

Travellers in Ottoman Lands

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TRAVELLERS IN OTTOMAN LANDS

The Botanical Legacy

Edited by

Ines Aščerić-Todd, Sabina Knees,
Janet Starkey and Paul Starkey

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Background

Çiçeklerin dâhisi (The genius of flowers) by illustrator-artist Sema Yekeler Yurtseven.
This is in the style of Kara Memi
(fl.1545–1566).

Middle

Map no. 50 in Abraham Ortelius's atlas *Theatrum Orbis Terrarum*. Anvers 1602, updated from the
Antwerp 1570 edition (Muzeul Național al Hărților și Cărții Vechi, Romania).

Below

George Maw's study of *Crocus speciosus* in his magnum opus *The Genus Crocus* published
in 1886. Published by Martyn and Alison Rix in *Cornucopia* 39 (2008), p. 91.

Back cover

Calligraphic tulip AH 1428/AD 2007 by 'Osman'. Published with
permission from a private collection.

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In memory of Irene Linning

Irene Linning was born in al-Magwa, Kuwait, on 7 May 1951. She was involved in an accident in Hammersmith on Wednesday, 26 July 2017 and died as a result of her injuries at St Mary's Hospital in Paddington, on Friday, 4 August 2017.

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From Ottoman Aleppo to Edinburgh: the botanical legacies of Adam Freer MD and his colleagues

Janet Starkey

Summary

Among the earliest collections of plant specimens in the herbarium of the Royal Botanic Garden Edinburgh (RBGE) were those given to John Hope, the Regius Keeper of the Royal Botanic Garden from 1761 to 1786, by Adam Freer MD of Essendie (1747–1811); at least thirty-six specimens still survive there. Freer had collected these plants at the behest of another Scot, Patrick Russell MD FRS (1726/7–1805). Freer had succeeded Patrick as physician-surgeon to the Levant Company Factory in Aleppo in 1772 and worked there until March 1781, then crossed the Syrian Desert to India. Patrick worked in Aleppo from 1750 to 1772 and in turn, replaced his half-brother, Alexander Russell MD FRS LRCP (1714–1768) who served in the same post from 1740 to 1754 (Starkey 2018). They all trained at Edinburgh Medical School, knew John Hope well, and studied the natural history around Aleppo, collecting plants and seeds.

Alexander Russell published *The Natural History of Aleppo* in 1756 and Patrick published a completely rewritten edition in 1794, hereinafter called *Aleppo*¹ and *Aleppo*² respectively. Eighteenth-century European readers were fascinated by the curious flora and fauna, by exotic and delightful landscapes – inspired by the *Arabian Nights* – so it is not surprising to find that the two editions of *The Natural History of Aleppo* reflect the Enlightenment motifs of good taste, and the elegance and beauty of Aleppine gardens. *Aleppo*¹ and *Aleppo*² are full of details about birds, animals (domesticated and wild), trees, and flowers. The chapter will also reflect on the impact of Freer's botanical legacy on *Aleppo*² and comment on flora they collected and described and plants they brought back from the Ottoman Empire, before outlining the impact of the Linnaean revolution that transformed *Aleppo*¹ into *Aleppo*².

Keywords: Aleppo, John Hope, Adam Freer, Patrick Russell, Alexander Russell

Introduction

The images of Aleppo we are constantly watching on television and on the Internet are of a landscape ravaged by war and refugees fleeing the devastation. This chapter takes us back to the more stable environment of the eighteenth-century Ottoman Empire, to records of flourishing plants, gardens, and agriculture in and around that cosmopolitan commercial city. Aleppo, then within the Ottoman Empire, stood on

the Silk Road at the crossroads of routes for pilgrims, administrators, and traders — to Anatolia and on to Constantinople, then Persia; across the Syrian Desert and on to India; to the Levant and to the holy cities of Mecca, Medina, and Jerusalem; and across the Amanus mountains (Nur Dağları) to ports on the eastern Mediterranean.

This story revolves around the Royal Botanic Garden Edinburgh (RBGE) at the height of the Scottish Enlightenment and the development of botanical taxonomies there. It might be useful, however, to begin with a brief outline of the history of physic and botanic gardens which developed in that city, to highlight the importance of eighteenth-century plant collections to the development of medicinal collections and the acquisition of specimens from abroad, as well as the enduring connections with botanists in Leiden and Paris. Physic gardens existed at different locations in Edinburgh since the first herb garden was created by the Incorporation of Barbers and Surgeons in 1656. The first garden in Edinburgh that was specifically developed by physicians was established in 1670 on an allotment in St Anne's Yard, near the grounds of the Palace of Holyrood House, by Sir Robert Sibbald MD (1641–1722) and his cousin and physician, Andrew Balfour (1630–1694), who had studied in Paris and Caen. Sibbald was the first Professor of Medicine in Edinburgh (from 1685), having studied medicine in Leiden, Paris, and Angers and botany at the Jardin du Roi (now Jardin des plantes), Paris. By 1676 Balfour set up a physic garden where plants in rectangular beds were arranged into their proper classes according to their order established by the Swiss botanist Caspar (or Gaspard) Bauhin (Bauhinus) (1560–1624) — known as the Pinax scheme — according to their genera and species. This scheme, amongst many others, was used by Alexander Russell even in 1756. In his *Pinax theatri botanici* (1671), abbreviated as 'C.B.P.' at the time, Bauhin had described around 6000 plants and used a diagnostic classification system based on groups such as 'shrubs'. Bauhin's concepts were later adopted by the well-known Swedish naturalist Carl von Linné (Linnaeus, 1707–1778) in his binomial nomenclature.

In the fourth plot, plants used in medicine were arranged in beds by Sibbald and his associates in the alphabetical order used in dispensaries. Sibbald was also interested in collecting plants from around the known world: 'There are in the garden not only quite a number of plants indigenous to this country, but also plants from both hemispheres, especially those which have been distributed through all countries for the cure of sickness and disease; here almost all have been gathered together and grow quite well. The total number of all the plants is approximately 2,000.' (quoted in Doyle 2008: 362).

