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Jacob Fellman – the botanising priest

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Amateur botanist Jacob Fellman (1793–1875), priest of northernmost Finland at Utsjoki in 1820–1831, was the first Finn to study the flora of northernmost East Fennoscandia. He did several long expeditions to Lapponia inarensis (Finland), to East Finnmark (Norway) and to the western Kola Peninsula region (Northwest Russia). His main publications include lists of the species of those areas, as well as their localities and frequencies (J. Fellman 1831, 1835). His memoirs (J. Fellman 1906a) also contain a great deal of plant information. Fellman was also interested in economic plants and phenological observations. During his years at Utsjoki, Jacob Fellman was one of the few botanists to live permanently in northernmost Europe. He became well known early on, maintaining contact with several European botanists and exchanging plants with them. His work, known as ”Herbarium Fellman”, has until now remained uneaxamined. It includes a number of specimens collected by European botanists, comprising altogether 1385 specimens collected mostly in Finland, Germany, Hungary, Norway, Russia and Sweden. Only about 70 specimens collected by Fellman have been placed before in the collections of the Botanical Museum at the University of Helsinki. As a result of the Great Fire of Turku in 1827, in which most of the botanical collection burned. ”Herbarium Fellman” contains important historic specimens of that era. From 1832, Fellman served as a vicar in Lappajärvi, Central Finland. During this second career of his life, his collecting activity nearly ceased. ”Herbarium Fellman” is now incorporated into the main collections at H. All specimens are databased.

Introduction

Jacob Fellman (25 March 1793 – 8 March 1875), Phil. Mag., was born in Rovaniemi, Northern Finland. His parents were vicar Esaias Fellman and Katariina Gisselkors. The Fellman's were famous preachers — especially in Ostrobothnia — from six generations of priests. In 1835, Jacob Fellman married Helena Augustiina Tavaststjerna.

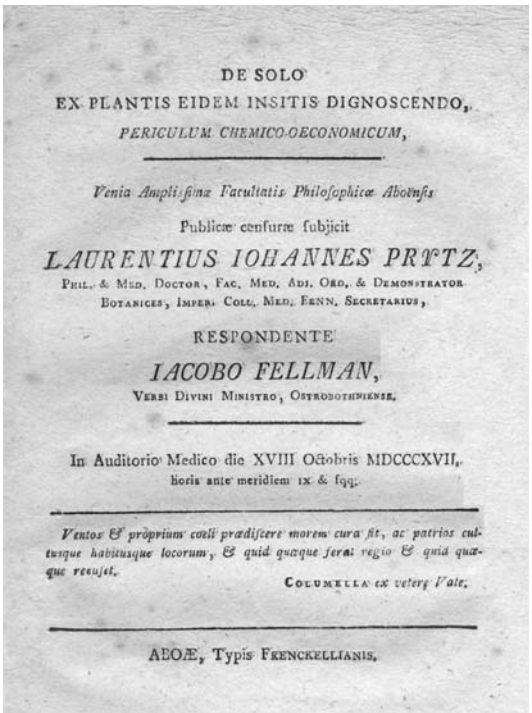
On 27 June 1811, Jacob Fellman (Fig. 1) graduated from the Åbo [Turku] Academy (now the University of Helsinki), where he studied theology and the natural sciences (1811–1820) as his major subjects. He specialised in botany under the supervision of Carl Niclas Hellenius (1745–1820), Professor of natural history 1793–1816), of Carl Reinhold Sahlberg (1779–1860), Demonstrator in botany (1810–1813), and later Inspector of natural history and of the museum (1813–1818). After Hellenius, Sahlberg was appointed Professor of natural history (1818–1841). A third botanist at the Academy during this period was Johan Magnus af Tengström (1793–1856), Inspector of the museum (1818–1828), and later, Professor in zoology and botany (1842–1847). Tengström and Fellman corresponded many

times. Fellman was aiming for a PhD, but had to interrupt his studies due to disagreements with his professors in philosophy (Itkonen 1977).

Jacob Fellman defended his Master's thesis (Fig. 2) *De solo ex plantis eidem insitis dignoscendo*, *periculum chemico-oeconomicum* ("On the classification of plants habitats, a chemico-physiological trial") on 18 October 1817 under the supervision of Laurentius Johannes Prytz (1789–1823), Demonstrator in botany (1813–1820). On the title page, Fellman was entitled *Verbi divini ministro, ostrobothniesis* ("Servant of the Word of God, from Ostrobothnia"). Fellman's thesis was the first in Finland (then a part of Russia) to describe the habitats of plants. About 290 species were categorised as favouring wet, shady, damp or dry sites (Prytz & Fellman 1817). Most obviously, Prytz wrote the dissertation, aiming to publish a short compilation of the flora of Finland in the form of a dissertations (six of the first parts appeared) (Prytz & Tengström 1819, Prytz & Ringbom 1819, Prytz & Hartwall 1821, Prytz & Wegelius 1821, Prytz & Nordgren 1821, Prytz & Eneberg 1821).

Fellman was appointed priest at Åbo on 14 June 1815, assisting priest to his father at Rovaniemi later in 1815, care taking vicar of Utsjoki (Inari Lapland) in 1819, ordinary vicar of Lappajärvi (Ostrobothnia) in 1832, and cathedral dean in 1842.

Fig. 1. Portrait Jacob Fellman (J. Fellman 1906a).



DE SOLO
EX PLANTIS EIDEM INSITIS DIGNOSCENDO,
PERICULUM CHEMICO-OECONOMICUM,

Venia Amplissimæ Facultatis Philosophicæ Aboënsis

Publicæ censuræ subjicit

LAURENTIUS IOHANNES PRYTZ,

PHIL. & MED. DOCTOR, FAC. MED. ADJ. ORD. & DEMONSTRATOR BOTANICES, IMPER. COLL. MED. FENN. SECRETARIUS,

RESPONDENTE

IACOBO FELLMAN,

VERBI DIVINI MINISTRO, OSTROBOTHNIENSE.

In Auditorio Medico die XVIII Octobris MDCCCXVII, horis ante meridiem IX & sqq.

Ventos & proprium cœli prædiscere morem cura sit, ac patrios cultusque habitusque locorum, & quid quæque ferat regio & quid quæque recuset.

COLUMELLA ex vetere Vate.

ABOÆ, Typis FRENCKELLIANIS.

Fig. 2. Title page of Fellman's Phil. Mag. thesis.

Priest of Utsjoki

In 1820, Jacob Fellman moved to Utsjoki, the northernmost parish in Finland, beyond the reach of any road. Fellman's church was located on the western shore of Lake Mantojärvi (69°51 N, 27°00 E). The current church was built (1850–53) to replace the one from Fellman's time. Some of the church cottages built in the late 17th century, are still standing (Fig. 3). The distance from Utsjoki to Rovaniemi was 450 km, and to Oulu, northern Finland's largest city, 670 km. The closest Finnish village was Inari, about 150 km away, or about five days' travel either by reindeer sledge in winter or along rivers and lakes in summer. Connections to northern Norway were closer.

At Utsjoki, Jacob Fellman began collecting plants recommended by Matthias Castrén (1764–

1845), vicar of Keminmaa parish, Finland, and by Peter Wogelius Deinboll (1783–1874), vicar of Vadsö [Vesisaari in Finnish], Norway. Archbishop Jacob Tengström (1755–1832), father of Johan Magnus af Tengström, and Carl Gustaf Mannerheim (1797–1854) encouraged Fellman to study the flora of the Kola Peninsula.

”Notes made during my stay in Lapland”

The main sources to study J. Fellman as a botanist are his memoirs, *Anteckningar under min vistelse i Lappmarken* (J. Fellman 1906a,b,c,d), edited by his son, Nils Isak Fellman (1841–1919) — often just Isak Fellman (Itkonen 1977). Altogether, his memoirs comprise 2,567 pages! Jacob Fellman himself published notes from his first year (1820) in the magazines *Turun Wiikko-Sanomat* (J. Fellman 1821) and *Helsingfors Tidningar* (J. Fellman 1830). Several years later, his notes from 1820 and 1821 were published as a book (J. Fellman 1844), which was received with accolades in the magazine *Morgonbladet* with hopes that the remaining years would also soon appear (Anonymous 1845). Unfortunately, J. Fellman never completed this task.

The first volume of his memoirs, edited by N. I. Fellman, contains the diary concerning his years at Utsjoki (1820–1831), including the first two years published by J. Fellman (1844). The second volume focuses on folklore, mythology, the Sami language and theology. The third volume is dedictaed to the history of Lapland and the Lapps, Sami language and Church parishes in Lapland. The fourth volume includes reprints of Fellman’s main publications (J. Fellman 1831, 1835), manuscripts and some other articles, as well as Fellman’s correspondence (113 letters). The first and last volumes are botanically the most interesting. The first volume containing the ”Notes made during my stay in Lapland” was soon translated into Finnish and shortened by Agathon Meurman (J. Fellman 1907). However, almost all of the botanical notes were excluded, as in later editions (J. Fellman 1961, 1980). The third edition was nicely illustrated.

Jacob Fellman’s journeys have been described in volume one of the memoirs (J. Fellman 1906a) and by Itkonen (1977), here cited as (*F*) and (*I*).

Fig. 3. Old church cottages on the shore of Lake Mantojärvi.

