Skvortsovia: 2(2): 141 – 155 (2015)

Skvortsovia
http://skvortsovia.uran.ru/
ISSN 2309-6497 (Print)
ISSN 2309-6500 (Online)

Article

Time of introduction into cultivation for some woody plants: evidence from the archives of the Komarov Botanic Institute

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Received: 29 May 2015 | Accepted by Keith Chamberlain: 20 October 2015 | Published on line: 25 October 2015

Abstract

Archival records in the Botanic Garden, Komarov Botanic Institute, Russian Academy of Sciences, shed light on the time of introduction for certain woody species from the flora of Russia. According to newly discovered records, 55 different plants including 13 woody species were transferred in 1861 from the Imperial St. Petersburg Botanic Garden to the Garden of His Imperial Highness Grand Duke Nicholas Nicolayevich. Apparently, *Bryanthus gmelinii* D.Don, *Securinega suffruticosa* (Pall.) Rehd., *Betula davurica* Pall., *Fraxinus mandshurica* Rupr., *Menispermum dauricum* DC., and *Maackia amurensis* Maxim. et Rupr. were cultivated in the Imperial St. Petersburg Botanic Garden and European gardens earlier than it is indicated in the literature of the 20th and 21st centuries.

Keywords: *Amygdalus pedunculata*, *Betula davurica*, *Bryanthus gmelinii*, *Chamaepericlymenum suecicum*, *Fraxinus mandshurica*, Grand Duke Nicholas Nicolayevich, Imperial St. Petersburg Botanic Garden, *Lespedeza bicolor*, *Lonicera chrysantha*, *Maackia amurensis*, *Menispermum dauricum*, *Prunus pedunculata*, *Rhamnus davurica*, *Securinega suffruticosa*, *Vitis amurensis*, *Weigela middendorffiana*, woody plants.

Introduction

A while ago, when browsing through archival files and folders preserved at his office at the Komarov Botanic Institute (BIN), the author discovered an old journal with yellowed pages. Formerly the room had been the office of a renowned dendrologist, the head of the Botanic Garden, Sergey Ya. Sokolov, and then Olga A. Svyazeva. Some old books, journals, and notebooks were thus preserved in the room. This hard-cover journal of 106 numbered pages contained the 1860–1861 records of accessioned and de-accessioned material at the Imperial St. Petersburg Botanic Garden (the name of the Botanic Garden of the Komarov Botanic Institute at the time). Page 1 is dated February 26, 1860 (Fig. 1). Page 75 contains the following record (Fig. 2–4):

"To His Imperial Highness Nicholas Nicolayevich, in accordance with the order made by Meyendorf, the Director of the Botanic Garden, the following plants [were transferred] in 1861."