In addition, the physic garden of the Royal College of Physicians was founded in 1681 inside the Holyrood Palace grounds. Sibbald visualized the plant collections in its garden as being the basis for a pharmacopoeia, a guide consisting of recipes and methods for making medicine (Royal College of Physicians of Edinburgh 1699). Under Charles Preston (1660–1711) and his brother, George (1664/1665–1749) these gardens declined. Nevertheless, there are three specimens from Turkey (*Ononis natrix* L. raised from seed collected in Smyrna (E00334296), *Lepidium orientale* (E00051303) and *Convolvulus arvensis* L. (E00465970)) in the RBGE herbarium that were acquired in May 1720 from

William Sherard (1659–1728), who was appointed by the Levant Company as consul at Smyrna from 1703, returning to Britain in 1717. Sherard had studied botany in Paris under Joseph Pitton de Tournefort (1656–1708), later contributed to John Ray's work on taxonomy, began a continuation of Caspar Bauhin's *Pinax*, and left his substantial herbarium to Oxford. In a letter written on 24 December 1720 Sherrard complained to Richard Richardson MD about George Preston: 'I will speedily write to Mr Preston, but do not find him so good as he promises, having never received one specimen from him, though I sent him a large packet of Seeds two years since' (Nichols 1817: 372). Meanwhile, Richardson, a close friend of Sir Hans Sloane, was acquiring plants from the Physic Garden at Edinburgh for his own garden in Yorkshire.

Matters improved in Edinburgh when from 1738 Charles Alston MD (1683–1760) was appointed first Professor of Botany and *Materia Medica*; he was also King's Botanist, Overseer of the Royal Garden, and Superintendent of Edinburgh's Botanical Gardens. He had studied botany and medicine under Professor Herman Boerhaave in Leiden.

Most importantly, John Hope MD FRSE FRS PRCPed (1725–1786), Professor of Botany and *Materia Medica* in Edinburgh, succeeded his mentor Charles Alston in 1760 and held the post of King's Botanist in Scotland from 1761 until 1786. Hope had become increasingly fascinated by Linnaean taxonomy and planted a section of medicinal plants in the new garden according to the Linnaean artificial sexual system. A friend and fellow student of Patrick Russell at the Edinburgh Medical School in 1744–1745, Hope went on to study botany under Bertrand de Jussieu (1699–1777) at the Jardin du Roi in Paris between 1748 and 1749. A popular and charismatic figure, Hope was the first in Britain to teach the Linnaean system and instilled in his students the importance of accurate observation and scientific record-keeping. Several expupils including James Kerr MD (1738–1782) and William Roxburgh MD (1751–1815) from India, and Adam Freer from the Ottoman Empire, subsequently sent specimens to Hope (Noltie 2017). Hope also acquired at least five specimens from or via Egypt, possibly from south Arabia, collected by Pehr Forsskål in 1762 and January 1763.

Among Hope's achievements was the creation of a botanic garden in Edinburgh rather than a simple physic garden. The two small physic gardens in Edinburgh were in such a bad state by 1760 that Lord Bute obtained funds from George III to buy a 'green field' 5-acre (c.2 ha) site at Haddington Place (part of Leith Walk) on the main road to Leith (Noltie 2011; Hickman 2017). Between 1763 and 1767, plants from the old gardens were moved to the new site off Leith Walk where there was room for larger shrubs and trees. The eastern section of the garden was called the School of Botany, where plants were arranged systematically by Hope. Plants, trees, and shrubs with medicinal properties were grown on each side. There were a 140 ft-long (42.6 m) conservatory and hothouses in the western section, including a pond for aquatic plants, and a collection of trees with medicinal properties called the *Sylva Botanica*. His notes from the lectures he gave at the gardens from 1760 to 1780 include teaching diagrams of plant experiments and plant anatomy drawn in red chalk and ink and were among the most advanced in Europe at the time.

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OF PLANTS.		257
THLASPI carinatum; glicyllis obovatis, foliis cordatis amplexicaulibus c. h. a. p. glicyllis integerrimis, caule supero ramoso. TAB. xi.		
Thlaspi integrum saxatile flore rubente, foliis Polygalis, pe-		
tulis florum squarulis. Tournef. cor. 15.		
perfoliatum. Linn. Sp. pl. 902.		
Barba patris. L. f. p. 907.		
COCHLEARIA glaberrima. L. f. p. 904.		
Draba. L. f. p. 904.		
IBERIS odorata. L. f. p. 906.		
ALYSIMUM minimum. L. f. p. 908.		
campitell. L. f. p. 909.		
strigatum; herbaceum, pilis stellatis hispida, foliis obovatis integerrimis, calycibus perfoliatis, filiculis hispida.		
CYTHOLA Jonthiops. Linn. Sp. pl. 910.		
BICUTELLA apula. Linn. Mant. 854.		
CARDAMINE croca; foliis bipinnatifidis; laciniis acutis.		
SIYMBRIUM Naffurium. Linn. Sp. pl. 916.		
pyrenaicum. L. f. p. 916.		
polyceratum. L. f. p. 918.		
Sophia. L. f. p. 920.		
altissimum. L. f. p. 920.		
Iris. L. f. p. 921.		
ERYTHIMUM officinale. L. f. p. 922.		
repandum. L. f. p. 923; varietis foliis undulatis.		
CHEIRANTHUS sulphureus; foliis superioribus lanceolatis subserratis apice calvis pubescentibus, filiquis tomentosis subrotundis apice bifidis.		
Cheris. Linn. Sp. pl. 924.		
chias. L. f. p. 924.		
tricipitatus. L. f. p. 926.		
HESPERIS hirta. L. f. p. 927.		
affinis. L. f. p. 928.		
BRASSICA oleracea. L. f. p. 931.		
campitell. L. f. p. 931.		
*Napus. L. f. p. 931.		
*Rapa. L. f. p. 931.		
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FIGURE 1. Sample pages of botanical lists for Aleppo: a. From Adam Freer's handwritten list of specimens sent from Aleppo to Dr John Hope in Edinburgh (National Records of Scotland GD 253/143/9/9; see also Starkey 2018: 290). b. From Patrick Russell's list in Aleppo² ii, 257.

