny adventivväxt]. — Medd. Soc. Fauna Flora Fennica 37: 53.
1911e: [Carex rotundata, en egen, god art]. — Medd. Soc. Fauna Flora Fennica 37: 53.
1911f: [Potamogeton filiformis × vaginatus från Kuolajärvi]. — Medd. Soc. Fauna Flora Fennica 37: 90–91.
1911g: Ett fynd af pilspets från stenåldern i marini skalgrus vid Pasvik älf, cirka två mil från Ishafskusten. — Medd. Soc. Fauna Flora Fennica 37: 174–178 + plate.
1911h: Resultaten af de fytopaleontologiska undersökningar i Lojo härad. — Finska Mosskulturföreningens årsbok 14: 318–347.
1911i: Tuloksia phytopaleontolgisista tutkimuksista Lohjan kihlakunnassa. — Suomen Suoviljelysyhdistyksen vuosikirja 14: 326–356 + map.
1911j: Kasvisto ja kasvillisuus. Putkilokasvit. — In Suomen Kartasto 1910. Karttalehti n:o 20: 38–49.
1911k: Kärlväxterna. — In Atlas öfver Finland 1910. Kartblad n:o 20: 32–43.
1911l: Plantes vasculaires. — In Atlas de Finlande 1910. Carte N:o 20: 37–49.
1911m: Kasvillisuuden kehitystä valaisevia subfossiilisia kasvilöytöjä. — In Suomen Kartasto 1910. Karttalehti n:o 20: 61–71.
1911n: Subfossila växtfynd belysande frorans utveckling. — In Atlas öfver Finland 1910. Kartbl. n:o 20: 53–62.
1911o: Trouvailles subfossiles propres à éclairer l'evolution de la flore. — In Atlas de Finlande 1910. Carte N:o 20: 60–70.
1911p: Resultaten af de phytopaleontologiska undersökningarna inom Lappmarkens härad. — Finska Mosskulturföreningens årsbok 15: 273–295.

1912a: Tulokset phytopaleontologisista tutkimuksista Lapin kihlakunnassa. — Suomen Suoviljelysyhdistyksen vuosikirja 15: 275–299+ map.
1912b: [Sphagnum imbricatum, Mulgedium macrophyllum, Triticum acutum]. — Medd. Soc. Fauna Flora Fennica 38: 11–13.
1912c: [Fossil Graphis scripta]. — Medd. Soc. Fauna Flora Fennica 38: 34.
1912d: Juncus fuscoater Schreb. och Juncus alpinus Vill. — Medd. Soc. Fauna Flora Fennica 38: 37–38.
1912e: [Taraxacum-former]. — Medd. Soc. Fauna Flora Fennica 38: 69.
1912f: [Växtfynd på en stenålderboplats i Kyrkslätt]. — Medd. Soc. Fauna Flora Fennica 38: 79.
1912g: [Lemna gibba, Chara aspera, Nitella hyalina]. — Medd. Soc. Fauna Flora Fennica 38: 90–92.

1913a: [Polytrichum jensenii i Närpes]. — Medd. Soc. Fauna Flora Fennica 39: 3.
1913b: [Airopsis praecox, ny för Finlands flora]. — Medd. Soc. Fauna Flora Fennica 39: 14.

1913c: [Växtpaleontologiska undersökningar på Pelso mosse]. — Medd. Soc. Fauna Flora Fennica 39: 37.
1913d: [Relikta vattenväxters utbredning]. — Medd. Soc. Fauna Flora Fennica 39: 63.
1913e: [Lathraea i Lojo, Centaurea calcitrapa i Mariehamn]. — Medd. Soc. Fauna Flora Fennica 39: 63–64.
1913f: [Ekens återväxt i Kyrklätt, Lojo och Karelska näset]. — Medd. Soc. Fauna Flora Fennica 39: 90–91.
1913g: [Ny upplaga om Herbarium Musei Fennici i tanke]. — Medd. Soc. Fauna Flora Fennica 39: 146.
1913h: [Frömognaden hos Butomus umbellatus]. — Medd. Soc. Fauna Flora Fennica 39: 146.
1913i: Polygonum foliosum Lindb. fil. — Medd. Soc. Fauna Flora Fennica 39: 147–148.
1913j: Polygonum foliosum Lindb. fil. funnen i Japan. — Svenst Bot. Tidskr. 7:213.
1913k: Kypsyvärkö rimmen (Butomus umbellatus) siemenet meillä? — Luonnon Ystävä 17: 133.