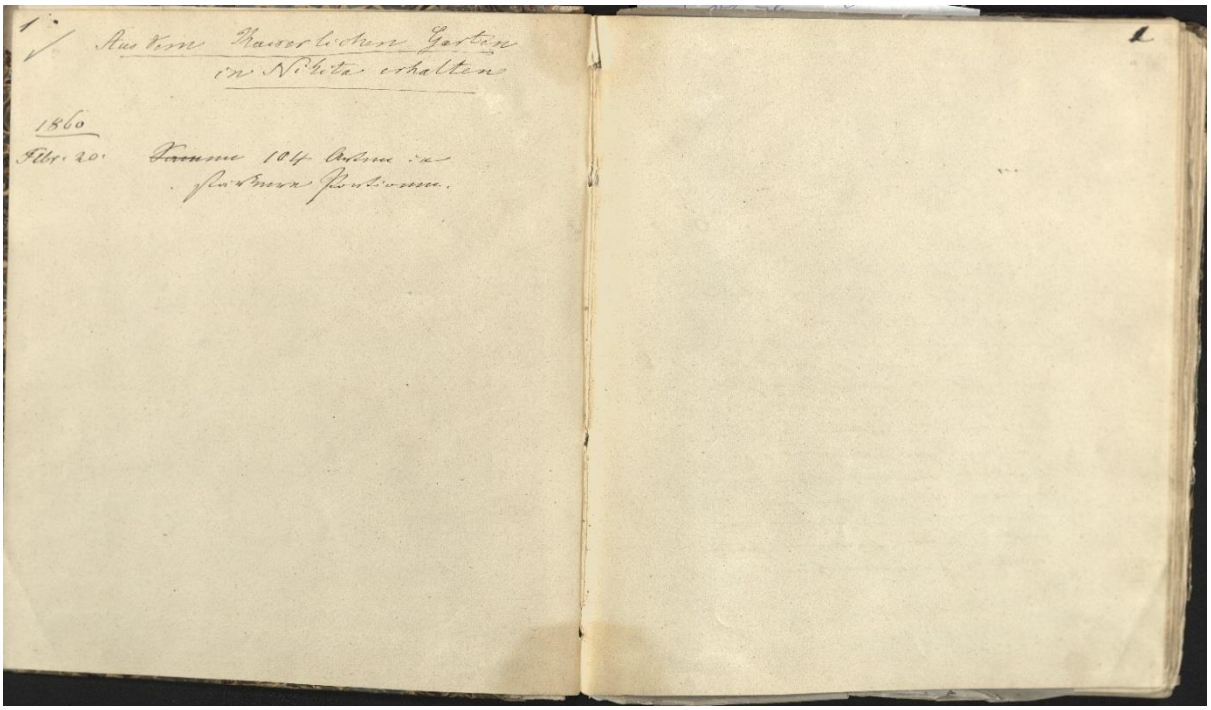

Fig. 1

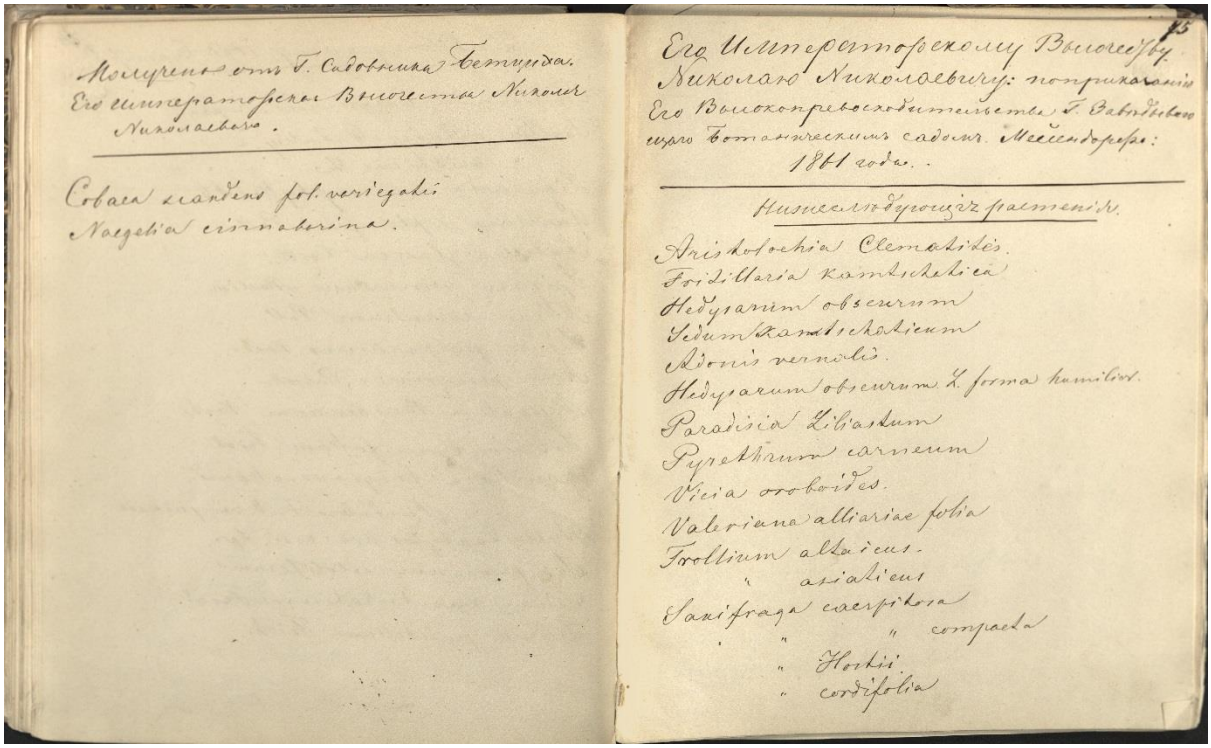

Fig. 2

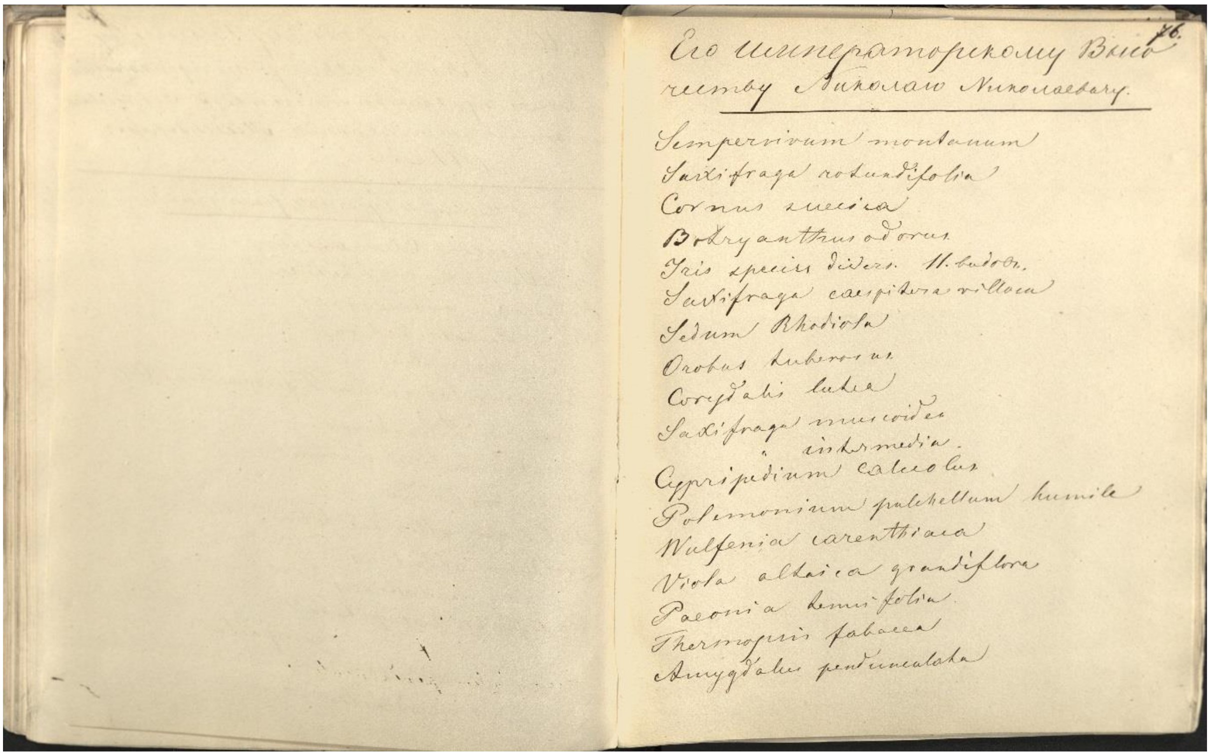

Fig. 3

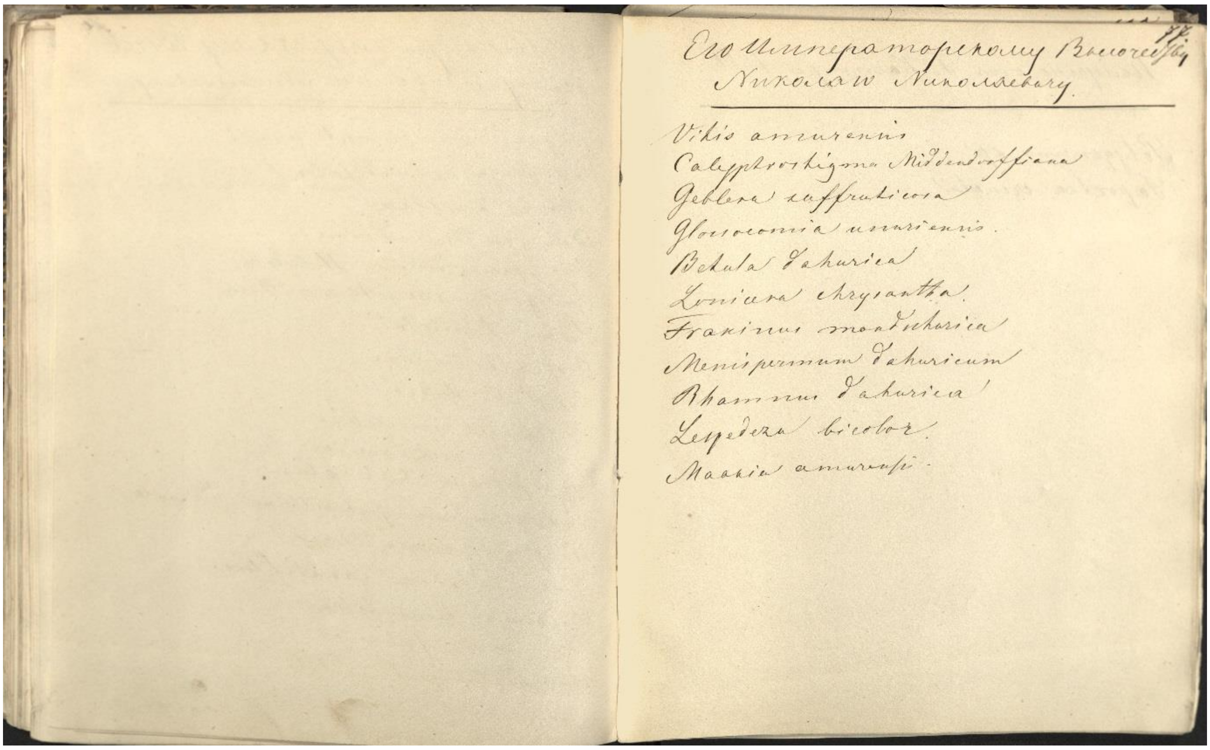

Fig. 4

Figures 1 – 4. List of plants forwarded to the Grand Duke Nicholas Nicolayevich and received from him (scanned pages of the original hand-written journal).

It can be deduced from the previous and subsequent records that the note was made in September of 1861.

The Great Duke Nicholas Nicolayevich, the Elder (1831–1891), the third son of Emperor Nicholas I and Alexandra Feodorovna, the Russian high-rank military (Field Marshal-General) and government official was also known to be an avid ballet lover. In addition to that, he was very interested in gardening, knew his botany quite well, and was assembling a collection of rare plants.