Hope's garden also contained a small herbarium (Creswell 1928; Bower 1817; 1830) but only a few of its specimens have survived the ravages of time: attacks by insects and rodents; inadequate storage; the final move to Inverleith from 1820 to 1826; and constant reorganizations of the botanical herbaria, including the amalgamation of the Botanical Society of Edinburgh and University herbaria between 1839 and 1840, when Robert Graham FRSE FRCPE MWS (1786–1845) was the sixth Regius Keeper at the RBGE. At least part of Hope's herbaria collection is still housed in the RBGE and was the subject of exhibitions there in 1986 and 2011, although their catalogues make no mention of Adam Freer (Noltie n.d.).

One of John Hope's largest collections still in existence was made by Adam Freer around Aleppo. Freer, in his distinct tiny handwriting, compiled a 'List of the plants growing in the neighbourhood of Aleppo prepared ann. 1769', 546 dried specimens collected between July 1768 and June 1769 (Fig. 1/a).¹ This list forms part of a collection of papers in the archive of Charles Alston, now part of the John

¹ The John Hope papers were donated in 1865 by Messrs D. and J.H. Campbell, WS, solicitors, Edinburgh. Freer's list (GD253/145/9/5) is incorrectly numbered on the RBGE copy as GD 253/143/9/9. Henry Noltie verifies that it is by Freer: 'his writing is tiny and beautiful and unmistakable' (personal communication, 5 October 2011).

Hope archive deposited as a long-term loan in the National Records of Scotland (GD 253/143/9/5) and published with thanks to the Drummond Miller LLP.

Some of the specimens collected by Freer were sent to Hope, others to Sir Joseph Banks GCB PRS (1743–1820), and to Patrick Russell in London who published some of them in *Aleppo*² (Fig. 1/b). While it is unlikely that all Freer's specimens still exist, to date over thirty-seven of Freer's specimens have been identified at the RBGE and there are likely to be more (Figs 2–4).

Hope also sent a parcel of some of Freer's specimens to Banks, the de facto Keeper of the Royal Botanic Gardens, Kew. One of these specimens has just been identified in Banks's herbarium at the Natural History Museum in London (Fig. 5). Further research is needed to discover more.

Who was Freer? Adam Freer MD (1747–1811) of Essendy House (also spelled Essendie) (Fig. 6) — a small estate in Lethendy (Lethendie), Innerneath, near Blairgowrie, Perthshire — was born in 1747 and studied medicine in Edinburgh



FIGURE 2. *Vitex agnus-castus* L. collected in Syria in 1768, by Adam Freer (1769, no. 154) and listed as 'Vitex Agnus Castus L.f. p.890' in *Aleppo*² ii: 256 (RBGE E00624322).



FIGURE 3. *Phalaris brachystachys* Link., collected in Aleppo in April 1769; *Phalaris canariensis*, no. 180 on Adam Freer's list; listed as 'Phalaris canariensis L. S. p.79' in *Aleppo*² ii: 243 (RBGE. E00403428).



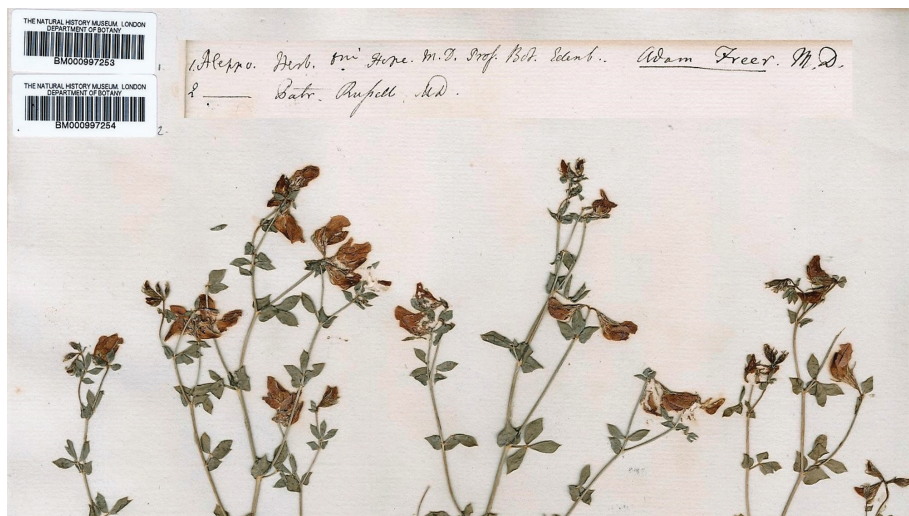
FIGURE 4. *Alcea rosea* L., collected in May 1769 in Aleppo; no. 3 *Alcea rosea* on Adam Freer's list; listed as '*Alcea rosea* L.f. p.966' in Aleppo² ii: 258 (RBGE. E00624320).

between 1764 and 1766. His grandfather, Reverend George Freer of Essendie (d. 1750), was minister of Lethendie from 1698 and built Essendie House in 1715. His father John, George's fourth son, had inherited Essendie but died before 1770. Adam Freer MD, who worked in Aleppo, should not be confused with his grandfather's elder brother, also Adam Freer MD, the Elder, who was the author of *Disputatio medica inauguralis de partu difficili*, published in Leiden in 1687, and was a subscriber to the unsuccessful Darien scheme on the isthmus of Panama in 1696. Between 1682 and 1689 this Adam Freer MD served Lord Melville, a Presbyterian in exile in the Netherlands and then in Bremen — and he also had a son called Adam (b. 1697).

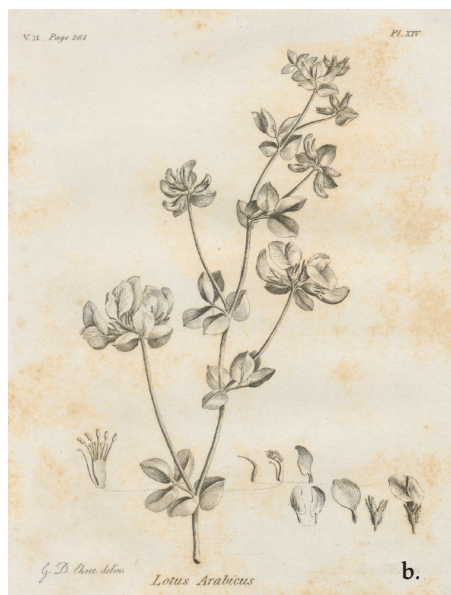
At Edinburgh University, Adam Freer (of Aleppo) was a member of the Edinburgh Medical Society in 1765–1766. By this time, a 'thorough understanding of the classification, identification and use of medicinal plants was a required component of medical training' (Watson & Noltie 2016: 4). In 1764/1765, Freer was awarded a prestigious gold medal for promoting the study of botany (*The Scots Magazine* 1764–1765, xxvii: 335), a prize given annually by Hope for the best collection of indigenous plants. While he helped catalogue plants from 1764 to 1766 (Welsh 1995: 418), Freer lodged in Hope's house.² After presenting a thesis on syphilis (Freer 1767), supervised by William Cullen FRS FRSE FRCPE FPSG (1710–1790), the renowned Scottish Physician and Professor of Medicine, Freer graduated from the University of Edinburgh. The thesis was so whimsical, however, that it was hard to take seriously (Royston 1810: 24–25), but a copy of it is included as an appendix to the catalogue of books auctioned in 1792 after Cullen's death in 1790 (Cullen 1792).

