Fredrik Wilhelm Radloff – Demonstrator in Botany at old Åbo Akademi

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Radloff was the Demonstrator in Botany (1806–1809) at Åbo Akademi. His main duty was to instruct medical students on the subject of medicinal plants. In his own thesis, De Myristica, supervised by Professor Carl Peter Thunberg, he presented morphological characters of two species of the genus. Two theses supervised by Radloff provide valuable information on plantations in the old Åbo Akademi Botanic Garden. Prior to this position Radloff was appointed regional Physician of Aland 1789–1799. There he compiled a regional description that includes a list of local species. The latter part of his career in Finland Radloff acted as a secretary of the Royal Finnish Economy Society 1805–1813. In those years Radloff wrote on the cultivation trials of root crops and fences.

Introduction

Fredrik Wilhelm Radloff (Fig. 1) was born at Mouhijärvi [today Sastamala], SW Finland, on 19 September 1766. His parents were Gottfrid Ernst Radloff, chef of baron Sven Cederström, and Helena Saulin. He died at Norrtälje, Sweden, on the 14 April 1838. Radloff was unmarried.

In 12 March 1782 Radloff graduated from Deutsche Schule Stockholm. He studied natural sciences and medicine from 12 March 1782 to 14 May 1788 at Uppsala University. He specialised in natural sciences and medicine under the supervision Carl Peter Thunberg (1743–1828), Professor of Medicine from 1781 to 1828, and defended to him his Pro Gradu-thesis De Myristica ["On nutmegs"] on 14 April 1787. MB 19 dec 1787, Lic.Med 14 May 1788 (Thunberg & Radloff 1788a). Radloff defended to Thunberg a thesis Museum naturalium Academiae Upsaliensis P.I. in 28 May 1788 (Thunberg & Radloff 1788b). This dissertation was the first in a series of dissertations aiming to describe the collections of Uppsala Museum of Natural History. Radloff listed parts of zoological specimens. Radloff obtained his Ph.D. degree 13 June 1788. Honorary Professor at Uppsala in 1805.

In his Pro Graduate-thesis Thunberg and Radloff present morphological characters of two nutmeg species, M. moschata (= fragrans Houtt.) and M. tomentosa (= fatua Houtt.), described by Thunberg in 1782. They also presented their occurrence, as well as the cultivation and fruit collecting and use of fruits in the Moluccas [Maluku], Indonesia (Thunberg & Radloff 1788a).
Career


Finland became part of the Russian empire in 1809 as an autonomous Grand Duchy. When Emperor Alexander I visited Turku in 1809, Radloff donated him a book written by him, Muthmas-sungen über den Ursprung dess finnischen Volk ("Assumptions on the origin of Finns") (Radloff 1809c). As a reward, Alexander nominated Radloff as a reporting secretary in office commission of the Cabinet council. However, he was a sickly man and resigned 1811. Appointed secretary of Kungliga Finska Hushållningssällskapet ("Royal Finnish Economic Society") 1805–1813, editor of newspaper Åbo Tidningar 1808–13. In 1814 Radloff moved to Sweden.

Physician of Åland

While working as a district physician at Åland Islands Radloff (1795) gathered information on the islands and wrote a description of it (Fig. 2). It was dedicated to the King of Sweden: Stormätziste, Allernådigste Kung! ("The mightiest, Most Gracious King!"). Total number of plants was about 680, of which cryptogams numbered 150. Plants suitable for medical purposes numbered 74. Radloff presents 60 species grouped to ordinary cultivated ones, to trees, meadow species, sea shore meadow species, field weeds and poisonous species.

Typical weeds were Anthyllis vulneraria, Apera spica-venti, Bromus arvensis, B. secali-nus, Deschampsia flexuosa, Galium verum and Spergula arvensis. Four first are very rare today in Finland. New species to Finland were Allium scorodoprasum, Chenopodium = Suaeda mariti-ma, Salsola kali and Valerianella locusta. Radloff pointed out, that the Swedish name of Inula hel-e-nium, Ålandsrot, had nothing to do with Åland. It was known only at one site. His description of the province was highly appreciated, and Radloff was nominated a member of the Kungliga Vetenskapsakademien ("Royal Swedish Academy of Sciences") in 1804 (Rosenhane 1811: 384) and was given the title of Professor at Uppsala University in 1805.