Accepted names are given in bold. When naming taxa, the author follows The Plant List: http://www.theplantlist.org/ Author abbreviations are as given in IPNI: http://www.ipni.org/index.html.

List of woody plants transferred to the Garden owned by Nicholas Nicolayevich

Following the quoted record, there is a list of plants transferred to the Garden owned by Nicholas Nicolayevich. The list consists of 55 plant species and varieties, of which 42 are herbaceous and 13 woody. These were plants of different habits (life forms): trees, shrubs, woody vines, dwarf shrubs, semi-shrubs, and perennials. As a dendrologist, the author of the article is mostly interested in woody plants and has found the latter subdivision of the list worthy of comments. The woody plants are listed in Table 1 and in the text in alphabetical order.

Table 1. Woody plant species transferred from the Imperial St. Petersburg Botanic Garden to the Garden of His Highness Nicholas Nicolayevich in 1861.

Plant Name	**Habit (Life Form)**	**Time of introduction as per literature data and the journal record**	**Current presence in the collection of BIN RAS**
Amygdalus pedunculata Pall. = = (***Prunus pedunculata*** (Pall.) Maxim.)	Shrub-3	Rehder (1949): prior to 1860 Fischer (1852): prior to 1852 Svyazeva (2005): prior to 1852 Journal: 1861	Absent
Betula davurica Pall.	Tree-2	Rehder (1949): 1883 Hillier and Coombes (2003): 1882 Svyazeva (2005): 1816 Journal: 1861	Present
Bryanthus gmelinii D.Don = = ***Bryanthus musciformis*** **(Poir.) Koizumi (T.Nakai & G.Koidzumi)**	Dwarf shrub	Bean (1976): 1834 Hillier and Coombes (2003): 1834 Journal: 1861	Absent
Chamaepericlymenum suecicum (L.) Aschers. et Graebn.	Semi-shrub	Siegesbeck (1736): prior to 1736 Journal: 1861	Absent