Note: jok, joki = river; koski, kuoska = rapids; javre, järvi = lake. Acronym H refers to Botanical Museum, Finnish Museum of Natural History, University of Helsinki. The biogeographical provinces of East Fennoscandia are given in Map 1, with descriptions of the routes he took in 1822 (Norway) and 1829 (today Northwest Russia).

Travels in 1820

I. In 1820 Jacob Fellman travelled to Utsjoki by a route Oulu – Tornio – Rovaniemi – Sodankylä – Kiukajärvi – Purnuava island – Korvanen – Inari – Utsjoki, which he reached by Midsummer (*F*). **II**. Two weeks after the Midsummer Fellman visited Gullholmen, Norway, on the mouth of Tenojoki (*I*: 55). **III**. In August he travelled south to Inari by using northern route: Utsjoki (31.7) – Tenojoki – Vadsö [accompanied here by vicar Deinboll (Rantala 2010)] –Varangerfjord (*F*) – shores of Lapponia petsamoënsis including Heinäsaari Islands (Aynovskie ostrova, Lps, *I*: 54) – Paatsjoki – Salmijärvi (*I*: 54) – Inarijärvi – Kyrö – Inari (stayed here 27.8.–5.9.) – Jorgastak village [Jorggástat, Norway] – Inarijoki – Tenojoki – Outakoski – back to Utsjoki (10.9.). **IV**. In autumn he botanised on Mt Pahdanpää, Utsjoki (*F*). Fellman also tried to visit Mt Rastekaisa [Rásttigáisá, Norway], later in September 1820, but heavy snowstorm prevented him (*F*).

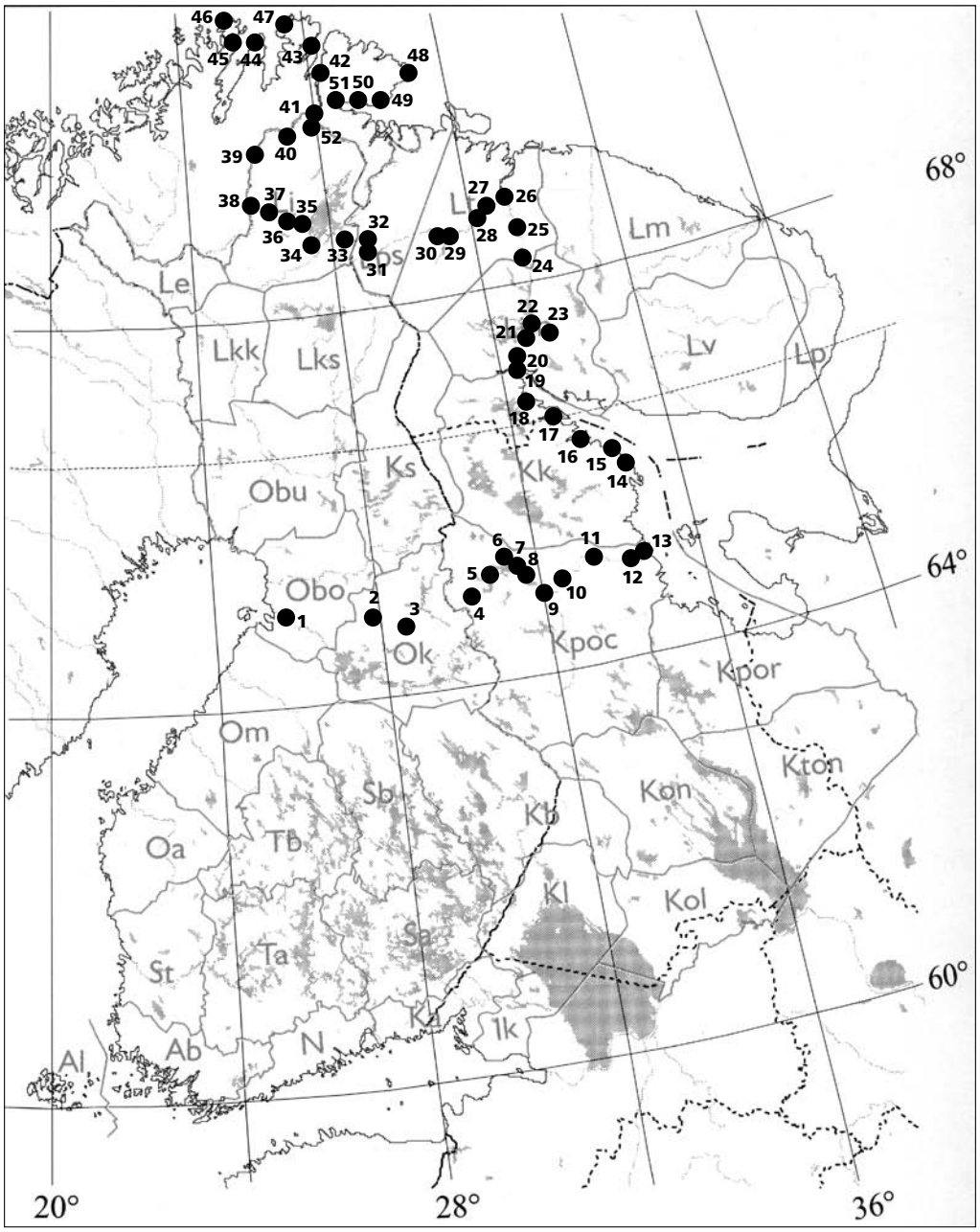
Travels in 1821

I. In spring 1821 Jacob Fellman visited Inari: Utsjoki (19.1.) – Inari (15.2.) – Utsjoki (*I*: 59). However, Fellman continued, unlike Fellman himself wrote (*F*), from Inari at least to Rovaniemi (a letter dated there 21.2. to C. G. Mannerheim) – back in Utsjoki by Easter (*I*: 61). **II**. After Easter Fellman made an excursion to Norway: Along Utsjoki – Tenojoki – Mt Gollevarre (*F*: 38) – Mt Varangerfjället – Varangerbotn – Nesseby – Bergby – Vadsö – Vardö – Utsjoki (5.6.). **III**. A domestic journey: Utsjoki (7.8.) – Jorbejavri (*F*: 73) – Mieraskoski (J. Fellman 1844: 131 *Filipendula ulmaria, Pedicularis sceptrum-carolinum, Populus tremula, Rosa majalis, Rubus arcticus*) – Petsikkojärvi – Säytojavre – Suovajavre – Jeggejavri – Kaamanen (*F*: 79) – Muddusjavre – Vastusjavre – Inari church (12.8–20.8., *F*: 80, *I*: 60) – Pelpajärvi – Ivalojoki – Kyrö (*F*: 216) – Sompio – Nattaset (*F*: 228) – Sompiojärvi – Riestojoki – Luiro (*F*: 243) – Lokka – Tanhua – Kairavuopio (near river Kitinen) – Kilpiaapa – Kemijoki – Vuostimo – Kemijärvi – Tuulaniemi – Luusua – Neitikoski – Juujärvi – Autti (*F*: 281: Discovery of *Arenaria* [*Moehringia*] *lateriflora*) – Viiri (*F*: 281–2) – Kaihuanvaara (*F*: 282: *Actaea spicata, Daphne mezereum*) – Köykö – Olkakoski (*F*: 283) – Rovaniemi (6.9.) – Kemi – Oulu.

Concerning J. Fellman's (1906a) visit to Oulu in "1825", there is clear evidence that it occurred in 1821. N. I. Fellman wrote in a note (J. Fellman 1906a: 209) that he mistakenly placed J. Fellman's journey between Inari and Rovaniemi in 1825 instead of in 1821, as he should have. Itkonen (1977: 153) believes that the above-mentioned journey in complete took place in 1821. However, there is a collection (H) of flowering *Chamaedaphne calyculata* (Fig. 4) from Rovaniemi dated May 1825, and Fellman's mailing of his Samish ABC book to the Turku Chapter from Rovaniemi on 5 May 1825. In 1821 Fellman was in the Varanger Peninsula area during that period. Clearly, Fellman visited Oulu in both 1821 and 1825, but the description and timings of the above route suggest 1821.

Travels in 1821

I. During winter 1822 Jacob Fellman visited Oulu through Enontekiäinen [Peltovuoma village] and returned to Utsjoki by Easter. **II**. Mt Rastekaisa was visited in 18.8. (*F*: 395). **III**. In Autumn Fellman travelled with Deinboll to North Cape in Norway (Map. 1): 40. Utsjoki (24.8.) – 41. Tenojoki – 42. mouth of river Tenojoki – 43. Gullholme (*F*: 112 *Aira* [*Deschampsia*] *alpina*, *Andromeda* [*Cassiope*] *hypnoides, Gentiana detonsa, Pteris* [*Cryptogramma*] *crispa, Salix polaris, Saxifraga bulbifera* [*foliosa*], *S. cespitosa*) – 43. Hopseidet – 44. Sverholt [Svaerholt] – 45. Magerön – 46. North Cape – Berlevåg (*F*: 114 species seen there) – Tanahorn (30.8.) – 47. [Porsanger peninsula] Makur [*Koenigia islandica* juxta templum Macaur, H] (7.-10.9.) – 48. Vardöhus [Vardö] (11.–16.9.) – 49. Vadsö (20.9.) – 50.



Map 1. 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). The routes of the 1822 expedition to Norway and of the 1829 to the western Kola Peninsula is indicated by numbers, pointed out in the text on page 4 and 8.

