

Georg Thomas von Asch, Russian Imperial Expansion, and Botanical – Zoological Research at the Georg-August-Universität Göttingen in the Late Eighteenth and Early Nineteenth Century.

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Abstract: This article studies the donations of botanical and zoological objects by the Russian physician Georg Thomas von Asch (1729–1807) to the University of Göttingen, his alma mater. It argues that these specimens made a valuable contribution to the research of several Göttinger professors, namely Johann Andreas Murray (1740–1791), Georg Franz Hoffmann (1760–1826), Heinrich Adolf Schrader (1767–1836), and Johann Friedrich Blumenbach (1752–1840). The Baron von Asch's generosity not only led to a much better understanding of the flora and fauna of the Russian Empire, particularly Siberia, but also enabled the identification of at least three plant species that were new to science (*Silene procumbens*, *Scabiosa uralensis*, and *Carduus ciliatus*). Furthermore, the horn of an argali sheep (*Ovis ammon*) he donated to the Academic Museum in Göttingen played an important role in academic discussions about the taxonomic status of this species. The choice for particular specimens should be seen in the context of contemporary botanical and zoological studies in the Russian Empire, especially those of Peter Simon Pallas (1741–1811). Asch's military service can be considered as representative for the involvement of members of the armed forces in early botanical and zoological exploration.

Keywords: Georg Thomas von Asch, Johann Andreas Murray, Georg Franz Hoffmann, Heinrich Adolf Schrader, Johann Friedrich Blumenbach, Peter Simon Pallas, Siberia, Eurasian Steppe, Russian Empire, medicine, collecting, military, botanical garden, academic museum

1 Introduction

On 15 August 1807 the *Göttingischen gelehrten Anzeigen* published a necrology in honour of Georg Thomas von Asch, who died in his Saint Petersburg home on 23 June. They thanked him for his generosity towards the university and claimed that his name would never be forgotten.¹ These were not idle words. To this very day the Baron von Asch is still remembered as the University of Göttingen's most important private benefactor. The Asch collection is indeed impressive, and included printed books, manuscripts, maps, engravings, coins, minerals, fossils, human remains, zoological specimens, plant seeds, and ethnographic objects, many of which are still preserved.² They turned the university into a key knowledge centre on the Russian Empire.

While the general importance of Asch's generosity is well known, its specific relevance for contemporary botanical and zoological research is largely ignored. Arnold Buchholz did not analyse shipments of plant specimens in a systematic way in his 1961 overview of the Asch collection, and even dismissed its zoological importance in one sentence.³ None of the numerous studies on the Baron von Asch published since then have given the subject much thought either. The object of this article, therefore, is to examine the importance of Asch's animal and plant specimens for botanical and zoological research at the Georg-August-Universität Göttingen in the late eighteenth and early nineteenth century.⁴ The letters sent by Asch to Christian Gottlob Heyne (1729–1812)⁵, associated lists of shipped objects, and Heyne's comments in the *Göttingische Anzeigen von gelehrten Sachen* and the *Göttingischen gelehrten Anzeigen* constitute the main sources of this study.⁶ The article will first provide a short overview of Georg Thomas von Asch's life, before considering in turn the origin of the objects sent by Asch, and their importance to respectively botanical and zoological research in Göttingen.

Georg Thomas von Asch was born on 12 April 1729 as son of Friedrich Georg von Asch, who emigrated from Silesia in 1707 to enter the service of the Russian government. He eventually became director of the postal services in Saint Petersburg

¹ *Göttingischen gelehrten Anzeigen*. 131. Stück 15/8/1807, 1297–1298.

² Bucher (2003), Bucher (2018), Buchholz (1961), Hauser-Schäublin and Krüger (2007), Reich and Gehler (2005), Rohlfing (1998), Rohlfing (2003), Scheelen-Nováček, Stötzl, and Schultz (2019).

³ Buchholz (1961) 97–99.

⁴ The following analysis will not discuss the fossilised specimens sent by Asch, even though these played a significant role in contemporary natural history, because their seminal importance is already well established. This may have something to do with the fact that many fossils are still preserved in the university's collections, while most of the zoological and botanical specimens he sent to Göttingen are either lost or kept elsewhere (e.g. specimens from Andreas Murray's and Georg Franz Hoffmann's collections in the Moscow Herbarium). In some cases the objects he sent to the university may still exist, but their origin has been long forgotten. Ahrens (2020) 27–28, 30, Bucher, Wissenschaften (2018) 80–81, Sokoloff et al. (2002) 137–138, 140, Willmann (2018) 384–385.

⁵ Haase (2002).

⁶ Staats- und Universitätsbibliothek Göttingen (henceforth SUG), Cod. Ms. Asch 1; Universitätsarchiv Göttingen (henceforth UAG), Kur 7343, Purchase of the Stelzner Cabinet, gifts of naturalia by the Baron von Asch, 1781–1782.

and was ennobled in 1762. The Asch family could therefore be considered as representative for the many German-speaking officials that occupied key positions in the Russian Empire during the eighteenth century. Georg Thomas moved abroad to study medicine in Tübingen in 1744, and after his graduation went to Göttingen to work on a doctorate under the supervision of Albrecht von Haller (1708–1777).⁷ He defended his dissertation on human anatomy on August 7, 1750, and corresponded with his former mentor while travelling through Germany and the Low Countries, before becoming the principal government physician in Saint Petersburg in 1752. During the Seven Years War (1756–1763) he joined a Russian army corps in Prussia as military physician.⁸

The Baron von Asch's service during the Russo-Turkish War of 1768–1774 proved to be major life-changing event in many ways, for it gave him a chance to prove his competence as a medical practitioner, and helped him reconnect with his alma mater. It led to a regular correspondence between Asch and Heyne that would continue for the rest of Asch's lifetime. In 1769 an epidemic broke out among Russian troops in Galati, which spread rapidly northwards towards Moscow, and could only be contained in 1772. Asch's countermeasures played a significant role in combatting the disease. He was so proud of his achievements that he had a commemorative medal struck at his own initiative in 1781, which led to Empress Catherine II's (1729–1796) displeasure. An article published in the *Hannöverschen Magazin*, a notebook now kept in the university library, and a lecture he gave for the Russian Academy of Sciences, are all testimonies to what the Baron von Asch considered to be the high mark of his career.⁹ It is noteworthy that American plants, such as *Aristolochia serpentaria*, and the *Cinchona* genus, played an important role in the treatments Asch recommended for plague victims. In other words: higher-ranking Russian physicians such the Baron von Asch had become an integral part of global commodity exchange networks.¹⁰

Russian military success also had repercussions in Göttingen. In 1771 Asch sent books Russian soldiers had captured during a successful campaign against the Ottoman Empire to the university. This first batch of war booty was received with enthusiasm, and followed in 1774, 1776 and 1777 with new shipments. On 27 September 1777 he was made an external member of the Royal Scientific Society in Göttingen, simultaneously with Peter Simon Pallas (1741–1811).¹¹ The Baron von Asch was very pleased with honour. He continued corresponding with Heyne, who was

⁷ Wagenitz (1988) 71, Elsner and Rupke (2009).

⁸ Buchholz (1961) 27–31, Müller-Dietz (1995), Rohlfing (1998), Tröhler (1993) 107–108, 117.

⁹ SUG, Cod. Ms. Asch 188a Discours sur l'avantage ou les lumières que les Sciences ont acquises à l'occasion des Guerres, particulièrement sur la Peste, Asch 198 Notebook kept during Georg Thomas von Asch service as head physician in the army corps of field marshall Rumyantsev, 1768–1777. Pages 95–97 and 104–106 specify Asch's measures to combat the plague. Pages 95–97 correspond to the article he published in the *Hannöverschen Magazin*. Asch (1771). See also Alexander (2003), Buchholz (1961) 43–47, Müller-Dietz (1995) 35–40.

¹⁰ Asch (1771). See also Murray (1776–1792) vol. 2, 375.

¹¹ Buchholz (1961) 31–35, Wendland (1991–1992), Wendland (2003b) 145–158, 152.

secretary of the society, and sending objects for the university library and the Academic Museum on a regular basis. The Georg-August-Universität was delighted to have such a generous alumnus, but the Russian government was less than encouraging. On November 30, 1781 Asch asked Heyne to no longer mention his name in letters or writings, because this caused jealousy and resentment.¹² From the Russian state's point of view, this was understandable, especially if one considers that Asch sometimes sent specimens before the Russian academic community had a chance to fully study them. This also means that contribution the Baron von Asch made to research in Göttingen could not be fully acknowledged in public writings. It had repercussions on his letters to Heyne as well, and it is possibly that some particularly valuable objects were not mentioned explicitly to avoid them being confiscated.¹³ The *Commentationes Societas Regiae Scientiarum Gottingensis* appear to have been much more open about the scientific impact of Asch's gifts, possibly because it reached a much more specialised readership than the *Göttingische Anzeigen von gelehrten Sachen*.

2 The sources of the Asch Collection

During the last decades there has been an increasing emphasis on the production of scientific knowledge as a network in which different actors, objects, and spaces play an essential role. The Asch collection is an excellent example of this, for the physician functioned as the cornerstone of an extensive network that linked the four corners of the Russian Empire to the Georg-August-Universität Göttingen. Asch's reach even extended beyond the empire's borders, for his shipments also included plant and animal specimens from China, Southeast Asia, Brazil, and Greenland. One could thus consider the Baron von Asch and his Saint Petersburg home as the centre of a huge web that linked the Academic Museum, university library and botanical garden in Göttingen to the edges of Russia's vast empire, particularly the 'Wild Fields' (the Pontic-Caspian steppe), and Siberia.

Asch's generosity in fact strengthened the university's unique position in the middle of two great empires: the British and Russian. The personal union between the Duchy of Braunschweig-Lüneburg ('Hannover') and Great Britain gave scholars in Göttingen access to a wide variety of exotic fauna and flora from all over the world. One of the best examples of this relationship is the herbarium of Georg Forster (1754–1794), which was acquired by the university in 1787 or 1788.¹⁴ It is also worth noting that these networks worked both ways: Thomas von Asch played an important role in recruiting German-speaking physicians for the Russian government in the 1780s. One of these immigrants was Heyne's own son, who died in 1794 while serving in the Russian army.¹⁵

¹² SUG, Cod. Ms. Asch 1, Letter November 30, 1781, Rohlfing (2003) 289, 292.