An ambitious young man, Freer had hoped to join Banks on an expedition to Newfoundland but Banks had already left for Plymouth before a letter of

² Letter to Pulteney, 19 August 1764, quoted in Laidlaw 2010: 151. This would have been Richard Pulteney (1730–1801), English physician and Linnaean botanist who trained in Edinburgh and was a friend of John Hope.



a.



b.

FIGURE 5. Cooperative research on plants from Aleppo: *Lotus gebelia* Vent. **a.** Specimen collected by Adam Freer in Aleppo who called it *Lotus* (no. 272 on Freer's list); Freer donated it to John Hope, who gave it to Sir Joseph Banks (BM000997253 in Banks's herbarium, Natural History Museum, London); it was then used in London by Dr Patrick Russell who listed it as '*Lotus arabicus* Linn. Mant. 104 TAB xiv' in Aleppo² ii: 261, 270; Patrick Russell's handwriting at the top of the sheet (see Starkey 2018: 297–298). **b.** The same plant, previously called '*Lotus Graeca maritime folio, glauco [glauco] & velut argenteo, T. Cor.*' drawn by G.D. Ehret and published in Aleppo¹ 34, pl. 4; republished as Plate XIV '*Lotus arabicus*' in Aleppo² ii: 260.

recommendation from Hope arrived. In the letter, Hope described Freer: 'the young man is extremely (*sic*) diligent and indefatigable he is sensible spirited & sober & has good and gentle dispositions' (Hope to Banks, 17 April 1766, in Lysaght 1971: 235). In the circumstances, Hope recommended Freer to Patrick Russell who was the physician-surgeon in Aleppo, to be Patrick's replacement there.³

³ For more detail on flora collected by Drs Alexander Russell, Patrick Russell and Adam Freer, see Starkey 2018: 277–344.



FIGURE 6. Essendy House, at one time owned by Adam Freer MD and family (©Tess and John Monteith; www.essendy.org).

On 28 May 1768, Patrick in Aleppo wrote to his friend the great explorer of the Northern Enlightenment, Carsten Niebuhr (1733–1815), to say he was still waiting for his successor but that it would be ‘some time yet before I shall be able to leave this country.’⁴ According to his list of specimens, Freer must have been in Aleppo by July 1768 but he is not mentioned in Wilson’s list (2011) of Levant Company officials.

Patrick Russell returned to Edinburgh in 1772. He soon moved to London where he set up a medical practice and worked on a new edition of *The Natural History of Aleppo* which was eventually published in 1794. As he found several new plants after Alexander left Aleppo and Freer discovered several more, Patrick aimed to form ‘a complete Catalogue of the plants growing near Aleppo; and, notwithstanding the labour employed in research, I have no doubt that many plants may have escaped our notice. In the meanwhile, care has been taken that none should be inserted in the subsequent Catalogue but such as have been ascertained with all the accuracy in my power’ (*Aleppo*² ii: 237–238).

On Patrick’s behalf, Freer explored flora and fauna around Aleppo visiting, for example, a ‘sunk’ village in search of the wild pistachio (*Aleppo*² i: 84). Freer sent Patrick a description of the *shib*, a strange rabid wolf-like creature, possibly a rare wolf-dog hybrid, and information about birds and an account of the damage made by locusts in the region in May 1776. Freer in Aleppo also sent back dried plant specimens for Patrick and Hope to identify with the help of various friends, including Philip Miller FRS (1691–1771), Superintendent of the Society of Apothecaries’ Garden from 1722 to 1770.

⁴ Christian-Albrechts-Universität zu Kiel Library, Cod. ms. KB 314–315.

Why was Patrick Russell in London so keen to acquire and study such specimens? Patrick's half-brother, Alexander Russell MD FRS (1714–1768), also trained in medicine at Edinburgh. In 1740 Alexander was posted to Aleppo as physician to the Levant Company factory based at the Khān al-Jumruk in the heart of the bazaar. He remained in post until 1753. On his return to Britain in February 1755, Alexander settled in London where he set up a medical practice and was appointed to Saint Thomas's Hospital in London as a physician and lecturer. Alexander, urged on by Patrick, only became interested in botany towards the end of his stay in Aleppo.

Alexander and Patrick intermittently sent back seeds and specimens from Aleppo to their friends and colleagues in London. Nurserymen James Gordon (1708–1780) of Mile End, and James Lee (1715–1795) and Lewis Kennedy (1721–1782) of the Vineyard Nursery, Hammersmith, cultivated seeds that Alexander had collected around Aleppo. William Pitcairn MD FRS FRCP (1712–1791), a physician at Saint Bartholomew's Hospital and a contemporary of Patrick's at Edinburgh Medical School, set up a botanical garden on his property in Upper Street in Islington, London, with the help of the well-known botanist Peter Collinson FRS (1694–1768) who owned a botanical garden at Mill Hill, London.

The 1760s was also the time of rhubarb mania in Europe (Foust 2014) so Alexander sent seeds of the wild Syrian rhubarb (*Rheum ribes*, Ar. *ribās*) he collected near Baalbek. Pitcairn's and Gordon's plants were still flourishing in Islington in 1761. This coincided with Hope's passion for the Turkey or medicinal rhubarb (*Rheum palmatum*) that he obtained from St Petersburg in 1762 for his new physic garden. Rhubarb, mentioned by Pedanius Dioscorides (d. AD 90), had begun to arrive from Central Asia to Europe from about the tenth–twelfth century; Pierre Belon du Mans (1517–1564) had witnessed quantities of rhubarb root in Aleppo, one of the main entrepôts for its export to Europe. In the 1570s, Leonart Rauwolff (1535–1596) had even collected *Rheum ribes* specimens for his herbarium near the cedars of Mount Lebanon.