Fig. 4. *Chamaedaphne calyculata* collected at Rovaniemi in May 1825.

Mårtennäs (*F*: 131 list of kitchen garden species Deinboll cultivated at Vadsö) – 51. Varangerbotn – Mt Varangerfjället – Galbevarre – 52. Polmak (24.9.) – 40. Utsjoki. During this trip Fellman collected a lot of Norwegian plants. According to a letter published by Itkonen (1977: 117) Fellman was at Vadsö still in 16.11. [perhaps again], and returned to Utsjoki by Christmas.

Travels in 1823

I. Jacob Fellman visited Oulu during the spring time, and he visited Kemi, and collected about 100 individuals of *Calypso* [*Cypripedium*] *bulbosa* (Itkonen 1977, a letter to C. G. Mannerheim 12.6.1823 from Oulu), as an exchange material of this highly wanted species. Fellman spent most of the summer at Oulu.

Travels in 1824

I. In 1824 Jacob Fellman visited Oulu during spring and summer: Utsjoki (21.3.) – Inari church (24.3., *F*: 158) – Ivalo – Korvanen – river Luiro – Kemijoki – Oulu by Easter – back to Utsjoki by Christmas (*F*: 164). *Moehringia lateriflora* (Fig. 5) and *Lychnis alpina* were collected at Rovaniemi in 12.7.1824.

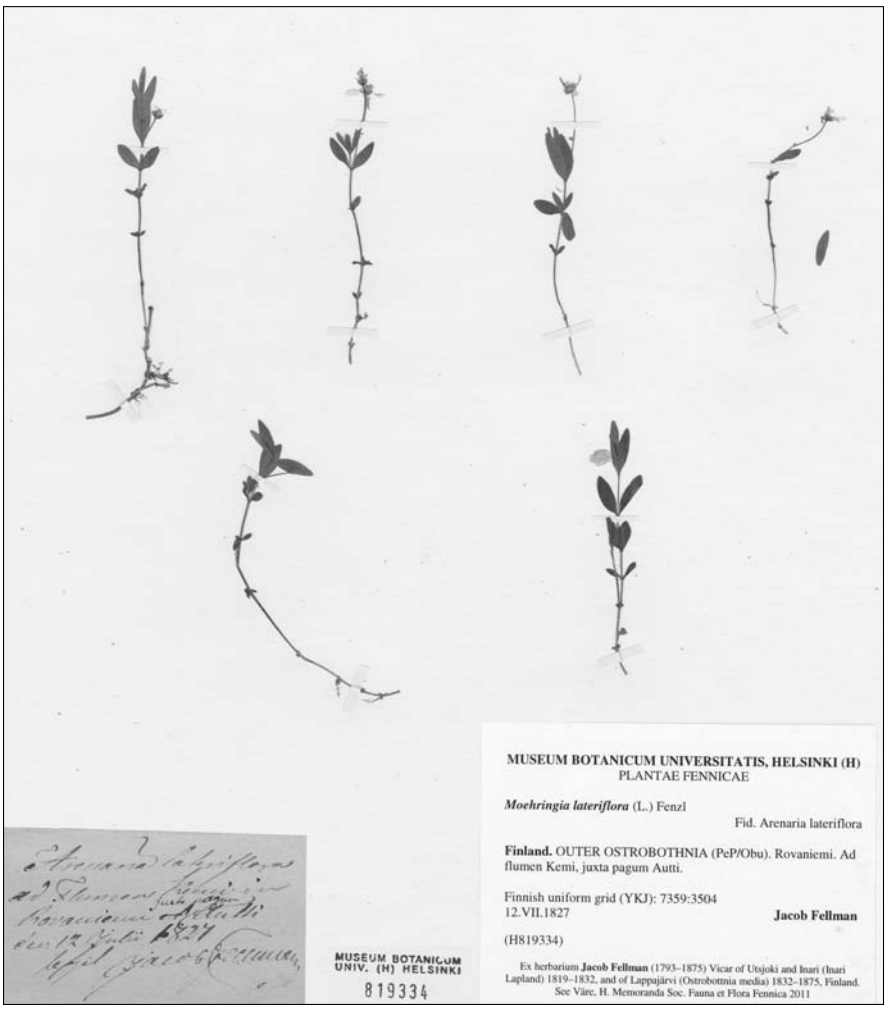


Fig. 5. *Moehringia lateriflora* collected ad flumen Kemi in Rovaniemi, juxta pagum Autti, 12.7.1824.

Travels in 1825

I. Jacob Fellman visits Oulu and Turku: Utsjoki 13.3 (*F*: 207) – Rovaniemi (5.5., *I*: 153, *Chamaedaphne*, see 1821) – Oulu (1.7., *I*: 84) – Turku (22.10., *I*: 84) – Oulu (18.11.) – Kemi – Valajankoski – Kipuvuori – Niska – Muurola – Rovaniemi (*F*: 313) – Utsjoki (24.12.).

Travels in 1826

I. In Russia: Rovaniemi (8.3., *I*: 164) – Keret [Kk] – Archangel (19.5., e.g. *Clematis sibirica* at H by river Dvina [Äänisjoki]) – cross White Sea and around the Kola Peninsula – Varangerfjord – Vadsö – Utsjoki. **II**. Utsjoki (25.7.) – Mt Pahdanpää [Mt Bakteoaivi] (26.7., discovery of *Saxifraga nivalis*) – Utsjoki (27.7.). **III**. Dr. Henrik Deutsch (1772–1838) and misters Deutch and Heikel came to visit Fellman. Latters were son Emanuel Deutsch (1808–1893) and probably Henrik Heikel (1808–1867), both pupils of Oulu, students at Åbo Academy. They aimed jointly to visit Mt Rastegaisa [Mt Rásttigáisá] in Norway, but failed to meet, but visited later together Petsikko and Paadar in Inari parish, Finland. From Mt Rastegaisa Fellman reported 38 fjeld plants and at 600 elevation he discovered roots of Scots pine (*Pinus sylvestris*) (J. Fellman 1906a: 392–5). **III**. In 21.8. all four went to Inari: Utsjoki – Mierasjärvi – Inari (26.8.) – Kyrö (28.8.) – Ukonsaari island in lake Inarinjärvi (*F*: 411) – Inari (4.9.) – Mierasjärvi – Kenesjärvi – Mantojärvi – Utsjoki (11.9., *F*: 412). In autumn feelings were melancholic: *Calluna vulgaris* was naked, *Andromeda polifolia* wilted, *Dryas octopetala* had lost its stems and *Loiseleurea* (*Azalea*) its appearance (Itkonen 1977: 183).

Travels in 1827

In Oulu 27.5.–24.6. (*I*: 188–9). *Calypso bulbosa* -specimen (H) was collected at Rovaniemi in 6. June 1827 (Fig. 6). In 1827 Jacob Fellman spent remaining summer in Germany, by travelling via Esthonia first to Travemünde and later to Leipzig. Other visited places were at least Berlin and Lübeck, and by journey back to Utsjoki Stockholm and Hernösand in Sweden (*F*: 403). Back in Finland in late Autumn.

Travels in 1828

Fellman spent the spring and summer at Oulu, and returned to Utsjoki during autumn: Oulu – Kittilä – Pulju – Utsjoki.

Travels in 1829

I. In spring 1829 Jacob Fellman travelled to Oulu: Utsjoki [Li] (28.2.) – Inari [Li] (15.3.) – Rovaniemi [Obu] – Oulu [Obo]. Because the snow melted exceptionally early, Fellman decided to return to Utsjoki via White Sea (Map 1): 1. Oulu (23.4.) – 2. Puolanka [Ok] (*F*: 492–3!) – 3. Hyrynsalmi [Ok] (27.4.) – [today's Finnish-Russian border] – 4. Vuokkiniemi [Voknavolok, Kpoc] – 5. Jyvälahti [Yuvalaksha, Kpoc] – 6. Uhtua [Kalevala, Kpoc] – 7. Luusalmi [Kpoc] – 8. Nurmilahti [Nurmilaksha, Kpoc] – 9. Jyskyjärvi [Yushkozero, Kpoc] – 10. Suopasalmi [Suopasalma, Kpoc] – 11. Paanajärvi [Panozero, Kpoc] – 12. Usmanala [Uzhmana, Poduzhem'ye, Kpoc] – 13. Kem [Kem', Kpoc] (2.5., *F*: 510 route). At Kem Fellman became ill (Virtanen 1942). From Kem (19.5.) a trial to Solovetsky Islands without success. 13. Kem (20.5.–27.6.) – Kiviräka (*F*: 521 border river between Kem and Kola districts) – 14. Gridinä [Gridino, Kk] – 15. Suonostroff [Sonostrov, Kk] (*F*: 522 list of species) – 16. Keret [Kk] (early July, *F*: 526 list of species) – 17. Kouda [Kovda, Kk] – 18. Knäsö [Näsä, Knyazaya Guba, Kk] – 19. Kandalaks [Kantalahti, Kandalaksha, Lim] (9.–10.7., *F*: 544 list of species) – 20. river Niva [Nivskiy, Lim] – 21. Ekaterinahamn [Lake Ekostrovskaya Imandra, Lim] – 22. Imandra village [Lim] – 23. Kibinä [Hiipinä, Khibiny Mts., Lim] (12.7., *F*: 550, 552) – 22. Imandra [Lim] – 24. Guollejavre [Ozero Kolozero, Lt] – 25. Kuolajoki [Kuolayoki, Lt] (*F*: 576 route) – 26. Kola [Kola village, Lt] (21.7.) – 27. Tulomajoki [Tulomayoki, Lt, *F*: 578 list of species] –28. Tulompaikke [Tuloma village, Lt, 22.7.) – 29. Nuorttejavre [Nuortijärvi, Notozero, Lt] and mouth of 30. Luttojoki [Lt] (22.7.) – 30 verst to Seitakoski rapids (23.7., *F*: 582) – Tjorvesjavre –