Fraxinus mandshurica Rupr.	Tree-1	Rehder (1949): 1882 Hillier and Coombes (2003): 1882 Svyazeva (2005): 1861 Journal: 1861	Present
Lespedeza bicolor Turcz.	Shrub-2	Rehder (1949): 1856 Hillier and Coombes (2003): 1856 Svyazeva (2005): 1856 Journal: 1861	Present
Lonicera chrysantha Turcz. ex Ledeb.	Shrub-1	Rehder (1949): ca. 1854 Hillier and Coombes (2003): ca. 1880 Svyazeva (2005): prior to 1846 Journal: 1861	Present
Maackia amurensis Maxim. & Rupr.	Tree-2	Rehder (1949): 1864 Hillier and Coombes (2003): 1864 Svyazeva (2005): 1858 Journal: 1861	Present
Menispermum dauricum DC.	Semi-woody vine	Rehder (1949): 1883 Fischer (1852): prior to 1852 Svyazeva (2005): prior to 1852 Journal: 1861	Present
Rhamnus davurica Pall.	Tree-4	Rehder (1949): 1817 Hillier and Coombes (2003): 1817 Svyazeva (2005): prior to 1852 Journal: 1861	Absent
Securinega suffruticosa (Pall.) Rehd. = ***Flueggea suffruticosa* (Pall.) Baill.**	Shrub-3	Rehder (1949): 1783 Hillier and Coombes (2003): 1783 Svyazeva (2005): 1864 Journal: 1861	Present
Vitis amurensis Rupr.	Woody vine	Rehder (1949): ca. 1854 Svyazeva (2005): 1857 Journal: 1861	Present
Weigela middendorffiana (Carr.) K.Koch	Shrub-3	Rehder (1949): 1850 Hillier and Coombes (2003): 1850 Svyazeva (2005): prior to 1853 Journal: 1861	Present

Recognized plant habits (following Sokolov and Svyazeva,1965): Tree-1 —taller than 25 m; Tree-2 — 15–25 m; Tree-3 — 10–15 m; Tree-4 — less than 10 m; Shrub-1 — taller than 3 m; Shrub-2 — 2–3 m; Shrub-3 — 1–2 m; Shrub-4 — less than 1 m; Dwarf Shrub — less than 0.5 m tall; Semi-shrub (shrub of different sizes with shoots not completely lignified); Semi-woody vine or liana (climber with shoots not completely lignified throughout full length)

The plants on the list are species of the Russian flora, nearly all of them representing the flora of the Far East. Most were new introductions to cultivation at the time, still rather rare and unknown or poorly known in European gardens. Nine of thirteen are currently represented in the Garden's collection, the other four are good candidates for re-introduction.

The following are comments to the list of woody plants forwarded in 1861 to the Garden of the Grand Duke Nicholas Nicolayevich.

Amygdalus pedunculata Pall., Nova Acta Acad. Sci. Imp. Petrop. Hist. Acad. 7: 353. 1789 ≡ ***Prunus pedunculata* (Pall.) Maxim.**, Bull. Acad. Imp. Sci. Saint-Pétersbourg , sér. 3, 29: 78. 1883.

A shrub, 1.5–2 m tall. Introduced to cultivation prior to 1860 (Rehder, 1949). Cultivated in the Botanic Garden of Komarov Botanic Institute prior to 1852 (Svyazeva, 2005). First mentioned by F.B.Fischer, the first Director of the Imperial Botanic Garden in St. Petersburg, among other woody plants suitable for cultivation around St. Petersburg, apparently, long before 1850, as in 1852 it was already deemed promising. Obviously, it was here that the plant (originated from the vicinity of Lake Baikal) was first introduced to cultivation. A rare species in the Russian Flora included in *Krasnaya Kniga* [*The Red Book of the Russian Federation*] (2008), it occurs only within Buryatia (Siberia, on the eastern shore of Lake Baikal). In cultivation it is extremely rare, only found close to its natural area: in Buryatia and around Irkutsk. It is missing from the collection of the Botanic Garden of Komarov Botanic Institute today.