Another medical student friend of Alexander Russell, John Fothergill MD FRS (1712–1780), a successful Quaker physician in London, purchased the Upton Estate in 1762 from Admiral Elliott. Fothergill expanded this five-acre garden at Upton Park to cover over 80 acres (c.32 ha). In 1754, Alexander sent Fothergill seeds of the Greek strawberry tree (*Arbutus andrachne*) to propagate; this is a mountain tree that furnished about half of all wood burnt for fuel in Aleppo. It was also used in Aleppo as a medicinal remedy for eczema with gouty and rheumatic symptoms. Fothergill's tree flowered for the first time in May 1766 and grew 12 ft (3.6 m) tall but, unfortunately, it is no longer there, having been sold at auction on Fothergill's death in August 1781 for £53 11s (£53.55). Part of Fothergill's garden became West Ham Park which opened to the public in 1874. The Park is still inspired by the layout and designs of Fothergill's original ornamental and rock gardens.

In the summer of 1766, on a visit to London, John Hope recorded '*Arbutus andrachne* on a stock on which it was outgrowing' on an east-facing aspect in Kew Gardens, as well as 'a most beautiful Adrachne [*Arbutus andrachne* L.] on its own root' in Collinson's Mill Hill garden (Harvey 1981: 40–75). Collinson wrote to Linnaeus:

herewith send you a print of the *Andrachne*, which flowered, for the first time I presume in Europe, in Dr. Fothergill's garden in May last year. It was raised from seed from Aleppo, sent to the Doctor by Dr. Russell in the year 1756. You see its manner of flowering is very different from the *Arbutus*. I have a large tree raised from the same seed, that stands abroad in the garden, but never blossomed. It is now beginning to shed its bark, as Belon or Belonius well describes; which is a peculiar difference from the *Arbutus*, and nearly agrees with the *Platanus*. (Collinson 2002: 272)

As another example, Pitcairn and others raised plants from the Russells' seeds of the elegant shrub true scammony (*Convolvulus scammonia*). Alexander Russell (Fig. 7) had raised it in pots in Aleppo from seeds collected in the mountains between Aleppo and Alexandretta (now Iskenderun). In an article Alexander described its medicinal properties as a purgative (Russell 1758 [1757?]: 13–25). This included a description of *scammonium*, the dried juice or gum-resin of scammony and local methods of extracting the milky juice which has been used in domestic medicine from ancient times.



FIGURE 7. Collecting medicinal plants from the Levant: *Convolvulus arvensis* L. **a.** Specimen collected in April 1769 in Aleppo; no. 4, *Convolvulus Scammonia*, on Freer's list but number erased on sheet (RBGE, E00624314). Listed in Aleppo² ii: 246 as '*Convolvulus Scammonia* L.f. p.218' and is the next entry there after *Convolvulus arvensis* L. **b.** Scammony drawn by G.D. Ehret for Alexander Russell's article on its medical properties (Russell 1757: 13–25).

Alexander described it as a perennial that grew in abundance between Aleppo and Latakia:

Scammony grows naturally on all that chain of mountains which extends from Antioch to Mount Lebanon, and on that part of Mount Taurus which is near to Maraash [Maraş, Kahramanmaraş]. I have also seen it in the plains between Latuchia [Latakia] and Tripoly Syria [Ṭarābulus, Lebanon], wherever there was any cover for it from the intense heat. From these places it is chiefly collected and brought to Aleppo (Russell 1758 [1757?]: 18).

The German botanical artist, Georg Dionysus Ehret FRS (1708–1770), who illustrated *The Natural History of Aleppo*, gave an eloquent paper about scammony at the Royal Society in 1767 and recorded that the recipients of Alexander's seeds included John Fothergill and James Gordon who propagated them in his nursery in Essex Road, Mile End (Ehret 1767: 117). Peter Collinson forwarded some of the scammony seeds to Christoph Jacob Trew (1695–1769) in Nuremberg. As Collinson (2002: 273) recorded in a letter to Linnaeus, it flowered for the first time in Fothergill's garden in May 1766 and grew to 12 ft (3.67 m). John Hope on a visit to Kew Gardens in August 1766 recorded seeing 'Scammonia [*Convolvulus scammonia*] 14 feet high all over flowers' and John Ellis wrote to Linnaeus on 14 January 1776 as follows:

I mentioned, on the other side, that seeds were a long time preserved sound in their seed-vessels, an instance of which I lately tried. When Doctor Alexander Russel came from Aleppo, he brought with him about the year 1755, some seeds of the *Convolvulus Scammonia*, he had saved in the year 1754. In looking over my seeds last year, I found some few seed-vessels full of seeds of this *Convolvulus* which he had given me. I immediately gave them to a gardener in my neighbourhood, and I can assure you several of them came up, and continued to grow during the last Summer, 1771; so that they were out of ground near 17 years. I kept them in a paper in the drawer of my bureau, in the room where I generally sit. (Smith 1821: 278)

Alexander also published an article about spurge olive, *Daphne mezereum* (Ar. *Māzaryūn*), an acrid shrub generally applied externally in Europe from medieval times (Russell 1769: 189–228). Thin slices of the bark of the fresh root were macerated in vinegar, and it was given internally for dropsy and some other afflictions for which about a dram of the dried bark of the tree was mixed with three parts of water. Part of Alexander's review was to explore whether the drug could be used as a substitute for mercury and as an application in scrofulous and cutaneous affections, but he decided against such a substitution. It is still recommended in homeopathic medicine to treat psoriasis, a chronic skin condition producing patches of silvery scales that cover areas of reddish skin, and eczema (atopic dermatitis), a chronic skin irritation.