Annejok – Roikkuoska – Roudekuoska – Kuorukuoska (24.7.) – Lounakuoska (25.7.) – Utsa Kängäsas [Pikku Köngänen] (26.7.) – Leukkakuoska – Kallakuoska (27.7.) [all places 22.–27.7. are by river Luttojoki, Lt or Lps] – 31. Soppeljärvi [Ozero Soppeljaur, Lps] – 32. Mattasjärvi [Ozero Madsasjaur, Lps] – 33. Sulkesjavre [Sulkusjärvi, Li here after] (28.7.) – 34. Kyrö (31.7.) – 35. Inari (1.–11.8., *F*: 603–6) – 36. Muddusjärvi – 36. Riutumuotka – 37. Muotkatunturi – 38. Inarinjoki – Jorgastak village – 39. Tenojoki – 40. Utsjoki. **II** According N. I. Fellman (1869, 1882) Jacob Fellman visited in 1829 also Kalastajasaarento [Rybachiy Peninsula, Lt], Karelsgammen [today Vayda-Guba, Vaitolahti, PsL] and Peisen [Pechenga, Lt]. This excursion must have happened in September. *Carex atrata, Chamorchis alpina, Gnaphalium norvegicum, Saxifraga aizoides* and *Silene wahlbergella* were collected here 1829 (H).

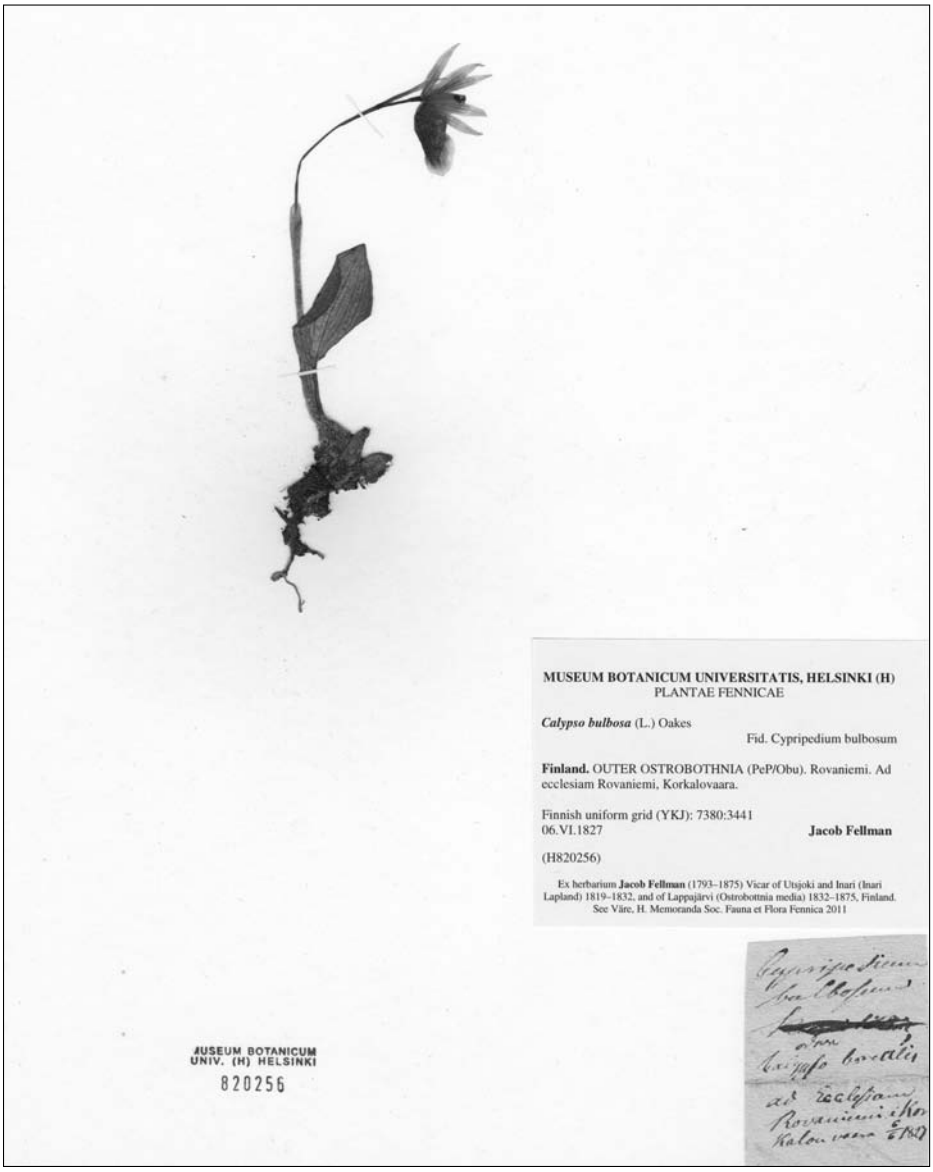


Fig. 6. *Calypso bulbosa* collected in Rovaniemi, Korkalovaara, 6.VI.1827.

”Herbarium Jacob Fellman”

According to correspondence between Johan Magnus af Tengstöm and Jacob Fellman, Fellman sent plants from Utsjoki to the Åbo Academy already in the early 1820s (J. Fellman 1906a, Itkonen 1977). That collection burn, however, in the Great Fire of Turku in 1827. After the fire, the University moved to Helsinki, the capital of Finland since 1812. Soon after the fire, Fellman promised af Tengstöm to send new material. That material, which included about 70 databased specimens (Finland 10, NW Russia 60), was likely incorporated into the herbarium soon afterward. Fellman also collected bryophytes and lichens, and sent Lappish lichens abroad for determination (Räsänen 1927).

Further, in the Botanical Museum, there has been for decades so called ”Herbarium Fellman”, and has until now remained unexamined. When N. I. Fellman (1869) wrote his ”Lapponia orientali”, the herbarium was probably still at J. Fellman’s disposal in Lappajärvi; otherwise, some errors in N. I. Fellman (1869, 1882) are difficult to explain (Blinova & Uotila 2011, this volume). In 1906, the herbarium was at the disposal of Nils Isak Fellman, as he himself wrote in memoirs. When exactly the museum received the material remains unknown. The herbarium was likely donated at the same time in 1920 than Fellman’s ”Lapponia library” was donated to the Finnish-Ugric Society (Capdeville 2001). Some sheets bear the label Herbarium Harald Lindberg. Lindberg was the first custodian at H, and sold his herbarium to the Botanical Museum in the beginning of the 1920s (Väre 2010).

”Herbarium Fellman” contains 1,385 specimens collected mainly in Finland, Germany, Hungary, Norway, Russia and Sweden. Table 1 gives the number of all known specimens once at Jacob Fellman’s disposal by country. The Botanical Museum (H) certainly contains additional material collected in East Fennoscandia, especially amongst dicotyledons. Monocotyledons from today’s Northwest Russia have been databased.

Table 1. Number of known specimens once at Jacob Fellman’s disposal by country.

Austria	35
Croatia	5
Czech Republic	4
Demark	1
Egypt	1
Finland	147
France	42
Germany	266
Great Britain	3
Hungary	56
Israel	1
Italy	8
Norway	67
Poland	3
Romania	3
Russia	270
South Africa	1
Surinam	2
Sweden	283
Switzerland	16
Turkey	1
United States, Alaska [former Russia]	15
Country not given	218
sum	1448

Some content of ”Herbarium Fellman”

All specimens from abroad belonged to ”Herbarium Fellman”. Only specimens from Finland and Northwest Russia had been previously deposited in the museum. The names here are those currently in use, not necessarily those Fellman used.

Finland. Fellman (F) himself collected mainly in InL Utsjoki (88 specimens) between 1820 and 1830. Other specimens were collected in Kb (2, all Fr. Nylander), Om (3, e.g. *Platanthera bifolia*), Ks (8, all Fr. Nylander, except *Saxifraga hirculus* by Fellman), Obo (9, e.g. *Phalaris canariensis*), Obu (21, e.g. *Calypso bulbosa* (Fig. 6) Rovaniemi, Korkalovaara 6 June 1827, and *Moehringia lateriflora* (Fig. 5) Rovaniemi, Autti 12 July 1827, discovered as new to Europe in 1821), N (2, all Fr. Nylander), and Ab (12, e.g. *Agrostemma nicaeense, Astragalus alopecuroides, Dianthus collinus, D. praecox* and *Melilotus connatus*, all Hortus Botanicus, probably by Professor C. R. Sahlberg). The collection of *M. lateriflora* in 1827 is the oldest at H.