¹³ Bucher (2003) 304, Bucher (2018) 84–85.

¹⁴ Kipp (2012) 60–68, Collet (2014) 3–23.

¹⁵ Müller-Dietz (1995) 46–47, Wendland (2003a) 59.

Unfortunately, the Baron von Asch rarely specifies in any detail who supplied the objects he donated to the university. In the few instances where he does mention his sources by name it mostly concerns scholars, officials, and military officers with whom he maintained ties of friendship. Many of these men spoke German as their native language, which reflects the major role of German-speaking scholars and officials in eighteenth-century Russia. Some of his contacts were well known naturalists, such as the aforementioned Peter Simon Pallas, Johann Jakob Lerche (1703–1780), Christian Friedrich Stephan (1757–1814), Johann August Carl Sievers (1762–1795), Peter Ivanovich Schangin (1741–1816), and Johann Gottlieb Georgi (1729–1802).¹⁶ There also seems have been considerable overlap between Pallas's and Asch's suppliers. The people who sent botanical and zoological specimens to the Baron von Asch generally did the same for Pallas.¹⁷

Although some plant seeds accumulated by Asch may have been collected in gardens, there is no real evidence for Buchholz's claim that botanical gardens in Moscow constituted an important source of supply. If a geographical origin of botanical specimens is specified, either in Asch's own letters, or in scientific studies by Göttinger professors, it is always regions that are located far away from the political centres in Saint Petersburg and Moscow. In fact, the collection of plant seeds on the periphery of the Russian Empire, and beyond, was probably an essential part of their scientific importance. It is well established that Haller exchanged plant seeds with his colleagues in Saint Petersburg and Moscow, but many of these were not particularly remarkable or came from species that could be found across Eurasia. This could simply be a consequence of Halle's interest in plant geography, and more specifically his belief that the flora of the Alps exhibited strong similarities to that of Siberia. Still, it also reflects the drawbacks of too much dependence on exchange between botanical gardens.¹⁸

The animal and plant specimens Asch sent to Göttingen are a clear testimony to the close entanglement between scientific discoveries and political-military expansion (see figure 1). During the late eighteenth century the Russian government temporarily put on hold its great military campaigns to conquer Central Asia, which took place in the 1740s and continued in the 1830s, but it did engage in the Ottoman Empire in open war and consolidated its earlier conquests. Most plant and animal specimens came from the frontiers of the Russian Empire, from what it is now Finland, Ukraine, the North Caucasus, Siberia, Kazakhstan and Mongolia. They reached Göttingen at a time when Russia was increasingly assimilated in the wider European scientific community, a process in which European interest in Siberia, a region that was largely unknown at that time, played a significant role.¹⁹

¹⁶ Bucher (2018), Buchholz (1961) 35–37, 83–87, Georgi (1800) 621, Rowell (1980), Sokoloff et al. (2002) 135–137.

¹⁷ Aside from the earlier mentioned naturalists, these also included Erik Gustavovich Laxmann (1737–1796), Johannes Jährgig (1747–1795), and Jacob Reineggs (1744–1793).

¹⁸ Gradstein and Schwerdtfeger (2009) 200.

¹⁹ Koroloff (2014) 113–155, 189–205.

It is no coincidence that the regions from which Asch received zoological and botanical specimens correspond to a large extent with the geographical distribution of the Russian regular army across the empire. From the 1770s onwards, the same period during which Asch started his regular communication with Heyne, the vast majority of Russian soldiers were stationed on the empire's southern frontiers, particularly the northern Caucasus and the edges of the steppe. This was a direct result of the annexation of the Kalmyk Khanate in 1771, and Pugachev's Rebellion in 1773–1775.²⁰

The close connection between military service and natural history is also borne out by the biography of Reinhold Berens from Riga. He completed a dissertation on the Canary Islands dragon tree (*Dracaena draco*) in Göttingen in 1770, and later joined the Russian military as a physician so he could study Siberian nature. In 1804 Berens published an overview of the plants and wildlife he had observed near the Bukhtarma River in 1776.²¹ He also sent plant seeds to Göttingen in the late 1770s, including those of *Scrophularia altaica*, a species new to science, which he had found in the Altai Mountains near the Cossack fort of Tigerek.²²

The Baron von Asch strongly believed that military conflict played a significant role in scientific discoveries, and on 12 October 1779 he even gave a lecture at the Academy in Saint Petersburg on exactly this subject.²³ It is also significant that the first official overview of Russian medical plants was compiled for military purposes, the *Pharmacopoeia Castrensis Rossica*, in 1765. It was followed by a more general overview, the *Pharmacopoeia Rossica* only thirteen years later. Pallas' overview of the flora of the Russian Empire, the *Flora Rossica*, was published in 1784–1788.²⁴

Many of the naturalists with whom the Baron von Asch maintained contact served in the Russian armed forces at some point in their careers. Johann Jakob Lerche²⁵, Christian Friedrich Stephan²⁶, Hans Jakob Fries (1749–1801)²⁷,

²⁰ LeDonne (1983) 321–347.

²¹ Berens (1804) 13–18, Berens (1812) 48–62, Tröhler (1993) 145.

²² Murray (1781) 35–36, Murray (1783/1784) 37.

²³ SUG, Cod. Ms. Asch 188a.

²⁴ The Baron von Asch sent copies of all three books to Göttingen, see the section on botany below. Pallas (1784–1788).

²⁵ SUG, Cod. Ms. Asch 194 Reports and letters by Johann Jakob Lerche on an epidemic disease in Saksala, Finland, in 1763; Müller-Dietz (1995) 26, 28, Sokoloff et al. (2002) 135–137. See also Lerche (1791).

²⁶ Trautvetter (1865).

²⁷ SUG, Cod. Ms. Asch 161, Weather observations by Hans Jakob Fries, Asch 162 Physic and medical statistics about the Wologda government, by Hans Jakob Fries, Asch 163, Description of the city Veliky Ustyug, by Hans Jakob Fries and Stephan Ryczkow. See also Kirchner (2018) 78–79, 109–110, 113, 115, 116, 119, 125, 133, 138, 144–145, 147. The notebook with notes on the weather and instances of disease in the Nizhni Novgorod dragoon regiment during its stay in the city of Samara in 1778, and preserved in SUG, Asch 221 was probably written by the regimental surgeon Ponts, who is mentioned in Fries's journal. Kirchner (2018) 149.

Johann Schilling²⁸, and Heinrich Andreas Nudow²⁹ enlisted as military physicians or surgeons. Johann Andreas von Meyer and Friedrich August Marschall von Bieberstein (1768–1826) both had a strong interest in botany and participated in Russian military campaigns of the 1790s as respectively lieutenant colonel and captain. Meyer became a corresponding member of the Göttinger Royal Scientific Society on Asch's request in 1797. He published a botanical lexicon in Russian in 1781–1783 and a topographical-physical description of the Ochakiv Region in 1794, which Asch donated to the university library in 1796.³⁰ Asch also knew Johann Jacob Böber (1746–1820), a teacher at the Artillery- and Engineer- Cadets School in Saint Petersburg who was interested in botany and entomology.³¹ Finally, Johann August Carl Sievers was briefly attached to a military hospital as head pharmacist before being sent off to Russia's eastern frontiers, and Carl Ludwig von Hablitz (1752–1821) participated in Count Marko Ivanovich Voinovich's (1750–1807) expedition to the Persian coast in 1781 as a secretary to the admiral.³²

This military interest in natural history should not come as a surprise, given that such knowledge derives from the military's interest in hunting, medicine, food supply, and construction materials.³³ Furthermore, members of the armed forces were often the first government representatives to enter unfamiliar environments, which gave them an important role in knowledge production. University-educated medical personnel were particularly suited for such an intermediary role because of the close connection between medicine and natural history, and their claim to scholarly status.³⁴ Still, interest in natural history was not limited to physicians, and officers such as Felix de Azara (1746–1821) and Robert Gordon (1743–1795) were actively involved in zoological research. Closer to Göttingen, there are the examples of Friedrich Adam Julius von Wangenheim (1749–1800), who supplied a specimen of *Xanthium Echinatum* (*Xanthium orientale*) to Johann Andreas Murray (1740–1791) in

²⁸ SUG, Cod. Ms. Asch 134 Tibetan manuscript with Mongolian translation, from Johann Schilling, 1790.

²⁹ SUG, Cod. Ms. Asch 199, Physic and medical remarks on the Arkhangelsk government, by Heinrich Andreas Nudow, Asch 247, Medical-physic map of the Arkhangelsk government, with remarks on the presence of medical plants, probably by Heinrich Andreas Nudow, Recke (1827–1832) vol. 3, 330–331.

³⁰ SUG, Cod. Ms. Asch 1, Letter September 11, 1796, Buchholz (1961) 36, Dougherty (2006–2015) vol. 5, 115–116, Georgi (1800) 619, Krahnke (2001) 167, Stafleu (1973) 126–128, Trautvetter (1837) 122. See also Miakinkov (2020).

³¹ Dougherty (2006–2015) vol. 5, 115–116, Wistinghausen (2016) 139.

³² Hablitz (1782), Mirfendereski (2001), Sakanjan and Gakkel (2004) 57. On the organisation of Russian military medicine in general, see Müller-Dietz (1970).

³³ Soldiers and former members of the military also played a role in much more mundane aspects of the production of scientific knowledge, such as providing manual labour for the botanical garden in Göttingen, working as servants for professors and students, guarding the Academic Museum, acting as museum guides, maintaining order among the student population, and improving the water management in the botanical garden. Peter (1901) 289–290, 331–334, Wagener (1996) 91, 123, 126, 156–157, 299–303, 324–329, 353–354, 366, 524–527.

³⁴ Particularly interesting in this regard is Fries's description of his travel companion, major Johann Riedel, whom he considered to be a good and loyal soldier, but not interested in nature in any way. This could also reflect their different functions and/or personalities, however. Kirchner (2018) 53, 119.