The Natural History of Aleppo

In 1756 (two months before he got married, it was a busy year!), Alexander Russell published *Aleppo*¹. Natural history during the Enlightenment meant far more than the study of plants and animals, it meant the study of cultures, manners, and customs; and literature, music, religion, medicine, flora, and fauna. In keeping with the admiration of the taste, elegance, and style of the Scottish Enlightenment, the book includes delightful descriptions of the agricultural cycle, commercial plants, and herbs. Furthermore, it contains a wealth of indigenous knowledge of medicinal and other plants as Alexander, like Patrick and Freer, knew Arabic well.

The book was financially supported by Fothergill and as a result of his sponsorship, Alexander employed the finest botanical artists and engravers in Europe. Ehret, who had provided botanical drawings for Linnaeus, drew plants for the volume, many of which are surprisingly nondescript (Fig. 8).



FIGURE 8. Untangling names of Ottoman specimens. **a.** *Hedysarum crista-galli* L. (accepted name *Onobrychis crista-galli* (L.) Lam.), drawn by G.D. Ehret, engraved by John Miller. Published in *Aleppo*² ii: opposite 260 and listed as ‘*Hedysarum Crista galli* Linn. Syst. Veget. xii. p.563. TAB xii’ in *Aleppo*² ii: 260. **b.** G.D. Ehret’s drawings of ‘*Onobrychis Orientalis* Augusto & longiore folio flore luteo’ (*Aleppo*¹ opposite p.47) became *Hedysarum Onobrychis* and *Thlaspi carneum* (*Aleppo*² ii: opposite p.257: the former listed as ‘*Hedysarum Onobrychis* Linn. Sp. p.1059. TAB xi’ in *Aleppo*² ii: 260, 270, and the latter as *Thlaspi carneum* with a long Latin description by Joseph Pitton de Tournefort in *Aleppo*² ii: 257, see Fig. 1/b above).

The copper plates were created by the renowned botanical artist-engraver, John Miller (Johann Frederick Muller, 1715–1792), who arrived in London from Nuremberg in 1744. *Aleppo*¹ was widely acclaimed and received excellent reviews in many of the leading journals of the day, including *The Critical Review* edited by Tobias Smollett, himself a student from Edinburgh's Medical School and by Samuel Johnson in *The Literary Magazine*. *Aleppo*¹ appeared in abbreviated form in compendia between 1757 and 1760 edited by worthies such as Oliver Goldsmith (1730–1774), Samuel Johnson (1709–1784), and the notable London physician Richard Mead MD FRS (1673–1754).

After 1756, Alexander intended to produce a new edition of the *Natural History of Aleppo* and was sending queries from London to Patrick in Aleppo. In return, Patrick sent him specimens and seeds. Unfortunately, Alexander died on 28 November 1768 of putrid fever (epidemic typhus). On his deathbed, he was attended by two of his close friends, Fothergill and Pitcairn.

Patrick eventually published the new edition (*Aleppo*²) in 1794 in honour of his brother, with Alexander's images possibly modified by James Sowerby (1757–1822). This was a far more refined, carefully worked piece of scholarship complete with citations from almost all the then available works on Aleppo in a wide variety of languages.

In Aleppo, the Russells kept meteorological records and provided information on the agricultural cycle, water resources, soils, and crops.

As February advances, the fields which were partly green before, now by the springing up of the later grain become entirely covered with an agreeable verdure and tho' the trees continue in their leafless wintry state, till the end of this month, or the beginning of March, yet the almond, when latest, being in blossom before the middle of February, and quickly succeeded by the apricot, peach, &c. gives the gardens an agreeable appearance. (*Aleppo*¹: 13).

From May to September 'the whole country puts on so parched and barren an aspect, that one would scarce think it was capable of producing anything.' (*The Monthly Review* 1756, xv: 141, quoting from *Aleppo*¹). By the end of September ploughing began and the earliest wheat was sown by mid-October. There are long lists of crops, some with their Arabic names.

Niebuhr sent Patrick a map of the city (Niebuhr 1837, i: opp. p. 6) he drew in 1766, one that Patrick adapted for *Aleppo*² (i: opp. p. 13). It shows the distribution of agricultural land, gardens, and woodland, the cultivated tract stretching from the springs of Ḥaylān 4 miles (6.4 km) to the north and 2 miles (3.2 km) to the south of the city. Commercial gardens and fields with their irrigation channels and dividing stone walls lay outside the city walls and vegetables were grown in the city moat: 'the rising-grounds above the gardens, to which the water cannot be conveyed, are in some places laid out in vineyards interspersed with olive, fig, and pistachio trees' (*Aleppo*¹: 9).

They also identified horticultural spaces within the city: private courtyards and formal Pashalik gardens with typical architectural features — fountains, kiosks, and

divans. Thus, the courtyards of middle-class Turkish houses, ‘all have a Divan, with little gardens, or a fountain before it’ (*Aleppo*² i: 33) along with flowers in pots. As for the gardens of the Aleppo seraglio: ‘Where the size of the court admits of a larger shrubbery, temporary divans are placed in the grove; or Arbours are formed of slight latticed frames, covered by the vine, the rose, or the jasmine; the rose shooting to a most luxuriant height, when in full flower, is elegantly picturesque’. In January ‘narcissus’s (*sic*) are in flower ... and hyacinths and violets ...’ (*Aleppo*² i: 29).

Alexander commented on the wide range of flowering plants in an abridged version: ‘There are here likewise a great variety of garden plants and flowers, which render the country extremely pleasant in spring, before the great heats have scorched them up, and after the succeeding rains have revived their beauties’ (*Aleppo* 1757: 102–103). All with an ‘abundance of garden flowers, several of which have been brought there by the Europeans and of which they are very fond, the women in particular, who decorate their headdress with them: of these the chief are the ranunculus and anemony, carnation, hyacinth, narcissus, violet, tuberose (x), African marigold (j->), lupines, sow-bread, Indian bellflower (#), marvel of Peru (a), columbine, stock gelliflower’ (*Aleppo*¹: 28; reference numbers from the text). Many other flowers were listed by Alexander Russell (*Aleppo*¹: 30), including *Tulipa* and *Tulipa precox, rubra*, as named by Caspar Bauhinus (C.B.P. 50)⁵ and Patrick listed *Tulipa gesneriana* from which many cultivated varieties in Europe were derived (*Aleppo*² i: 250). Curiously, neither brother mentioned *Tulipa aleppica* or *Tulipa aleppensis* (Salmon 2011: 129).