Germany. Based on interpretation of his handwriting, Jacob Fellman collected plants in 1827 at Bilniz, Dresden, Göttingen, Jena, Leipzig, Lübeck, Munich, Stettin, Swinemünde, Travemünde and Warnemünde. Fellman travelled to a local spa in Travemünde to take care of his health. He collected e.g. *Helichrysum arenarium* in Travemünde and *Hottonia palustris* in Stettin. Most specimens from Germany were collected in Leipzig, where both Kunze and Reichenbach were active. Sixteen specimens were collected in Berlin by Schlechtendal. This is likely Diederich Franz Leonhard von Schlechtendal (1794–1866), German botanist, curator at the Royal Herbarium in Berlin 1819–1833, and later Professor of botany and director of the botanical gardens of Halle University, 1833–1866. Rind or Kind collected 12 specimens from Mecklenburg.

Hungary. Hungarian specimens have been collected by various botanists: 22 from Buda (e.g. *Nymphaea lotus*), 7 from Pest, and 7 from Matrae (e.g. *Bombycilaena erecta*), a mountain range in northern Hungary. *Dianthus collinus* was collected in Sárhegy.

Norway. Jacob Fellman collected his Norwegian specimens in Øst Finnmark [East Finnmark]: *Koenigia islandica* in Makur (N Porsanger) and *Sagina saginoides* in Varanger Peninsula. Twenty specimens were collected by him on Mt Rastekaisa, including *Phippsia algida* and *Ranunculus sulphureus*. G. Wahlenberg collected four specimens, including *Chamorchis alpina*. Eighteen specimens came from Arendal [S Norway], many of which were probably collected by German physician and naturalist Friedrich August Ludwig Thienemann (1793–1858).

Russia. Fellman collected many specimens in Northwest Russia, 119 of which are currently databased at H. These include *Chamorchis alpina* (see Blinova & Uotila 2011, this volume), *Clematis sibirica* (Archangel, ad ostium fluminis Dvina in 1826) and *Cotoneaster cinnabarinus* (Kola Peninsula, [Khibiny Mts] in 1829. ”Herbarium Fellman” contains 137 specimens collected by Fr. Nylander in Northwest Russia. Chamisso collected *Cerastium maximum, Potentilla fragarioides* and *Rhododendron dauricum* in 1826 in Kamchatka.

Sweden. Fellman’s Swedish collection, with 283 specimens, is the most extensive. These specimens were collected in various parts of the country, especially in Lule Lappmark (LL, 60 specimens) and Uppland (54 specimens). This material includes 40 specimens by Wahlenberg (LL), 15 by Laestadius in LL and 5 by him collected in Pite Lappmark, e.g. *Draba nivalis* and *Poa annua*.

Other countries. Austrian specimens were collected e.g. by W. Gerhard (*Bothriochloa ischaemum* at Merseburg), German doctor and naturalist Friedrich Sigismund Leuckart (1794–1843) (*Homogyne discolour, Rhodothamnus chamaecistus* and *Silene alpestris* from Schneeberg in the Alps near Vienna), and by L. Reichenbach. The collection contains *Crocus vernus* subsp. *albiflorus* from Croatia, Dalmatia; cultivated *Lobelia cardinalis* from the Czech Republic, Radim; *Tephroseris palustris* from Denmark; *Uticularia stellaris* from Egypt; *Arbutus unedo* collected by Ludwig Riedel (1790–1861) in S. France either 1816 or 1817; *Dryopteris villarii* from Liverpool, UK; *Salvia ceratophylla* from Israel; *Cyperus capitatus* collected by August Friedrich Schweigger (1783–1821) in Sicily, Italy; *Polystichum aculeatum* collected by Carl Ludvig Willdenow (1765–1812) in Poland; *Lycopus exaltatus* from Romania, Tibiscum; *Anaphalis margaritacea* from Caput Bonae Spei [Cape of Good Hope], South Africa; *Eragrostis ciliaris* and *Fimbristylis conifer* from Surinam; five species of *Saxifraga* from Switzerland; *Kitaibelia vitifolia* from Syrmio [Smyrna?], Turkey; and 14 specimens collected by Chamisso at Sinus Eschscholzii, Sinus Schischmareff, St Laurentii Insula and Unalashka in Alaska, USA: *Acomastylis humilis, Cassiope lycopodioides, Coptis trifolia, Dianthus repens, Dodecatheon frigidum, Juncus arcticus, Juncus ensifolius, Juncus falcatus, Primula cuneifolia* subsp. *saxifragifolia, Primula mistassinica, Rhododendron camtschaticum, Sieversia rotundifolia, Stellaria aquatica* and *Veronica stelleri*.

Almost all of the specimens are undated, bear no information on the collector and so on; the 217 sheet even lacks an indication of the country (placed in pristinum folders at H), so the degree of uncertainty is high. In many cases, the collector is almost certainly someone other than the one with whom Fellman exchanged specimens. ”Herbarium Fellman” is now incorporated into the main collections at H. All specimens are databased.

Plant exchange and correspondence

During the 1820s, Jacob Fellman was one of the few botanists to live permanently in northernmost Europe. He became well known early on, and corresponded with several European botanists. The correspondence, which included 113 letters, mainly to Fellman, was published in the fourth volume of the memoirs (J. Fellman 1906d). The letters were written in French, German, Latin or Swedish. In total, Fellman corresponded with 40 persons. This enables one to estimate from which herbarium the specimens originated. In addition, Fellman sent as many as 29 letters to C. G. Mannerheim providing supplementary information (Itkonen 1977). Many correspondents suggested plant exchanges, especially against northern particularities such as sedges and willows; of course, *Calypso bulbosa* and *Moenringia lateriflora* were also particularly desirable.

The list of correspondents also includes a few natruralists with whom Jacob Fellman exchanged plants, although no letters attest to it (viz. Frederik Nylander and Ludwig Reichenbach); information on plants sent to Fellman is based on ”Herbarium Fellman”.

Lars Arnell (1781–1856), secretary of Konliga Finska Hushållningssällskapet (”Royal Finnish Economy Society”), sent two letters in 1842 in which he suggest seed exchange with Aura Trädgårdsvänner [”Aura Garden’s Friends” in Turku].

Samuel Niclas Casström (1763–1827), Inspector of the botanical museum at the Swedish Royal Academy [now Swedish Museum of Natural History]. In an undated letter, Casström acknowledged receiving plants from Fellman and promised in turn to send rarer species from southern Sweden. ”Herbarium Fellman” contains 25 specimens collected in Blekinge, 21 in Halland, 9 in Skåne, 16 in Södemanland and 34 in Västergötland. However, the name of the collector(s) is lacking.

Matthias Castrén (1764–1845), Vicary of Keminmaa, Fellman’s friend. Seven letters from, one letter to, between 1820–1830. Botanic issues were only rarely addressed.

Matias Aleksanteri Castrén (1813–1852), Professor of Finnish language in the Imperial Alexander University [now the University of Helsinki], Fellman’s nephew. Eight letters between

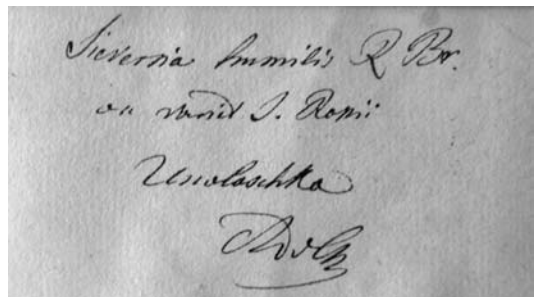


Fig. 7. Label of *Sieversia humilis* collected by Adelbert von Chamisso in Unalashka in 1816.

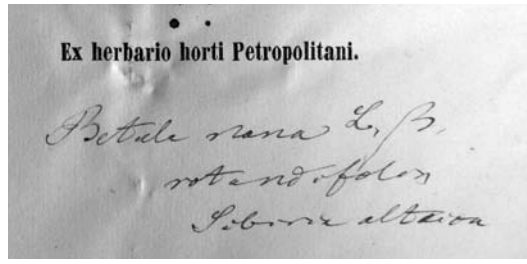


Fig. 8. Label of *Betula nana* collected in Siberia and sent to Fellman from the Botanical Gardens in St Petersburg.

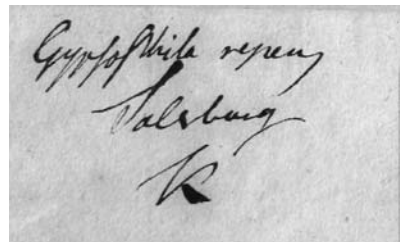


Fig. 9. Label of *Gypsophila repens* collected by Gustav Kunze in Salzburg.

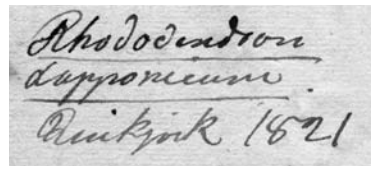


Fig. 10. Label of *Rhododendron lapponicum* collected by Lars Laevi Laestadius in Lule Lapmark.

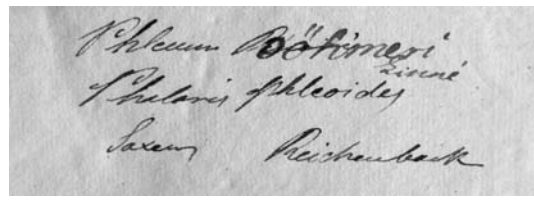


Fig. 11. Label of *Phleum boehmeri / phleoides* collected by Ludwig Reichenbach in Saxonia.

1838–1850. Botanic issues were only rarely addressed.

Peter Wogelius Deinboll (1783–1874), vicar of Vadsö [Vesisaari], Norway. Three letters from, one letter to, between 1822–1827. In a letter dated 6 February 1822, Deinboll acknowledged receiving plants.