1783, and Valentine Gardner (1739–1816), who gave a specimen of *Cemphora coccinea* to Johann Friedrich Blumenbach (1752–1840) in 1791. The latter identified it as a snake species that was new to science.³⁵

The role played by Thomas von Asch, and the Russian army more generally, in the development of natural history, is thus far from unique, but does include some unique elements. Russian military expansion was after all a landlocked expansion within the Palearctic realm. Another noteworthy factor is the key role of Cossack soldiers in expanding government control over this vast geographical space. Fur traders and soldiers often provided officials with the first reports on newly discovered lands, including the fauna and flora living there. The relationship of naturalists such as Daniel Gottlieb Messerschmidt (1685–1735), Johann Georg Gmelin (1709–1755), Georg Wilhelm Steller (1709–1746), and Pallas with these informants was often rather complicated. Although scholars depended on the labour, skills, and local expertise of the divers communities that owed tributary labour to the Russian state, they also felt that they were rather untrustworthy as sources of information.³⁶

Asch's letters to Göttingen fit this general pattern, as they only mention fellow scholars with an academic education and a certain social standing. Cossack soldiers are mentioned twice in his letters, but as objects of scientific inquiry, not sources of knowledge in their own right. It concerns the sending of the skulls of a Don Cossack in 1786 and a pensioned Cossack soldier of Evenk ('Tungus') origin in 1794.³⁷ Still, it should also be mentioned that the Baron von Asch sent a copy of the Cossack chronicles, histories of Cossack communities written by their elders, to Göttingen in 1796, and showed a strong interest in ethnographic objects. In 1822 the English physician William Lawrence even criticised him for giving too much credit to the statements of midwives in Istanbul.³⁸

Another potential source of specimens not mentioned in Asch's letters, at least not in connection to zoological or botanical matters, is the Baron von Bieberstein. He studied the Crimeo-Caucasian region in the 1790s and published the first scientific overview of its flora in 1808–1819. Apparently, he joined the Russian campaign against Persia in 1796 'out of love' for the field of botany.³⁹ Yet the Baron von Asch's correspondence with Heyne includes no trace of this research. A letter from August 1805 only refers to Bieberstein as the source of some rare coins he donated to the Academic Museum. This apparent absence is even more significant if one considers a letter from a certain Ungebauer to Asch, written on March 19, 1797. He informed the latter that Bieberstein had returned from Persia, and that he had found him at the home of Christian Friedrich Stephan, scientific director of the Moscow

³⁵ SUG, Cod. Ms. Blumenbach I, nr. 2, f. 89 r., Blumenbach (1788a), Murray (1783/1784) 32.

³⁶ Masterson and Brower (1947) 123–126, 152–155, Jones (2017) 135–137, 177.

³⁷ SUG, Cod. Ms. Asch 1, Letter 28 March 1786, Letter November 9, 1794, Dougherty (2006–2015) vol. 3, 43–44.

³⁸ Lawrence (1822) 302–303, Göttingische Anzeigen von gelehrten Sachen, 145. Stück 10/9/1796, 1445.

³⁹ Schrader (1799) 453, Stafleu (1973).

Apothecary Garden, when he was in the middle of a discussion with Stephan and the aforementioned Johann Böber about the plants and insects he had collected. Ungebauer also wrote that Bieberstein came upon the grave of a Persian *bey* that had been desecrated by Russian troops, and took advantage of the opportunity to cut off the corpse's skull so it could be sent to Göttingen.⁴⁰ Bieberstein may not have passed on any botanical specimens to Asch because he wanted to keep the results of his research for the book he intended to write.

3 Botany

Now we have examined the sources of Asch's shipments to Göttingen, we can focus on the other side of his scientific network, namely the contribution his donations made to botanical research at the Georg-August-Universität Göttingen. The Baron von Asch expressed a strong interest in botany, particularly in its connection to medicine. He maintained a good relationship with the successive directors of the Göttinger botanical garden, namely Johan Andreas Murray and Georg Franz Hoffmann (1760–1826), and it is possible that some specimens were sent in response to an explicit request from Göttingen.⁴¹ Asch's mentor, Albrecht von Haller, already exchanged plant seeds and books with other scholars, so he simply continued and expanded existing practices.⁴² There is no evidence that he sent plant seeds to Heinrich Adolf Schrader (1767–1836), who succeeded Hoffmann as director of the botanical garden in 1803. Still, as we shall see later, Schrader's work clearly benefited from Asch's generosity as well.⁴³

The Baron von Asch also maintained contact with other professors of medicine and botany in Göttingen, such as Ernst Gottfried Baldinger (1738–1804), Johann Friedrich Gmelin (1748–1804), August Gottlieb Richter (1742–1812), Heinrich August Wrisberg (1739–1808), and Johann Friedrich Blumenbach, but aside from the latter, it is unclear if he made a meaningful contribution to their botanical research. Asch did specify in June 1779 that he sent copies of the *Pharmacopoeia Rossica* for the aforementioned professors.⁴⁴ His letters also reveal that he exchanged books with

⁴⁰ SUG, Cod. Ms. Asch 1, Letter August 27, 1805, Dougherty (2006–2015) vol. 5, 115–116, 148–149.

⁴¹ Hoffmann became head of the department of Botany at Göttingen University and director of the Botanical Garden in 1792, after Murray's death. He accepted the post of professor of botany and head of the botanical garden at Moscow University in January 1804, a move that seems to have been at least partially motivated by Johan Flüge's (1775–1816) and Schrader's criticism of his work. There is also a general consensus that Hoffmann, after an enthusiastic start, neglected his duties as head of the Göttingen botanical garden, and that the latter improved significantly after Schrader took over. Hoffmann (1793), Hoffmann (1839) 67–68, Frahm and Eggers (2001) 200–201, Sokoloff et al. (2002) 137–140; Wagenitz (1988) 82, 128.

⁴² Hächler (2003) 80–86.

⁴³ Gerhard Wagenitz (1982) 150, Wagenitz (1988) 158.

⁴⁴ SUG, Cod. Ms. Asch 1, Letters June 12, 1779, June 30, 1779, List July 18, 1779.

Murray, Blumenbach, and Gmelin. In 1789 the latter sent the Baron von Asch the thirteenth edition of Linnaeus's *Systema Naturae*, which he had edited.⁴⁵

One of Asch's first shipments to Göttingen, war booty from a captured Ottoman army camp in 1774, included seeds from Çeşme, which were crushed into a power and then used as treatment for diseases of the eyes. Asch's interest in plants' medical properties is also reflected in his shipments of species commonly used in Chinese, Siberian, South-East-Asian and Persian medicine, such as ginseng (*Panax*), *Areca catechu*, Marking nut tree (*Semecarpus anacardium*), rhubarb (*Rheum*), *Rhododendron aureum*, early-purple orchid (*Orchis mascula*), *Fernula*, and *Kaempferia rotunda*. Although some of these plants may have been collected by travelling scholars – *Kaempferia rotunda* by Jacob Reineggs – most were probably imported by caravan traders.⁴⁶ The Baron von Asch had access to trade commodities from the Americas as well. Examples include a Brazilian lemon or citron, cinchona from Jamaica, sabadilla (*Schoenocaulon officinale*), and natural rubber.⁴⁷ He is mentioned multiple times in Murray's extensive study of medical plants as a supplier and/or informant. His contribution may have been especially important with regard to rhubarb.⁴⁸

Eighteenth-century naturalists expressed strong interest in rhubarb, particularly *Rheum palmatum*, the roots of which were well known for their medical properties. Designations of different species of rhubarb were still fluid in Asch's lifetime, and there was much scientific interest in the genus.⁴⁹ One of the main aims of Sievers' expeditions was to search for possibilities to cultivate the plant within Russia, so the empire would become less dependent on trade with Qing China. He failed to discover the origin of *Rheum palmatum*, but did describe a new species of rhubarb, *Rheum Nanum*.⁵⁰ The native range of *Rheum palmatum* – western China, northern Tibet, and the Mongolian plateau – was only discovered by the military officer Nikolay Przhevalsky (1839–1888) in the 1870s. In the late eighteenth century the plant was therefore only available as a trade commodity, and the Russia-China trade in rhubarb reached its high point between 1785 and 1800. *Rheum rhaponticum* was actually grown in Siberia, but mainly used as a vegetable. However, in 1777 Pallas wrote in a letter to the physician John Hope (1725–1786) that Russian military doctors used it as an

⁴⁵ SUG, Cod. Ms. Asch 1, Letter October 10, 1781, Letter July 14, 1789, Letter August 25, 1800, Wagenitz (1988) 65.

⁴⁶ Murray (1776–1792) vol. 5, 84, vol. 6, 75, 82. Reineggs also gave the Baron von Asch information on the medical uses of opium. Reineggs (1785).

⁴⁷ Murray (1776–1792) vol. 5, 169, Göttingische Anzeigen von gelehrten Sachen, 43. Stück 6/4/1780, 355.

⁴⁸ SUG, Cod. Ms. Asch 1, Letter August 24, 1782, Murray (1776–1792) vol. 2, 375, vol. 4, 27, 358, 367, 381–382, vol. 5, 84, 169, 228, 282, vol. 6, 75, 82, 179, 184, 189, Murray (1774–1779) vol. 3:1, 480–484, Göttingische Anzeigen von gelehrten Sachen, 23. Stück 22/2/1779, 179, 57. Stück 10/5/1779, 460, 200. Stück 15/12/1787, 1997–1998.

⁴⁹ Romaniello (2016).

⁵⁰ Sievers died in 1795, before he could publish his findings. Pallas studied the herbarium he left behind and published the results in 1797. Pallas (1792), Wendland (1991–1992) 154–155. See also Sievers (1796).

alternative for Chinese rhubarb.⁵¹ Asch sent specimens of *Rheum rhaponticum* to Murray, and informed him of failed attempts to cultivate *Rheum palmatum* near Saint Petersburg and Moscow.⁵²

Contemporary publications, such as Hoffman's description of the Göttinger botanical garden, mainly associate the Baron von Asch with shipments of Siberian plant seeds. However, many plant seeds came from other parts of the Russian Empire, such as its southern frontier. In April 1780, for example, Heyne wrote that the many Kalmyk and Orenburg plant seeds donated by Asch would lead to a significant increase in the number of Russian plants in the university's botanical garden.⁵³ Some of the genera and species involved can still be identified: *Leontice*, *Larix*, *Lonicera*, *Gypsophila*, *Actaea cimicifuga*, *Rheum rhaponticum*, *Rhododendron aureum*, *Pinus sibirica*, *Pinus pinea*, *Silene procumbens*, *Limonium coriaryum*, *Cephalaria uralensis*, *Lophiolepis ciliata* subsp. *ciliata*, *Berberis sibirica*, and *Eremogone saxatilis*.⁵⁴ Johann Andreas Murray seems to have been the main beneficiary of these shipments. The *Göttingische Anzeigen von gelehrten Sachen* make it clear that he could identify at least one new species, *Silene procumbens*, due to Asch's generosity.⁵⁵

As mentioned before, concerns about the Russian's government's reaction to the shipments of plants that were still unknown to science, prevented Heyne from giving Asch the full credit he deserved. The *Commentationes Societas Regiae Scientiarum Göttingensis* did not show this same restraint, however. In 1782 Murray identified the species *Scabiosa uralensis* (*Cephalaria uralensis*) on the basis of 'the multitude of seeds' from the Ural Region sent by Asch (see figure 1), and in 1784 he provided the first scientific description of *Carduus ciliatus* (*Lophiolepis ciliata* subsp. *ciliata*) on the basis of the many Siberian seeds Asch donated in 1779.⁵⁶ Murray could identify several other new species on the basis of seeds sent by Pallas, which means that the shipments by Asch and Pallas should probably be seen as complementary.⁵⁷ It is also possible that Pallas's study of Siberian plants served as an initial encouragement to Asch.⁵⁸

⁵¹ Romaniello (2016). On Russian-Chinese trade relations in general, see Afinogenov (2020), Foust (1969).