Furthermore, the gardens of Aleppo provided most of the seasonal fruit and vegetables for the town.

Of the fruits of this country, there are only two or three sorts of apples, and those very bad. They have cherries, apricots, peaches; indifferent good pears, quinces, pomegranates of three sorts, mulberries, oranges, lemons, figs of four kinds, walnuts, hazle-nuts, pistachio nuts &c. These trees are all standards planted promiscuously, and little improved by culture. (Russell 1757: 102)

*Aleppo*² included a catalogue of plants based on specimens collected by the Russells and Freer and is noteworthy in that it includes Arabic names for many of the plants. All four collections of specimens (Alexander’s, Patrick’s, and the two sets that Freer sent to Patrick and Hope) were used to prepare the catalogue of plants that appeared in *Aleppo*² (ii: 237–238). Patrick’s catalogue, based as it was on Alexander’s collection and those of Freer and his own, was published in *Aleppo*² in two parts, the major section listing the plants found in and around the city of Aleppo. Their research area was confined to 3–5 km around the city where six specific areas were surveyed methodically and at different times of the year as follows: early spring — gardens near

⁵ A.J. Cain (1994) has pointed out the complexities of Bauhin’s *Tulipa* species in which he divided a genus into genera, something that is impossible to do in Linnaean and post-Linnaean classifications.

town; along the river to the first mill; late spring — cultivated land between mount Zeilet (?) and the stone quarries, on the west side of the river; mid-April — fields and risings near the second mill and Ramūsa, on one side, and between Bāb Allāh village and Ḥaylān to the north (*Aleppo*² ii: 241).

The first part of the catalogue of plants in *Aleppo*² listed 703 names of plants found in and around Aleppo, but several are mentioned more than once. Only sixty-five of these plants were not represented by any specimen in Patrick's own herbarium but most of them appear on Freer's list, including red cabbage, cucumbers, and various species of roses. The second part of the catalogue in *Aleppo*² listed seventy-six specimens collected between Alexandretta and Aleppo. In all, Patrick's botanical collection contained samples of at least 700 Syrian plants (van den Boogert 2010: 130).

If anyone wrestles with the intricacies of post-Linnaean botanical historical nomenclature today, it was far worse pre-Linnaeus with no standardization and inconsistent taxonomies. For example, Alexander called a type of bird's foot trefoil by de Tournefort's name 'Lotus Graeca maritime folio, glacio [glauco] & velut argenteo, T. Cor.>'; it was renamed *Lotus arabicus* L. in *Aleppo*² (Fig. 8). Having sought advice from Philip Miller at Sir Hans Sloane's Chelsea Physic Garden for the arrangement of the plant catalogue in his first edition (*Aleppo*² ii: 238), Alexander subsequently corresponded with Linnaeus to enable him to modernize the botanical terminology in his projected second edition of *The Natural History of Aleppo*.

Patrick was concerned that

the imperfect state of some of the specimens, together with other circumstances, produced a number of errors in determining the species; while in the application of Synonima of various Authors, conjecture was sometimes too freely indulged. At the same time, the arrangement itself rendered the Catalogue of less use to the botanical reader accustomed to the more accurate method of Linnaeus. For these reasons it was my wish to have the Catalogue revised, and put into methodical order (*Aleppo*² ii: 238).

Thus, in *Aleppo*², Patrick overwhelmingly cited Linnaeus (L.) and his son, Carl Linnaeus, the Younger (1741–1783) (*Linnaeus filius*, L.f.⁶) but mentioned many other botanical authorities including Pedanius Dioscorides of Anazarbus, the Italian naturalist-physician Prospero Alpini (1553–1617), Belon du Mans who visited Aleppo in 1548, the German physician-botanist Rauwolff, French botanists Jean de Thévenot (1633–1667) and de Tournefort, William Aiton (1739–1793) who was the Director of the Botanic Garden at Kew, and Philip Miller of Chelsea, among many other authorities.

There is a pencil note in the copy of *Aleppo*² held by the Royal Botanic Gardens, Kew, that states: 'the authors of Chapter V are Banks and Solander to whom the

⁶ Linnaeus *filius*'s mother sold the Linnaean collections to Sir James Edward Smith FRS (1759–1828), after Banks had refused to purchase them. Smith trained in medicine in Edinburgh in the 1780s and was the founder of the Linnean Society of London in 1788. Patrick would have known him through the Royal Society.

new species should be ascribed, and not to P. Russell.' By 1773, Banks, who had accompanied Captain James Cook in the round-the-world expedition on HMS *Endeavour* between 1768–1771, was virtually the Director of the Royal Botanic Gardens, Kew. Banks was consulted by governmental bodies on a wide range of scientific subjects and his salons in his house on Soho Square became a great social meeting point for the literati of London. He eventually became President of the Royal Society, a post he held until his death in 1790. In addition, the Swedish naturalist and an 'apostle' of Linnaeus in Uppsala, Daniel Carlsson Solander (1733–1782), who was also on *Endeavour*, became Banks's librarian and continued in the post, until he died, probably from overwork, in May 1782.

It was to Banks⁷ and Solander that Patrick turned for 'friendly assistance' with the classification of Patrick's specimens, as recognized in botanical nomenclature with the suffix 'Banks & Sol.'. Based on this classification one might surmise that Solander and Banks identified all or most of Patrick's specimens or that Solander provided the few botanical descriptions that are given in *Aleppo*². Solander even sent a specimen collected by Alexander in Aleppo to Linnaeus, and it is the only Russell specimen to be included in Linnaeus' *Species Plantarum* of 1759 (Fig. 9).

I have argued that Patrick was too modest and that he with Freer identified most of the plants themselves (Starkey 2018: 292–293). Freer, who had been trained by Hope in Edinburgh, used Linnaean classifications in his list of 1769, a list no doubt compiled by Freer and Patrick together and before Patrick returned to Britain in 1772, that is, before he consulted Banks and Solander. Patrick continued to receive specimens from Aleppo, even after Freer left in March 1781 (SP 105/343, SP 110/58, 59; Laidlaw 2010: 157–159) and long after Solander had died in May 1782, but no doubt he sought advice from Solander's successor, the Swedish botanist Jonas Dryander (1748–1810). Nevertheless, perhaps more respect should be given to the botanical credibility of Freer and the Russells?