1914a: Anmärkningsvärda växtfynd gjorda under en resa sommaren 1913 genom Kuolajärvi till Knjaska bid Hvita hafvet samt vid Kandalakscha. — Medd. Soc. Fauna Flora Fennica 40: 18–28.
1914b: Om några Carex-former. — Medd. Soc. Fauna Flora Fennica 40: 41–43.
1914c: [Gladiolus imbricatus på Pojo, ny för Finland]. — Medd. Soc. Fauna Flora Fennica 40: 105.
1914d: [Subularia aquatica f. elongata i Tuntsajoki älv]. — Medd. Soc. Fauna Flora Fennica 40: 105.
1914e: [Elymus arenarius och Silene tatarica vid Kemijärvi]. — Medd. Soc. Fauna Flora Fennica 40: 174.
1914f: [Salix aurita från Kandalakscha]. — Medd. Soc. Fauna Flora Fennica 40: 200.
1914g: Resultaten af de phytopaleontologiska undersökningarna inom Raseborgd härad. — Finska Mosskulturföreningens årsbok 17: 404–414 + map.
1914h: Tulokset Raaseporin kihlakunnassa toimitetuista fytopaleontologisista tutkimuksista. — Suomen Suoviljelysyhdistyksen vuosikirja 17: 416–426 + map.

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1915c: [Portulaca oleracea, Amaranthus blitum]. — Medd. Soc. Fauna Flora Fennica 41: 7.
1915d: [Anthyllis vulneraria-formerna]. — Medd. Soc. Fauna Flora Fennica 41: 41.
1915e: [Taraxacum-missbildningar]. — Medd. Soc. Fauna Flora Fennica 41: 45.
1915f: [Hedysarum sibiricum från Lim]. — Medd. Soc. Fauna Flora Fennica 41: 61.
1915g: Myosotis laxa Lehm. — Medd. Soc. Fauna Flora Fennica 41: 70–77.
1915h: Resultaten af de fytopaleontologiska undersökningarna inom Helsinge härad. — Finska Mosskulturföreningens årsbok 18: 314–318 + karttta.
1915i: Tulokset Helsingin kihlakunnassa toimitetuista fytopaleontologisista tutkimuksista. — Suomen Suoviljelysyhdistyksen vuosikirja 18: 318–322 + map.
1915j: [Om Finlands och dess floras utvecklingshistoria]. — Svensk Bot. Tidskr. 9: 467.
1915k: Plantae Finlandiae exsiccatae. Desiderata. — 6 s. Botaniska Museum.Helsingfors.

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1916b: [Calamagrostis arundinacea × neglecta, ny för vår flora]. — Medd. Soc. Fauna Flora Fennica 42: 3–4.
1916c: [Melampyrum former]. — Medd. Soc. Fauna Flora Fennica 42: 42.
1916d: Epilobium adenocaulon Hausskn. — Medd. Soc. Fauna Flora Fennica 42: 43.
1916e: [Draba hirta-former]. — Medd. Soc. Fauna Flora Fennica 42: 108–111.
1916f: Plantae Finlandiae Exsiccatae. Fasc. XI–XX. — 166 s. Simelii Arfvingars Boktryckeriaktieboloag. Helsingfors.