Inventory of the plants by Radloff was not the first in the islands. Thesis Oratiuncula en-comium Alandiae simpliciter & succincte adum-brans ("Simple and short presentation of Åland") Hasselgreen (1662) mentions Corylus avellana, Fraxinus excelsior, Populus tremula, Quercus robur, Salix spp.) and Elias Tillandz (1683) mentions Laserpitium latifolium. The thesis De Alan-dia, maris Baltici insula, maris Baltici insula ("About Åland") Scarin & Hallborg (1730) mention Betula sp., Alnus sp, Columnae [Corylys avellana], Fraxinus [excelsior] and Vitis agrestis [Vaccinium myrtillus or vitis-idaea]. De Alan-dia, maris Baltici insula ("On Åland, the island of the Baltic Sea"), supervised by Ekerman, men-
tion 16 plants (Ekerman & Tärnström 1745), and in a third thesis Dissertatio historica de paroecia Alandia Lemland, eique annexa Lumparland ("The history of Lemland and Lumparland at Åland") are mentioned eight deciduous trees or shrubs typical to islands and in Finland a very rare Taxus baccata (Bilmark & Mallén 1792). Swartz (1793) had described as new to science Gentiana = Centaurium pulchellum, collected at Åland. Prior to Radloff, Ehrenmalm (1781) had given a short regional description on Åland and listed four most common tree species. Later Radloff (1804–05) made a description of Roslagen, located north of Stockholm, Sweden.

Secretary of Royal Finnish Economy Society

After coming back to Finland in 1805 Radloff was appointed as secretary of the Kungliga Finnska Hushållningssällskapet ("Royal Finnish Economic Society"), from which duty he resigned in 1811. As a secretary, Radloff (1805, 1806b, 1807c, 1808e) published the annual reports of the Society. It has been claimed that he performed his duties poorly (Cygnaeus 1897a,b).

Due to repeated years of crop failure, government encouraged Åbo Akademi and the Economic Society to study how to moderate famine. Consequently Finnish Economy Society ordered reports based on practical experiences in how to achieve these requirements.

Radloff wrote on the cultivation trials of root crops and encouraged common people to do their own experiments. Several promising Brassica taxa had not yet been tried in Finland, commonly cultivated were only some cultivars of B. napus and B. oleracea (Radloff 1807b). He also wrote on potato cultivation, its world-wide cultivation history, failures in cultivation, on potato conservation and on making potato bread (Radloff 1806a, 1808a,d, 1809a), on Pastinaca sativa (Radloff 1808b) (Fig. 3), on dispose of "soil flees" (Radloff 1808c). Seeds of Cannabis sativa and Hordeum vulgare provided good substitute for coffee beans (Radloff 1809b).

Radloff (1811, 1849) participated anonymously the prize question competition of 1807 given by the Economic Society: "The best way to build wooden fences". Answers were to be given in writing. The background lied in the worry on the adequacy of forests. Warming of buildings, slash and burn culture and burning tar consumed considerable amounts of woods. The detailed answer by Radloff begun: Optat Ephippia Bos piger, optat arare Caballus ("When ox is the sluggard to the horse’s trappings, it is eager to plow"), which seemingly has nothing to do with the question. However, the main reason to build fences was to keep cattle and other animals outside the cultivations. Radloff presented benefits of hedges, obviously inspired by Pehr Kalm’s (1753, 1756) experiences in England. Recommended species were Berberis vulgaris, Corylus avellana, Crataegus monogyna, C. oxyacantha, Pyrus malus sylvestris = Malus pumila, Prunus spinosa, Sambucus nigra, but also Fagus sylvatica, Fraxinus excelsior, Quercus robur and Ulmus glabra. On the sides of banks suitable species were Rosa canina, Rubus fruticosus and Salix × fragilis. Willows were favoured at Seeland [Zeeland] in the Netherlands:

In 1806 Economic Society financed Radloff’s study trip to northern Germany to study local forestry practices (Hjelt 1896). Based on these experiences Radloff (1807a) he participated in the prize question competition “On forest management” given by the Royal Swedish Academy of Sciences in 1806 (Lindroth 1967: 238). Province of the Pomerania was partially a part of the Swedish empire 1630–1815. The answer by Radloff was concerned with the problem of forestation of Calluna and Erica heaths. Radloff presented also statistics on forests and benefits of some foreign tree species, like Gingko biloba and Pinus strobus cultivated by Carl Fredrik Scheffer (1715–1786), chancellor of Åbo Academy. Recommendation of these tree species was based on ignorance of their climatic requirements.

Demonstrator in Botany

Hellenius & Mollin (1779) initiated a series of theses entitled Sistens hortum Academiae Aboensis (“Academy Botanic Garden”). It consists of eight parts. It was aimed to describe important events and collections in the Academy Botanic Garden. Radloff supervised the fourth and fifth parts.

Forthcoming Professor and City Physician of Norrköping, Gustaf Eriksson (1789–1865) (Sacklén 1824:209) defended the fourth part (Radloff & Eriksson 1807) (Fig. 4). It was a direct continuation of the third part by Wallenius and Kunckel (1803) in presenting the garden (Väre 2014). However, first Eriksson gives 11 medicinal theses entitled "A luxurious life brings diseases", to demonstrate his qualifications in medicine.