⁵² Murray (1776–1792) vol. 4, 358, 367, 381–382.

⁵³ Hoffmann (1793) 13–14, *Göttingische Anzeigen von gelehrten Sachen*, 43. Stück 6/4/1780, 354.

⁵⁴ Peter Ivanovich Schangin sent Asch seeds of *Robinia pygmaea* and *Nitraria schoberi* in 1797, but it is unclear whether these were passed on to Göttingen. Dougherty (2006–2015) vol. 5, 180–181.

⁵⁵ *Göttingische Anzeigen von gelehrten Sachen*. 41. Stück 14/3/1785, 401–402. See also Murray (1785) 83.

⁵⁶ Murray (1782) 13, Murray (1783/1784) 35.

⁵⁷ Murray (1776) 19, 33, Murray (1777) 42, Murray (1779) 5, 10, 23, Murray (1781) 35–36; Murray (1785) 90.

⁵⁸ Pallas (1779a) 255–257.



Fig. 1: Drawing of *Cephalaria uralensis*. Published in: Murray, *Observationes in stirpes aliquot novas et minus cognitatas horti regii academici*.

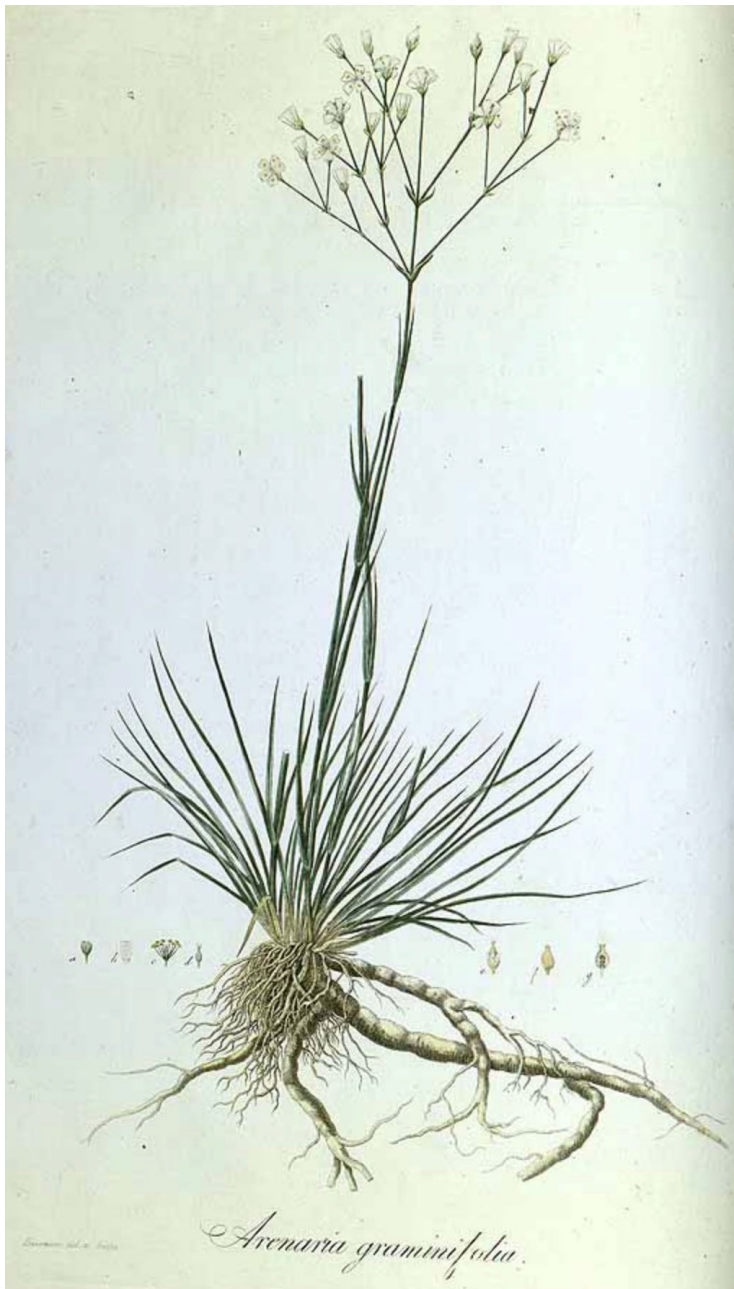


Fig. 2: Drawing of *Eremogone saxatilis*. by Christian Andreas Besemann (1760–1818). Published in: Schrader, *Hortus Gottingensis*, vol. 1, *Arenaria graminifolia*.

In fact, a second reason why Asch's gifts were considered to be so important, is that they allowed professors in Göttingen to study plant species that had been recently identified by Pallas. In 1780 Murray published a description of *Aquilegia viridiflora*, a species that had been identified by Pallas the year before. The latter had sent him seeds of this plant when he was still travelling through Siberia (1768–1774), and others after he came back, but Asch sent him much larger volumes. The Baron von Asch also provided Murray with seeds of *Berberis sibirica*, another species recently identified by Pallas.⁵⁹ In the 1790s Hoffmann provided a detailed description of *Statice latifolia* (*Limonium coriarium*), which had been sent among other plant seeds collected on the banks of the River Don.⁶⁰

Furthermore, it is clear that Schrader benefitted from Asch's donations as well, even though there seems to have been no direct contact between the two men.⁶¹ In 1810 he identified a new species among the plants sent by Asch to Murray, which had been disseminated from the botanical garden in Göttingen to other botanical gardens in the meantime. Murray thought it belonged to the *Gypsophila* genus, which is indeed well represented on the Eurasian steppe, but Schrader discovered that the plant exhibited significant differences from that genus. He called the species *Arenaria graminifolia*, which is now considered a heterotypic synonym for *Eremogone saxatilis* (see figure 2). Schrader also thought that Bieberstein's *Arenaria filifolia* (*Eremogone procera*) was a synonym for the same plant.⁶² The Göttingen Herbarium still preserves a drawing of *Adonis altaicensis* by Schrader, which it acquired in 1837, that is after Schrader's death. The name given to this flower, an unknown member of the genus *Adonis*, suggests that it came from the Altai Mountains. It may very well be based on a plant grown out of one of the seeds sent by the Baron von Asch, or perhaps one of its descendants.⁶³

Asch's shipments also helped Blumenbach reflect on the importance of climate for plant geography, and on plants' medical uses. The latter remarked in the 1788 edition of his *Handbuch der Naturgeschichte* that Siberia produced many plants of warmer environments that did not grow in the southern parts of Europe.⁶⁴ Blumenbach also mentioned so-called tonka beans in the inventory of his personal collection, which refers to seeds of the cumaru (*Dipteryx odorata*). The inventory further specified that the Baron von Asch claimed that they came from India and were commonly used in northern Asia as additives to coffee or tobacco. Apparently, they were called *Servai-Schir* in Persian. The Cumaru tree is native to South America, and only

⁵⁹ Murray (1780) 8–9, Murray (1783/1784) 37, Pallas (1771–1776). See also Dougherty (2006–2015) vol. 5, 180–181.

⁶⁰ Hoffmann (1793/1794) 23.

⁶¹ Schrader may have corresponded with Pallas and/or Bieberstein, however. Schrader (1809) 74–75, 83–84, 85–86.

⁶² Schrader (1809–1811), vol. 1, *Arenaria graminifolia*; Schrader (1810b) 139–140.

⁶³ University Herbarium, GOET_Zeichnungen_004

⁶⁴ Blumenbach (1788b) 24–25 (note 1).

became naturalized in South East Asia during the last century, which means that Asch must have confused the beans with those of another plant.⁶⁵

This is not an isolated incidence. Murray noted in the fifth volume of his study on medical plants that Asch sent him seeds of 'Albanian saffron', which he immediately recognised as those of safflower (*Carthamus tinctorius*). This species was sometimes used as a substitute for the saffron crocus (*Crocus sativus*). Asch's letters additionally indicate that he used the scientific name *Pinus cedrus*, which referred to the Lebanese cedar (*Cedrus libani*), for the Siberian pine (*Pinus sibirica*), and that he may have mistaken seeds of the tree of heaven (*Ailanthus altissima*), also known as Chinese sumac, for those of the Sicilian sumac (*Rhus coriaria*).⁶⁶

Other good examples of academic discussions over taxonomy are the lichens Asch sent to Hoffmann in August 1800. The latter identified these as specimens of *Usnea flaccida* and *Usnea ochroleuca* in the *Göttingische Anzeigen von gelehrten Sachen* of 1801 and the third volume of his study about lichens, published that same year. The latter volume, which also contains a dedication to the Baron von Asch, specifies that the lichens were collected by Schangin and Sievers in Siberia and 'beyond the Altai mountains', and then sent to Göttingen by Stephan and Asch. Both species were first described by Hoffmann in the 1790s, and are now considered synonyms for *Evernia divaricata* and *Alectoria ochroleuca*.⁶⁷ It is interesting to note that Schrader already published a critic of Hoffman's account of the *Usnea* genus in 1799.⁶⁸

Asch's gifts constitute a good example of the complexity of scientific knowledge production. The seeds were gathered in remote corners of the Russian empire, brought to Asch's home in Saint Petersburg, sometimes labeled⁶⁹, and then shipped to the university of Göttingen, mostly by sea, where they were planted in the university's botanical garden. Other donations, of books and collections of dried plants, helped scholars in Göttingen learn more about Russian flora and differentiate between the species represented in the collections of plant seeds. The books were sent to the university library, and the dried plants became part of the newly established Academic Museum, where they were more or less freely accessible to anyone interested in natural history who was willing to pay a small entrance fee.⁷⁰

In 1832 the botanist Friedrich Gottlieb Bartling (1798–1875) in fact refers to a fascicle of Siberian plants that was kept in the Academic Museum and had become partially unusable during his correspondence with Schrader about his lack of access to the university's botanical collections. This may have been the dried plants collected near Barnaul in 1780 and shipped to Göttingen in 1781, or those of Irkutsk

⁶⁵ SUG, Cod. Ms. Blumenbach I, nr. 2, 154r.