Johann Friedrich Eschscholtz (1793–1831), Livonian natural scientist, Professor at the University of Dorpat, Estonia. One letter from, dated 26 November/8 December 1827 [new style], which discussed entomological subjects. Fellman had received insects collected in Kamtchatka and the Pacific Northwest of North America during an 1815–1818 expedition led by Otto von Kotzebue; Eschscholtz and Adelbert von Chamisso (1781–1838) also participated. Eighteen plant specimens were most probably sent by Eschscholtz, collected by Chamisso (Fig. 7) during the expedition.

Friedrich Ernst Ludwig von Fischer (1782–1854), born in Germany, director of the St Petersburg botanical garden in Russia, 1823–1850. Three letters from, one letter to, between 1823–1832. In an undated letter [1823], Fischer acknowledged receiving seeds and requested dried specimens, especially of *Calypso borealis* [*C. bulbosa*]. Fellman's letter to Fischer was also undated. Fischer may have sent four *Betula* specimens (Fig. 8), collected in Dahuria (Nertschina), Mandschuria and Siberia (Altai), during the 1840s. One alternative is that Ledebour sent the specimens. Three specimens were determined by Eduard August von Regel (1815–1892).

Carl Johan Hartman (1790–1849), Swedish botanist and doctor. One letter dated 16 January 1833, in which Hartman requests *Andromeda* [*Chamaedaphne*] *calyculata*, *Arenaria* [*Moehringia*] *lateriflora, Norna borealis* [*Calypso bulbosa*], *Thalictrum majus* [*T.* cf. *minus* subsp. *kemense*], and offers in exchange literature and Scandinavian plants.

Gustav Kunze (1793–1851), Professor of zoology, entomologist and botanist at the University of Leipzig, Germany. One letter dated 13 July 1829, in which Kunze requests Finnish plant species, and inform him of plants to be sent from Leipzig. "Herbarium Fellman" contains 14 specimens collected by Kunze and bearing either Kunze's signature or the acronym K (Fig. 9).

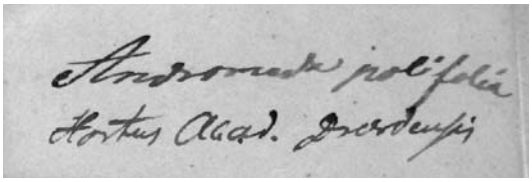
Lars Levi Laestadius (1800–1861), Pastor, amateur botanist in northern Sweden. One undated letter to Laestadius on the Sami language. "Herbarium Fellman" contains 19 specimens collected by Laestadius (Fig. 10), mainly at Lule Lappmark.

Carl Friedrich von Ledebour (1785–1851), German-Estonian botanist, Professor of science at the University of Tartu, Estonia. Two letters from, one letter to, between 1824–1827. On 21 December 1824 and 16 January 1826, Ledebour asked Fellman to send him naturalia and promised to send him cryptogams. In 1827, Fellman promised to send dried specimens to Ledebour.

Carl Gustaf Mannerheim (1797–1854), count, entomologist, secretary to the Finnish Minister Secretary of State in St Petersburg. Nine letters from, between 1823–1843. Their correspondence addressed mainly entomology, Mannerheim's main interest, but often botany also. In a letter dated 24 March 1825, Mannerheim wrote to Jacob Fellman that Fischer, Trinius, Prescott and Turtšsaninoff [Turczaninow] were eager to buy plants from Fellman, and encouraged Fellman to depart on a collection expedition to the Kola Peninsula. Fischer established a Botanical Garden in St Petersburg, where several plants were raised from seeds that Fellman had sent. Fellman sent 29 letters to Mannerheim (Itkonen 1977), and many Poaceae to Trinius according to a letter dated 15 July 1823 signed in Oulu.

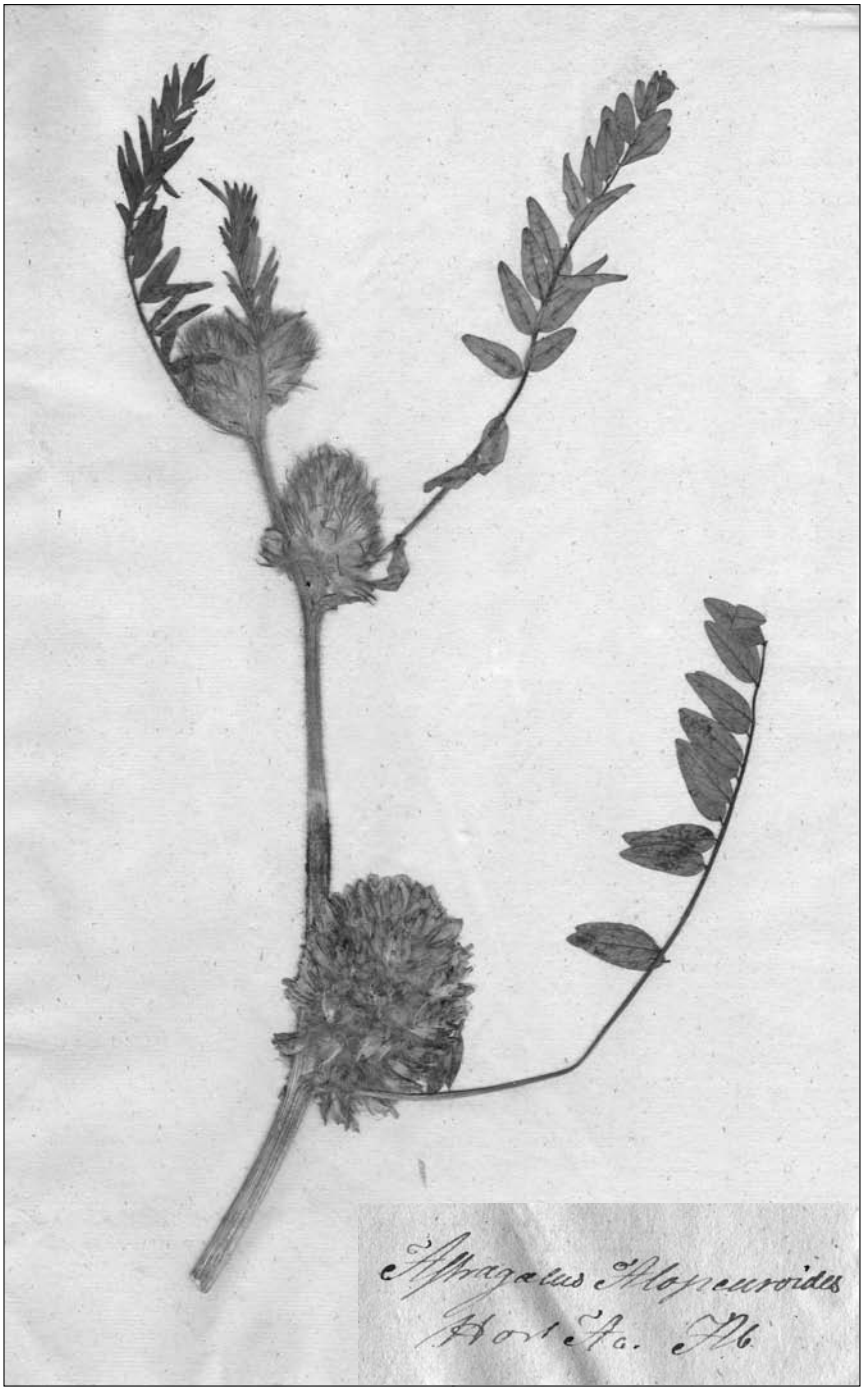
Fredrik Nylander (1820–1880), botanist, later doctor in Oulu, Finland. There is no correspondence between Fellman and Nylander, but "Herbarium Fellman" has 150 specimens collected by Nylander, mainly in Northwest Russia, where Nylander travelled in 1842, 1843 and 1844 (Väre 2007, 2008).

Ludwig Reichenbach (1793–1879), German botanist, director of the Dresden Natural History Museum in 1820, later Professor at the Surgical-Medical Academy in Dresden. There is no correspondence between Reichenbach and Fellman, but "Herbarium Fellman" has 16 specimens collected by Reichenbach in Austria and Germany (Fig. 11), and 5 specimens collected in Hortus Academicus Dresdensis (Fig. 12), perhaps by Reichenbach. Further, many specimens have labels written in handwriting resembling that of



◄ Fig. 12. Label of *Andromeda polifolia* possibly collected by Ludwig Reichenbach in Hortus Botanicus Dresdensis.

▼ Fig. 13. *Astragalus alopecuroides* collected by Carl Reinhold Sahlberg in the Botanical Gardens at the Åbo Academy.



Reichenbach, who did a lot of collecting in the Leipzig region.

Carl Reinhold Sahlberg (1779–1860), Finnish entomologist, Professor of natural history at the Academy of Åbo [Turku]. Two letters from, in 1822 and 1826. On 20 November 1822, Sahlberg wrote that Fellman had been accepted as a member of the Societatis pro Fauna et Flora Fennica. "Herbarium Fellman" has 38 specimens, perhaps sent by Salhlberg, 6 of which are collected are in the Botanical Garden of the Åbo Academy (Fig. 13).