***Betula davurica* Pall.**, Fl. Ross. 1: 60. 1784.

A tree, up to 20 m tall. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg (Lipsky, 1913–1915; Lipsky and Meissner, 1915) and grown in the garden from the time of its introduction until the present (Svyazeva, 2005). The oldest existing specimens date back to 1889 (Fig. 5).

Bryanthus gmelinii D.Don, Edinb. Phil. J. 27: 160.1834 = ***Bryanthus musciformis* (Poir.) Koizumi (T.Nakai & G.Koidzumi)**, Trees Shrubs Japan: 16. 1922.

Listed in the journal as *Bryanthus odorus*. This is an evergreen ground covering plant, a dwarf shrub with prostrate or somewhat ascending shoots up to 25 cm in length. Wolf (1917) tried this plant in the Imperial Forestry Institute in St. Petersburg and found it winter hardy. Svyazeva (2005) does not include it in the list of plants grown at the Botanic Garden of BIN RAS. Rehder (1949) remained undecided whether the plant had been introduced. According to Bean (1976: 444), the date of the introduction was uncertain, although it had been included in Don's *Gardener's Dictionary* (Don, 1834) and also Nicholson's *Dictionary of Gardening* (Nicholson *et al*., 1885). Hillier and Coombes (2003) provide 1834 as the year of introduction of this plant to European gardens. It was brought to the Botanic Garden of Komarov Botanic Institute from the Kamchatka Peninsula in 2003 (Firsov and Kholopova, 2007), but has not survived. Koropachinskiy and Vstovskaya (2002) believe it is not known in cultivation.

***Cornus suecica* L.**, Sp. Pl.: 118. 1753 = *Chamaepericlymenum suecicum* (L.) Aschers. et Graebn., Fl. Nordostdeut. Flachl.: 539. 1898.

Listed in the journal as *Cornus suecica.* A semi-shrub considered to be an herbaceous perennial in many sources. Regel (1874: 233) calls it a perennial. He notes that the plant grows naturally around St. Petersburg: "In the northern Russian wetlands, not far from the seashore, there is a small perennial species *C. suecica* L. only a few inches tall…" In St. Petersburg, the plant had been mentioned for the first time by Siegesbeck (1736) in the very first catalog of plants grown in the Imperial Botanic Garden under the following names: "Axine. Periclymenum humile Norwegicum. C.B.p. Chamaepericlymenum clusii. Cornus herbacea Horti Eltham". Svyazeva (2005) did not include it with those woody plants that had undergone

Fig. 5. *Betula davurica* Pall.

trials in the Botanic Garden of Komarov Botanic Institute, as she did not include any semi-woody plants on her list. According to *Derevya i kustarniki SSSR* [*Trees and shrubs of the USSR*] (Sokolov, 1960: 231), it is not known in cultivation and would be good for trial for cultivation on the Kola Peninsula and in northern Karelia. It is missing from the standard manuals of cultivated trees and shrubs by Rehder (1949), Bean (1976–1981), Hillier and Coombes (2003), since the plant, apparently, was not considered woody by the authors. According to Koropachinskiy and Vstovskaya (2002), it went on trial in Abakan (Siberia) and soon died, so it is currently not cultivated anywhere within the Asiatic part of Russia. Popov (2002) included it in his list of plants grown in the Alpinarium of the Botanic Garden of Komarov Botanic Institute, where it has not survived.

***Fraxinus mandshurica* Rupr.**, Bull. Cl. Phys.-Math. Acad. Imp. Saint-Pétersbourg 15: 371.1857.

This is one of the tallest among deciduous trees of the Russian Far East, up to 35 m. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg (Lipsky, 1913–1915; Lipsky and Meissner, 1915). According to Svyazeva (2005), the year of introduction was 1861 (grown in the garden from 1861 to 1879, 1891 to 1898, and from before 1935 until 2005). It apparently had been introduced to cultivation prior to 1861, as what were transferred to the Grand Duke's Garden were grown-up plants rather than just seeds. A later year of introduction (1882) in the treatment of the genus *Fraxinus* in *Trees and shrubs of the USSR* (Golovach, 1960) appears to be a mistake. The sample currently grown in the Garden germinated in 2006. It originates from seed obtained from the Field Station of the Far East Branch, RAS (Gornotayozhnoye, Ussuri District, Maritime Province).