⁶⁶ Murray (1776–1792) vol. 5, 228.

⁶⁷ Hoffmann (1790–1801) vol. 3, Tabula LXVII, LXVIII; *Göttingische Anzeigen von gelehrten Sachen*. 167. Stück 17/10/1801, 1657. The *Evernia divaricata* specimen may still be preserved in Hoffman's herbarium. Vainio (1888) 13.

⁶⁸ Schrader (1799a) 64–65.

⁶⁹ SUG, Cod. Ms. Asch 1, Note 29/4/1793 by Christian Gottlob Heyne, Murray (1785) 83.

⁷⁰ Nawa (1810a) 106–122.

donated in 1783, or a combination of both. Friedrich Carl Gottlob Hirsching (1762–1800) also mentioned a ‘herbarium’ with Siberian plants that had been donated by the Baron von Asch in his 1789 description of the Academic Museum.⁷¹ Most of the university’s botanical collections were not publicly accessible, partially out of fear that students and other non-specialists would damage them, and partially because of a general consensus that students should learn about botany by studying living plants in the botanical garden.⁷² The directors of the botanical garden did not seem to have made strict distinctions between their personal collections and those of the university, which had significant consequences in terms of accessibility, and could even become disastrous when professors left the university. When Hoffmann moved from Göttingen to Russia in 1802 he not only took his own herbarium, but also those of his predecessor, Johann Andreas Murray, and Jacob Friedrich Ehrhart (1742–1795) with him.⁷³

Thomas von Asch mainly sent seeds and dried plants to Göttingen, but the importance of his books and manuscripts should not be neglected either. The link between shipments of plant seeds and books is particularly obvious in case of *Actaea cimicifuga*. Asch donated seeds of this species on May 19, 1778, almost one year after his shipment of Johannes Hornborg’s dissertation (on June 24, 1777), and less than three months after his donation of a second edition of the same work. Hornborg completed a dissertation on *Actaea cimicifuga* under the supervision of Carl Linnaeus (1707–1778) in 1774.⁷⁴

Asch’s book shipments in 1777 contained a copy of the *Pharmacopoeia Castrensis Rossica*, published in Saint Petersburg in 1765.⁷⁵ He seems to have been particularly proud of this first official overview of Russia’s medical substances, and wrote in 1779 that the book had reached its fourth printing.⁷⁶ It is unclear whether the Baron von Asch was personally acquainted with Karl Benjamin Sommer (1769–1815), who served as a naval surgeon during the Russian-Swedish War of 1788–1790 and wrote a study on the medical applications of *Gratiola officinalis*. Asch sent it to Göttingen in 1796.⁷⁷ The first volume of Pallas’ *Flora Rossica*, which Asch donated in 1786, was exceptionally valuable, because its distribution had been limited by order of Catherine II. The second volume appeared in 1788. Asch wrote to Heyne in July 1792 that Pallas had promised to send it to Göttingen. Johann Beckmann (1739–1811) published his comments (‘*Referate*’) of Pallas’ study in the *Göttingische Anzeigen von gelehrten*

⁷¹ Ahrens (2020) 30–32, Dougherty (2006–2015) vol. 4, 144–145, Hirsching (1789) 487.

⁷² Murray complained in 1779 about damage done by students to the plants in the botanical garden, and interestingly enough, specifically referred to a ‘new Siberian plant’, which he had wanted to draw and describe. Ahrens (2020) 30–32; Peter (1901) 317–318, See also Nawa (2010b).

⁷³ Sokoloff et al. (2002) 138–140.

⁷⁴ SUG, Cod. Ms. Asch 1, List June 24, 1777, in quarto, nr. 4, List March 4, 1778, in quarto, nr. 17. On Johannes Hornborg, see Rowell (1980) 21–22, Bryce (2008) 202–203.

⁷⁵ SUG, Cod. Ms. Asch 1, List of books shipped on June 24, 1777, in octavo, nr. 5.

⁷⁶ SUG, Cod. Ms. Asch 1, Letter March 23, 1779.

⁷⁷ SUG, Cod. Ms. Asch 1, List August 31, 1796, nr. 28, Baltisches Biografisches Lexikon digital (<https://bbld.de/>), consulted May 25, 2024.

Sachen in 1785 and 1791 and in the *Physikalisch-ökonomischen Bibliothek* in 1787 and 1792.⁷⁸ Asch further transmitted several published inventories of plants growing in Russian botanical gardens, both private and public⁷⁹, a flora of the Saint Petersburg region published by Gregorio Sobolewski in 1799⁸⁰, and a selection of older botanical works that still retained significant value. These included Johann Georg Gmelin's study of Siberian plants, sent in 1781, which probably helped Murray identify some of the first packages of plant seeds donated by Asch⁸¹, and others by Johann Georg Siegesbeck (1686–1755), Jacob Theodor Klein (1685–1759), Carl Linnaeus, and James Logan (1674–1751).⁸²

Finally, Asch donated several manuscripts on botanical matters, such as a list of medical plants growing in the Vladimir Oblast, dated to 1795 and written by Johann Friedrich Ludwig Cappel (1759–1799), a physician from Helmstedt who was recruited by the Russian government in 1786.⁸³ Another physician, Andreas Heinrich Nudow, supplied Asch with a map of the Arkhangelsk government, which also contained remarks on the presence of medical plants.⁸⁴ On August 19, 1800 Asch sent two drawings of plants (*Codariocalyx motorius* and *Dionaea muscipula*) to Göttingen, the only remnant of a book on remarkable plants that had been left unfinished by a naturalist named Peter Hoffmann. It is possible that Hoffmann had intended to analyse movement in plants. Also noteworthy is that his drawing of *Codariocalyx motorius* was based on a specimen that grew in Prince Nikolai Yusupov's (1750–1831) botanical garden and blossomed in 1798.⁸⁵

4 Zoology

As mentioned before, the zoological specimens collected by Asch have traditionally been dismissed as unimportant. The main exceptions are a sample of mammoth skin and a reconstruction of the animal, based on a particularly well-preserved mammoth corps found in the Siberian permafrost in 1799, but only recovered in 1806–1808.⁸⁶

⁷⁸ SUG, Cod. Ms. Asch 1, Letter December 26, 1786, Letter February 5, 1788, Letter July 31, 1792, Wendland (1991–1992) 162.

⁷⁹ SUG, Cod. Ms. Asch 1, List August 11, 1783, nr. 66, Letter March 21, 1788, List August 31, 1796, nr. 48, List September 19, 1805. See also Elina (2008).

⁸⁰ SUG, Cod. Ms. Asch 1, List August 19, 1800, nr. 40.

⁸¹ SUG, Cod. Ms. Asch 1, Letter July 7, 1781, Göttingische Anzeigen von gelehrten Sachen. 41. Stück 14/3/1785, 402.

⁸² SUG, Cod. Ms. Asch 1, List May 19, 1778, nr. 12, List September 12, 1782, nrs. 19, 20, 21, 22, 75, List June 20, 1784, nr. 21.

⁸³ SUG, Cod. Ms. Asch 201, Catalogus plantarum officinalium in provincia Wolodimiriensi sponte provenientium 1795 jussu collegii medici concinatus, Müller-Dietz (1995) 49.

⁸⁴ SUG, Cod. Ms. Asch 247, Medical-physic map of the Arkhangelsk government, with remarks on the presence of medical plants, probably by Heinrich Andreas Nudow.

⁸⁵ SUG, Cod. Ms. Asch 1, List August 19, 1800, Asch 298, Drawings of two rare plants, dedicated to the Baron von Asch by Peter Hoffmann, 1798.

⁸⁶ Buchholz (1961) 99–100.

This neglect may be related to the fact that Asch's zoological specimens did not draw the same amount of attention as his shipments of plants. The *Göttingische Anzeigen von gelehrten Sachen* and the *Göttingischen Gelehrten Anzeigen* mention his name only once in connection to zoological objects: a collection of Russian marmots that the Baron von Asch sent in 1779 on behalf of Ivan Ivanovich Betskoi (1704–1795), the president of the Russian Imperial Academy of Arts.⁸⁷ There is also no substantial evidence to suggest that a new species could be identified on the basis of the specimens he donated. Still, this should not be taken to mean that his contribution to zoology was insignificant.

The first zoological specimens sent by Asch were destined for the newly established Academic Museum in Göttingen, for which Blumenbach was responsible from 1776 until his death.⁸⁸ The animal remains donated exhibit strong similarities to Asch's plant specimens, in a sense that many were well known for their medical properties (*castoreum*, bezoar stones, a scarab beetle from Brazil used against tooth ache).⁸⁹ They also include trade commodities (musk, shells, corals, spines of a porcupine, monkey bones) and animals endemic to the Russian Empire (bones of a beluga sturgeon, horns from an argali sheep and a saiga antelope, 'insects' and 'amphibians', a complete collection of Russian marmots) or the tundra more specifically (reindeer antlers, a stuffed snowy owl). The shipments of animals from Kildin and Greenland may have been considered particularly valuable because the fauna of these islands was largely unknown.