Kurt Polycarp Joachim Sprengel (1766–1833), German botanist, Professor of medicine at the University of Halle. One letter from Sprengel, who, on 24 December 1827, informed Fellman that he had identified *Arenaria* [*Moehringia*] *lateriflora,* a new species in Europe. "Herbarium Fellman" has 17 specimens collected by Sprengel (Fig. 14).

Johan Magnus af Tengström (1793–1856), Professor of botany and zoology at the Imperial Alexander University [now the University of Helsinki], Finland. Nine letters from, one to, between

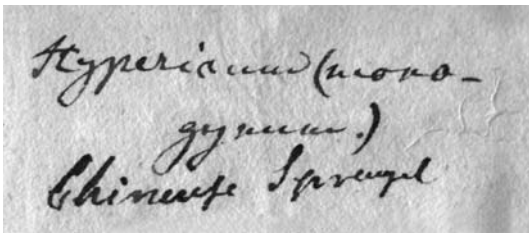


Fig. 14. Label of *Hypericum chinense* collected by Kurt Sprengel.

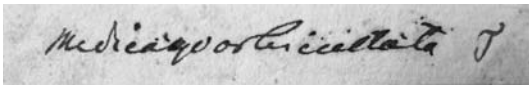


Fig. 15. Label of *Medicago orbiculata* collected by Johan Magnus af Tengström.

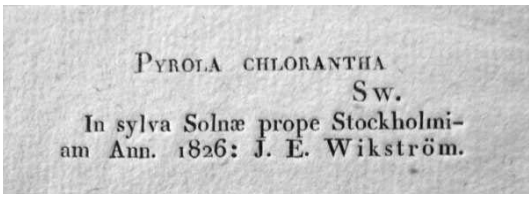


Fig. 16. Label of *Pyrola chlorantha* collected by Johan Emanuel Wikström.

1822–1829. On 29 June 1822, Tengström acknowledged receiving plants from Fellman. Tengström suspected that one specimen was *Spergula glabra* [*Sagina glabra*] [it was probably *Sagina saginoides*]. On 3 March 1823, Tengströn again acknowledged receiving plants from Fellman. On 22 December 1826, Tengström acknowledged receiving *Agrostis* [*Phippsia*] *algida* and *Primula finnmarchica* [*P. nutans* subsp. *finnmarchica*]. On 21 July 1828, Tengström again acknowledged receiving new specimens that Fellman had sent, and requested new ones, as the Great Fire of Turku had destroyed most collections in the autumn of 1827. On 26 February 1828, Tengströn wrote that he was waiting for promised specimens to fill a gap of 15 000 species lost the fire had created. "Herbarium Fellman" contains at least 23 specimens (Fig. 15) collected by af Tengström. There may be many more, as many labels are written in his handwriting. Many of those specimes were collected in France and Germany during the peregrination that af Tengström did in 1817–19 in Sweden, Denmark, Germany, France and Switzerland.

Göran Wahlenberg (1780–1851), Professor of medicine and botany at the University of Uppsala, Sweden. In a letter in 1828, Fellman informed Wahlenberg about specimens to be sent. "Herbarium Fellman" has at least 40 specimens collected by Wahlenberg, many from Lule Lappmark.

Johan Emanuel Wikström (1789–1856), Intendent, later Professor of the botanical museum at the Royal Academy [now the Swedish Museum of Natural History]. Three letters from between 1821–1823. On 16 April 1821, Wikström asked Fellman for northern specimens (including several duplicates) and seeds, and promised to send Hartman's [1820] Skandinavian Flora, publications of the Royal Academy, and several Swedish plants. On 11 February 1822, Wikström acknowledged receiving the plants, and wrote that he will send northern Scandinavian species to Fellman. He asked Fellman to continue sending plants to Uppsala, especially Cyperaceae and Salicaceae, but also named other specimens of interest. "Herbarium Fellman" has ten specimens collected by Wikström (Fig. 16) with printed labels, in addition to several anonymously collected specimens from Sweden.

Botanic literature

Through correspondence, Jacob Fellman was able to acquire scientific literature. For identification purposes, he used Wahlenberg's (1812) *Flora lapponica*. Sjögren (1826: V) saw this rare book in Utsjoki. Further, Fellman had as well as Liljeblabd's Svensk flora ["Flora of Sweden"] (Itkonen 1977), perhaps its 3rd edition (Liljeblad 1816). In 1920, Finnish-Ugric Society received a Fellman's "Lapponian library" as a donation from Mrs Julia Fellman, wife of the late Nils Isak Fellman, who died in 1919 (Capdeville 2001). This catalogue (Capdeville 2001) includes the 2nd edition of *Flora Lapponica* (Linnaeus 1792). Hartman, in a letter dated 16 January 1833, promised to send his *Handbok i Skandinaviens flora* ["Flora of Scandinavia"], which did not include Finland or the Kola Peninsula. Further, Fellman owned some dissertations by Linnaeus and Thunberg (J. Fellman 1906d).

Botanical results published

Fellman 1831

J. Fellman (1831) published a list of 379 seed plants of the [Western] Kola Peninsula (Lapponia petsamoënsis, Lapponia tulomensis, Lapponia murmanica) and Karelia keretina (Map 1). He wrote his notes mostly during the 1820 and 1829 excursions. About 30 of the seed plants were new discoveries in that area. Amongst the important discoveries were *Arenaria pseudofrigida*, *Papaver lapponicum* and *Ranunculus glacialis* in the Khibiny Mts, and *Sanguisorba officinalis* in Karelia keretina (Hiitonen 1958). Fellman identified 35 *Carex* species, more than anyone had found before in this area. Fellman estimated the frequency and mentioned about 50 localities, most often Keret (Table 2). Some of the plants on the list grew only in Finland. The plant list was republished (J. Fellman 1906d), and commented on by N. I. Fellman (1869, 1882).

Many notes on species occurring near villages were also included in his memoirs (J. Fellman 1906a). **Kantalahti:** *Fragaria vesca, Primula farinosa, P. finnmarchica* [both *P. nutans* subsp. *finnmarchica*], *Saxifraga nivalis, Stellaria graminea* and *Veronica maritima*; **Suonostroff**: *Aconitum lycoctonum, Cineraria campestris* [*Tephroseris integrifolia*], *Elymus* [*Leymus*] *arenarius, Juncus, Pisum maritimum* [*Lathyrus japonica* subsp. *maritimus*], *Primula finnmarchica* [*nutans*], *Poterium sanguisorba* [*Sanguisorba officinalis*], *Pulmonaria* [*Mertensia*] *maritima* and *Scirpus*; **Kem**: *Andromeda polifolia, Anthoxanthum odoratum, Cochlearia officinalis, Ranunculus acris, Rhodiola rosea, Rubus chamaemorus, Rubus arcticus, Vaccinium myrtillus, Viola palustris* and *V. canina* (with a note, that the same taxa occur in Keret, Kouda and Kantalahti); **Khibiny**: *Aira* [*Vahlodea*] *atropurpurea, Azalea* [*Loiseleuria*] *procumbens, Convallaria bifolia, Geranium sylvaticum, Mespilus cotoneaster* [*Cotoneaster cinnabarinus*], *Papaver nudicaule, Pedicularis lapponica, Pinguicula alpina, Primula stricta* and *Trollius europaeus*; **Kola**: *Dianthus superbus, Melica coerulea, Menyanthes trifoliata* (medicinal plants p. 565) and *Rosa majalis*.

Fellman 1835

J. Fellman (1835) lists 386 vascular plants, 159 bryophytes, 124 lichens, 40 fungi and 7 algae. For its time, the list was the most extensive on cryptogams in Finland. Sixty species were given Samish names, 167 Finnish names, and 118 Estonian ones. The latter names may have been influenced by Ledebour, with whom Fellman corresponded. Suhonen (1936) had ignored the Finnish names. In addition, the work lists many habitats and frequencies.

Most of the data concern Inari Lapland, but a few other biogeographical provinces are mentioned: Lapponia enontekiensis (e.g. *Carex laxa* and *Holcus* [*Hierochloë*] *alpina*), Lapponia sompiensis (Sodankylä, e.g. *Schoenoplectus lacustris*), Regio kuusamoënsis (Kuusamo), Lapponia kittilensis (Muonio), and Ostrobottnia ultima (Rovaniemi). The note on *Scirpus bellardi* [*Kobresia myosuroides*], from Muonio by Deutsch to Fellman, is incorrect. The list of plant was republished (J. Fellman 1906d) and commented on by N. I. Fellman (1869, 1882).

Minor notes on Finnish flora were provided on many occasions (J. Fellman 1821, 1826, 1844, 1906a,d), especially notes on Lapponia inaren-

Table 2. Number of species mentioned by Fellman (1831) in each locality.