***Lespedeza bicolor* Turcz.**, Bull. Soc. Imp. Naturalistes Moscou 13: 69. 1840.

A shrub up to 2.5 m tall. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg (Lipsky, 1913–1915; Lipsky and Meissner, 1915). "*Lespedeza bicolor* Turcz. was first produced in the garden in 1856 from seed brought by C.J.Maximowicz from the Far East" (Svyazeva, 2005: 173). "Introduced in 1856 by Maximowicz" (Hillier and Coombes, 2003: 170). Plants were transferred to the Grand Duke's Garden in 1861, during the initial period of the plant's spread in cultivation. The sample currently included in the living collection was obtained from seed (germination in 1998) originating from the Field Station of the Far East Branch RAS (Gornotayozhnoye, Ussuri District, Maritime Province).

***Lonicera chrysantha* Turcz. ex Ledeb.**, Fl. Ross. 2: 388. 1844.

A shrub, up to 4 m tall. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg (Lipsky, 1913–1915; Lipsky and Meissner, 1915). Grown in the Botanic Garden from before 1846 until the present (Svyazeva, 2005). There are many specimens of various ages.

***Maackia amurensis* Maxim. et Rupr.**, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg 15: 128.1856.

A tree up to 25 m tall. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg (Lipsky, 1913–1915; Lipsky and Meissner, 1915). It was first produced from seed brought from the Amur River area by C.J.Maximowicz (Svyazeva, 2005) and has grown in the Garden's living collection from 1858 to1879, 1891 to 1898, 1912 to 1914, and from 1926 until now (Svyazeva, 2005). According to Rehder (1949) and Hillier and Coombes (2003), it was introduced by C.J.Maximowicz in 1864. Apparently, the latter date is not correct. The list of plants transferred to the Grand Duke's Garden in 1861 testifies against this date. C.J.Maximowicz brought in the seed upon returning from his first (rather than the second) trip to the Far East (see footnote to *Vitis amurensis*). The specimen currently grown in the living collection originates from Yuzhnosakhalinsk (Sakhalin Island) from seed germinated in 1990.

***Menispermum dauricum* DC.**, Syst. Nat. 1: 540. 1817.

A semi-woody vine up to 5 m long. Rehder (1949) provides 1883 as the year of introduction to cultivation, yet apparently the introduction occurred at a much earlier date. The plant has been known to exist in the Botanical Garden in St. Petersburg prior to 1852 and then be grown during the 20th century, with insignificant gaps, until now (Svyazeva, 2005). Fischer (1852) listed the species among woody plants suitable for cultivation in the vicinity of St. Petersburg.

***Rhamnus davurica* Pall.**, Reise Russ. Reich. 3: 721. 1776.

A tree, not taller than 10 m. It was known to exist in the Garden's living collection prior to 1852 (Svyazeva, 2005). According to Lipsky and Meissner (1915), it was introduced to cultivation by the Imperial Botanic Garden. A. Rehder (1949) lists an earlier introduction year: 1817. The specimen in the current collection died due to a random cause in 2010.

Securinega suffruticosa (Pall.) Rehd., Journ. Arn. Arb. 13: 388. 1932 = ***Flueggea suffruticosa* (Pall.) Baill.**, Étude Euphorb.: 502. 1858.

A shrub up to 2 m tall. According to Rehder (1949), it was introduced in 1783. It was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg as *Geblera suffruticosa* Fisch. et C.A.Mey. (Lipsky, 1913–1915; Lipsky and Meissner, 1915); "obtained

from C.J.Maximowicz and planted out in 1864–1865" (Svyazeva, 2005, p. 163). We can notice that the plants were actually transferred to the Garden of the Grand Duke three years earlier than the latter date mentioned by Svyazeva. The specimen currently (from 1998) grown in the collection originates from the Sikhote-Alin Mountains. in the Maritime Province. It was collected as seed by the expedition organized by the Garden.