Asch's generosity also helped Blumenbach study the extinct woolly mammoth (*Mammuthus primigenius*), which he recognized as a species different from modern elephants in 1799. The Baron von Asch facilitated the shipment of hair and skin samples and a drawing from a mummified mammoth corpse discovered in the Siberian permafrost in 1799 and sent to Göttingen by Wilhelm Gottlieb Tilesius (1769–1857) in 1806. Because it took seven years to actually recover the corpse, it was already to a large extent defrosted and had been partially consumed by scavengers. Although the Russian evidence played an essential role in Blumenbach's study of the mammoth, we should not underestimate the importance of fossilised mammoth remains found in his own region (the Harz).⁹⁰

The zoological objects collected by Asch may actually have been important in a different way, as materials to illustrate Blumenbach's theories on natural history. It is quite possible that zoological collections in the Göttinger Academic Museum were organised in such a manner as to provide a visual equivalent to his handbook of natural history.⁹¹ If this is true, it remains somewhat unclear exactly how important Asch's donations were. The museum already owned spines of porcupines, bezoars,

⁸⁷ *Göttingische Anzeigen von gelehrten Sachen*. 159. Stück 31/12/1779, 1271–172.

⁸⁸ Nawa (2010b), Wagenitz (1988) 29–30.

⁸⁹ It is unclear whether the 'beluga stones' mentioned by Hirsching in 1789 were also donated by the Baron von Asch. Hirsching (1789) 485–486.

⁹⁰ McKay (2017) 170–172, 177–199, Reich and Gehler (2008), Wendland (2003a) 68–69.

⁹¹ Nawa, 122.

calculi of pigs or wild boars, 'Medusa heads', many species of coral (including the genera *Madrepora* and *Millepora*), a Siberian flying squirrel (*Pteromys volans*), and teeth of a sable (*Martes zibellina*) in 1773–1778.⁹² It is also uncertain whether Blumenbach's description of musk deer benefitted from Asch's shipments of different types of musk or information he may have supplied. Blumenbach's reference to the keeping of domesticated swans in Siberia was probably based on Pallas's research.⁹³

On the other hand, Friedrich Carl Gottlob Hirsching's description of the Academic Museum in 1789 does mention several objects that came from the Baron von Asch, such as reindeer (*Rangifer*) antlers with velvet, a horn of an argali sheep (*Ovis ammon*), and 'tarantulas' (see below).⁹⁴ That very same year Blumenbach published an article about similarities between pigs and humans, and specifically referred to a urinary bladder stone found in a wild boar somewhere in the western periphery of the Kazakh Khanate, and donated by Asch in 1780.⁹⁵

Blumenbach's letters reveal that he used the objects stored in the Academic Museum in his scientific arguments on other occasions as well. In April 1781 he wrote to Heyne that the mysterious Scandinavian *achlis* mentioned in Pliny's *Historia Naturalis* is not the *Capra tatarica* Linnaei (the saiga antelope—*Saiga tatarica*). This was a claim made by the naturalist Johann Gottlob Theaenus Schneider (1750–1822) in a lecture earlier that same year. Blumenbach demonstrated that Pliny's account of the *achlis* must be based on a different animal, because its geographical distribution and physical characteristics are very different from those of the saiga. He also suggested that it might have been a reindeer (*Rangifer*). Schneider's mistake originated in another erroneous assumption, namely that the *achlis* described by Pliny was the same animal as Strabo's *colos*. Blumenbach noted that the latter's description could indeed have been based on the saiga, and that the baron von Asch gave horns of that animal to the Academic Museum.⁹⁶ Blumenbach reiterated his criticism of Schneider's argument in a formal review one month later (May 1781), but now associated the *achlis* with the elk (*Alces alces*). Finally, in July 1781, one of his students, Blasius Merrem (1761–1824), published a dissertation on Pliny's description of 'Scythian' animals, which provided an even more comprehensive discussion of the animal's

⁹² Blumenbach received a piece of sea otter fur (*Enhydra lutris*) from Joseph Banks (1743–1820) in 1791 and another Siberian flying squirrel from Johann Gottlieb Freiherr von Wolff (1756–1817) at an unspecified date. Universität Göttingen, Institut für Ethnologie und Ethnologische Sammlung, Wissenschaftliches Kulturarchiv, Catalogue of the Academic Museum, 1773–1778 ('Urschrift'), 341, nr. 125; 346, nr. 205–207, 251; 342, nr. 133; 345, nr. 169; 365, nr. 176; 373, nr. 42; 381, nr. 72–73, 394, SUG, Cod. Ms. Blumenbach I, nr. 2, f. 86r., Blumenbach (1796) nr. 71.

⁹³ Blumenbach (1779) 126, 199.

⁹⁴ Hirsching (1789) 159, 481, 485–486.

⁹⁵ Blumenbach (1789) 5.

⁹⁶ Dougherty (2006–2015) vol. 1, 229–231; Pliny, *Historia Naturalis*, Book VIII, Chapter 16. On the importance of zoogeography in Blumenbach's work, see Wallaschek (2013–2015).

identity. The modern consensus is that *achlis* is indeed loosely based on the elk (*Alces alces*), and the *colos* on the saiga.⁹⁷

A strong link between on-going research at the Russian Academy of Sciences and Asch's shipments of zoological objects can also be identified. Asch probably chose particular specimens for his shipments to Göttingen on the basis of contemporary scientific debates in Russia. The best example is the argali horn sent to Göttingen in 1779, the same year Pallas published a book-length study on the species.⁹⁸ For Blumenbach this horn constituted an important piece of evidence for his argument that the argali sheep was not the ancestor of its domesticated counterpart, a theory supported by Pallas and Georges-Louis Leclerc, Comte de Buf-fon (1707–1788). In the third edition of his *Handbuch der Naturgeschichte* (1788) Blumenbach referred in a footnote to a large argali horn that weighed nine pounds (more than four kilograms), and was kept in the Academic Museum in Göttingen. This weight was even more impressive if one considers that the horn was incomplete.⁹⁹ The same horn is also mentioned in an inventory of Blumenbach's personal collection, dating to the 1790s.¹⁰⁰ The Göttinger professor Friedrich Albrecht Anton Meyer (1768–1795) agreed with Blumenbach's interpretation in his natural historical overview of European sheep breeds, but English scholars did not.¹⁰¹ William Lawrence (1783–1867) and John Frank Newton (1767–837) both criticised Blumenbach, and remarkably enough, also referred to the argali horn kept in Göttingen.¹⁰² We now know that Blumenbach was right.

Blumenbach's research also benefitted from animal specimens collected by Carl Heinrich Merck (1761–1799) during the Billings expedition (1785–1794) along the coasts of Siberia and Alaska, although these are not mentioned explicitly in the *Göttingische Anzeigen von gelehrten Sachen*, which focus exclusively on the ethnographic objects sent by the Baron von Asch.¹⁰³ Blumenbach's *Abbildungen naturhistorischer Gegenstände* make clear, however, that Asch did transmit animal specimens collected by Merck to Göttingen, including stuffed specimens of a Siberian rubythroat (*Calliope calliope*) and a yellow-breasted bunting (*Emberiza aureola*). Pallas already provided a scientific description of both species in the 1770s, but Blumenbach may have been the first to publish a drawing of the former (see figure 3). His book also includes a depiction of a stuffed snowy owl (*Bubo scandiacus*) from Siberia, which Asch had sent on another occasion, and refers to a yak's tail (*Bos grunniens*) donated by him.¹⁰⁴

⁹⁷ Göttingische Anzeigen von gelehrten Sachen. 62. Stück 21/5/1781, 503–504, Beagon (2014) 431, Merrem (1781) 11–17.

⁹⁸ Pallas (1779b).

⁹⁹ Blumenbach (1788b) 117.

¹⁰⁰ SUG, Cod. Ms. Blumenbach 1, nr. 2, 85r.

¹⁰¹ Meyer (1794) 13.

¹⁰² Lawrence (1822) 422; Newton (1821) 511–512.

¹⁰³ Göttingische Anzeigen von gelehrten Sachen, 17. Stück 30/1/1797, 161–167, Buchholz (1961) 71–78, Hauser-Schäublin and Krüger (2007), Jones (2017) 174–180, Jaensch (1980).

¹⁰⁴ Blumenbach (1796) nrs. 23, 45, 56, 75. See also SUG, Cod. Ms. Asch 229, Pallas' Instructions for Carl Heinrich Merck, 30 September 1786 and Stresemann (1949).



Fig. 3: Drawing of a Siberian rubythroat (*Calliope calliope*). Published in: Blumenbach, Abbildungen, nr. 45.

Asch and Blumenbach maintained a close relationship, as can be demonstrated by Asch's gift of a white wolf dog named Pyram to the latter on October 11, 1790. The fact that this animal was named suggests that it was kept as a pet. Still, it is notable that Pallas published an article on the breeding of black wolf dogs in 1793, which was mainly based on observations made in 1781. In other words: the breeding of wolf dogs was a subject of interest in the Russian academic community around that

time and should be seen in the context of wider debates about the inheritance of specific traits. Pyram's shipment to Göttingen may therefore have served both personal and scientific goals. Unfortunately, we will never know what impact the animal could have had on Blumenbach's scientific work, for it died at sea.¹⁰⁵

The maritime context played another, and more positive, role in the shipments of zoological specimens from Greenland in August 1780, deliveries that were clearly connected to the publication of Otto Fabricius' *Fauna Groenlandica* that very same year. Otto Fabricius (1744–1822) was a Danish preacher who wrote the first scientific study of the island's animal life.¹⁰⁶ Blumenbach published a review of his book in the *Göttingische Anzeigen von gelehrten Sachen* in November 1780.¹⁰⁷ Three months earlier Asch had sent him a black guillemot (*Cepphus grylle*) and a 'zoophyte' from Greenland. The term zoophyte was commonly used in the eighteenth century, and referred to species that were thought to be neither plant nor animal. It was probably a sponge (*Porifera*). The animals were shipped alongside a wolffish (*Anarhichas*) and lemming (*Lemmus*) from Kildin, an island that served as a base for Russian fishermen and hunters active in the Barents Sea.¹⁰⁸ The 'ray turned into a dragon' by the inhabitants of Arkhangelsk could probably be considered as both an ethnographic and zoological object.