The benefactors and economic situation of the garden are presented first. Then theses continue with conflicts between Professor in Chemistry Pehr Adrian Gadd (1727–1797) and Professor in Economics Pehr Kalm (1716–1779).

In 1761 Gadd was nominated as "Plantation Director" of Finland. Consequently Kalm felt that his leadership would be weakened concerning his own experimental trials. Thus Gadd and Kalm had serious disagreements in the early 1760’s. To end the controversy Kalm’s plantations were inventoried. Originally in Latin: "Those species laboriously planted by Celestial KALM were long ago listed in this dissertation series [Hellenius & Mollin 1779], but they all are no longer alive, which is why to our knowledge, there has been a controversy between professors and KALM and GADD. Consequently Consistory of the Academy had criticised KALM and ordered an inspection to be carried out on 11 and 12 October 1763 on both Kalm’s gardens” [Academy Garden in the city and Sipsalo outside the city]. A list of plants was done and confirmed by Celested Professor in Medicine Johan Leche. Those marked with a cross had died (Radloff & Eriksson 1807). This is a very important list showing which species were alive, e.g. of those Kalm brought from North America collected there 1749–50. Of the 338 taxa 56 were lost by 1763.

Forthcoming Professor in Anatomy and Physiology at the Imperial Alexander University of Finland Nicolaus Abrahamus Ursin (1785–1851)
defended the fifth part (Radloff & Ursin 1807). (Fig. 5) It repeats the list of seeds provided by Kalm (1751) collected by him in North America. Out of 126 taxa on which seeds were available (Kalm 1751), 15 were alive in 1760 at Academy garden, e.g. *Acer saccharinum*, *Actea racemosa*, *Apocynum cannabinum*, *Carpinum osytra*, *Cornus canadensis* *Corylus americana* and *Prunus virginiana* (Kalm 1761). Kalm estimated their value to be 10 to 100 fold when compared with the cost of his expedition.

North American seeds and seedlings had been distributed to Carl von Linné, Abrahamus Bäck, Petrus Adrian Gadd, Gerdes, Johannes Haartman, Johannes Leche, Juslén, demonstrator in botany Tuvén, district judge Wallenstjerna and to apothecary of Stockholm Wertmüller.

This thesis presents greenhouses which were built 1769–70, its *Caldarium*, *Frigidarium* and *Tepidarium*. The surface area of the garden as a whole was about 0.79 ha, 88.2 × 88.2 m (Radloff & Ursin 1807).

Radloff wrote to Thunberg in 1809 that the Garden was in a bad state, poor in species. The most valuable were four *Larix*, about 25 years old. Radloff sent to Uppsala seeds of rare *Antirrhinum siculum*, *Dianthus monspeliensis* and *Silene picta* (Hjelt 1896).

**Herbarium Radloffianum**

Radloff donated in total 600 plants in 1811 to Carl Niclas Hellenius (1745–1820), Professor in Economic and Natural History in 1793–1816, and to Birger Rutström (Hjelt 1896, Väre 2015). Plants were given to Radloff by Adolph Murray (1751–1803), who worked at Uppsala as a Professor of Anatomy and Surgery. Murray, in turn, was a friend of Carl Peter Thunberg (1743–1828), from whom Radloff probably got some plants. Murray was appointed Botanical Demonstrator in 1777, and in 1781 Professor of Medicine and Natural Philosophy at the University of Uppsala. Probably Murray and Radloff exchanged plant material. Murray had travelled in Central Europe in 1772–1774 (Adolph Murray, urn:sbl:8576, Svensk biografiskt lexicon, 2016-09-14), and perhaps collected plants there. Most or all of that collec-
tion sent to Åbo burned at the Great Fire of Åbo in 1827. Hitherto 80 specimens bearing a writing a D. Radloff have been found, all collected outside Finland and Sweden. These were at disposal of Professor Carl Reinhold Sahlberg (1779–1860), Professor of Natural History 1818–1841 at Åbo Academy and at its successor, the Imperial Alexander University of Finland, as indicated by CRS (Fig. 6). On some sheets there is a note that plants were given by Radloff to Sahlberg in 1810 (Fig. 7). This obviously means that Radloff gave that year a separate set to Sahlberg. Sahlberg kept his private collections in his city apartment, but was gone when the fire broke out. Fortunately some of Sahlberg’s students and a keen insect collector Maria Astrén were nearby and rescued the largest part of the collections. A few sheets are marked H[ortus], Goett[ingen]. (Fig. 8), indicating that those perhaps originated from Göttingen, Germany. Year after the Great Fire, Sahlberg sold his collection by 7 000 rubles to Alexander University, consisting of 5 132 sheets with 4 336 species (Fr. Elfving 1918, Hintikka 1921, Väre 2016, this volume). Herbarium Radloffianum practically lack all locality information, only species names are provided.

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References