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1920a: Anmärkningasvärda adventivarter. — Medd. Soc. Fauna Flora Fennica 45: 66–67.
1920b: Die Schichtenfolge auf dem steinzeitlichen Fundplatz bei Korpilahti Kirchspiel Antrea, Län Wiborg. — Suomen Muinaismuistoyhdistyksen Aikakauskirja 28: 1–4 + table.

1921a: [Alnus glutinosa × incana, ny för Åland]. — Medd. Soc. Fauna Flora Fennica 46: 9.
1921b: [Phallus impudicus på Åland]. — Medd. Soc. Fauna Flora Fennica 46: 10.
1921c: [Epilobium rubescens, Cerastium glutinosum, Veronica longifolia × spicata, V. spicata var. arachnoidea]. — Medd. Soc. Fauna Flora Fennica 46: 70–71.
1921d: [Arabis arenosa, Utricularia intermedia × vulgaris, U. intermedia × minor, Puccinellia spp.]. — Medd. Soc. Fauna Flora Fennica 46: 102–105.
1921e: [Diatomacé-floran i de kvartära avlagringarna i Finland]. — Medd. Soc. Fauna Flora Fennica 47: 16.
1921f: Alnus incana f. pinnata Lundmark funnen i Finland. — Medd. Soc. Fauna Flora Fennica 47: 73–75.

1922: Vad har våra jordlagar att berätta. — Andra Sv. Lantbruksveckans Hadlingar: 212–215.

1925a: Epilobium lamyi F. Schultz × E. montanum L., ny för Finlands flora. — Medd. Soc. Fauna Flora Fennica 49: 47–48.
1925b: [Taraxacum Norvegicum Dahlst. från Finland]. — Medd. Soc. Fauna Flora Fennica 49: 109.
1925c: Alopecurus pratensis L. var. alpestris Wahlenb. i Finland. — Medd. Soc. Fauna Flora Fennica 50: 2–6.

1927a: [Förteckning över växter, vilkas fridlysning vore önskvärd]. — Memoranda Soc. Fauna Flora Fennica 1: 34.
1927b: [Anthemis cotula i Hangö hamn]. — Memoranda Soc. Fauna Flora Fennica 2: 4.
1927c: För landet nya eller sällsynta adventivväxter. — Memoranda Soc. Fauna Flora Fennica 2: 35–36.
1927d: Alnus incana f. laciniata från Iijoki. — Memoranda Soc. Fauna Flora Fennica 3: 17.

1928a: Botaniska exkursioner i Spanien. — Memoranda Soc. Fauna Flora Fennica 4: 63.
1928b: Fynd av Populus tremula f. villosa och Phragmites communis var. flavescens. — Memoranda Soc. Fauna Flora Fennica 4: 98–99.
1928c: Sketch in commemoration of Ernst Evald Bergroth. — Memoranda Soc. Fauna Flora Fennica 4: 291–317.
1928d: Albert Hjalmar Hjelt. — Soc. Scient. Fenn. Årsbok-Vuosikirja 6B: 1–21.

1929a: Epilobium montanum × palustre, ny för Finlands flora. — Memoranda Soc. Fauna Flora Fennica 5: 76.
1929b: Puccinellia phryganodes (Trin.) Scribn. & Merr. vid Bottniska viken, ny för Finlands flora. — Memoranda Soc. Fauna Flora Fennica 5: 77–78.

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1931a: Några för Finlands flora nya adventiv växter. — Memoranda Soc. Fauna Flora Fennica 6: 182–187.
1931b: Lamium album var. integrifolium Nolte funnen i Finland. — Memoranda Soc. Fauna Flora Fennica 7: 2.
1931c: Agaricus (Pholiota) aureus, en för landet ny hattsvamp. — Memoranda Soc. Fauna Flora Fennica 7: 5.

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1934d: Valeriana officinalis L. f. integrifolia (Ledeb.) — Memoranda Soc. Fauna Flora Fennica 10: 92–94.
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