Also reflective of the close connection between Asch's gifts and on-going academic research are his shipments of insects in July 1783, which all came from Kherson or Astrakhan. It is very likely that Pallas's research provided the main stimulus for these donations. There is in fact a direct link between Asch's letter to Göttingen on 15 July 1783 and a letter written by Carl Ludwig von Habbitz, who was vice governor of Taurida Oblast and resided in Kherson, to Pallas on 21 August of that same year. The latter gives a description of the insects that could be found near Kherson, and mentions mosquitos, locusts, 'tarantulas', and centipedes (*Scolopendra morsitans*). The tarantulas were 'as common as near the lower Volga', but Habbitz found no evidence that their bite was dangerous. The centipede was called 'fortyfoot', and he found it remarkable that they were not a threat to humans either. The local inhabitants did believe, however, that the bite of a centipede could be deadly if someone was bitten in the throat or head, which made Habbitz specify that he did not know if this belief was based on actual experience.¹⁰⁹ Given his extensive description of both 'tarantulas' and centipedes, it is reasonable to assume that the shipments of Göttingen included both. This would also explain Hirsching's reference to 'tarantulas' from Astrakhan in the Academic Museum in 1789.¹¹⁰ The presence of spiders in an insect collection is hardly surprising, if one considers that Blumenbach's museum

¹⁰⁵ Pallas (1793).

¹⁰⁶ Fabricius (1780) 92–94.

¹⁰⁷ *Göttingische Anzeigen von gelehrten Sachen*. 144. Stück 25/11/1780, 1175–1178.

¹⁰⁸ Kraikovski (2012) 21.

¹⁰⁹ *Nachrichten und Auszüge aus Briefen*, 319–321.

¹¹⁰ Hirsching (1789) 486.

inventory, dating to 1773–1778, classified spiders among insects and that Pallas' book on 'Russian and Siberian insects' also discussed spiders.¹¹¹

The species normally designated as 'tarantula' or 'Russian tarantula' was *Lycosa singoriensis*, a wolf spider, which could be commonly found on the steppe. Yet many naturalists used the name 'tarantula' indiscriminately for different species, including the Mediterranean black widow (*Lathrodectus tredecimguttatus*). The latter lived near Kherson and Astrakhan in the late nineteenth century and could therefore have been included among the 'insects' sent to Göttingen.¹¹² It is also clear, however, that *Lycosa singoriensis*, which had a much wider geographical distribution, was the species most often encountered by naturalists. The spiders seen by Alexander von Humboldt on the island Birjuč'ja kosa near Astrakhan in 1829 were probably wolf spiders.¹¹³ Identification problems between different species of spiders could explain the repeated statements by naturalists such as Hablitz and Fries that 'tarantulas' were not as harmful as commonly believed.¹¹⁴ Interestingly enough, Johann Jakob Lerche also described encounters with 'tarantulas' during the Russo-Turkish War of 1735–1739, and recognized that they were one among many species of spiders present on the steppe, only some of which were dangerous to humans.¹¹⁵

Academic interest in the insects of the Russian Empire started in the second half of the eighteenth century, but they were not systematically studied before the first decades of the nineteenth century. The entomologist Victor Ivanovich Motschulsky also remarked that Pallas had sent many of the insects he collected abroad.¹¹⁶ It is unclear, however, whether the insects and spiders Asch transmitted to Göttingen had a meaningful impact on the research being conducted there. Friedrich Albrecht Anton Meyer mentioned the migratory locusts (*Locusta migratoria*) donated by Asch in 1794, but Blumenbach did not. He based his study of the species on a specimen he had collected near Göttingen in 1781. Meyer also discussed the 'tarantulas' living near Kherson, which were described by Hablitz in 1783, but did not refer to the specimens from Astrakhan kept in the Academic Museum.¹¹⁷ Furthermore, Meyer's discussion of the Russian beetles described by Pallas in his 1792 study of poisonous insects, did not mention the Baron von Asch either. He wrote that the blister beetle *Mylabris crocata* was comparatively rare in Russia, but Pallas had learned from Hablitz that it was common around Astrakhan and caused much damage to the gardens there. It remains uncertain whether the insects Asch supplied to the Academic Museum also included such blister beetles.¹¹⁸

¹¹¹ Universität Göttingen, Institut für Ethnologie und Ethnologische Sammlung, Wissenschaftliches Kulturarchiv, Catalogue of the Academic Museum, 1773–1778 ('Urschrift'), Pallas (1781–1798).

¹¹² Köppen (1881) 188, 191–193, 199–200, 207, 216, Schmidt (1895) 444–445.

¹¹³ Humboldt (2019) 133, 151.

¹¹⁴ Kirchner (2018) 78–79, Köppen (1881) 216–217.

¹¹⁵ Lerche (1791) 138–139.

¹¹⁶ Motschulsky (1846) 3–7.

¹¹⁷ Blumenbach (1796) nr. 29; Meyer (1793) 38–39.

¹¹⁸ Meyer (1792) vol. 1, 48–49, 53–54.

The Baron von Asch also contributed to the study of anatomic anomalies or ‘monstrosities’ (teratology), which played an important role in eighteenth-century naturalist thought. In 1800 he sent a human embryo with a tail from Vologda and a ‘monstrous’ little chicken from Reval (Tallinn). These relate to Blumenbach’s theory of *Bildungstrieb* (*nisus formativus*), which he had put forward in 1781, and also to the work of Caspar Friedrich Wolff (1733–1794) in Saint Petersburg. Hans Jakob Fries may have provided Asch with the human embryo, as he resided in Vologda and died there a few months later.¹¹⁹

Lastly, the Baron von Asch presented the university of Göttingen with a few books and manuscripts relevant for zoological research. In 1786 he sent Peter Ernst Wilde’s (1732–1785) book on horse breeding and horse care, and in 1800 and 1802 he donated copies of Johann Cederhjelm’s overview of the fauna of Ingria (Saint Petersburg), and Ivan Alekseevich Dvigubsky’s (1771–1839) study of the fauna of Moscow.¹²⁰ Fries’s notes on the weather also contain valuable data on the behaviour of animals. He observed bird migration, the presence of insects such as butterflies, and remarked that bears and wolves fled into villages during a forest fire. Lerche provided a valuable report on a zoonotic disease that broke out in the village of Saksala in Finland in 1763. A brown bear (*Ursus arctos*) dug up the corpses of six cows that had died recently, fed on them, and then suddenly perished. The disease spread to the village because a farmer brought the bearskin home in order to prepare it for sale.¹²¹

5 Conclusion

The zoological and botanical specimens donated by Georg Thomas von Asch to the University of Göttingen made a valuable contribution to the research of several professors, namely Johann Andreas Murray, Georg Franz Hoffmann, Heinrich Adolf Schrader, and Johann Friedrich Blumenbach. It made the university a major knowledge centre on the flora and fauna of the Russian Empire and led to the identification of at least three plant species that were new to science (*Silene procumbens*, *Scabiosa uralensis*, and *Carduus ciliatus*). His zoological specimens may also have played a significant role in visualizing Blumenbach’s theories on natural history in the Academic Museum. The argali horn Asch gave to Göttingen became an important object of reference in discussions about the taxonomic status of this species.

Asch’s extensive network and close relationship with his alma mater made him the central component of a web that linked the far-off frontiers of the Russian Empire with scholars working at the University of Göttingen. Asch’s selection of particular objects cannot be understood without taking contemporary research at the

¹¹⁹ Buchholz (1961) 103; Enke (2005). See also Zürcher (2004).

¹²⁰ SUG, Cod. Ms. Asch 1, Letter June 30, 1786, List August 19, 1800, nr. 34, List September 29, 1802, nr. 47.

¹²¹ SUG, Cod. Ms. Asch 161; Asch 194.

Russian Academy of Sciences, and particularly the work of Peter Simon Pallas, into account. Asch's military service, of which he was very proud, was hardly a coincidence, but reflects the wider role of members of the armed forces in early botanical and zoological exploration.

While it is unclear how many of the specimens Asch donated still remain in the university's collections, his letters, and manuscript and book collections, could still play an important role in current ecological research. They provide valuable data for historical ecology and biogeography by creating a window into the flora and fauna of the Russian Empire of more than two hundred years ago. Future references to the Baron von Asch's status as the most important private benefactor of the University of Göttingen should undoubtedly mention his substantial contribution to botanical and zoological research in the late eighteenth and early nineteenth century.

Tab. 1: Overview of plant and animal specimens sent by the Baron von Asch¹²²

Date	Description by Georg Thomas von Asch	Remarks
9–20/1/1774	Powder against diseases of the eyes, made out of seeds from Çeşme.	Found in an Ottoman army camp captured by Russian forces
8–19/5/1778	Four <i>Larasan</i> roots from Siberia A piece of the <i>Ninsing</i> root and <i>Ten-sung</i> , a Chinese medicine <i>Semen Cimicifuga</i> from Siberia	Unidentified plant Ginseng (genus <i>Panax</i>) <i>Actaea cimicifuga</i>
20–31/5/1778	Plant seeds from Siberia for Professor Murray	Johann Andreas Murray (1740–1791)
4–15/8/1778	Nr. 78 Bone from the skull of the beluga fish that lives in the Volga Nr. 84 A Brazilian lemon or citron used as a vomitive, acquired from the lord de Castro Sarmento in London in 1752	<i>Huso huso</i> Jacob Henriques de Castro Sarmento (1690–1762)

¹²² Based on the letters and lists preserved in SUG, Cod. Ms. Asch 1 and UAG, Kur 7343.