***Vitis amurensis* Rupr.**, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg 15: 266. 1857.

A large woody vine climbing to 22 m (Fig. 6). As regards Amur grape, Svyazeva (2005: 323) notes the following: "Outdoor trials of plants started with *Vitis amurensis* Rupr., which had been brought from the Amur River area by C.J.Maximowicz[1] and initially (from 1857 to 1862) was kept in the greenhouse. Starting from 1858, in addition to indoor cultivation, it was tried in the open and has been permanently growing in the Garden ever after (1858–2005)." According to Rehder (1949), the time of introduction is about 1854. Lipsky and Meissner (1915) and later authors (Golovach, 1973; Svyazeva, 2005; and others, not cited) do not have doubts about the fact that Amur grape was introduced to cultivation by the Imperial Botanic Garden in St. Petersburg. It is long-lived and reliable in the climate of St. Petersburg. It has been gaining ever more popularity in private gardens as a valuable edible and ornamental plant, one of a handful of winter-hardy large lianas. Due to global warming, it can become invasive in the Russian Northwest, as it is capable of self-seeding in large amounts (Firsov, 2014).

***Weigela middendorffiana* (Carr.) K. Koch**, Hort. Dendrol.: 298. 1854.

Listed in the journal as *Calyptrostigma Middendorffiana.* A shrub, ca. 1.5 m tall (Fig. 7). It existed in St. Petersburg Botanic Garden prior to 1853 (Svyazeva, 2005: 132). Regel in his *Russkaya dendrologiya* [*the Russian dendrology*] has it that "Dr. Tiling sent fresh seeds of this plant from Ayan, a rural settlement on the shore of the Sea of Okhotsk, to the Garden in St. Petersburg, and the Garden distributed plants produced from these seeds across Europe." Lipsky and Meissner (1915) confirm that Middendorff's weigela was introduced into

[1] "C.J.Maximowicz was employed by the Botanic Garden from August of 1852 and left for his trip around the world in September of 1853. On June 11, 1854, he landed at De Kastri Bay, [Japanese Sea Coast]. He spent almost three years in the Ussuri Province and became the first botanist to study the local flora of this terra incognita. He traveled along the Amur and Ussuri and then returned to St. Petersburg via Siberia (in March, 1857), bringing exceptionally rich collections along with him" (Lipsky and Meissner, 1915, p. 349). His second trip to the Far East lasted from March 1859 to July 1864.

Fig. 6. *Vitis amurensis* Rupr.

cultivation by the Imperial Botanic Garden in St. Petersburg. It has been cultivated here continuously until now.

Fig. 7. *Weigela middendorffiana* (Carr.) K.Koch

Generally, the 13 plants in question constituted a taxonomically diverse group, as they belonged to 13 different species representing 13 genera and 10 families. All of them were rare in cultivation at the time. According to their habits, or life forms (as per Sokolov and Svyazeva, 1965), three of them were large trees; there also was a single small tree; five shrubs; one dwarf shrub; one semi-shrub; and two vines. Many of them later proved to have outstanding ornamental and horticultural merits. Some are currently of conservation concern.

The records discovered in the archives of the Botanic Garden, BIN RAS allow for providing a more precise time of introduction to cultivation and appearance in the living collections of the Imperial Botanic Garden in St. Petersburg for a few woody plants from the Russian flora. Apparently, *Bryanthus gmelinii*, *Securinega suffruticosa*, *Betula davurica*, *Fraxinus mandshurica*, *Menispermum dauricum*, and *Maackia amurensis* appeared in the St. Petersburg Botanic Garden and European gardens earlier than has been specified in literature sources of the 20–21th centuries.

It is not only that the Imperial Botanic Garden shared plants with the Garden of the Grand Duke Nicholas Nicolayevich, but also received some from him. There is the following

record on page 74 of the journal. “Received from Mr. Betzich, the Gardener of His Imperial Highness Nicholas Nicolayevich: *Cobaea scandens fol. variegatis*, *Naegelia cinnabarina* (Fig. 2).

Herbaceous plants from the list are still awaiting a study. *Sedum kamtschaticum*, Fisch., which is also on this list, has been mostly considered herbaceous, although Nedoluzhko (1995) included it in the dendroflora of the Russian Far East.

Acknowledgements

The present study was carried out within the framework of the institutional research project (N 0126-2014-0021) of the Komarov Botanical Institute of the Russian Academy of Sciences. The author would like to thank Irina Kadis for her excellent translation of the paper and two anonymous reviewers and editors of the journal for their help and advice.

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