And on to India

The impact of the work of the Russells and Adam Freer in the Ottoman Empire was not simply on natural history collections and gardens in Europe, or the increased knowledge of plants in Aleppo itself: both Patrick and Adam Freer subsequently took their botanical expertise they had gained in the Levant to the Indian subcontinent. Between 1781 and 1789 Patrick worked in India and from 1783 was Naturalist to the East India Company in Madras. During this period, he collected many specimens of plants and seeds on the Coromandel Coast in south-east India (not to be confused with an area with the same name in New Zealand), some of which are still held by the Natural History Museum in London and possibly in the RBGE. By the nineteenth century, botanical gardens across Europe were being overwhelmed by donations of plant specimens from near and far. Many of the plant curators ignored the acquisition histories of the plants and focused instead on typologies of species.

⁷ On Patrick's connections with Banks, see van den Boogert 2010; Starkey 2018.

290, 347, 381). Freer's knowledge of Arabic etymology was particularly useful in Irwin's description of the proper names (Starkey 2017: 136).

Given the early support Freer received from his mentors, John Hope and Patrick, it is surprising that he did not publish any further research on natural history – but he may have been preoccupied with his duties as physician and surgeon in Bengal and with his young family. Freer accompanied Captain William Fitzpatrick on an early expedition to Nepal, from 13 February 1793 to mid-April. The exhibition report, the first book in English on Nepal, contains some information about medicinal plants but little botanical detail (Kirkpatrick 1811: x).

Curiously, Freer held the post of Supervising Surgeon with the Bengal Establishment at the same time as Patrick Russell was collecting plant specimens in the Carnatic, yet I have not discovered any relevant correspondence between them after Freer arrived in Bengal, nor any further indication that Freer continued his botanical interests apart from one article he authored about *Cassia sophera* L. Freer published an 'Account of the method employed in Bengal for the cure of the cutaneous disease, commonly known by the name of Ring Worm, the *Harpes Serpigo* of Sauvages, by means of cassunda vinegar: communicated to Dr Duncan senior' (Freer 1800: 371–374).⁸ Listed in *The British Critic* (1802, xix: 115), the article was summarized in *The Critical Review*: 'Dr Adam Freer has communicated an account of the Indian Method of curing the Ring worm; viz, by a decoction of the fresh bark roots tops or flowers of the cassunda, (*Cassia sophera* of Linnaeus).⁹ This remedy is also said to be useful in the *herpes miliaris* of Sauvages; and perhaps, as Dr Freer observes, may be advantageously extended to other cachexies and discolourations' (*The Critical Review* 1801, xxxii: 188). It was also summarized by Joseph Brown in *The Monthly Magazine* (1814, xxxvii: 321).

The Scots Magazine (1811, lxxiii: 797) records Freer's death on 18 January 1811 at Berhampore (Baharampur), Bengal, where he was superintending surgeon in the service of the East India Company from October 1809 (Crawford 1930, i: 26). Although the Freer family tree states that Adam 'died s.p.', in fact Adam's two natural children, John and Margaret,¹⁰ were sent back from India before his death into the care of one of his brothers, their natural guardian Robert Freer MD of Lessendy and Park (1745–1827); they inherited Robert's estate on his death (Ghosh 2006: 127). The first part of his will (Fig. 10) is written neatly by hand by Adam Freer himself, in a slightly

⁸ In the same article Freer mentions *Cassia alata* L., accepted name: *Senna alata* (L.) Roxb., an important medicinal tree sometimes called 'the ringworm bush' (*Cassia senna* L., *Ar. sanā*) from Egypt, Sudan, and North Africa. Its leaves are used as a laxative and fungicide; and *Cassia fistula* L. from the Indian sub-continent, a powerful purgative. According to Freer, it was used to cure *mal d'Alep* [cutaneous leishmaniasis], as described by Alexander Russell (Starkey 2018: 241–245).

⁹ Known as *Senna sophera* (L.) Roxb. The root bark was used by ancient Indian physicians for respiratory disorders.

¹⁰ Adam Freer left funds to support his mistress, their mother, Kadurtanisa, for the rest of her life. In his will, Adam Freer left his estate in Lessendy and £2000 (equivalent to c. £148,800 in 2017) to be divided between his two children, under the guardianship of his brother Robert Freer of Glasgow University. His son John, by then no longer a minor, travelled to India with his sister to collect their father's goods and chattels shortly after his death, but whether these possessions included any items from Aleppo or botanical specimens has not yet been verified (L-AG-34-29-23. Wills – Bengal 1780–1938).

mounting pressure on scarce natural resources and a rapid depletion of forests, soils, and water following a prolonged drought between 2006 and 2009, increasing the threat of desertification. Nevertheless, an FAO survey of 2017 shows that despite the conflict, agriculture provides a lifeline for millions of Syrians. FAO proposals focus on disaster risk management, the development of micro-agriculture, rehabilitation of water supplies, integrated family farming, and improved food nutrition. To date, very little has been done to support recovery in the sector.

It is to be hoped that, despite climate change and the ravages of war, a study of Freer's specimens along with the Russells' descriptions of Aleppo's botanical, agricultural, and horticultural heritage — alongside, for example, modern initiatives in Turkey, Israel, Lebanon, and Jordan — is timely. Trained in the Scottish Enlightenment tradition carefully to observe and give attention to detail, their pioneering work may in some modest way provide evidence for the micromanagement and revival of plants, fields, and gardens. One day, life in the gardens of Aleppo will return, as Patrick described:

[They] carry carpets, pipes, coffee equipage and provisions; the garden supplies lettuces, cucumbers or such fruits as are in season. Some take possession of the garden summer houses; others place themselves under the shade of trees and all pass the day in high festivity. ... Musicians, dancers and buffoons are among the female attendants ... The gardener in the meanwhile has little reason to wish for parties of this kind being by no means adequately recompensed for the mischief done to his fruit trees; the branches in blossom being broken without mercy and the fruit gathered before it is half ripe. (*Aleppo*² i: 254)

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Sigla

<i>Aleppo</i> ¹	Russell 1756 [wrongly published as 1856].
<i>Aleppo</i> ²	Russell 1794.
C. B. P.	Bauhin 1671

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