12– 23/3/1779	A small casket with seeds for prof. Murray	
1–12/5/1779	Nr. 2 A tooth from a wild boar from the region around the Irtysh River Nr. 2 * A gastric calculi found in the stomach of a wild boar in the same region.	<i>Sus scrofa</i> <i>Sus scrofa</i>
1–12/6/1779	Nr. 72 <i>Bezoar orientale</i> , acquired in Holland in 1751 Nr. 73 <i>Bezoar occidentalis</i> , acquired in Holland in 1751 Nr. 74 <i>Aegagropila Damae</i> , acquired in Holland in 1751 Nr. 75 The head of a Brazilian scarab with one recurved horn. It is used against toothache by rubbing the gums with it until blood gushes out. Nr. 80 Root of a plant from Tobolsk, of which the seed is known as <i>Leontice</i> Nr. 81 Lychee fruit from China Nr. 82 <i>Junum</i> , little fruit with black core from China Nr. 83 <i>binglo- areka Malabarica</i> , a Chinese tree used for better digestion and to drive away the heat	bezoar from Asia bezoar from Europe or the Americas bezoar, possibly from a deer or chamois (<i>Rupicapra rupicapra</i>) Genus <i>Leontice</i> <i>Litchi chinensis</i> Unidentified plant Possibly <i>Areca catechu</i>
18– 30/6/1779	Nr. 71 Mussels found at the shore of the Umschka Nr. 77 Two spines from a porcupine Nr. 84 A small casket with shells	 <i>Hystriidae</i>

	Nr. 85 <i>Anacardium orientale</i> (tree from the East Indies) Nr. 87 Musk from Tibet Nr. 88 Kabardia or Tatar Musk Nr. 89 Siberian castoreum Nr. 90 <i>Gummi Sayapen</i> Nr. 91 <i>Gummi Galban</i> Nr. 92 <i>Gummi Ammoniacum</i>	Marking nut tree (<i>Semecarpus anacardium</i>) genus <i>Moschus</i> genus <i>Moschus</i> <i>castor fiber</i> <i>Sagapenum</i> (genus <i>Ferula</i>) <i>Galbanum</i> (<i>Ferula</i>) <i>Ammoniacum</i> or gum ammoniac (<i>Ferula ammoniacum</i>)
7–28/7/1779	Nr. 15 <i>Fragmentum Madreporae</i> Nr. 16 <i>Fragmentum Milleporae</i> Nr. 17 <i>Fragmentum Hippuriti Corallini</i> nrs. 15–17 came from Naples and were thrown into the harbour of Kronstadt with ships' ballast. Nr. 18 A coco nut from the Indies Nr. 95 Mussels from the Caspian Sea, which were used to build the city walls of Derbent (Dagestan). Nr. 100 One horn of the wild Siberian sheep that lives in great numbers near Omsk in the mountains close to the Chinese border. The so-called argali or ammon Lin.	genus <i>Madrepora</i> genus <i>Millepora</i> Possibly genus <i>Hippurites</i> <i>Cocos nucifera</i> Possibly collected by Jacob Reineggs (1744–1793) <i>Ovis ammon</i>
29/8–9/9/1779	A casket with a complete collection of Russian marmot species, a gift from Iwan Iwanowitsch Bezkoj.	Ivan Ivanovich Betskoj (1704–1795)

4–15/9/1779	Nr. 14 Two locusts that were numerous in the steppe of Azov this year Nr. 22 A collection of dried plants that grow near Aleksandrovsk (Zaporizhzhia) at the frontier line of Azov (<i>an der Asofsche Gränzlinie</i>)	<i>Locusta migratoria</i>
11–22/12/1779	A small casket with plant seeds from Orenburg for prof. Murray	
18–29/1/1780	A small casket with plant seeds from Crimea for prof. Murray	
29/2–11/3/1780	Siberian plant seeds for prof. Murray	
24/6–5/7/1780	Nr. 127 Two American nuts that came by way of Cádiz Nr. 128 <i>Anacardium</i> Nr. 129 <i>Rheum</i> from Irkutsk Nr. 130 3 Pieces of Larasan from Siberia Nr. 135 Orange admiral, imperfect, from the cabinet of the count of Brühl Nr. 136 5 Other Conidae from the Archipelago, <i>Cyprea tygris</i> and <i>Murices</i> Nr. 137 Kalmyk work (<i>Arbeit</i>) made out of melon seeds Nr. 9 A gastric calculi from a wild boar, collected about five hundred thirty kilometers beyond Orenburg (<i>500 Werst hinter Orenburg</i>) Nr. 11 Coco nut, probably from India, which came by way of Orenburg	<i>genus Anacardium</i> <i>Rheum rhabonticum</i> Unidentified plant (see also above) <i>Conus aurisiacus</i> Heinrich, Count of Brühl (1700–1763) <i>Cypraea tigris</i> and <i>Muricidae</i> family Possibly collected by Johannes Jährg (1747–1795) <i>Sus scrofa</i> <i>Cocos nucifera</i>
5/8/1780	Nr. 1 <i>Anarhichas rutheniae subatka</i> from Kildin	genus <i>Anarhichas</i>

	Nr. 2 <i>Mus lemmus</i> from Kildin Nr. 3 Ray turned into a dragon by the inhabitants of Arkhangelsk (<i>Raia von den Einwohnern in Archangel zum Drachen gebildet</i>) – originally from Kildin Nr. 4 <i>Caput medusae duplex</i> from Kildin Nr. 5 <i>Colymbus grylle</i> from Greenland Nr. 6 Zoophyte from Greenland Nr. 7 Bones from the head and other parts of a monkey A sealed little glass flask with <i>Gummi Laricis</i> from Orenburg A sealed little glass flask with <i>Resina Laricis</i> from Kyakhta A little bag with some in herbs collected in Finland	genus <i>Lemmus</i> Possibly the genus <i>Gorgonocephalus</i> black guillemot (<i>Cephus grylle</i>) Probably a sponge (<i>Porifera</i>) genus <i>Larix</i> genus <i>Larix</i>
18– 29/10/1780	Antlers from a reindeer that lives in Lapland Horns from a Siberian saiga	<i>Rangifer</i> <i>Saiga tatarica</i>
2/3– 12/3/1781	Small casket with seeds from Barnaul	Probably collected by Erik Gustavovich Laxmann (1737–1796)
26/6– 7/7/1781	Bundle with some plants collected in the area around Barnaul in the year 1780	Probably collected by Laxmann
9/8– 20/8/1782	Nr. 6 A little flask made with <i>Resina elastica</i> Nr. 7 Two hardened protuberances (<i>verhärtete Glandule</i>) above the eyes of the beluga fish	Rubber, possibly from <i>Hevea brasiliensis</i> <i>Huso huso</i>

	Nr. 8 Some excellent specimens of <i>Rhododendron Sibiricum</i>	<i>Rhododendron aureum</i>
4–15/7/1783	A small casket with dried plants from Irkutsk A plant collection from Kherson An insect collection from Kherson A small casket with six glasses containing insects in alcohol, from Kherson A small casket with dried insects from Astrakhan <i>Lapis Astroites</i>	These may have been collected by Laxmann The plants and insects coming from Kherson and Astrakhan were probably collected by Carl Ludwig von Hahlitz (1752–1821). These may have included the ‘tarantulas’ mentioned by Friedrich Carl Gottlob Hirsching (1762–1800) in 1789. Possibly a coral
15–26/9/1783	A small glass with three amphibians from Astrakhan	Probably collected by Hahlitz
4–15/3/1785	<i>Lonicera</i> for prof. Murray. This seed germinated well in a flowerpot with wet moss.	genus <i>Lonicera</i>
18–29/4/1785	He recently sent a small package with seeds and fresh nuts of the Siberian cedar, <i>pinus cedrus</i>, for prof. Murray. He now sends seeds of the sumac tree from Kazan. This tall tree carries red berries, which the Persians dry and use to spice meat. Its sap is similar to that of lemons and can be used to make sorbet.	Probably <i>Pinus sibirica</i>, or Siberian pine, which is called ‘cedar’ in Russia Probably tree of heaven (<i>Ailanthus altissima</i>), which is also known as Chinese sumac. Asch’s description of the berries’ culinary use by the Persians applies to Sicilian sumac (<i>Rhus coriaria</i>).
7–18/7/1785	A small casket with stuffed animals Two glasses with naturalia in alcohol	

19– 30/8/1785	A cone of <i>Pinus pinea</i> Two cones of <i>Pinus cedri</i> A snake twisted in an artificial way (<i>Serpens artificiose tornatus</i>)	A cone of a stone pine (<i>Pinus pinea</i>) Two cones, of either a Lebanese cedar (<i>Cedrus libani</i>) or Sibe- rian pine (<i>Pinus</i> <i>sibirica</i>) (see above)
19– 30/9/1785	Fragment of a deer antler of turquoise- like colour, from the Altai Mountains	
19– 30/6/1786	Plant seeds for prof. Murray	
12– 23/2/1788	Plant seeds for prof. Murray	
10– 21/3/1788	Plant seeds for prof. Murray	
1–12/9/1789	Mention of pearl mussels with Kufic writing, sent to prof. Heyne on differ- ent occasions.	Christian Gottlob Heyne (1729–1812)
10– 21/3/1788	Nr. 2 ox bezoar from Kizlyar Fresh almonds and seeds for prof. Murray	<i>Bos taurus</i> <i>Prunus amygdalus</i>
8–19/6/1790	Four small bags for prof. Murray	Probably plant seeds
30/9– 11/10/1790	A small bag with rhubarb seeds for prof. Murray A white wolf dog named Pyram, a gift for prof. Blumenbach	<i>Rheum rhaponticum</i> Died at sea (letter 3– 14/4/1791) Johann Friedrich Blu- menbach (1752–1840)
29/4/1793	51 Plant seeds collected in Dzungaria by the pharmacist Sievers	Johann August Carl Sievers (1762–1795)
18– 29/5/1793	Plant seeds from the Bukhtarma 'mountains' for prof. Murray	The Bukhtarma River, which has its source

		in the Altai Mountains. These seeds may have been collected by Sievers.
22/5– 2/6/1794	Plant seeds from the Emirate of Bukhara, collected by the pharmacist Sievers Two bags with plant seeds from Taurida Oblast, a gift from prof. Pallas to prof. Hoffmann. A bag of plant seeds from the Orenburg Region.	Peter Simon Pallas (1741–1811) Georg Franz Hoffmann (1760–1826)
2– 13/12/1795	Plant seeds from Bukhara and Taurida for prof. Hoffman. The pharmacist Sievers collected these.	
9–20/3/1797	Plant seeds from the Kolyvan and Irkutsk governments for prof. Hoffmann.	
16– 27/4/1798	Seeds from Siberian plants for prof. Hoffmann, which he received from chief mine inspector (<i>Oberbergmeister</i>) Schangin in Salair.	These may have included seeds of <i>Robinia pygmaea</i> , <i>Nitraria schoberi</i> , and <i>Berberis sibirica</i> . Peter Ivanovich Schangin (1741–1816)
18– 29/9/1798	A package with Siberian plants, from Peter Schangin.	
7–19/8/1800	Two little packages with lichens for prof. Hoffmann, received from the botanist Stephan in Moscow.	Christian Friedrich Stephan (1757–1814) These probably included the specimens of <i>Usnea flaccida</i> (<i>Evernia divaricata</i>) and <i>Usnea ochroleuca</i> (<i>Alectoria ochroleuca</i>) mentioned by Hoffmann in 1801.

7–19/8/1800	A little monstrous embryo with a tail from Vologda Nr. 3 a monstrous little chicken from Reval (Tallinn)	Probably sent by Hans Jakob Fries (1749–1801)
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