Archangel	1	City Archangel, Russia
Autti rustica*	1	Village Autti, PeP, Finland
Ekaterinahamn	1	Lake Ekostrovskaya Imandra, Lim, Russia
Enare lacus	2	Lake Inarijärvi, InL, Finland
Holmgårdsfjället	3	Mt. Holmgård, ØFi, Norway
Imandra	18	Lake Imandra, Lim, Russia
Jakobselven	8	River Jakobselven, ØFi, Norway
Jimjärvi rustica	1	Village Juujärvi, PeP, Finland*
Kaakamaniemi	1	Village Kaakamaniemi, PeP, Finland*
Kalkuoaivi	1	Mt. Kalguoaivi, InL, Finland
Kandalax	28	Village Kandalaksha, Lim, Russia
Kapudsa Mt. a Keret	4	Mt. Kapudsa near Keret, Kk, Russia
Karelsgammen	12	Village Vayda-Guba, Lps, Russia
Kemi fluvium ostium	1	River Kemijoki mouth, PeP, Finland*
Keret	37	Village Keret, Kk, Russia
Kiksesjok	3	River Kiksesjok [unknown], Lt, Russia
Kipinä Tuoddar	15	Mt. Khibiny, Lim, Russia
Kivirega [Kiviräkä] river	2	River Kivirega, Kk, Russia
Knäsäguba	13	Peninsula Knyazaya Guba, Kk, Russia
Koddojaur	1	Lake Kontosjärvi, InL, Finland
Kola pagum	6	Village Kola, Lt, Russia
Kola sinus	12	Kola Peninsula, Russia
Kolmesoivemadaketsa	3	Lakes Madsasjaur, Lps, Russia
Kouda	29	Village Kovda, Kk, Russia
Kouda flumen	7	River Kovda, Kk, Russia
Krigina	3	Village Gridino, Kk, Russia
Kuollejaur	4	Lake Kolozero, Lt, Russia
Kuollejok	13	Lake Kuolayoki, Lt, Russia
Kyrö pag.	1	Village, Kyrö, InL, Finland
Lausua in Kemiträsk	1	Village Luusua, PeP, Finland*
Luttojoki, Luttoelf	22	River Lutto, Lt, Russia
Niva flumen	12	River Nivskiy, Lim, Russia
Normanssätet	3	Norway divide?, ØFi, Norway
Nuorttejaur	14	Lake Notozero, Lt, Russia
Pasvik	1	River Pasvik, Øfi/Lps, between Norway and Russia
Patsjoki	9	River Pasvik, Øfi/Lps, between Norway and Russia
Peisen (incl. alpen et pagum)	22	Village Pechenga, Lt, Russia
Pollomjaur	5	Lake Polozero, Lt, Russia
Porjaguba	1	Village Porya Guba, Lim, Russia
Sassceg	1	Village Zasheyek, Lim, Russia
Sjolmejaur	1	Lake Salmijärvi along river Lutto, Lps, Russia
Sokkeljaur	1	Lake Sokkejaur, N of river Lutto, Lps, Russia
Sokkeljok	1	River Sokkeljok, N of river Lutto, Lps, Russia
Soppeljaur	1	Lake Soppeljaur, Lps, Russia
Sulkesjaur	1	Lake Sulkusjärvi, InL, Finland
Suonostroff	5	Village Sonostrov, Kk, Russia
Torangijaur vid Kouda	1	Lake Toranki [not localised] near Kovda, Kk, Russia
Tuloma flumen	35	River Tuloma, Lt, Russia
Tuntsa flumen	1	River Tuntsa, Lim, Russia
Tullompaikke	1	Village Tuloma, Lt, Russia
Vangetinjaur	1	Lake Vouvatusjärvi [near river Pasvik, not localised], Lps, Russia
Warangericum sinum	12	Waranger peninsula, ØFi, Norway
Warasjoksuollo	1	Near Mt. Muotka [not localised], InL/Lps, Finland/Russia
	384	

**Moehringia lateriflora* sites in Finland

sis. The Paatsjoki river valley was vegetationally amongst the most luxurious in Lapland, and the production of pine tar was possible in the forests of Utsjoki (J. Fellman 1821). The first volume of Fellman's memoirs includes about 265 notes on plants (J. Fellman 1906a).

Fellman intended to write "Flora Holmgårdii" (Viinaniemi in Finnish, Itkonen 1977), a local flora of a mountain on the Varanger Peninsula, which Fellman studied jointly with Deinboll in 1820. Unfortunately, the manuscript is lost (J. Fellman 1906d: 344, Itkonen 1977).

Phenology and cultivated plants

J. Fellman (1826, 1906d: 220) mentioned cultivated species on several occasions. In Kemijärvi parsonage was grown in 1809 *Anethum graveolens, Beta vulgaris, Brassica oleracea, Daucus carota, Lactuca sativa, Pastinaca sativa, Petroselinum crispum, Ribes nigrum, R. spicatum, Rubus arcticus* and *R. idaeus* as well as several other species (J. Fellman 1906a: 64). Fellman wrote the manuscript *Om en del inhemska foderväxter* ("About some domestic fodderplants") in the 1820s and introduced 26 plants (J. Fellman 1906d).

Fellman observed the fenology of *Beta vulgaris, B. rapa, Daucus carota* subsp. *sativa, H. vulgare, Lactuca sativa, Raphanus sativus* var. *niger* and var. *radicula* as well as *Spinacia oleracea*. In Utsjoki, the only more commonly cultivated economic plants were *Brassica rapa, Cannabis sativa, Hordeum vulgare* and *Solanum tuberosum*; the yield was usually poor (J. Fellman 1823).

J. Fellman (1846) gathered phenological observations from various parts of the country concerning of *Avena sativa, Cannabis sativa, Fagopyrum esculentum, Hordeum vulgare, Linum usitatissimum, Pisum sativum, Secale cereale, Solanum tuberosa, Triticum aestivum* and *Vicia sativa* from various parts of the country. Economically, these were the most important plants of the time. Data were sent from 20 parishes in 1817–1823, mainly by vicars: Halikko [Karl Anders] Ignatius, Ii 1818–22 J[acob] Frosterus, Ilomantsi 1818–19 J[ohan] Molander, Ilmola 1817–22 anonymous, Inari 1826, 1828–30 Jacob Fellman., Jomala [Elias] Stadius, Kalajoki J[acob]. Frosterus, Kemi M[atias] Castrén, Kuusamo 1818–21 Abr[aham] Montin, Liminka 1819–21 Gabr[iel] Calamnius, Paltamo C[arl] F[redrik] Aejmelaeus, Borgå [Porvoo] Storkroknäs J[ohan] Borgström, Pudasjärvi Isaac Montin, Sauvo 1817–26 M[årten] J[ohan] Tolpo, Sodankylä 1788–1803 Nils Enckel, Tammela 1817–31 N[ils] M[agnus] Tolpo, Tohmajärvi 1817–20 Pehr Wallenius, Tuulos 1818–21 A. Munsterhjelm and Viitasaari 1817–22 J[ohan] Boxström (see also Kihlman 1895). In Lappajärvi Fellman, continued his phenological observations between 1863–73 (Moberg 1885).

J. Fellman (1847) edited notes written by Anders Johan Sjögren (1794–1855) on Kemi Lapland [in those days, the whole of northern Finland]. The notes include data on cultivated plants, including *Allium cepa, Daucus carota, Lactuca sativa* and *Secale cereale*. More prosperous houses cultivated, for example, *Allium schoenoprasum*, which was indigenous to the shores of the Arctic Ocean and had populations along the Tenojoki river some 50 miles upstream from the Ocean.

J. Fellman (1848) also studied Lappish animals. Concerning mammals, he observed the food of bears (*Ursus arctos*), hares (*Lepus timidus*) and semi-domestic reindeer (*Rangifer tarandus tarandus*). Bears devoured *Angelica archangelica, Epilobium angustifolium, Lactuca* (*Sonchus*) *alpina, Rubus chamaemorus*, *Salix* buds and *Vaccinium myrtillus*.

Discussion

Jacob Fellman was the first Finn to study the flora of northern Finland and the Kola Peninsula (Erkamo 1945, Hiitonen 1958). The subtitle *Secundum Georgii Wahlenberg Flora Lappon. Berolini 1812* of Fellman (1835) indicates that he was aware of his importance. He donated specimens to the *Societatis pro Fauna et Flora Fennica* after the Great Fire of Turku in 1827. Most of the collections burned, and a new herbarium had to be established (J. Fellman 1906d). Many of Fellman's discoveries were the first of the Fennoscandian biogeographical region (Hjelt 1891, Hiitonen 1958), several of which were from the Kola Peninsula. *Moehringia lateriflora* from Aut-

ti, Rovaniemi, was new to Europe. In Lappajärvi, Jacob Fellman ceased collecting plants, or at least such specimens are rare at H. Einar Reuter (1881–1968) produced a summary of Fellman's (1906a-d) notes on the forest and of vegetation Lapland (Reuter 1909). Fellman was among the first to focus attention on changes in the northern forest line when he discovered fossilised *Pinus sylvestris* roots above the tree line.

Jacob Fellman was a corresponding member of the scientific societies of Edinburg, Leipzig and Moscow, as well as a member of the Finnish Royal Economic Society (Keisarillinen Suomen Talousseura, Kejserliga Finska Hushållningssällskapet) and the Societatis pro Fauna et Flora Fennica since the year of society's establishment in 1821.

Eponyms: *Hieracium fellmani* Norrl. 1889, three beetles: *Bembidion Fellmanni* Mannerheim 1823, *Quedius Fellmanni* Zetterstedt 1838, *Plataphodes Fellmanni* Mannerheim 1823, *Paranoplocephala fellmani* Henttonen & Haukisalmi 2001, a parasite in Norway lemmel.

Göran Wahlenberg was the first to visit Mt Rastekaisa in Norway in 1802, followed by Fellman and Deinboll in 1822. Those visits are commemorated by three memorial stones placed on the summit. Fellman's motto reflected his true love of the mountain flora (J. Fellman 1906: 264): *Sed natura paucis contenta* ("Small things in nature give pleasure").

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